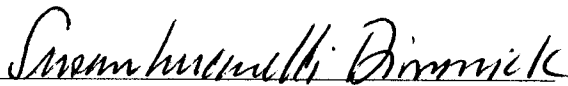


To the Graduate Council:

I am submitting herewith a thesis written by Traci E. Bell entitled "A Needs Assessment of Patient Card Technology at a University Teaching Medical Center." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Communications.


Susan Lucarelli Dimmick, Major Professor

We have read this thesis
and recommend its acceptance:





Accepted for the Council:


Associate Vice Chancellor and
Dean of The Graduate School

A NEEDS ASSESSMENT OF PATIENT HEALTH
CARD TECHNOLOGY AT A UNIVERSITY
TEACHING MEDICAL CENTER

A Thesis Presented for the
Master of Science Degree
The University of Tennessee, Knoxville

Traci E. Bell
May 1997

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Dedication

This thesis is dedicated to my parents

Donald R. and Elyse J. Bell

both of whom have encouraged me to strive for the best
and believed I would achieve it.

Acknowledgments

There are numerous people who deserve thanks for ensuring my experience at the University of Tennessee, Knoxville, was fulfilling. I have gained invaluable knowledge from the faculty and teaching assistants in the College of Communications, and feel more prepared to enter my chosen field as a result of their efforts. My thesis committee, Susan Lucarelli Dimmick, James Crook and Jeff Wilkinson, were instrumental in helping me complete this thesis, and I am sincerely grateful for their time and assistance.

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Finally, I would like to thank my best friend, Greg Brown, for his constant encouragement and support, without which this work might have never been completed.

Abstract

The purpose of this study was to evaluate the attitudes of service providers and patients at a local teaching hospital toward patient health card technology.

A Needs Assessment was done to determine what attitudes were held by each group. Focus groups and key informant interviews were conducted with physicians, hospital administration and staff, and questionnaire interviews were conducted with cancer patients and outpatients. By comparing the current environment with the desired environment, the researcher was able to identify some possible uses for patient health cards and what service providers and patients would be most likely to use such a technology.

Possible uses of patient cards included identification of the patient upon arriving at the medical center and a re-verification tool, to ensure information is current and accurate. Patient health cards could also be used to improve communication between UTMCK departments. Finally, a patient health card might help bond patients to UTMCK's integrated delivery system.

A comparison was also made between magnetic stripe cards and smart cards regarding their applicability to the situation being evaluated in the study.

The transcripts indicated the majority of patients would be willing to use a patient health card and wanted their identification, insurance provider and medical history to be stored on it. They felt this would expedite the hospital registration process. Most service providers were hesitant about putting medical information on the card, but they thought the concept would help bond patients to the integrated delivery system.

Other discrepancies between service providers and patients also were noted. Service providers repeatedly mentioned the need for an incentive to help patients remember their cards. However, patients said they would put the patient health card with their insurance cards and remembering to bring it would not be a problem.

The most intriguing finding was a general mistrust among service providers about relying on another department's information. Most administrative personnel did not trust information entered by physicians' offices or other hospital departments and felt they must re-verify it.

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Chapter 1

Introduction

Patient cards are gaining more attention from the American medical community because of the potential benefits they offer patients, administrative personnel and medical professionals. The two main types of patient cards considered in this study are magnetic stripe and smart cards. Credit, automated teller machine, and debit cards are common examples of magnetic stripe cards. Information is usually contained on three tracks within the magnetic stripe. Smart cards are credit card-size pieces of plastic that incorporate a microprocessor chip capable of storing and retrieving information as they are inserted into a special reader or computer drive.

The medical field has been slower than other industries to investigate the opportunity for patient card use. The banking and finance industry extensively use magnetic stripe cards and almost everyone has some type of magnetic stripe card in their purse or wallet. They access financial records, transfer money from one place to another and allow people to buy goods and services without tangible currency. Currently, there are more than 100 magnetic stripe card programs operating within the U.S. medical community, but many believe the industry is still lagging behind. "We are all familiar with the use of 'cards' to perform electronic access functions for us. We use them everyday for banking and our purchases at the market. But the technology has been slow to move to healthcare" (MacDonald, 1993).

Alton Memorial General Hospital in Alton, Illinois, has used a patient card identification program since 1991, and providers say there are numerous benefits. "It is a great marketing tool, linking the patient with the hospital," said Joan Fazekas, director of marketing (Shoultz, 1991). Alpena, Michigan's General Hospital gave patients an *Access Advantage* card to help make the registration process more friendly. With the card, patients do not have to show their insurance card and give the same information every time they visit the hospital (Deutsch, 1996). In less than eight months, Bryan Memorial Hospital in Lincoln, Nebraska, issued more than 55,000 *BryanCards*. The facility's emergency room has been very enthusiastic about the cards because they speed up registration (Dernovsek, 1995). Another example of a hospital card program is in Charlotte Medical Center in Punta Gorda, Florida. Part of Health Management Associates (HMA), the Punta Gorda hospital converted its existing laminated card program into a magnetic stripe card system. In addition to speeding up the registration process, patients receive discounts on inpatient admissions and outpatient surgeries if they present their *MedKey* card.(Dernovesk, 1995).

Other health-related programs also have implemented magnetic stripe card programs for their patients. Sun Health Systems in Phoenix, Arizona, recently distributed patient cards to seniors in hopes of promoting their wellness programs. The hospital's *Advantage* card members are given free wellness screenings, and discounts at local pharmacies, optician, and other places they may need health-related products and services. The card also helps identify patients when they register for tests or are admitted into the hospital (Aldred, phone interview, February,1997). Florida's Medicaid system

uses magnetic stripe cards to help verify eligibility status before patients are treated in emergency rooms or their doctors' offices. Since the cards have been distributed, the state has predicted savings in the millions (McCart, 1993).

In addition to magnetic stripe cards, the U.S. financial sector is also a pioneer in smart card technology. Financial institutions have begun to introduce smart cards on a wider scale, and experts are predicting an increased use of these cards in daily living. "Industry experts believe smart cards will become increasingly prominent as payment vehicles, access keys, information management and customized tools, and customized delivery system" (Allen, 1995). Credit card companies, including Visa and MasterCard, have added smart cards to their list of products to be used as debit or cash cards. *VisaCash* issued more than 1 million cards to be used at the 1996 Olympics. Offering benefits such as privacy, encryption and limited fields of access, smart cards are beginning to be considered outside of the business world.

Though proponents of smart card technology have been pushing for implementation, "U.S. healthcare organizations still are hesitant to embrace the technology" (Rushing, 1992). Only a few medical-based smart card projects are underway in the United States. Oklahoma City is the first metropolitan area to use smart card technology in a city-wide emergency health care services and record-keeping system. The system provides hospital emergency room personnel with instant access to patient information while the patient is still en route to the hospital (Quick, 1994).

Even though the American medical community has not broadly implemented the use of smart cards, parts of Western Europe, Asia and Australia currently are

investigating or have begun using smart cards for medical purposes. The Department of Information and Communication Technology at Australia's Wollongong University published a preliminary study stating improved microprocessor smart cards have far-reaching implications for society (Lindley & Pacheco, 1995).

In France and Japan, kidney patients are given cards that hold their dialysis information, including condition and treatment prescriptions. Encryption safeguards are built-in to make sure no one other than doctors or authorized personnel are able to access the records. This security measure is taken to protect the patient's right to privacy and keep their medical records confidential. Germany issued 80 million health insurance smart cards with citizens' basic identification and health information stored on a microprocessor chip (Fancher, 1996).

Korea issued 1,500 citizen ID cards containing the person's identification, driver's license, medical insurance and retirement benefits. In 1996, the European Union was scheduled to implement several pilot programs, issuing 200,000 cards holding a patient's essential medical information to be used for treatment. Spain has begun a full-scale introduction this year and proposes to issue seven million social security ID cards by 1997, with more than 40 million by 2001. The cards give access to medical benefits and are verified by stored fingerprints (Fancher, 1996).

Problem Statement

This study intends to examine the needs of The University of Tennessee Medical Center in relation to implementing a patient card program, specifically determining staff

attitudes toward card technology, and identifying an appropriate patient group for the pilot program.

The University of Tennessee Medical Center is investigating the feasibility of a patient card program. The pilot project is being proposed to address the following concerns:

- 1.) Patients are required to provide the same health information repetitively.
- 2.) Information provided by patients is subject to error when entering data.
- 3.) A complete medical record should be accessible and available when entering the hospital or emergency room (UTMCK proposal, 1996)

For this program to be successful, the discrepancy between UTMCK's existing environment and its desired environment must be assessed. A Needs Assessment (NA) can determine what factors should be considered when implementing this proposed technology and how it may affect those involved. The attitudes and opinions that UTMCK physicians, administrators and staff have about patient cards must be measured. Their knowledge of patient registration and referral patterns help determine which group(s) of patient(s) to consider for a pilot program. A group of patients willing to accept *and* use this technology must be identified.

Research Questions

- 1.) What needs do UTMCK service providers want patient cards to address?
2. What patient populations do service providers think would benefit most from a patient card?
- 3.) What concerns do UTMCK service providers have regarding patient cards?

- 4.) What problems do patients have when entering the hospital?
- 5.) What concerns do patients have about using patient cards?
- 6.) What need(s), as identified by the researcher, does the patient card program fit?
- 7.) What issues need to be addressed before implementing a patient card program?

Purpose of Study

The purpose of this study is to identify a specific type of card technology in relation to UTMCK staffs' attitudes and implement it within a potential patient population likely to need and use it. After conducting service provider focus groups to narrow the choice of potential populations, patient interviews will be conducted to identify patients' predispositions toward patient card use.

Little formative or evaluative research has been conducted in this area because patient card programs are relatively new in the United States. More magnetic stripe card programs are currently in operation, but smart card use in U.S. medical settings is less prevalent. By conducting a needs assessment (NA) of the medical center, rather than simply targeting a patient group, the researcher can identify discrepancies between the current and desired environments. A NA can be defined as a "systematic set of procedures undertaken for the purpose of setting priorities and making decisions about programs or organizational improvement and allocation of resources" (Witkin & Altschuld, 1995).

Whether the card actually stores medical information or accesses the hospital database to pull up a record, it is necessary to identify which patient populations will be the most receptive to the new technology. The medical center's patient card pilot

program is targeted toward a narrow group, one that will carry cards pertaining to their medical record. It is essential to understand that group, so the technology will have the best chance of acceptance and use by the target population.

A NA is necessary to identify target populations because “populations appearing similar demographically may view their needs as being different from each other” (Witkin & Altschuld, 1995). Targeting the elderly or the indigent is not specific enough, but through a needs assessment critical factors can be uncovered and a more appropriate patient group can be identified.

Definition of Terms

cryptography - science of encoding and decoding messages

EEPROM - electronically erasable programmable read-only memory

IC - integrated circuit

magnetic stripe card - a plastic card with a magnetic stripe on the back containing a set of characters that provides patient identification and/or medical information

OTP - one-time programmable

patient card - any type of card issued to patients by a hospital for the purpose of accessing or storing medical data.

PROM - programmable ROM

RAM - random-access memory

ROM - read-only memory

smart card - plastic card with microprocessor capable of storing and retrieving data

Chapter 2

Literature Review

Managing medical data and compiling a complete patient record have long been goals of the medical profession. However, with the health care climate changing, often requiring more paperwork and visits to several different health care professionals for a complete diagnosis, many medical systems, insurance companies, pharmacies and managed care organizations are struggling to keep abreast of the mounting medical data for one patient. A relatively new technology is being used extensively abroad, but sparingly in the United States to address this problem - patient cards.

The kind of card depends on the specific needs it is intended to address. If it will serve as a key to pull records from a database, then a magnetic stripe card will suffice. Developing a portable patient record containing sensitive medical data needs a more sophisticated card technology, like a smart card. And for some, the type of card is irrelevant as long as it achieves some type of benefit for the health organization. Susan Reynolds, a physician from Malibu, California, does not care what kind of card is implemented so long as it expedites the billing and payment process. "Once people see they don't have to fill out an insurance form and the paperwork is diminished, they will love it" (Hassig, 1993).

Gottesman (1992) outlines several key issues card technologies face as they enter the health care field.

- 1.) Card memory size
- 2.) Compatibility of card systems
- 3.) Use of standardized medical databases and coding
- 4.) Security
- 5.) Operational reliability
- 6.) Development of user-friendly work stations
- 7.) Interaction of systems across political boundaries

Each of these must be addressed, as well as overcoming other barriers before patient card technologies will be embraced by the medical community. “A combination of passive resistance by medical practitioners to the use of computerized records in general, the tradition of privacy and civil rights (particularly in the U.S.), as well as the rush of still newer technology are reasons patient cards may or may not fly” (Gottesman, 1992).

This section focuses on two such patient cards - smart cards and magnetic stripe cards. They will be addressed in that order. Most smart card adoption has been in the financial sector. This area will be discussed first. Subsequently, privacy issues, and smart card use in the medical sector will be discussed. Magnetic stripe cards will be covered in the following section. Uses in general will be presented first, followed by use in the medical community, and their advantages and disadvantages.

Smart Cards

Smart cards are plastic credit-card sized cards that contain a computer chip capable of storing and processing information (Quick, 1994). Some cards can have as much power as a personal computer. In 1993, most ran on 3K of memory, but by 1994

memory had increased to 16K. Today, smart card microprocessor chips can have as much as 64 K of memory. The cards are inserted into a card reader and the data is pulled from the embedded chip onto a computer screen. In essence, the reader and its software translate information from the card to a facility's computer. "This memory size makes smart cards ideal in the healthcare environment for storing medical data or images of documents" (Amoroso & Pollokoff, 1995).

Basically, there are three types of smart cards: contactless, non-ISO (International Standards Organization) contact, and ISO contact. Contactless cards are interfaced through radio frequency, inductive or infra-red methods, like those used in rapid transit. Non-ISO contact cards are either those developed for a specific purpose, like employee identification, or were developed before ISO standards were established. ISO contact cards are the most common and are used frequently in the financial sector. This category includes both memory-only and microprocessor cards (Ali, 1994). Memory-only cards are throw-away or "dumb" cards, meaning they only can be programmed once. When memory is full or depleted, they must be thrown away and new cards issued. Typical memory-only cards are pre-paid phone cards. True smart cards have onboard μ C, RAM, ROM, EEPROM all in one chip. This type usually includes a security cryptographic processor as well (Gallant, 1995).

Smart Card Use in Industry

The Italians claim to have invented the concept of smart cards for their phone system as early as 1976, but the French have adopted the technology most quickly.

Gemplus Cards International, a French company, was founded in 1988, by former SGS-

Thompson executives. In 1992, the company had revenues of more than \$102 million and currently have more orders than it can fill (McAndrews, 1993). The technology has been in constant development since the late 1970s, with Motorola manufacturing the first single chip smart cards in 1979 (Gallant, 1995). More than 25 billion cards have been made so far, but most are in Europe in the form of pre-paid, disposable phone cards. The biggest names in smart card manufacturing are Giesecke & Devrient, Gemplus, Schlumberger, and Sloaic (Fancher, 1996). They work with silicon chip suppliers like Hitachi, Motorola, Philips Semiconductor, Racom Systems, Inc., SGS-Thompson, and Siemens (Gallant, 1995).

Though European countries have embraced smart card technology almost from its inception, the United States has been somewhat tentative in launching far-reaching programs. "One major factor inhibiting smart card R&D in the U.S. is a lack of government funding" (McAndrews, 1993). The French and German governments have not only funneled money into technology development, but they also established federal programs that use smart cards. The U.S., on the other hand, has waited for individual companies to develop the technology before pursuing its adoption.

Fancher (1996) notes a need was present in Europe that was absent in America - the need for cheaper, more secure telecommunications. In the mid-eighties, credit card fraud in France was high because magnetic stripe cards are easily altered and consumer information was being stolen through unsecured phone lines. Smart cards remove the need for merchants to call a central database for verification. The customer's identity is authenticated with a personal identification number (PIN). In the U.S., phone calls are

relatively inexpensive and lines more secure, so merchants simply call in the credit card to see if it is valid. Smart cards can reduce the chance of fraud, but U.S. phone rates were not expensive enough to cause alternatives to be investigated.

Global System of Mobile Communications (GSM) has developed smart cards specifically for digital cellular telephones. The cell phones are designed to accept a smart card with the owner's phone number and accessible services. In addition to transferring calls anywhere in the world, the "smart phones" almost eliminate cloning and jamming because the phone itself does not house the user's number and will not work unless the card is inserted. Almost 10 million Europeans have GSM phones, but the U.S. is still behind as widespread deployment is not scheduled until mid-1997 (Fancher, 1996).

The U.S. has begun to close the gap, but it is still behind its European counterparts. "In the U.S., smart card applications will likely develop slowly. More education and a major corporate advocate for smart cards are the primary requirements there" (Ali, 1994). In 1996, smart cards found such an advocate - *VisaCash*. Visa equipped vendors in and around the 1996 Atlanta Olympic Village with smart card readers. At partnering banks, consumers could purchase cash cards, with a Motorola integrated circuit chip, in various amounts and use them at participating stores. After the card was scanned through a reader and the machine approved the transaction, the card was debited for purchase amount and a remaining balance was printed out immediately. Every night, transactions were sent electronically to Visa, which collected the money from card-issuing banks and then paid merchants by sending money electronically into their bank accounts. "Everyone benefits from the transactions. Merchants spend less time

handling money and experience lower theft rates. Consumers don't have to bother with cash and coins... Banks reduce costs by not having to deal with cash, plus they earn interest on unspent "money" in cards that's actually still in the banks" (Coyle, 1995).

Visa, MasterCard and Europay all have agreed on standards for smart card use, prompting interest from other companies. In fact, Citibank, Chase Manhattan Bank, Visa and MasterCard have started a pilot program for stored value cards in New York City. Smart cards were issued to 50,000 customers and about 500 stores were equipped with the technology to transfer the card's "cash." The smart cards also will contain a magnetic stripe for conventional transactions as well (Fancher, 1996).

Other industries were dabbling in smart card use before Visa's big push, but the dabbling was limited. The United States Department of Agriculture (USDA) provided peanut farmers with smart cards so they could record and maintain a history of yearly transactions. The USDA used the information to update floor prices and trace shoppers' buying preferences to help target special promotions (Amoroso & Pollokoff, 1995). These cards have re-programmable memories, allowing more types of data to be updated and stored. Professional football fans in Jacksonville, Florida, can buy a Spot Card in increments of \$20, \$50 or \$100 to use for food, drinks and souvenirs at the stadium. The sponsoring company expected to sell 100,000 cards to Jaguar fans during the home games of the 1995 season (Coyle, 1995).

Other than Visa's endorsement, one of the main reasons this technology is starting to catch on in the U.S. lies in the possibility of multiple uses for the same card. One card could serve as an identification card, credit card, cash substitute and a carrier of

important medical information (Fancher, 1996). "The introduction of smart cards will alter the way people live, conduct financial transactions, store personal information and get to work" (McAndrews, 1993).

Smart Card Privacy Issues

Privacy of personal information is one of the biggest concerns with electronic data storage and transfer, but proponents of smart cards say, "It can help businesses generate more revenue, including financial institutions that can market it as a sophisticated payment instrument. Better equipped than plastic cards to control data integrity, the smart card can improve control through fewer losses and greater security" (Ali, 1994). Ali outlines the overall benefits of smart cards, most of which relate to security issues.

- 1.) Better data protection
- 2.) Identification of cardholder or device
 - capable of validating the PIN and storing reader identification in a log file
- 3.) Mutual authentication
 - both parties will attest to the transaction
- 4.) Secure writing
 - keeps track of background information on each transaction
- 5.) Certification or signature
- 6.) Encryption
 - validation of PIN and identification for card reader

Gallant (1995) discusses smart card security technology in depth. Security precautions are part of smart card design, stemming from the way the integrated circuits and μ Cs allocate memory. Each memory type contained in the microprocessor chip

serves a different function. Volatile RAM serves as a scratch pad to perform calculations. ROM stores the programs and runs the card's operating system. EEPROM contains user data, such as account numbers and PIN keys. Within the EEPROM are a secured section and a section allowing a reader to access and download data. After the data has been programmed into the EEPROM's secure section, the smart card manufacturer blows on-chip fuses, ensuring the section stays inaccessible. Therefore, the EEPROM becomes one-time programmable ROM. The manufacturer, Seimens for example, and a receiving company, Gemplus, begin with an agreed-upon secret transport code, stored in the EEPROM, which provides protection while the chip is en route from the manufacturer. Before the chip will work, Gemplus must enter a transport code to activate the chip. IC encryption capabilities permit on-line transactions that are almost untappable by electronic thieves. The cards use cryptography, the science of coding and decoding messages. Motorola takes security at the manufacturing level one step further. The company actually removes the fuses instead of blowing them because a new technology permits "regrowth."

Smart Card Use in the Medical Industry

As technology improves and security precautions increase, smart cards are beginning to find their way into the medical arena. A web site for Health Card Technologies, Inc. (1996) segmented health care smart cards into six categories:

- 1.) Insurance - identification and policy information
- 2.) Emergency medical
- 3.) Hospital admission cards - comprehensive insurance and demographic information

- 4.) Follow-up cards - medical data for specialties, like cardiology or diabetes
- 5.) Universal health - insurance identification, demographic and links to medical record
- 6.) Health passport cards - comprehensive medical and insurance information

Lindley & Pacheco (1995) categorized the data stored in the following ways: (1) token - such as a debit card to transfer credit or simple billing, (2) security access - identification and security access records and validation on or off-line, and (3) descriptive - patient profiles or histories. Each type of data can be volatile or non-volatile, depending on content and use. All of these data types are used in numerous applications. For instance, smart cards give health care providers instant access to graphically displayed information showing trends of annual health check data, like blood pressure and cholesterol levels. They can sort repeat prescriptions. They can identify the patient and aid in correct record access. Cards can be used to simplify billing, store emergency data, access histories, record outpatient treatments and update home nursing visits (Lindley & Pacheco, 1995). Smart cards "... can streamline care significantly even as it bypasses the potentially intractable privacy and ownership concerns that would arise if healthcare administration attempted to place every patient's complete medical history on a chip for easy portability" (Fancher, 1996).

Though the U.S. medical profession does not appear ready to put patient records on smart cards, Europe has done so on a widespread basis. Seidman (1990) postulates two reasons for Europe's progressive smart card environment. First, both patients and doctors have gained increased mobility, seeking care at different medical centers in

different places, even in different countries. Second, health care is now commonly provided by a team of professionals who have to share information about their patients. It seems strange that the U.S. medical profession has delayed in pursuing this technology given the fact that in 1990, health care was 11.3% of the GNP, totaling \$640 billion. Americans, “obsessed about their health...spend nearly twice as much per head on it as the French or Germans, three times as much as the British” (Seidman, 1990).

Rushing (1992) predicted a trickling adoption effect in America. “It’s common knowledge that other nations have capitalized on smart cards for health care, while the U.S. has declined to pursue similar successes.” In November 1991, Louis Sullivan, U.S. Secretary of Health and Human Services, attempted to encourage a trend in smart card use by endorsing it as a way to improve efficiency and lower administrative costs. However, before the medical community itself adopts smart card technology, it will probably make the biggest strides in the insurance industry’s managed care organizations. This will make it possible for the companies to use smart cards for immediate payment and build an electronic claims network. Other researchers agreed that smart cards have potential for medical use. “The introduction of computers into the medical world opens up several avenues, and we expect the provision of computer support to professionals will improve the quality of health care and provide more individualized treatment” (Lavoie et. al., 1995).

Seidman (1990) details some of Europe’s smart card programs, especially those in France, the leader in patient-held health record programs. Of the twenty or so programs established in France, *Santal* is the most advanced health smart card program.

It is testing its potential as a portable patient file with 24,000 people. The data is divided into three areas: (1) administrative - patient identification, personal data and insurance (2) medical - patient background, hospital stays, treatment history and (3) blood group. Authorization restrictions prevent the data from being accessed unless a physician is cleared by the smart card system and the patient gives his consent (Seidman, 1990).

The second program, *Hipocartes*, uses two classes of cards, one for the practitioner and one for the patient. Both cards must be used to access the information. The patient card contains identification, emergency room treatment records, prescriptions, biological information, and other specific applications. Any other information is subject to doctor input and available space. The practitioner's card stores a code activated by a PIN number, allowing him/her to access a certain level of information (Seidman, 1990). For example, a nurse or lab technician will have more restricted access than a physician.

Dialbrye, used in France and Japan, is specifically for dialysis patients. The DIABCARD is used as medical hand-held portable file. Patients can travel away from home and visit any clinic with a smart card reader because their card contains their dialysis history and prescriptive configurations. This also helps save time when visiting the same clinic every week because the treatment levels do not have to be entered into the dialysis machine by hand. Access into different levels of data is restricted by an access matrix (Seidman, 1990).

Transive, developed by the Blood Transfusion Center of Brest and University Hospitals in France, addresses issues for the two crucial periods of blood transfusion:

processing the data about the donor and the transfusion to the patient. All donors and recipient patients are issued smart cards. By processing the information about the donor every time he or she gives blood, the physician has a record of blood type and any abnormalities, like anemia. The transfusion process is thus streamlined because matched donors and recipients can be determined more quickly and easily (Seidman, 1990).

The remaining two French programs are related to Social Security. *SESAM* is a substitute for a social security insurance card, which replaces paper transactions with electronic data flows. The Mutella Chirurgicals et Medicals des Alpes (MCMA) and Regional Social Security Office created *Mutusanté* to replace paper transactions with electronic exchange of information by means of a chip card. After the card is inserted into the reader and the medical fee is entered, a medical form is printed out. Within five days, treatment is paid for by transferring money electronically into the doctor's account (Seidman, 1990). France has created an elaborate insurance payment system that assures data confidentiality, integrity, authentication and security. "These features are provided only through smart cards built-in encryption and electronic signature abilities" (Health Card Technologies, 1996, www.hct.com/faq.htm).

In Exmouth in Devon, England, a smart card program, involving eight family practitioners, eight pharmacies, a dental practice, two accident and emergency centers and a diabetic clinic, was established so each member of the treatment team could have access to the patient's relevant medical history. More than 9,000 patients were given the card and a PIN to protect it. Every time the patient visits a health care professional in the smart card network, he or she is given access to data needed in treating the patient. The

program uses Real Codes, a set of 10,000 codes covering medical treatments, histories and administrative arrangements. Because these procedures are coded, language barriers are no longer a problem (Seidman, 1990).

Quebec has developed a smart card program and a special reader software program (SCAM), capable of decoding several types of cards. Lavoie, et. al. (1995), describe the card as a “résumé containing information pertinent to an individual’s health history. It is not a complete medical file, rather it is a summary to be used as a starting point for discussion between health professionals and patients.” Target populations include patients over 60, pregnant women, infants under 18 months, and all residents of St. Fabien. To prevent unauthorized access of medical information, the patient and health provider must insert their cards and PINs into the reader.

Eighty million Germans carry a German Health Insurance Card, which is really a smart card containing the company and type of insurance, identification of patient, their name, address, date of birth, status and date of expiration. This helps prevent wrong patient identification and eliminate duplicate records (Health Card Technologies, 1996 www.hct.com/faq.htm). In addition, Portugal, Spain, Saskatchewan, Singapore, Sweden, Spain. Portugal and British Columbia have issued cards to citizens for patient identification (Quick, 1994).

In scattered places throughout the U.S., some medical institutions are giving segments of the population smart cards. Harris County Hospital in Houston, Texas, uses smart cards to track indigent patients because they usually use the county hospital for all their health care needs. In this instance, the program was designed to meet a specific

health care challenge (Rushing, 1992). In Oklahoma City, six hospitals rely on smart cards for information during emergency room visits. MediCard, by Advantage Data systems (ADS), installed readers in each of the hospitals' emergency departments and ambulances who service them so doctors receive instant access to crucial medical information (Quick, 1994). Programs in California and Madison, Wisconsin, have been implemented to help identify when patients need to update their vaccinations and provide a current medication history.

Watson (1994) reported a slightly different twist on smart card technology that occurred in New York City. Berdy Medical, a smart card retailer, gave smart card readers to two dozen NYC hospitals and offered the cards for sale, direct to consumer on cable television. They are advertised as emergency cards, in the hope that people will buy them to prevent medical mishaps if they need to go to the emergency room. "People aren't as familiar with the details of their medical histories as they'd like to be," said Dr. Bob Rosen, medical director of the Emergency Department at Riverview Medical Center in Red Bank, New Jersey. "They're not sure what the white pill is that they take for their heart, and that information is awfully important to us in the middle of the night. With the card, we potentially have access to that crucial data all of the time" (Watson, 1994).

Definite benefits come with the implementation of smart cards. Engelbrecht et.al. (1995) found smart cards would make services more efficient because they (1) leave the doctor more time for consultation, (2) help retrieve data needed for a visit, (3) assist in reviewing of data from previous medical contacts, (4) provide information to decision support systems, (5) add necessary information to the patient record. "An efficient patient

record would not only lessen the discomfort of the patient (by avoiding double exams, for example), but also would reduce costs in healthcare” (Engelbrecht et. al., 1995).

Quick (1994) reported an additional benefit of smart cards was cost reductions in the healthcare system in general. Doctors in different locations would be linked to information needed in an emergency treatment. Standardized databases for medical visits can bring efficiency to many repetitious processes, like constant data reentry, and prevent redundant testing and treatment. By identifying and prescribing medications more accurately, a pharmacist can intervene if a drug conflict exists, thus reducing possible hospitalizations from drug interactions. A sense of partnership between all participants may develop, making doctors more likely to administer preventive care, which saves everyone money in the long run.

Though smart cards hold the promise of great benefits for the medical community, there are still numerous barriers to overcome before widespread adoption occurs. Rushing (1992) points out the health care profession may be hesitant to adopt the technology because of some inherent flaws, namely the forgetful nature of patients and the cultural bias many Americans have against medical cards. Many people are still concerned about privacy. For example, a patient with AIDS may worry that his highly sensitive information could fall into the wrong hands. Using a smart card also restricts the freedom to choose a provider. If a patient wishes to see someone who does not use smart cards, transferring medical data may be more difficult. The most formidable barrier is the fragmented nature of the U.S. healthcare system. No central database housing everyone’s medical data exists in the U.S., like in other countries. The U.S. has more

than 7,000 hospitals and more than 20,000 doctors. Since there is no infrastructure to support widespread smart card use for the entire system, and no government or healthcare organization sponsorship, the technology will be adopted on an individual basis (Rushing, 1992).

Still, another very important barrier must be addressed before implementation happens - physician acceptance. It will not matter if patients are comfortable with smart cards if their doctors do not buy into the concept. The existing organization must be willing to embrace the technology in order for it to be most useful. "Quite a few doctors do not want to depart from their traditional ways of recording. This should be seen as a challenge" (Engelbrecht, 1995).

On a related note, Lindley and Pacheco (1995) state user criteria as an important factor in fostering adoption of smart card technology. A need for comprehensive analysis of smart cards is necessary to provide guidelines in the program design process. "User acceptance is considered one of the most critical factors in the design and implementation of smart card technology in the healthcare sector."

In the beginning, smart cards and readers were cost-prohibitive, but as the technology matures, prices have started to drop. Now, a reader costs slightly more than \$100. However, there are only 13,000 smart card readers versus more than five million magnetic stripe (i.e. credit card) reading devices in America. The price will have to be even lower for more widespread use to occur. "Two dozen companies are currently working on smart card readers, so prices should drop, but the amount of equipment that must be installed is substantial" (Fancher, 1996).

However, despite the stumbling blocks, the U.S. health care industry is responding to a slowly evolving need - data manageability. Just as the European market introduced smart cards in an attempt to improve telecommunications, the medical field is addressing a very central issue. Lindley and Pacheco (1995) found an increased demand for automated case management through the use of databases. Health care will benefit from the adoption of smart cards with their improved security measures, like privacy protection. Engelbrecht, et. al. (1995) found users were significantly unhappy with traditional paper medical records. They were said to be too bulky, unstructured and disorganized. Paper records have several disadvantages according to the study:

- 1.) Data is illegible, missing and inaccurate
- 2.) Data is too excessive, especially with chronic cases
- 3.) There is no structure in recording due to lack of standardization of terms
- 4.) Files are often physically unmanageable

“The paper-intensive departments of health care facilities are vivid examples of the need for smart card technologies. Smart cards can be used to record, review and update patients’ medical histories, improving the currency of information and consequently, patient care” (Amoroso & Pollokoff, 1995).

Paradinas, et. al. (1995) found a definite need for information management because diagnosis requires significant amounts of data. With smart cards, the data, though located in different files, would be accessible by all parties who need it. The cards are used to concentrate patient information in its database and each health care provider is only allowed certain functions and access privileges. “Smart cards give a link between

different Medical Information Systems. With a database approach, cooperation between different systems is more easily established.”

Magnetic-Stripe Cards

Card technologies, as a whole, are not a new phenomenon, especially in the United States. Credit cards have become an almost indispensable method of buying goods and services and many people find it much easier to withdraw cash from an Automated Teller Machine than to actually go into the bank. Plastic cards enable commuters to pay for parking, students to make photocopies and company employees to access their buildings.

What many people fail to realize is that these magnetic stripe cards can also be used in a health care setting. Increasing numbers of hospitals are implementing magnetic stripe card programs to ensure a positive identification, expedite the billing process and verify insurance provider and eligibility. However, magnetic stripe cards have been slow to establish themselves as a necessary part of hospital registration and billing. “We are all familiar with the use of cards to perform electronic access functions for us. We use them everyday for banking and for purchases at the market. But the technology has been slow to move to healthcare” (MacDonald, 1993).

Magnetic-Stripe Card Use in Industry

Magnetic stripe technology is used most often on credit and bank cards, debit cards, transit tickets, airline boarding passes and pre-paid value cards, like long-distance phone cards. A magnetic stripe located on the back of a plastic card holds a set of data, determined by the issuing company or organization. Data is recorded onto tracks within

the magnetic stripe. Standard credit and ATM cards have three tracks. The particles on the stripe can be magnetized and each is given a specific charge or polarity. When a machine, whether at the bank or local department store “reads” the card, it is actually detecting the charged particles. When like particles are together, they form what is called a single magnet. However, when opposite charges are next to each other, they cause a “flux reversal.” It is these flux reversals that the machine detects and thereby interprets the data stored on the card (IDAT Consulting, 1996, www.idat.com:80/tmagst.html).

Depending on what type of system is in place, specific hardware and software components are necessary. In-store credit card readers are small and relatively inexpensive. This system works because the credit card company has a database of customers and by swiping the card through the reader, the person’s account can be accessed on-line thousands of miles away.

Eltrax Systems, Inc., in St. Paul, Minnesota, is one of the leading manufacturers of magnetic stripe cards and the supporting hardware and software. More than 70 programs in the United States use their card technology system in a medical setting. In order to implement their system some or all of the following components must be installed. Most systems require similar equipment. The hardware needed for a complete in-house system includes a card reader/writer, card encoder, card reader/decoder and card printer. To put data on the card, the reader/writer is attached by a cable to a computer where the correct data is typed in. When the card is inserted into the encoder, the information is transferred to the card and given to the user. After the card has been issued, the reader/decoder interprets the data on the card and pulls up the appropriate

record, locates the proper file, deducts a specific amount of money or allows access into a facility. This can be accomplished by simply swiping the card through the decoder. A card printer allows the company or facility to issue cards on-site. Blank cards can be printed with the patron's name and institution's logo or graphic and distributed immediately (Eltrax Systems, Inc., 1994, Hardware Components).

Common software requirements include: systems/interface software, read and print software, and a portable encoding program. If issuing the cards on-site, card issuing software is available. Systems/interface software can be customized to a particular system to interact with existing databases and information systems. Most software programs can be tailored to the specific needs of an organization. Working with the reader/writer, read and print software allows the operator to print out data on the card when the database or host computer is off-line or busy. A portable encoding program makes card distribution easier because cards can be prepared in advance and the data added when a person requests a card (Eltrax Systems, Inc., 1994, Software Systems).

Magnetic-Stripe Card Use in the Medical Industry

Because magnetic stripe cards have a well-established presence in other industries, particularly finance and banking, it is only natural for them to enter the health care industry. They can help identify a patient, provide emergency information, give past treatment record and monitor facility use. Most cards can store three or more tracks of data and have access security guards in place (Gottesman, 1992). Magnetic stripe cards are used for simple identification, but they also serve as an "automated passport to provide immediate access to the health care system" (McCart, 1993).

Depending on the card's specific application, many hospitals are beginning to see this type of program as a helpful marketing tool. Intangible benefits can include: increased patient satisfaction and loyalty, fewer duplicate records and reduced anxiety at registration. Though these results may be harder to measure than reduced registration time or faster patient identification, they may be just as beneficial. "Since health care cards can be used for patient identification, admissions, insurance verification, payment settlement and marketing - all while reducing administrative costs and improving the quality of service - they will clearly play an important role in health care reform tomorrow" (Eltrax Systems, Inc., 1994, Executive Fact Sheet).

More than 100 magnetic stripe card programs are currently operating in health care settings across the United States, with more being implemented all the time. The medical community is beginning to show more interest because magnetic stripe cards can serve different functions within the hospital or clinic. In addition to registration, billing and insurance claims are two of the departments that could see real benefits. "Magnetic stripe cards could be used to verify patient eligibility for insurance coverage or to speed up the processing of insurance claims" (Brandt, 1993). Because card technologies can assist specific departments with record keeping, they may make the medical facility more competitive in today's tough market. "For hospitals in particular, the impact of efficient and effective medical record processing on the 'bottom line' may be the margin needed for institutional survival" (Patrikas, 1992).

Sun Health Medical Systems in Phoenix, Arizona, distributes magnetic stripe cards to people enrolled in its Personal Advantage program. Designed specifically for

senior citizens, the cards help tie them to the medical system. Because the organization stresses wellness instead of primarily illness treatment, the cards give members benefits, such as free health and wellness screenings, and discounts at places like the optometrist or pharmacist.

Recently Sun Health started working with a planned retirement community and its exercise facilities. Not only can Advantage members swipe their cards to be admitted into the hospital, receive out-patient tests or screenings, and get discounts, they can also swipe them through their complex's exercise equipment. Each resident is eligible for a free fitness evaluation and their information is programmed into a computer. All of the exercise equipment have card readers on them which are attached to the computer. When a resident swipes their card through the reader, their exercise program is pulled from the computer and the machine's weight, distance, time or speed is adjusted accordingly (Aldred, phone interview, February, 1997).

In December 1995, Healthcare Marketing Report discussed a magnetic stripe card program being used in Lincoln, Nebraska. Bryan Memorial Hospital implemented a card program throughout the hospital to improve customer service. Issuing 55,000 magnetic stripe cards in nine months, the hospital installed readers at the out-patient clinic, in-patient registration and the emergency department. By swiping the card through a reader, the staff have immediate access to information about the patient, which includes name, address, next-of-kin and payer source. "I think more than anything else, with the environment we're in today, we felt like the registration card would help us build

relationships with prospective patients,” said Suzanne McMaster, director of public relations (Dernovesk, 1995).

Alpena General Hospital in Alpena, Michigan, implemented a card program in 1994 and in two years has distributed more than 20,000 *Access Advantage* cards to their patients. Each patient was sent a card after a routine insurance registration and was instructed to bring it with them the next time they needed to register for a hospital service. “Patients feel good about the cards... And they present them proudly at registration” (Deutsch, 1996). Some of the hospital’s goals were to make the registration process more customer-friendly and keep repeat patients from having to repeat the same information every time they registered. The Michigan Patient Accounting Association Newsletter reports increased satisfaction among patients and registration staff since the cards have been issued. “Registrars... know the registration process will go more smoothly, they will have less to type, and they are dealing with a repeat customer... a friend of the hospital” (Deutsch, 1996). In addition, the cards reduce duplicate patient records and medical personnel are able to access the correct file in the Emergency Room if the patient is carrying his/her card.

Magnetic stripe cards have been issued to people enrolled in their senior program with special identification that allows them to receive discounted meals and other hospital benefits. Major hospital contributors were automatically issued a card as a good will gesture to reduce the wait at registration. Their next step is to install readers in physician offices and clinics to give them accurate information and verify the information with insurance companies. In addition, the hospital will receive better lab

billing information since physician offices can provide them with referral lab orders on the back of the card print-out (Deutsch, 1996).

Alton Memorial Hospital, a member of Barnes-Jewish Christian Health System of St. Louis, Missouri, installed a patient card system in 1991. One of the biggest advantages of the system was that it could be interfaced with its existing computer network. However, the card data could stand alone, so it did not occupy any data storage space in their current system. In the first ninety days of the program, more than 10,000 cards were issued. By 1992, more than 35,000 cards had been issued. The two biggest benefits of using a magnetic stripe card program were being able to personally identify a returning patient and the effect it would have in registering a new patient. "In cases of trauma, or even a routine visit, the patient or relative is probably very apprehensive and concerned. That is not the best time to ask questions needed for registration. So, if they have the AMH Card, we can make that experience a little easier for them," said Vicki Kearney, vice president of administrative services (Shoultz & Associates Advertising, Inc., 1991).

Hospitals and medical centers are not the only health care institutions that can benefit from magnetic stripe cards. One of the earliest full-scale magnetic stripe card-programs was undertaken by Florida's Medicaid System. Cards were given to Medicaid recipients in certain districts and as the program grew, more districts were added. Consultec, Florida's Medicaid fiscal agent, issued the cards to patients and subsequently worked with each hospital and clinic to ensure they program ran smoothly. When patients present their cards, an operator swipes it through a reader, which sends a signal to the

verification vendor. This vendor then transmits the signal to Consultec who checks the eligibility of the patient in the database and sends an on-line reply in real-time. The entire process takes about fifteen seconds. To access the database, the clearing house reads the two numbers on the card and calls the appropriate database, depending on desired medical service and type of transaction (McCart, 1993).

Coordinating a project of this magnitude sounds quite complicated, but an official with Florida Medicaid program was surprised at how well it was received.

“Implementation has not been as difficult as we envisioned. We did a lot of training beforehand for providers. And before we roll out the system in each district, we offer a trade show to give vendors a chance to market all their wares and to give providers an opportunity to shop around and see how the various types of services work” (McCart, 1993). Providers are not the only party to welcome the cards- patients seem very willing to use the technology. Linda Coleman, an administrator in the Florida program reported a patient survey indicated Medicaid patients liked using the cards. “The gold plastic is easier to carry and makes clients feel better about the whole thing. It doesn’t seem like a welfare thing to them” (McCart, 1993).

If patients forget or lose their card, the registration clerk asks for an alternate form of identification. They can also look up the patient’s assigned medical number in the patient files or can use the Medicaid identification number or social security number. All this is verified by using their birth date or a combination of their birth date, name and gender. Regardless, once the patient has been given a number and a card, it is easier to

track them through the patient database and keep a more complete patient record (McCart, 1993).

Europe has been on the forefront of card technology, whether investing in pre-paid phone cards, debit cards, rail passes, patient identification or medical record cards. In 1990, a study conducted by Advanced Information in Medicine, a project of the Commission of the European Communities, researched the extent of card technology programs in health care during the previous year. The AIM found more than 200,000 patient cards (magnetic, soft strip, smart and optical) were being used in 35 hospitals, 30 clinics and several other health care facilities (Gottesman, 1992).

For example, Spain, Portugal and Italy use magnetic stripe cards to control the use of pharmaceuticals throughout the country (Gottesman, 1992). Spain also instituted two other programs in 1989 and 1990. Panem, installed in 1989, is a health service management program and PHC, began in 1990, also a health service program, but cards were issued to the general population. Italy's CUP program helps with registration and allows administration to better manage the information being stored in their databases. More than 4,000 cards were distributed by 1992 to general practitioners and their patients. Through Sanicard, private insurance subscribers were given magnetic stripe cards. The program was developed to help medical administration personnel effectively manage the insurance claims and billing (Pangalos, 1992). Numerous other card programs exist in Europe, but a large number of them use more sophisticated technology, such as computer chips to store and retrieve data.

Advantages and Disadvantages of Magnetic-Stripe Cards

As with any relatively new technology, there are advantages and disadvantages to consider. IDAT Consulting list the advantages of magnetic stripe cards as:

- 1.) Read/write capabilities
- 2.) High data density
- 3.) Guard against counterfeiting
- 4.) Reliability
- 5.) Low cost-per-use (IDAT Consulting, 1996, www.idat.com:80/tmagst.html)

Various sources agree with some of these advantages, but list many additional ones of their own. Portability is one of the most frequently mentioned benefits of any card technology. Because the card can be carried from one institution or department to another, it is easier to locate and access patient records more quickly. "Even with a single medical school or hospital, where practitioners are under one administration or part of a group practice, patient information is not always easy to find" (Gottesman, 1992).

Data is easier to program onto a magnetic stripe card, but more importantly, it is easy to re-program or update information stored on a magnetic stripe. The card can also have two personal identification numbers (PINS), so that a patient and registration clerk or physician, for example, have to enter numbers to access the information. Cards can be read anywhere in the world there is a card reader. Medical information cannot be obtained because the card serves only as a link to a patient database. However, a person can be identified and insurance company verified. Perhaps the most encouraging aspect about magnetic stripe cards is international standards have been agreed upon. They parameters are well known in specifying what data can go in which fields. "These cards

are inexpensive and their use established in a worldwide base of credit card users. Their use in medical practice is increasing rapidly” (Gottesman, 1992).

Magnetic stripe cards are less expensive when compared to other types of cards. Florida’s Medicaid program found a smart card from Gemplus ranged in price from \$6 to \$10, while a magnetic stripe card from Consultec cost, on average, \$0.45 (McCart, 1993). By using the card program, Florida’s Medicaid System anticipates a savings of \$4 million in the first 18 months. According to Linda Coleman, Medicaid eligibility systems program administrator, this cost reduction will take place because the cards eliminate the cost of mailing one million paper cards per month, eradicate change of address problems and make managing the eligibility system much easier. She said, “It’s much cleaner than our old paper system” (McCart, 1993).

Workgroup on Electronic Data Interchange (WEDI) Health Identification Card Technology Technical Advisory Group (TAG) announced in 1993 that magnetic stripe cards were the best technology choice for medical institutions. “TAG ultimately recommended the ISO magnetic stripe as the primary technology for storing machine readable information. This technology could facilitate both manual and electronic system compatibility with the addition of embossing since it would then be machine readable and human readable” (Roberts, 1993). TAG reached this decision by considering what it claimed as the primary advantages: 1) reliable, 2) market proven and therefore widespread infrastructure, 3) sufficient data capacity to meet requirements, and 4) same technology can be used in admits and payments. “Problems such as insufficient data capacity, low industry penetration, the lack of machine-readability, and the expense and

immaturity of the other technology took the other possible technologies out of the running” (Roberts, 1993).

Implementing any technology requires a majority acceptance from the parties involved. It appears that in the United States magnetic stripe cards are more widely accepted for medical use than any other type of technology. A 1989 projects by the Department of Veteran Affairs in Albany, New York, found patients readily accepted the card. “The card is very popular with patients, often seen as a status symbol much like a ‘gold credit card.’ The card has been mislaid or lost by only a small percentage of patients” (Gottesman, 1992). Providers in Florida accepted this technology because they could be sure of a patient’s Medicaid eligibility before they ever treated them. Some physicians find they are able to treat patients with more confidence, and although physician acceptance of any card technology is limited, most acknowledge cards with identification information would be helpful. “It is clear that, with better access to records, treatment and investigations of patients can be more relevant and safe” (Pangalos, 1992).

Certain disadvantages may be keeping the medical community from adopting magnetic stripe card technology. According to IDAT Consulting, the three main disadvantages are: 1) contact reading, 2) initial cost per card, and 3) potential to low coercivity stripes. Low coercivity stripes are better than high coercivity stripes because they are designed to better withstand magnetic charges, heat, bending or other things that can damage a magnetic stripe (IDAT, 1996, www.idat.com). Roberts (1993) agrees that magnetic stripe cards are expensive considering they only store a small amount of data.

“Magnetic stripe has a low cost and is well-established, but price is not the only factor for patient data cards” (Panaglos, 1992). If the card has to be replaced, there might be enough of a cost-savings to compensate for the administrative costs of issuing duplicate cards. In addition, Panaglos (1992) states, because of limited data storage capabilities and the chance that records could be fraudulently altered, magnetic stripe cards may not be suitable for certain medical applications.

Gottesman (1992) admits there are disadvantages to using magnetic stripe cards in a medical setting, like technological imperfections, cost and user resistance. For instance, because data can be easily updated, they are easier to counterfeit and if cards have low coercivity stripes, the data may be damaged by heat, magnets or humidity. “Despite these shortcomings, the widespread use of these cards and their effectiveness in identifying the owner- the simple task for which they were created- has been the major impediment to the adoption of more complex approaches” (Gottesman, 1992).

However, implementation of magnetic stripe technology does not hinge solely on the characteristics of the cards. Physician and administrative resistance are major barriers to overcome. “Experience with computerized records has uncovered difficulties with physicians’ resistance” (Gottesman, 1992). Because physicians may not be familiar with the technology or unwilling to learn about it, the time a patient spends in a clinic can actually be increased if doctors are responsible for using the cards in any way (ibid.). “Until the professional ‘comfort level’ with computers and their associated technologies reaches the same plateau as driving an automobile, the benefits of these electronic and optical devices will not be fully realized” (Patrikas, 1992).

Because more advanced technology does exist, magnetic stripe cards are viewed by some as a step along the way to a complete portable medical record. Introduction of card technologies into the health care setting will take some time, especially before providers become comfortable using them on a daily basis. "We need something we can implement now that will be useable and practical now and also be flexible for the future" (McCart, 1993). As time progresses and more standards are in place, the cards could be upgraded, but to have the technology in place at all is a crucial step. Magnetic stripe technology is "a preliminary phase. It is possible that the cards are developed with only an individual magnetic stripe card, and then in order to take the next step towards a medical data I/C card..." (Pangalos, 1992).

Acceptance is not the only reason magnetic stripe cards may enter the health care market more rapidly than other types of card technologies. The supporting structure already exists. "The country has the infrastructure to support magnetic stripe or bar code cards that access on-line systems" (McCart, 1993). Because it's a manual system, magnetic stripe cards would work well in the transitional period. Plus, by keeping more data off the card and in a database, the health care system moves one step closer to achieving an electronic data interchange, which is a vision many sides would like to see realized (Roberts, 1993).

Other Issues Related to Magnetic-Stripe Cards

Identification numbers are a major issue when considering a magnetic stripe card program. Though not really a disadvantage or barrier, deciding what kind of number to use as the primary identifier can be a bump in the road to implementation. Some say the

Social Security Number (SSN) should be the universal identifier, while others maintain a hospital issued identification number is the best solution. "At AHIMA (American Hospital Information Management Association) our first recommendation is to use the SSN with a check digit, encoded or symbolized in combination with, for example, name, birth date, geographical place of birth or mother's maiden name" (Wear, 1993).

Obviously the SSN, with perhaps a check digit, would be the most cost-effective answer, but many health care professionals have strong reservations about it. "It (SSN) facilitates links of health records to employment, education, credit, purchasing, IRS, motor vehicle and other personal information. The concern is that such emphasis such links could lead to discrimination in employment, insurance coverage, purchases, mortgages and other activities" (Fitzmaurice et. al., 1993).

Regardless of what type of number is used, it needs to be unique to one patient and one patient only. McCart (1993) stresses the number on the card is much more important than the type of card used. According to Kevin Moley, senior vice president for Health Systems in Scottsdale, Arizona, a uniform patient identification number "would provide access to a clearinghouse that would bring all the information together" (McCart, 1993). In addition to storing identifying information on the card, some of it needs to be clearly embossed on the front of it (Pangalos, 1992).

Another concern revolves around privacy and security of medical information. Aside from the SSN issue, many worry that if cards fell into the wrong hands or if the database was broken into, medical information would be compromised. Magnetic stripe cards have been used more than other technologies because they usually do not carry any

sensitive medical data. This is a huge point of debate within the medical and legal community. Susan Reynolds, a physician in Malibu, California, voices the same opinion many in her field share. "I'm wary of putting any kind of medical data on the card... they'll get into a political quagmire over HIV status" (Hassig, 1993).

Because magnetic stripe cards carry only identification data, they are not subject to as much criticism, but some concern still exists. Many worry the card could be used by someone other than the owner. In Florida, the Medicaid program has a built-in security safeguard by being on-line. The system is immediately alerted if someone is trying to break into the system or if someone is using a card that has been reported stolen. If the patient has a PIN number, the chance of misuse is greatly reduced (McCart, 1993).

Chapter 3

Method and Procedure

This study, which consists of identifying an appropriate patient card technology and a population for use in a patient card pilot program, closely follows a Needs Assessment (NA) structure. An NA is a systematic set of procedures undertaken for the purpose of setting priorities and making decisions about a program and an allocation of resources (Altschuld & Witkin, 1995). By identifying the University of Tennessee Medical Center at Knoxville's (hereafter referred to as UTMCK) needs, the researcher can set priorities for future action, specifically what type of technology is best suited for use in the medical center and a subsequent patient group to be targeted for initial use. It is important to conduct an NA in this instance because the system has populations that appear to be similar demographically, but their actual needs may be different from each other. The NA is not intended to yield diagnostic information, but to help make decisions about priorities for the program.

Three stages characterize an NA: 1) pre-assessment, 2) assessment, and 3) post-assessment. The first stage was completed by the medical center in the form of a proposal as it set up a management plan, defined the general purpose, identified major need areas, collected preliminary data, outlined potential sources and methods, and identified potential uses of the data. Because the proposal was formulated to reflect the system's current environment, possible card access points, uses and populations also were

included. This pre-assessment identified what the system might like to see patient card program accomplish, which laid the ground work for further investigation.

The present study falls under the assessment stage and is conducted according to guidelines outlined in Planning and Conducting Needs Assessments (Altschuld & Witkin, 1995). During this phase, the researcher attempts to determine the context, scope and boundaries of the program, gather data on specific needs (staff reaction and acceptance levels, patient population identification, etc.), analyze and synthesize all data and report outcomes that identify criteria for action based on the highest level of need (Altschuld & Witkin, 1995).

Three levels of need are included in an NA: primary, secondary and tertiary. At the primary level are service receivers, including groups like students, patients or customers. This group is at the heart of an NA. Service providers, like teachers, parents, health care professionals, are the secondary level. The tertiary level includes resources or solutions - anything that can provide physical support. Buildings, equipment, technology, and information retrieval systems fall into the tertiary level. Primarily, this study concentrates itself at the planning stage to determine the needs of service providers and receivers. Administration's input also will be assessed to determine what type of technology and data to include in the patient card program.

A significant focus will be placed on the service providers in this study because they play a critical role in making a patient health card system actually work. A history of resistance, particularly by physicians, focused this assessment on service providers more so than in other typical NAs. "There is evidence that physicians are slow to utilize

computerized medical information systems in their clinical practice,” (Anderson & Jay, 1985). It is important that patients also accept the technology, but without understanding the needs and concerns of physicians, and other crucial members of the staff, the project might never reach UTMCK’s patient population.

To determine which type of technology is needed and what patient population will be used in the patient card pilot program, three phases of data gathering will be used:

- 1.) Focus group interviews with physicians and hospital administrators,
- 2.) Key informant interviews with physicians and staff administrators, and
- 3.) Interviews with patients in a specific population.

This three-step process will provide enough information to recommend the most suitable card technology and patient group for the pilot program. To learn how service providers felt about patient card technologies, a focus group interview and subsequent key informant interviews were conducted with hospital physicians, nurses and administrative personnel.

Focus Group Interviews

The focus group method of data gathering was selected because the system will use the NA recommendations for a pilot program population. Hence, it is for an applied purpose. A type of group interview, the FGI is held in a formally established setting, with a directive moderator asking questions that are somewhat purposive and structured (Frey & Fontana, 1993). A faculty member from the University of Tennessee, Knoxville served as the moderator.

Greenbaum (1993) outlines situations in which focus group interviews are important. One of these, “New Product Development,” involves exposing participants to a new concept and getting their reactions to better understand the program’s overall impression. Each participant will give his/her attitudes about patient cards. Because patient cards are a new technology, group interaction played a major role in facilitating feedback. Investigating an individual’s motivations to adopt a technology is complex and many people may not be aware of their attitudes, feelings and what motivates them in general. Through group interactions, they can compare and contrast responses, allowing them to become more explicit about their own views (Morgan & Krueger, 1993).

A focus group was held first to assess how different medical personnel felt about patient cards. Questions were asked to obtain information regarding:

- 1.) Attitudes toward smart card technology
- 2.) Type of patients that require repeat identification and verification
- 3.) Which patients are under psychological stress when registering
- 4.) Which patient groups are most compliant
- 5.) Potential uses for the card

Through this group interaction, the researcher also gained insight into the level of resistance, if any, the service provider had regarding the implementation of patient cards. A moderately high level of acceptance will be needed if his/her patients are to be considered for the patient card pilot program.

Key Informant Interviews

Key informant interviews are a type of Delphi technique, which consists of soliciting and combining opinions from a group of experts (Lindeman, 1981), in this case, physicians and administrators. Based on the focus group transcripts, specific medical center personnel were contacted for key informant interviews. In addition, some key informant interviews were conducted with people who were unable to attend the initial focus group, but who might have held a different perspective on some aspect of patient cards.

The key informant interviews will produce information that is highly qualitative, containing physicians' and administrators' values, perceptions, opinions, judgments of importance, and more importantly, information from personal observations. By interviewing physicians and registration personnel (service providers), they are able to give self-reports of needs in relation to patients (service receivers). The interviews will be conducted between February 5 and March 5, 1997, and based on these interviews, a patient population can be selected for further consideration.

Each key informant participant, whether as an individual or in a small group, will be interviewed with different objectives in mind. These depend on what department they work with and the type of patients they service. Basic information needed from every group consisted of:

- 1.) Group's perceptions about the technology
- 2.) Perspectives on actual need
- 3.) Values and what they view as important needs,
- 4.) Attitude toward using patient cards, and

5.) Problems they think patient cards could/should address.

As the moderator facilitates the focus group, the co-leader(s) will make notes indicating how specific questions are being answered and where they are on the tape. Participants' responses will be analyzed using a general considerations technique. This technique has two steps. The first part is mechanical, in which the transcripts are organized into subgroups. During the interpretative stage, the data is segmented into analytical parts so it can be analyzed for recurring patterns that emerge. Once patterns or themes are defined, meaningful conclusions can be formed (Knodel, 1993). The tapes will be transcribed and then destroyed.

Patient Interviews

An appropriate patient population can be determined after the transcripts are assessed. Upon isolating a patient group, a series of patient interviews took place. A series of open and close-ended questions were asked. Interviews were scheduled for Friday, March 14, Tuesday, March 18, and Friday, March 21, 1997, which should result in at least twenty completed questionnaires. Because patients were interviewed at different times on three separate days, a sufficient cross-section of people could conceivably be obtained.

Specific information from patients included:

- 1.) Problems encountered when entering the medical center
- 2.) Perceived advantages and disadvantages of a patient card
- 3.) Possible incentives needed to bring the card back
- 4.) Frequency of visits to medical center and related clinics

5.) Attitudes toward patient cards

Asking patients about their experiences at the medical center and its related clinics, helped the researcher learn about what needs a specific card would address and whether or not they would be receptive to the card's implementation.

After the group identified as most willing to adopt patient card technology has been interviewed, a decision will be reached concerning what type of card system to implement and what should be done to maximize patients' acceptance. The researcher will present the findings to UTMCK administration and phase two of the NA will be completed.

Chapter 4

Results

Because a needs assessment relies heavily on observing and evaluating the current organization's environment, the results of this study are particularly important. Based on these findings, UTMCK can determine the disparity between the existing and desired environments. After reviewing the transcripts of the focus group and key informant interviews, several themes relating to patient cards emerged. First, service provider participants will be defined. Second, the chapter outlines the themes and summarizes the groups' feelings toward this proposed technology. Third, cancer patients' attitudes toward patient cards will be discussed. Lastly, interview responses from outpatients will be outlined to provide further insight into the service receiver perspective.

Service Provider Participants

Twelve service providers participated in the focus group, held on January 21, 1997, in the Executive Conference Room at UTMCK. Four nurses, three physicians, one physical therapist and four administrators were present for the meeting. Seven were women and five were men. During lunch, a thirty-minute slide presentation was given to better inform those present about patient card technology. After the slide presentation, the moderator conducted a forty-five minute discussion, which was taped and later transcribed.

One of the physicians present at the focus group was later interviewed as a key informant on February 5, 1997, in the Telemedicine Manager's Examination Room at

UTMCK. The moderator asked questions to probe issues he raised at the focus group.

This 1 ½ hour interview was taped and transcribed.

Another key informant interview was held with two directors at University Health System (UHS) on February 10, 1997. This company is responsible for managing the outside physicians' offices that UTMCK owns or is affiliated with. It was held at the main conference room at UHS. The interview, which lasted about one hour, was taped and transcribed.

Because registration problems were mentioned several times in the initial focus group, a key informant interview was held with directors from out-patient registration, emergency room registration and patient billing on February 20, 1997. A moderator asked these three people questions for an hour and the tape was transcribed for further analysis.

Lastly, a key informant interview was conducted with the director of surgical oncology. Since cancer patients were frequently mentioned as a possible pilot group, his input was instrumental in determining how to proceed. The interview was held on February 26, 1997, at UTMCK and lasted approximately forty-five minutes.

Service Provider Themes

For each theme, the service providers' points-of-view will be presented. The four themes presented in this section include:

- 1.) Potential uses for the card
- 2.) Perceived advantages about using patient cards
- 3.) Issues or concerns about using patient cards

4.) Potential pilot population

Possible Uses of Patient Cards

Various people in the focus group and in key informant interviews repeated four major uses for the patient card system. Possible applications or uses were discussed more in-depth with service providers because they know more about the current registration system and its glitches. The majority of those interviewed felt the potential uses for a patient card system were:

- 1.) Identification of patient
- 2.) Re-verification of information
- 3.) Communicating between departments
- 4.) Bonding to the integrated delivery system

Identification

One of the uses in the pre-assessment centered on positive patient identification, and the majority of service providers agreed this should be a primary objective. The ability to identify patients accurately and quickly would help reduce the number of duplicate records, according to many members of the initial focus group. “We are creating enormous numbers of duplicate records,” said one speaker. Several others agreed. “One patient could conceivably have seven or eight different record numbers because somebody didn’t put in their middle initial, or their address changed or somebody had the wrong Social Security Number, said one focus group member.

A registration director explained that wrongly identifying patients occurs most often because the name that they used last time might not be the exact name they use

when they return. Another felt the card would be best used if it could simply pull up the patient record housed in the hospital. "Well, if it is a card that is used for patient identification that accesses what we have already in our system, that makes it more functional and more attractive."

Another point was made concerning emergency room visits. An oncology surgeon stated that while his staff was very capable of taking care of patients during the day, if they had to make a late night visit to the emergency room, there might not be anyone at the hospital familiar with the case. If a card were used, the emergency room visit would be included in the patient's file, giving the oncologist a more complete medical record. "Everybody's gone for the weekend and Saturday night the patient comes to the emergency room, there it is" (referring to the inclusion of the encounter in his/her file).

Re-verifying Patient Information

In the registration and MSO key informant interviews, participants said they have to recheck a patient's information when they move from one facility to another or even from one department to another. The card would serve as a faster way to double-check the patient's identification and ensure he/she was, in fact, the correct patient scheduled for a test or procedure. Two registration staff members were resistant to trusting information entered by a doctor's office and would check with the patient again to make sure it was correct.

One of the registration personnel said she would be more in favor of using a patient card to carry medical information if she could trust the data to be correct. However, she said, the doctors' offices information is not usually very complete. Another

participant said, after they check the data, the card could serve as a re-verification tool because the registration clerk verifies the information, but does not necessarily capture it again.

Communication Between Departments

One of the biggest needs, mentioned in the focus group and the registration key informant interviews, was positive identification of lab specimens. Because names change or are entered differently at UTMCK and a physician's office, it is often difficult to determine what patient record to attach the lab work to. Many doctors' offices send patients' specimens to the UTMCK lab for analysis. Since the specimen is gathered outside of the medical center, it is often difficult to match the lab work to the correct record. One participant said, "We're depending on information sent by the doctor's office with that specimen. In the doctor's office, they may very well be known as James Whatever, but when it gets here our system may know him as (James), Jr. Well, when you pull it up in the system and you are trying to identify it, you don't have the patient in front of you, you just have the lab specimen. But, if you had a thing set up in the doctor's office, the patient could slip their card in that, and it would print out a slip to go to the lab... it would be wonderful."

Communicating between doctors' offices and UTMCK is not the only situation in which the card could be useful. Sometimes, tests done in other departments within the medical center are never recorded in a patient record. "Work done in the hospital hardly ever makes its way to the outpatient department, and I think anything that would improve

access to records would be tremendously cost-effective because we waste an awful amount of time, and we cannot get any information.”

Finally, most service providers did agree that if they could trust information being brought in from other offices or departments, they could see the card used as a beginning patient record. Basic information could be gathered at physicians’ offices and placed on the card. Then, when a patient comes to UTMCK for a procedure, the card could be inserted and the information transferred to the computer and it would create a new patient record or update an existing one.

Integrated Delivery System

An overwhelming majority of service providers, including the director of marketing, think the card will help bond patients to the medical center. Though many of them did not agree on other possible uses for the card, bonding was one that had a consensus. “I think if you look at it from the standpoint of giving someone a card that they can carry that ties them, then I’m for that 100 percent,” said a registration manager.

In order to create an identity for the system, patients should be able to take the card to any facility associated with UTMCK and use it. One of the physicians pointed this out immediately. “Now another thing you are going to want to be sure of is all our facilities that we’re associated with will be able to take advantage of this, so that when a patient goes to one of your managed offices, swipe (sic) and it works there, too,” he said.

If the card adds value to the patient’s visit or overall experience, it will enhance the bond with UTMCK, according to UHS administrative personnel. “There is value. If we had a card that, it doesn’t have to give monetary advantage, but it is a VIP. Yeah,

people would like that.” This value or sense of belonging may give the patient a more positive feeling toward UTMCK, said one doctor. “Well, first off, it gives them a sense of ownership. This is where I go to get my care. This identifies me as a patient in that facility.”

Perceived Advantages

Based on the previously outlined potential uses for a patient cards, UTMCK service providers were asked about the advantages they would offer patients as well as themselves. The following are a list of apparent advantages, as evidenced by the transcripts:

- 1.) Time savings
- 2.) Convenience
- 3.) Sense of belonging

Time Savings

Registration managers seemed hesitant about believing a patient card would save time when a patient registers for a service or admission to the hospital, but a majority of the doctors were fairly certain it would. One of the focus group questions asked the participants what possible advantages they thought the card would have. The first two responses were related to saving time or registering more easily.

- Saving time on the front end
- Quicker access to care or treatment

During a key informant interview one doctor was asked whether or not a card would save time and he was positive it would. “Do you think that it would result in quicker registration to have a patient card?” “Yep, I sure do. I certainly do. I like that.”

Another key informant described a possible problem when registering for an outpatient test and said a patient card might help solve it. His idea relied on the assumption that patients would be given the card before they entered the hospital, so registration could be expedited. “You give it to a patient that is being sent to the hospital for specific tests, and you make it a non-painful experience for the patient. A painful experience is being in there all day for a 20-minute test.”

Reducing the number of forms patients must complete each time they visit the hospital was another way service providers felt the card would save time. One doctor said it would certainly help in his office. “It saves a lot of time because they have to fill out forms and answer questions every time.”

Convenience

If patients have fewer forms to fill out and fewer questions to answer, not only is the process quicker, but much more convenient, especially if they are making frequent, regular visits. If the card held demographic information that was used to access medical records, or actually held static medical facts and history, it would be much more convenient for a patient to register. One focus group member summed this up by saying, “I give them my card, just not having to give out all the data would be nice.”

Medical information usually must be repeated each time that a patient enters a different department for tests. “In order for you to go into outpatient registration, and go

across the hallway and get a chest X-ray, they have to create your demographics and spit out a form that says who you are with another piece of paper that tells the other people what to do. But, you whip that card through there and the form is printed,” said one physician.

Most of the time, a patient must tell an attendant or fill out a form with his/her name, Social Security Number, birth date, insurance carrier, allergies, current medications being taken, and other information specific to the nature of the tests or procedure. Not having to repeat information might save the patient much aggravation and make the process flow more smoothly, according to several administrative and medical staff members. One physician explained, “Well, if I were a geriatric patient, which I am rapidly approaching, and I forget what drugs I am on, it might be helpful to have that (information on a patient card) on my person, so I could say, ‘read the card.’”

Sense of Belonging

The medical center manages more than twenty physicians’ offices and hundreds of doctors’ practice on the UTMCK campus. In an era of managed care, many service providers felt a patient card would help patients understand the range of services UT offers. “So you are talking about a UT family. So this (the card) brings the patient into the family and they have tangible evidence of being a member of the family?” asked the MSO moderator. “That is what I was thinking,” replied the administrator.

By incorporating patients into the “UT family,” they may begin to feel like they are part of the system. This advantage is directly related to using the card as a marketing concept. In one instance, a physician explained the card would make the system more

personal. "Take the magnetic stripe card and swipe it through just like at the grocery store. 'Oh yes, Mr. Smith, welcome back. You were just here yesterday. We have all your stuff. Has anything changed? No. Have a seat. We'll be right with you.'"

Another participant also felt this sense of belonging to the integrated system would make the patients feel better about the whole process. "I think that's a lot better than the admitting clerk saying, what's your Social Security Number? What's your name? Are you married, widowed or divorced? What's your address, your phone number? Did you bring your insurance card?"

An additional doctor agreed that greeting the person in a familiar manner increases the sense of belonging to UTMCK. "Promote a known feeling. I think that's a definite advantage. In fact, that might be one of the biggest advantages"

Issues or Concerns

Several issues or concerns recurred throughout the transcripts and must be taken into consideration. The following topics can be viewed as barriers to overcome or points that need further explanation. Members in focus group interviews and/or key informant interviews voiced four primary concerns:

- 1.) Information stored on the card
- 2.) Logistics of card distribution
- 3.) Patients forgetting the card
- 4.) Patient's false expectations

Information Stored on the Card

One of the biggest concerns among participants was what kind of information would be stored on a card. Smart cards can hold more data than magnetic stripe cards, but many physicians were leery of bad or incomplete data and would not likely trust the information. Registration personnel were worried that even the identifying information might be keyed in incorrectly and might not access the correct record in the system. Some wanted static medical information and medical history to be stored in the card, while others felt anything other than name, Social Security Number, and date of birth carried too much of a liability. It would take a considerable amount of time to come to a conclusion if a large volume of data were to be put on the card.

“I guess I am more inclined to say the Social Security Number, date of birth and name would be all I would be willing to bet on at this point. You can’t even count on Medicare because secondary insurances are changing left and right... So to put insurance information at this point, I wouldn’t be in favor of,” said an administrator with the managed offices.

Two doctors said they would be in favor of storing static medical information on the card, such as previous surgeries, illnesses and allergies. “I think static facts need to be on there. So, if you had your uterus out, it’s not going to grow back. If you had pneumonia that you recovered from last year. Well, that’s not going to change. You still recovered from pneumonia. The most static facts will be the medical history, if you’re allergic to green beans, you’re always allergic to green beans,” explained one.

Other doctors’ concerns ranged from being able to update medical information to simply not trusting it. “Do we have the ability to update that information because the

information is only as good as it is current, so I think we really need to make an emphasis that it could be changed or corrected very easily.” If the program chose to implement a smart card system and put more medical data on the card, many physicians worry that the card would not be updated frequently enough, and they might not have the patient’s complete record. “I guess I kind of have doubts about the reliability of medical information on the card because it’s static, and things happen between the time it was last updated.”

Another physician remarked that the card’s information would not be as useful unless it incorporated all medical encounters, not just hospital visits. Doctors would be more at ease if they knew the medical records on the card were completely up-to-date. A physician in the focus group said, “I would be uncomfortable if it could not access whatever type of encounters I could have, not just acute therapy, like outpatient or lab work or physical therapy. What good is that card going to do if it can’t access that information in all of those patient encounters.” Another concern or suggestion from the focus group was the need to date every entry.

Physicians were not the only service providers who voiced concerns about the accuracy of the data. Many duplicate records are created because a mistake is made when entering data, and those records cannot be corrected. A registration director commented, “I’m also concerned about someone that may not be as efficient as I am that generates the card. I may, at that point, take that information from the card and it may have the wrong Social Security Number, it’s not going to hit in my computer.”

Forgetting Cards

Although there was not a consensus concerning the likelihood of patients to bring back their cards, a majority of service providers thought lost or forgotten cards would be a problem. One registration official said he continually had to make paper cards for patients and finally quit using them altogether. "I disagree with what was in the other meeting (referring to the focus group meeting). The reason why physicians think they (patients) bring the card in is we remake cards all the time. I got out of the card business and went into the label business because they would not bring them back in. It was a huge issue," he said. In addition, he said patient cards with medical information would not be as important as insurance cards to him, and he experienced problems with patients forgetting their insurance cards.

TennCare patients were the group that service providers thought would be most likely to forget their cards. One of the directors from the managed offices agreed with what was said in the focus group. "Half of them won't have it. The TennCare population, I can just about guarantee you, they won't bring these things and we have massive experience with that. They just don't bring them." The other administrator present estimated that more than fifty percent of the TennCare population would lose their cards.

Because of this concern, many participants thought some type of incentive would help patients remember their cards. An overwhelming majority mentioned reduced or free parking as an incentive. "You could give me anything and give me free parking and I'd bring it back... If you're talking about handing this card to people and every time they leave it's free parking, you've got a friend." This was mentioned in conjunction with the

knowledge that one of UTMCK's competing hospitals gives seniors free parking with their senior membership card.

Logistics

Many service providers were worried about how the card would be made and distributed, and who would be responsible for giving the cards to the patients. One of the key informant participants encouraged the cards to be given out while the patient is in the waiting room, because if they were mailed, they might not bring them back. However, those who were most worried were registration and admitting personnel. They contend that if they have to reissue a card every time the patient forgets his/hers, it would not save the registration staff any time at all. "My biggest concern is making the card. Patient shows up, they don't have one and I'm responsible for making them one. That will actually slow the process for the patient," said one director.

Expectations

Aside from tangible and procedural concerns, some service providers were cautious about possible patient expectations. They cautioned that patients might expect too much from the card and if those expectations were not met, the hospital might lose more than it gained. "I think you need to be extremely careful with exactly what this is going to do for them. I would rather they be wonderfully surprised by what they get from this rather than them to have expectations of receiving something and then, oh, to find out, it's just a big scam," explained one key informant.

While, in theory, they agree many of the proposed advantages would occur, some worried about patient perceptions. This issue was primarily voiced by managed office

directors and registration personnel. They did not want patients to think if they used this card, they did not have to complete any paperwork or answer any questions. One admitting administrator said, "I hate to approach it in that light (reducing anxiety at registration) because if we failed to meet an expectation in any way, then we've got a big black mark. And a lot of the things... the waiting and frustration like that is something I can't control."

Possible Patient Populations

Each group or individual was asked which of the medical center's populations would be most likely to need and use this type of service. The following patient groups were mentioned:

- 1.) Medicare patients
- 2.) Cancer, chemotherapy
- 3.) Transplant patients, specifically kidney
- 4.) Diabetics
- 5.) Outpatients with blood diseases requiring frequent lab work
- 6.) Patients on anti-choral or anti-coagulates
- 7.) Cancer, radiation
- 8.) Physical therapy
- 9.) Occupational therapy
- 10.) Pre-natal, and
- 11.) Pediatric.

Of these possible populations, more service providers mentioned cancer patients currently undergoing chemotherapy than any of the others. "That's an isolated group and we have to treat them different from everybody else... But if you told them OK, here's the card and you've got it for a week. They're a little more conscientious than the regular clinic patient," said one participant.

Cancer Patient Participants

After a patient population was selected, they were interviewed to better understand the problems experienced when entering the hospital, and how or if, they thought a patient card might help them.

Nineteen chemotherapy patients, 17 women and two men, were interviewed over the course of three days, Friday, March 14, 1997, Tuesday, March 18, 1997, and Friday, March 21, 1997, in the Physicians Office Building adjacent to UTMCK. The interviews were conducted in the exam room after each patient finished his/her visit. Each interview lasted approximately five to ten minutes and in more than one-half of the interviews, a family member or close friend also was present, many of whom offered comments. The average age of the patients was 65, with an age range of forty to 87.

Fifteen patients (79%) have used UTMCK exclusively in the past three years. Two patients used UTMCK and another hospital (Ft. Sanders Parkwest and The Mayo Clinic) equally in the past three years. Two other patients used other hospitals most often in the past three years. One went to Woods Memorial Hospital, in Ettowah, Tennessee, most frequently in the past three years. Another visited St. Mary's Medical Center and Baptist Hospital most often.

Cancer Patient Themes

The following section addresses the comments resulting from the patient interviews. Both open and closed-ended questions were asked to probe for insights. They results will be presented in the following order:

- 1.) Problems encountered when entering
- 2.) Advantages
- 3.) Disadvantages
- 4.) Incentives
- 5.) Problem solving
- 6.) Frequency of visits
- 7.) Additional comments

Problems When Entering the Hospital

This open-ended question generated four categories of responses. Seven patients (36.8%) said they encountered no problems in the hospital, but one said she had to wait in another doctor's office on occasion. Seven (36.8 %) said they had to fill out numerous forms or repeat their medical histories again and again. Three (15.8%) patients mentioned having to wait for tests or procedures in outpatient or other medical center offices. Two (10.6%) additional patients explained other problems, one dealing with transport and the other with a possible drug interaction. (See Table 1)

Advantages

One hundred percent of the patient agreed that a patient card might make the registration process easier. Eighteen (93%) patients felt the card would save the time

Table 1 Problems Cancer Patients Encounter When Entering UTMCK

Reported Problems	Frequency	Percentage
No Problems	7	36.8
Repeat Paperwork	7	36.8
Waiting in UTMCK Offices	3	15.8
Other	2	10.5
Total	19	100

when checking into the hospital. One patient was neutral on this point. The same percentages apply when patients were asked whether or not a patient card would make registering at the hospital more convenient for them. Of the patients interviewed, 11 (57.9)% agreed that a patient card would make them feel less anxious when they registered at the hospital. Seven (36.8%) were neutral on the subject and one person (5.3%) disagreed. Seventeen people (89.5%) said using a patient card might reduce the number of questions they were asked upon registering. (See Table 2)

Table 2 Perceived Advantages of Using a Patient Card at Registration

Advantages	Agree	Neutral	Disagree	Total
Easier Registration	19 (100%)	None	None	19 (100%)
Save Time	18 (94.7%)	1 (5.3%)	None	19 (100%)
More Convenient	18 (94.7%)	1 (5.3%)	None	19 (100%)
Less Anxious	11 (57.9%)	7 (36.8%)	1 (5.3%)	19 (100%)
Reduce Questions	17 (89.5%)	2 (10.5%)	None	19 (100%)

When seventeen patients were asked about whether a patient card would make them more loyal to UTMCK or more likely to return to UTMCK, eight (42.1%) indicated it would probably make them more loyal, but only two of those mentioned convenience or a sense of belonging. The other eleven (57.9%) gave other reasons they would be more likely to return. “Nothing could make me feel more at ease at UT, really...,” said one. Another commented, “I’m not one to switch doctors. I’ve been here for four years and they take good care of me. If I have any problems with the hospital, I just tell my doctor and he sees (that) it gets taken care of.” (See Table 3)

Table 3 Feeling of Loyalty Toward UTMCK Via a Patient Card

Feeling Toward UTMCK	Frequency	Percentage
More Loyal	8	42.1%
No Difference	11	57.9%
Less Loyal	0	-
Total	17	100%

In the open-ended part of the advantages section, many patients said they would like to have a list of their medications and allergies on the card so they would not have to fill out as many forms, especially when visiting a new doctor. One patient knew there was another woman with the same name in the area and the card would help determine which patient she was. One woman said people might have a more comfortable feeling when coming to UTMCK. “I don’t know if anyone has mentioned the word ‘secure’...

People would feel more secure because it gives them a sense of belonging to UT. They're a preferred customer. I'm a PC (preferred customer)," she said.

Disadvantages

Every patient disagreed with the statement, "It would be hard to remember to bring my patient card with me." After disagreeing with this possible disadvantage, eleven patients (57.9%) said they would keep it with their insurance card in their purses or wallets. The majority also were not concerned that the card might not access the correct data. Seventeen (89.5%) said that was not a worry for them because if the information was entered correctly, it should work, and if it was wrong they would know and tell the clerk to correct it. One patient (5.3%) simply asked if the information could be corrected and the other (5.3%) agreed saying, she guessed it was possible. (See Table 4)

Table 4 Perceived Disadvantages About Using a Patient Card

Disadvantages	Agree	Neutral	Disagree	Total
Remembering the Card	None	None	None	19 (100%)
Access Incorrect Information	1 (5.3%)	1 (5.3%)	17 (89.5%)	19 (100%)

Many were asked a supplemental question regarding the type of information to be stored on the card and what they might be uncomfortable with. Of the twelve patients asked if there was any information they would not be comfortable with on the card, all replied no. In addition, none of the patients mentioned other disadvantages they thought might result from using a patient card. In fact, many said they thought it was a good idea and wanted as much information as possible because it might save a life. On the final

day of interviewing, three of the patients were asked what other information they would like to see on the card. Allergies and surgeries were mentioned and one person said anything necessary to access her medical record.

Incentives

Fourteen patients (73.7%) did not think any type of incentive was necessary to help people bring their cards back in. One person said reducing the amount of paper work would be incentive enough. Two patients (10.5%) mentioned free parking and said another hospital gives seniors free parking. Discounts in the cafeteria also were suggested. Another patient said turning the card into a key chain. Finally, one participant suggested making two cards, one the hospital keeps and one the patient keeps.

(See Table 5)

Table 5 Types of Incentives Needed to Help Patients Remember a Card

Incentives	Frequency	Percentage
None	14	73.7%
Parking	2	10.5%
Cafeteria Discounts	1	5.3%
Other	2	10.5%
Total	19	100%

Problem Solving

Referring to the first question concerning problems encountered when entering the hospital, patients were asked if they thought a patient card would help solve any of these problems. More than two out of three indicated it would help solve problems related to completing paperwork and repeating their medical histories. Two patients said

(10.5%) it would really not make a difference, two people (10.5%) were unsure and another said it would not solve any of the problems because he had not had any.
(See Table 6)

Table 6 Belief that a Patient Card Would Help Solve Problems When Registering

Response	Frequency	Percentage
Would Solve	13	68.4%
No Difference	2	10.5%
Would Not Solve	1	5.3%
Not Sure	2	10.5%
Missing	1	5.3%
Total	19	100%

Frequency of Visits

To better understand how often cancer patients would use the card, a few questions pertaining to the type of cancer they had and current or proposed treatments were asked. No set pattern emerged because patients were in various stages of treatment and were undergoing different types of treatment. Some had not started any treatment yet and were recovering from surgery, in most cases a mastectomy. Those having radiation went every day in two-week or one-month segments. Others went every three to four weeks for chemotherapy. Others were completing routine follow-up visits that are scheduled from every six weeks to every six months.

One of the doctors said, however, that the duration of radiation and chemotherapy are based on the type of cancer and how well the patient responds, so the number of visits

varies from patient to patient. In addition, most cancer patients were seeing more than one doctor, which increased the number of visits to the hospital or clinic.

Additional Comments

Of the fourteen patients who made additional comments, nine (64.3%) patients had no other comments, but those who did had favorable things to say. One said she thought it would speed up the process of having CAT scans and mammograms. Another saw this program as a potential benefit to patients in general. "This is good for UT. You know, UT is really a progressive hospital and they've made many advances within the past ten years even. They never stop trying new things and this is another way to help patients."

Outpatient Participants

To gain more insight into the mindset of service receivers, additional interviews were conducted with outpatients. Twenty-four patients who were visiting UTMCK for various outpatient tests and procedures were interviewed in the registration area on Thursday, April 4, 1997 and Friday, April 5, 1997. Most were scheduled for the following: MRI, Pet scan, CAT scan, X-rays, cancer surgery follow-up, physical therapy, and endoscopy. Fifteen women and nine men, with an average age of 53, completed interviews. One-half have used UTMCK most often in the past three years. The remaining half of patients went to Blount Memorial Hospital, Ft. Sanders Medical Center, Baptist, Cumberland Medical Center in Crossville, or hospitals in Memphis or Sweetwater, Tennessee.

Outpatient Themes

The outpatient questionnaire was very similar to the one used with cancer patients. Cancer patients' responses are separate because they are a narrow enough group to be used in the pilot program. People coming to UTMCK for outpatient procedures and tests are too varied for a small trial. The following section further outlines the responses given by outpatients:

- 1.) Problems when entering UTMCK
- 2.) Advantages of a patient card
- 3.) Disadvantages of a patient card
- 4.) Incentives to bring the card back
- 5.) Solve Problems

Problems When Entering UTMCK

Overall, the outpatients had few complaints about the service and care they receive at UTMCK. The complaints fell into five distinct categories. When they did complain about having to wait for a procedure or filling out repetitive paperwork, it was primarily in regard to outpatient registration, physical therapy, radiology and endoscopy. During the course of the interview process, several senior citizens mentioned it was difficult to remember all of their previous surgeries and current medications. Because of these complaints, many people wanted more information on the card, like allergies and medical history. Other problems also arose when senior patients were asked to complete registration forms. For instance, one interviewer was asked to help fill out a form because the patient forgot his glasses and was unable to read it. (See Table 7)

Table 7 Problems Outpatients Encounter When Entering UTMCK

Reported Problems	Frequency	Percentage
No Problems	14	58.3%
Repeat Paperwork	4	16.7%
Waiting	2	8.3%
Parking	2	8.3%
Other	2	8.3%
Total	24	100%

Advantages

In general, the outpatients thought a patient card would have several advantages. About half of the patients said having a patient card would make them more loyal. "They would have all your information and know you on a regular basis," said one. Another commented that it would keep him from having to figure out how to complete all the required forms. The remaining patients said they it would make no difference or were unsure if it would. One explained, "This is where my HMO pays for me to go." Whether or not the goals of convenience and time savings were met also was a factor in loyalty. Finally, one patient said it would depend on where her doctor referred her. (See Table 8)

Table 8 Perceived Advantages of Using a Patient Card at Registration

Advantages	Agree	Neutral	Disagree	Total
Save Time	23 (95.8%)	None	1 (4.2%)	24 (100%)
More Convenient	22 (91.7%)	2 (8.3%)	None	24 (100%)
Less Anxious	11 (45.8%)	7 (29.2%)	6 (25%)	24 (100%)
Reduce Questions	24 (100%)	None	None	24 (100%)

During the open-ended portion of the advantages section, several people had comments. Most were in relation to saving time and having to fill out less paperwork. "Things would go quicker, smoother and you would have easier access at the hospital," said one. A few did mention the benefit of having a more complete medical record and that it would be good to have in an emergency situation. "The hospital would have better, updated information on you, including background and medications."

Disadvantages

All but one patient said they would have no problem remembering to bring the card with them each time they returned to UTMCK. One quarter of the patients were uneasy about trusting the card to access the correct information every time. Three people (12.5%) were not sure and three (12.5%) agreed it was possible the card might not work properly. "Anything with a mag stripe has been known to screw up," commented one patient.

Four patients did raise other possible disadvantageous situations concerning patient cards. Two were related to intentional misuse of the card: (1) privacy, (2) losing the card and someone else using it. One person was worried the magnetic stripe would be faulty and the other said that data had to be inputted correctly the first time. (See Table 9)

Table 9 Perceived Disadvantages About Using a Patient Card

Disadvantages	Agree	Neutral	Disagree	Total
Remembering the Card	1 (4.2%)	None	23 (95.8%)	24 (100%)
Access Incorrect Information	3 (12.5%)	3 (12.5%)	18 (75%)	24 (100%)

Incentives

When asked if patients could think of any incentives that would help people bring the card back, only one offered a true suggestion, which was discounts in the cafeteria. One patient said knowing there would be less of a hassle might be enough motivation. “People just forget things and nothing would make them remember it,” said one woman. Another suggested the hospital keep a card as well, in case a patient forgot to bring it in.

Problem Solving

When asked whether the card would help solve some of the problems encountered when coming to UTMCK for tests or treatments, more than half of the outpatients (62.5%) said it would. In answering the first question, many indicated they had never had problems at UTMCK. The remaining nine responses were either “makes no difference” or “don’t know.” The card’s inability to solve problems was not mentioned. (See Table 10)

Table 10 Belief that a Patient Card Would Help Solve Problems When Registering

Response	Frequency	Percentage
Would Solve	15	62.5%
No Difference	5	20.8%
Would Not Solve	0	-
Not Sure	4	16.7%
Total	24	100%

Frequency of Visits

Since it was more difficult to discern the frequency of visits each cancer patient made to UTMCK each month or year, several ranges were developed for outpatients to choose from. A little less than half are frequent visitors to UTMCK. Frequent is defined as more than twice a year. (See Table 11)

Table 11 Frequency of Visits to UTMCK Each Year

Number of Visits	Frequency	Percentage
First Visit	4	16.7%
Less than One	5	20.8%
Between 2-4	5	20.8%
More than 5	6	25.0%
Missing	4	16.7%
Total	24	100%

Chapter 5

Discussion

After synthesizing and evaluating service providers' and receivers' responses to questions concerning the possible implementation of a patient card program, several conclusions can be made. The following chapter:

- 1.) Examines implications discovered in the study,
- 2.) Points out the disparities between specific participant groups,
- 3.) Answers the research questions stated in Chapter 1,
- 4.) Identifies limitations the study faced,
- 5.) Outlines future steps needed in implementing the program, and
- 6.) Suggests topics for further research in the post-assessment.

Implications

Answering these questions and evaluating the transcripts resulted in three main implications for the patient card program at UTMCK. Because each different group, and often members within each group, had differing views as to what type of information should be put on the card, more evaluation, including vendor presentations, will be conducted in the near future. A unanimous decisions was not ever expected in this area, but due to the number and nature of the differences, no firm decision was made during the course of the needs assessment portion of the study. Deciding what medical information to include on the card will take some more time, but UTMCK hopes to implement a pilot program by the summer of 1997.

The type of information to be stored on the card will determine what type is used. For example, if the card will hold only basic identifiers, magnetic stripe technology would be chosen over smart-card technology. Because patient identifiers were the only data to be included on the card, using smart cards would not be an effective way to use medical center resources. However, if a patient's medical history is to be stored on the card, smart cards would best fit this need because magnetic stripe cards are not capable of storing and processing this kind of information. After the needs of an organization are prioritized, it is necessary to evaluate how a system's resources should be applied to a proposed program.

Though not an objective of the study, the researcher found a recurring pattern of mistrust among UTMCK's integrated delivery system regarding validity of information. When a patient moves through the system, he/she has multiple encounters with different offices and departments. However, none of the departments trusts the other's ability to collect complete and accurate medical information. This is especially true where doctors' offices are concerned. Registration personnel within UTMCK said they would not trust the information they received from a doctor's office.

Disparities Between Groups

Though the focus group and key informant interviews were designed to elicit service providers' perspectives on patient cards, it was difficult to categorize these as UTMCK personnel's opinions. Each group had specific concerns and proposed uses for the card. For instance, the out-patient, in-patient and emergency room registration staff

did not think the card would save them any time, while several physicians indicated it would save the patients time by not filling out repetitive forms.

More importantly, many of the assumptions UTMCK staff made about patients did not correspond with actual patient responses. Registration staff said people would not remember to bring their card, while almost 100 percent of the patients interviewed said they would have no problem remembering to bring their card because they would put it with their insurance card. This discrepancy could be partly explained because registration was referring to patients in general, including clinic and TennCare patients, while the cancer patients interviewed were of a much narrower population. However, when outpatients were interviewed, there was no indication as to their particular illness or whether they were TennCare recipients. Only one person said she would have a problem remembering to bring the card back, while the majority of service providers said it would be a problem.

Either the service providers underestimate the responsibility level of their patients or the patients told us they would remember the card, but would really forget it. Determining which opinion is more accurate is not part of this study. However, understanding what motivates patients to return with the card was investigated. Again, there was no consensus. Only four patients (9.3%) said an incentive should be associated with the card. However, incentives were mentioned quite frequently by physicians, registration and staff members.

When introducing the card on a wider scale, bonding or loyalty might be a more prominent advantage. Baptist Hospital does offer free parking to seniors with cards and if

UTMCK were to issue a patient card, it may be good idea to attach a similar type of incentive to it.

As a group, cancer patients and outpatients were not too concerned about the information that could be stored on the card. Again, only 9.4 percent were worried about privacy or incorrect information. Many mentioned putting allergies and medical history on the card because it was hard for them to remember them all or they were tired of filling out duplicate medical forms. This was surprising because the researcher had encountered some strong opposition from service providers about putting medical facts on the card. They were much more concerned about the information that could be stored on a card than the patients were.

Research Questions Answered

The seven research questions which this study set out to investigate were:

1.) What needs do UTMCK service providers want patient cards to address?

The transcripts indicate several potential uses for patient card technology; identification of the patient, re-verification of information/communicating this between departments, and bonding patients to UTMCK and its integrated delivery system. Each of these uses is a direct result of a particular need that exists at UTMCK.

If patients are positively identified each time they visit UTMCK, the number of duplicate medical records can be reduced, and a more complete medical record can be kept. Time can be saved if patients do not have to fill out a new set of forms when they move from department to department. Additionally, a positive match can be made between patient and lab work sent from a physician's office. Finally, because the

healthcare market is extremely competitive in the Knoxville area, many service providers hope to increase market share by bonding patients to UTMCK via a patient card.

Ultimately, the card will be used for identification purposes and/or to carry medical information, and will hopefully serve as a marketing tool to tie the patient to UTMCK.

2.) What patient populations do service providers think would benefit most from a patient card?

A complete listing of potential populations was mentioned in Chapter 4, but cancer patients were chosen for a number of reasons. First, this population was identified by every group of service providers and fit the criteria of repeat, regular visits. Because these patients frequently visit the hospital, the number of times they use the card can be more easily tracked. Second, registration personnel and physicians identified cancer patients, especially those undergoing chemotherapy, as more responsible than the average clinic patient. In short, they would be more likely and more motivated to bring the card with them each time they visit UTMCK. Third, the head of oncology surgery was in favor of this program and allowed the researcher to interview 19 of his patients.

It is interesting to note that the outpatient responses were very similar to the comments made by cancer patients. Of course, each distinctive group of patients will have different needs, but the need to register and be identified correctly upon arriving at UTMCK are characteristics of any patient group. Whether cancer patients are more responsible than other groups of patients is beyond the scope of the study, but the transcripts do show oncology patients visit UTMCK more frequently. For a pilot study to

accomplish the goal of evaluating a service, in this case, patient cards, the card needs to be used as often as possible.

3.) What concerns do UTMCK service providers have regarding patient cards?

The concerns UTMCK staff had about patient cards were directly related to the department or position each was associated with. Physicians were reluctant to trust medical information placed on the card, primarily for liability reasons. They repeatedly indicated that bad information was worse than no information in most cases.

Registration personnel within the hospital were worried a patient card would actually slow down the process if they had to reissue cards to patients who had lost or forgotten them. They also were hesitant to trust any information on the card that came from a doctor's office. Finally, hospital registration staff indicated the program should proceed with caution and not give the patient any false expectations.

Service providers from UHS, the company that oversees the managed offices, differed in opinion. One said she did not think there was a big problem with identifying patients and the card might not help at all. She stressed that the registration process did not take very long to begin with and patients did not have to fill out repetitive paperwork at each visit. The other UHS interviewee wanted to use a high end card or smart card to transport information from a physician's office to the medical center. He wanted to give the patient an added value and entice him/her to return to UTMCK. Plus, patients visiting physicians' offices managed by UHS might be inclined to visit UTMCK if they had their portable medical record on the card.

4.) What problems do patients have when entering the hospital?

Problems mentioned most often by patients were repetitive paperwork and waiting for visits or tests (30.2%). These were the only problems that could be addressed with a patient card program. Overall, most of the patients were very complimentary of the care they receive at UTMCK, but they did voice their aggravations about giving the registration staff or lab technicians their medical histories over and over again.

5.) What concerns do patients have about using patient cards?

As a group, the patients did not have any over-riding concerns about using patient cards. Only four patients (9.3%) were worried the card might not access the correct information. None of them were hesitant about putting medical information on the card. In fact, many felt the more information placed on the card, the better. Cancer patients who were asked about other possible disadvantages could not think of any. Outpatients mentioned privacy, someone else using a lost card, magnetic stripe malfunction and data being incorrectly input.

6.) What need(s), as identified by the researcher, does the patient card program fit?

Based on the transcript synthesis, the most feasible use for patient cards at this point is identification of patients. Demographic data can be stored on card and will access the patient's record from the database. Addressing the need to reduce duplicate records, cut down on repetitive paperwork, and positively identify patients appear to be the most logical applications.

As the program expands, UTMCK may be able to focus on the need for better communication between departments. For instance, a physician's office could print out lab work orders when the card is used, which would accompany the specimen to the

medical center lab. Both types of cards have software programs capable of printing such a form. Smart cards will hold more portable information to be added to the patient's chart when he or she returns to the hospital. Magnetic stripe card technology also can be upgraded to hold more information with read/write capabilities.

Secondly, the program may serve as a bonding tool for UTMCK. This may not be as important in the pilot program because the cancer patients indicated they were very happy with their doctors and the care they received at UTMCK. For them, this is a more influential factor than a magnetic stripe card with their name on it. Less than half (42.1%) said a card would make them more loyal to UTMCK. In a larger application involving clinic patients, the loyalty issue appears to be more founded. Fifteen patients (62.5%) waiting for outpatient tests said they would be more loyal to UTMCK.

This difference may be attributed to the fact that cancer patients are undergoing extensive medical treatment and are seeing multiple doctors. Because they have a serious illness, the care they receive probably outweighs free parking or discounts at the cafeteria. A few indicated they would continue to fill out forms and wait because they were very pleased with the care they received from UTMCK's doctors and staff.

7.) What issues need to be addressed before implementing a patient card program?

Reluctance by registration staff appears to be the biggest issue that should be addressed before implementing a patient card program. Out-patient registration and in-patient admitting would not be as affected during the pilot program because cards will be issued to a small population, but eventually this barrier must be overcome.

Mistrust of information is another issue to be considered. Ultimately, the hospital registration staff will have to trust the physician's office information and departments within the hospital will have to trust each other's information. At some point, the assumption that the information is correct will have to be made for a patient card program or a central database to work for that matter. One partial solution to this recurring problem may be to look at the date of when the card or record was last updated.

Computer interfacing and software compatibility are essential components in the success of a patient card program. Determining which work stations will have the technology to read cards and how they are to be linked together also is necessary. The more different systems that must be linked, the more complicated the software program has to be. This study did not examine this issue specifically, but it did consider it a factor for successful implementation.

Limitations

Because this was an applied study, current environmental situations can influence the nature of respondents remarks. First and foremost, all the service providers who were interviewed had vested interests in how, and if, the program was implemented. The patient card program would not drastically alter the way registration was done in any of the departments, but change would be necessary. As with any organization, ongoing political and internal struggles exist that may affect the responses.

There was an underlying concern about job security when many of the key informant interviews were being conducted. By introducing the concept of a patient card program, many felt like their job performance was being criticized. Registration within

the hospital and in UHS assured the researcher that registration and information gathering was functioning very smoothly and there were few misidentified patients. Furthermore, if duplicate records did exist, it was a problem out of their control in most cases. Proposing this program was not meant to imply any member of UTMCK staff was doing a less than adequate job, but the researcher was given the impression that certain individuals felt that way.

Second, the nature of health care records and medical record systems makes the process infinitely more complicated. No standard medical record database exists and standardized health care probably will never be recognized in the United States. The proposed patient card system works directly with existing medical record systems. For this type of program to achieve maximum efficiency, the problems associated with medical record keeping will have to be addressed. That is definitely beyond the scope of this study.

Third, UTMCK is implementing a new computer system within the next two years. There were some concerns by members of registration and computing services about how this program would interact with the new one. Many also wondered if UTMCK could afford to implement a new medical information system (MIS) and the patient card system. Further, some asked if a patient card program would even be necessary with the MIS program. Personnel in computing services were the group most concerned about this.

Fourth, during the course of this study, the researcher learned that a local competitor had implemented a magnetic stripe patient card program for seniors. When senior

patients present their card, they receive special benefits, like free parking. It could not be determined exactly what type of information was stored on the card. The fact that a local hospital had instituted such a program put a more urgent emphasis on the proposed program, especially from offices that had not been previously considered as part of the key informant population, like marketing. This did not alter the way the study was conducted, but it was a factor that had to be taken into consideration.

Finally, in the midst of this study, the University of Tennessee, Knoxville, announced it would request the Tennessee Legislature to evaluate UTMCK. This could result in a number of outcomes. Whether this had any direct effect on the responses given by UTMCK staff and physicians is not known, but it must be considered as a possibility.

Suggestions for Further Research

Once the pilot program is firmly established, a user satisfaction study should be performed. Using this study's results as a basis for comparison, it would be interesting to learn if patients' expectations about the program were being met. For instance, a majority thought using a patient card would save time when registering. A study should be conducted to see whether or not this is true. UTMCK service providers also need to be surveyed or interviewed to rate their satisfaction level. By determining what service providers and receivers like or dislike about the program will give UTMCK an idea of changes that might need to be made before expanding the program.

Since this study concerned itself with assessing UTMCK's needs in relation to a patient card, and determining what patient population was most appropriate to use in a pilot program, the next logical step would be to choose groups for expansion. A study

should be conducted to find out what other patient groups would be most likely to need and use this technology. It could build on this study's alternate groups or start over to see if the same groups were mentioned again. A study on how to proceed with the expansion needs to be done.

When the pilot program is nearing completion, a feasibility study should be conducted. Incorporating the results of the satisfaction study along with budgetary constraints and cost-effectiveness will provide UTMCK administration with the necessary information to determine whether or not the continuation of the patient card program is feasible.

Bibliography

Bibliography

- Aldred, Jim. Telephone Interview. Sun Health Systems, Phoenix, Arizona. Feb. 5, 1997.
- Allen, Catherine. (1995). "Is There a Smart Card in Your Future?" The Bankers Magazine, Jan.-Feb., 178 (1), 38-40.
- Ali, Mir F. (1994). "Plastic With a Brain." CMA Magazine. May, 68 (4), 11-13.
- Amoroso, Louis & Pollokoff, A. Mark. (1990). "Healthcare Provides Many Opportunities for Card Technologies." Healthcare Informatics. December, 38-39.
- Anderson, James G. & Jay, Stephen J. (1985). "The Diffusion of Medical Technology: Social Network Analysis and Policy Research." The Sociological Quarterly. 26(1):49-64.
- Anonymous. (1993). "American Health Information Management Association. Position Statement Issue: Patient Cards." Journal of Ahima, Nov. 64(11):107-8.
- "Answers to Frequently Asked Questions about Medical Smart Cards." (1996). *Health Care Technologies*. <http://www.hot.com/faq.htm>. Aug. 8.
- Baker, Tim. (1996). "Leaders in Card Evaluation and Development Kits." *Gemplus Card Development Kits*. <http://www.gemplus.com>.
- Brandt, M. (1993). "Patient Cards: Don't Leave Home Without Them?" Journal of Ahima, Nov. 64(11):78-80.
- Broom, Glen M. & Dozier, David M. (1990). Using Research in Public Relations: Applications to Program Management. (pp. 325-330). Engelwood, NJ: Prentice-Hall, Inc.
- Coleman, James S., Katz, Elihu, & Menzel, Herbert. (1966). Medical Innovation: A Diffusion Study. 227pgs. Indianapolis, IN: The Bobbs-Merrill Company, Inc.
- Durant, P., Bérubé, J., Gamache, A., Ardouin, P., Papillon, M. & Fortin, J. (1995). "Microprocessor Card Software to Support the Quebec Health Microprocessor Card Project." MEDINFO '95 Proceedings, 340-343.
- Engelbrecht, R., Hildebrand, C. & Jung, E. (1995). "The Smart Card: An Ideal Tool for a Computer-Based Patient Record." Medinfo '95 Proceedings, 344-348.
- Fancher, Carol H. (1996). "Smart Cards." Scientific American. August, 40-45.

- Fitzmaurice, JM. et. al. (1993). "Patient identifiers: Stumbling Blocks or Cornerstones for CPRs?" Healthcare Informatics, May, 10(5):38-40, 42.
- Fox, Barry. (1995). "ID Cards for a Smart New World." New Scientist. May 6, 146, 22.
- Frey, James H. & Fontana, Andrea. (1993). "The Group Interview in Social Research." In Morgan, David L. (Ed.) Successful Focus Groups: Advancing the Art. (pp.20-34). Newbury Park, CA: Sage Publications, Inc.
- Gallant, John. (1995). "Smart Cards..." EDN. November 23, 34-42.
- Gottesman, LE. (1992). "Patient card: Storage and Input for Medical Data." Topics in Health Record Management, March, 12(3):64-76.
- Greenbaum, Thomas. (1993). The Handbook for Focus Group Research. (pp.1-33) New York, NY: Lexington Books.
- Hassig, J. (1993). "Health Security Card: Missing Link? Or Political Gimmick?" Healthcare Informatics, Dec., 10(12):48-50,52,54.
- IDAT Consulting. (1996). "Magnetics: Magnetic Stripe." <http://www.idat.com:80/tmags.html>. Feb. 15.
- Knodel, John. (1993). "The Design and Analysis of Focus Group Studies: A Practical Approach." In Morgan, David L. (Ed.) Successful Focus Groups: Advancing the Art. (pp.35-50). Newbury Park, CA: Sage Publications, Inc.
- Kreuger, Richard A. (1994). Focus Groups: A Practical Guide for Applied Research. (pp.54-55). Thousand Oaks, CA: Sage Publications, Inc.
- Kuhnel, E., Klesper, G. & Engelbrecht, R. (1994). "Smart Cards and Their Opportunities for Controlling Health Information Systems." International Journal of Bio-Medical Computing. 35 (Supplement 1), 135-157.
- Lavoie, G., Tremblay, L., Durant, P., Papillion, M., Bérubé, J. & Fortin, J. (1995). "Médicarte Software Developed for the Quebec Microprocessor Health Card Project." MEDINFO '95 Proceedings, 1662.
- Lindberg, Donald A.B. (1979). "The Development and Diffusion of a Medical Technology: Medical Information Systems." Medical Technology and the Health Care System: A Study of the Diffusion of Equipment-Embodied Technology. (pp.201-239). Washington, D.C., National Academy of Sciences.

- Lindeman, Carol A. (1981). Priorities Within the Health Care System: A Delphi Survey. Kansas City, MO: American Nurses' Association, 8-9.
- Lindley, Robyn A. & Pacheco, Frank. (1995). "Smart Practice: Smart Card Design Considerations in Health Care." Medinfo '95 Proceedings, 349-353.
- MacDonald, E. (1993). "Patient Cards and the Electronic Patient Highway [editorial]." Journal of Ahima, Nov., 64(11):39-40.
- McAndrews, Christine. (1993). "Waiting for the US Smart Card Explosion." Solid State Technology. Aug., 36, 20, 23.
- McCart, A., (1993). "Patient ID Cards: Passports to Care." Medical Claims Management, May-June, 1(2):56-9.
- Morgan, David L. & Krueger, Richard A. (1993). "When to Use Focus Groups and Why." In Morgan, David L. (Ed.) Successful Focus Groups: Advancing the Art. (pp.3-19). Newbury Park, CA: Sage Publications, Inc.
- Nazareth, A. (1992). "Fourth Global Congress on Patient Cards & Computerization of Health Records, Berlin, Germany, May 25-28, 1992." AMRO, Aug., 33(2):11-2.
- Pangalos, G. (1992). "Design and Implementation of Computer-Readable Patient Data Cards—Applications in Europe." Medical Informatics, Oct.-Dec., 17(4):243-56.
- Paradinas, P.C., Dufrensnes, E. & Vandewalle, J. (1995). "CQL: A Database in Smart Card for Health Care Applications." Medinfo Proceedings '95, 354-357.
- Patrikas, E.O. (1992). "Research Review: investigation of keyless data capture technology in medical record academic curricula." Topics in Health record Management, March, 12(3):77-86.
- Quick, Gary. (1994). "Introduction to Smart Card Technology and Initial Medical Application." Journal of the Oklahoma Medical Association. Oct., 28, 454-457.
- Roberts, C. (1993) "A Report on the Activities of the Health Identification Card Technical Advisory Group (TAG) of the Workshop on Electronic Data Interchange (WEDI)." Journal of Ahima, Nov., 64(11):66, 68-9.
- Rubin, Paul. (1996) "PCS: Success-It's in the CARDS." <http://www.teledotcom.com>. Aug. 5.

Rushing, Steve. (1992). "Healthcare Smart Cards: Tragedy in Plastic? Or a Happy Ending Waiting for a Venue?" Health Informatics. Dec., 22-24.

Seidman, Stephan. (1990). "Smart Cards in Medicine." Journal of Medical Systems. Nov. 3, 14(3), 145-147.

"Smart Card-Based Medical Care." (1996). *Precis HealthCare System*.
<http://www.precis.com>.

Watson, Sharon. (1994). "The New Star of Cable TV: Smart Cards." Health Data Management. May, 2(4), 60, 62-64.

Witkin, Belle Ruth & Altschuld, James W. (1995). Planning and Conducting Needs Assessments: A Practical Guide. (pp. 1-293). Thousand Oaks, CA: Sage Publications, Inc.

Appendices

Appendix A
Pre-Assessment Document
PATIENT-HELD HEALTH RECORDS
EVALUATION AND PLANNING PROJECT
PROPOSAL

The University of Tennessee Medical Center at Knoxville

September 1996

Executive Summary

Patient-Held Health Record (PHHR) systems have been used in many healthcare facilities to reduce the cost of patient registration by decreasing time and errors. These are pocket cards that can store information about the patient's identification, insurance, medical history, medical record, and prescriptions. The PHHR cards also provide information when and where it is needed. For example during an emergency, records of previously existing medical conditions would be available.

This document presents a proposal for evaluating and planning the application of a PHHR system at UT Medical Center. The project will focus on identifying the needs of the Medical Center that could be addressed by the PHHR method, identifying the population of patients that should use the cards, determining the return-on-investment from the use of PHHR, and if justified, developing an initial plan for implementation.

Problem Statement

When a patient enters a hospital or other healthcare facility, they are required to provide their name, address, phone number, insurance carrier and number, primary physician's name, medical history, and other information necessary to provide their care. Often as they visit other departments in a hospital, they must provide the same information several times.

If the patient carried a pocket card (PHHR) containing this information, the process of obtaining this data would be faster and more accurate. The hospital could save cost in the time to enter the information at multiple locations during multiple admissions and in the reduction of errors. In addition, a PHHR can be used for positive identification of the patient anytime that a procedure is performed or when a lab sample is taken.

A PHHR program has the potential to reduce healthcare costs and to increase patient satisfaction.

Patient-Held Health Record Cards

Developing technology has provided at least two methods for patients to carry their patient records with them. The "smart card" is the size of a credit card with an integrated circuit containing memory storage

and an optional processor. In addition to simple storage of data, the processor offers the capability of a security hierarchy with passwords for various levels of care providers and other "smart" functions.¹ Present storage capacity is 8K bytes with 16K bytes expected in 1997.²

Another technology being used is the optical memory card. These objects are like a CD-ROM on a credit card. Though the cards have relatively large data storage (2.86M bytes), they do not have a processor. This technology has only been referenced a few times in a library search.¹

The popularity of the smart card over the optical memory card for health records is evidenced by the table in this document showing nineteen projects for the smart card. A major factor in this utilization is the capability of having the processor for intelligent security which is critical healthcare. An additional advantage is that integrated circuit technology is continually increasing the storage capacity of the cards. A project can start with a low capacity card and almost seamlessly upgrade to a higher capacity by issuing the advanced card to individuals in the card holding population (e.g. German insurance card²). One important task in the evaluation project is to determine the best type of card for use at UT Medical Center.

Benefits

For a PHHR card project to be successful, it must be beneficial to patients, care providers, and the hospital organization. Some of the potential benefits are listed below:

- Rapid and accurate patient registration
- Portability
- Up-to-date records
- Ownership by patient
- Privacy of data
- Support for repeat prescriptions
- Drug contraindications
- Immediate and secure access to patient records and history from a number of locations within a building or health care system

Additional benefits especially from the hospital administration and healthcare provider perspective follow:³

- Speedy reimbursement for products and services
- Reduced paper flow and dramatic cost reductions
- Instant two way information flow and off-line information access
- Reduced fraud and increased patient confidentiality
- Simplified administrative processes
- Convenient data storage

Based on the Oklahoma City project, the following expected cost savings have been projected:⁴

- Health care practitioners in various locations and practice environments will be linked to critical medical information needed to implement appropriate emergency treatment.
- Availability of a standardized database at every medical care encounter can bring efficiency to many repetitious processes and prevent inappropriate or redundant testing or treatment.
- The recognition and prescription of medications can be accomplished more accurately.
- Pharmacists may recognize and intervene if medication conflicts exist or are

contraindicated in such conditions as pregnancy.

- A new sense of partnership among patients, physicians and other members of the health care team may be promoted.
- Physicians and other providers may be prompted to carry out prophylactic and preventive measures when accurate knowledge of the patient's condition is available at the encounter. Reminders can be generated in a timely manner for each practitioner participating in the patient's care.

Issues

Some issues that should be considered in a PHHR project are shown below:

- Benefit to patients to get their support
- Forgetful human nature of patients
- Cultural bias against medical cards
- Fear of invasion of privacy
- Care provider allegiance
- Accuracy, security, and applicability

Technology

Technology to support Patient-Held Health Records is rapidly advancing based on research in integrated circuits and data storage methods. All types of applicable technology should be considered in the project including the previously mentioned smart cards and optical memory cards.

Smart cards are the size of the standard credit card and are carried by the patient. When a patient has a transaction (e.g. registration, insurance confirmation, diagnostic test, or procedure) with a care provider or staff person, the card is placed in a reader connected to a standard desk computer. Information read from the card is transferred to the computer to provide accurate data about the patient. The reader is also capable of adding new information to the card or modifying previous information.

Typical costs for the smart cards are shown in the table below. These costs are based on verbal budgetary pricing from a card vendor. In addition to the card cost from a vendor, there would be a cost for integrating the cards with a patient record system. An integrator would provide software to transfer the card data to the patient's record and to write the card from the record. This cost could be a one time charge or could be added to the card cost. Creative ways to assist in paying for the cards have been used in other programs. These include having sponsors with their message printed on the card. Readers for the cards cost approximately \$130 in quantities of 100 and interface to a standard desk computer.

BUDGETARY SMART CARD COST ESTIMATE

STORAGE CAPACITY	PURCHASE QUANTITY	COST
256 bytes	100K	\$2.50
	10K	\$3
	1K	\$4
2K bytes	100K	\$7
	10K	\$9.50
	1K	\$15
8K bytes	100K	\$11-12
	10K	\$14
	1K	\$19

Applications

Existing Projects

Several prior projects using smart cards for health care have been documented in the literature. As shown by the list on the following page, these projects are international in scope. In fact, the experience in the United States is much less than in other countries. This offers the opportunity for UT Medical Center to be a leader in the use of these cards on a national basis.

The project in Germany has had the highest distribution of cards of any project worldwide. Cards containing identification and insurance information have been distributed to 80,000,000 residents. The use of these low cost cards have paid for the project in one year due to decreased time to register and identify patients and to error free data entry. Cards are now being upgraded to higher capacity.²

A project in Oklahoma City has card readers in emergency response vehicles and in hospital emergency departments to allow care providers to respond to the patient's condition with knowledge of the medical history. In addition to card readers on emergency vehicles and at six area healthcare centers, eight pharmacies have readers to service the smart card and enter information as requested by the patient.⁴

The DIALYBRE smart card system is used to improve the quality of care of patients needing kidney dialysis. This system was developed in France and is now expanding to other countries such as Spain and Canada. In addition to storing the usual information on patient identification, medical history, and prescriptions, these cards store data to automatically configure the dialysis machine and information from the patient's previous fifteen dialyses.⁵

In the Houston, Texas, project, the cards have security levels for different categories of medical center personnel. These people can access specific areas of the cards depending on their passwords and update privileges.¹

Populations

Patient populations using smart cards in previous projects follow:

- Patients 60 years and over

- Pregnant women
- Infants under 18 months
- All patients
- Renal dialysis patients
- Diabetic patients

Information

The types of information stored on cards in previous projects follow:

- Prescriptions
- Patient identification
- Insurance
- Emergency history (personal and family)
- Screening tests
- Vaccinations
- Drug profile
- General follow-up
- Specific follow-ups (pregnancy, ophthalmology, kidney failure, cardiology, pediatrics, diabetes, pneumology)
- Blood group
- Transplant compatibility factors
- Previous encounter history (e.g. previous fifteen dialyses)
- Next of kin

Access Points

Access points where cards can be read and written in previous projects follow:

- Emergency department
- Emergency medical services vehicles
- Outpatient registration
- Inpatient registration
- Renal dialysis
- Hospital procedure clinics
- Patient routing identification
- Pharmacy

Access Levels

With the smart card, health care personnel can access data according to their need. Some examples are shown below:

- Identification for anyone
- Emergency - information for emergency personnel without patient permission
- Medical records for physicians - Physicians with identify card and patient permission
- Read only, add only, modify or erase, no access (e.g. ciphering codes)

Smart Card Projects

The table on the following page shows smart card projects documented in the literature.^{1,3-17}

Smart Card Healthcare Programs				
Location	Project Name	Information Stored	Population Using Cards	Cards Issued
Canada, British Columbia		Identification		
Canada, Quebec, Rimouski		ID, emergency, history, screening tests, drug profile, vaccinations follow-up	seniors, pregnant women, infants, St. Fabien	
Canada, Saskatchewan		Identification		
France	Dialybre	ID, emergency, detailed dialysis configuration, pharmacy expenses, consultation, ambulance, blood group, transplant compatibility	kidney failure patients	20,000
France, Italy	C3S	insurance payment system	4 French cities	80,000,000
Germany		identification, insurance	all residents	
Japan	Dialybre	ID, emergency, detailed dialysis configuration, pharmacy expenses, consultation, ambulance, blood group, transplant compatibility	kidney failure patients	
Japan		patients use to obtain medical care		
Portugal				
Sardinia		tracking patient care history		20,000
Singapore		patients use to obtain medical care		
Spain				
Sweden		patients use to obtain medical care		
England, London		complete records of prenatal care, ultrasound images, test results		
England, Exmouth	Care Cards			
Oklahoma City, Okla.	Medicard	ID, allergies, diagnosis, emergency contact, physicians, procedures, medications, insurance	all residents	100,000
Houston, Texas		patient records with security levels	indigent patients	
Madison, Wis.		ID, drug profile	elderly	500
San Luis Obispo, Calif.		ID, vaccinations	children	
New York, New York		ID, physician, allergies, medications		

Project Plan

9.1 Project Goal

To develop a plan for the implementation of Patient-Held Health Records at UT Medical Center which will result in more cost effective care, better patient satisfaction, and improved health care.

9.2 Plan of Work

Four phases of the project are shown below:

1. Evaluate needs in the Medical Center that could be addressed by the use of the PHHR technology.
2. Select a patient population for application of PHHR where a good return-on-investment is predicted.
3. Select and develop appropriate technology to address this need.
4. Report on results by creating a proposal for implementing a PHHR system at UT Medical Center if justified.

In a project of this type, many functions will proceed in parallel. For example, while we are addressing the needs for applying the PHHR technology, we will also be acquiring information on the technology so that this knowledge will be available for decision making later in the project. Thus the four phases will not be totally serial.

The project is expected to involve a Project Manager who will be responsible for directing the project. This includes developing project plans, acquiring personnel, leading sub-projects, reviewing results and quality, monitoring budgets, reporting progress, and interacting with the Steering Committee. A Secretary will assist with administrative and support functions. Other primary contributors to the project are defined as a Graduate Student, Student Assistant, and Consultant.

The Graduate Student will perform the critical task of recommending the population for distribution of PHHR cards. This will include evaluating the needs of different patient populations which have encounters with the Medical Center, determining the patients' response to the use of a PHHR card, and supporting evaluation of return-on-investment. A graduate student in the Department of Communications at UT Knoxville has been identified as a potential person for this function. This student is discussing the project with a faculty committee and has received positive comments. It is expected that this project would be the basis for the student's thesis.

Another person would work as a Student Assistant on the project to provide the daily tasks in investigation, evaluation, and reporting. This student should have good skills in performing as a project team player to do "what is needed," good communication skills, and a general knowledge of computers and technology.

A Consultant will be contracted on a part time basis to provide knowledge from other projects and the PHHR industry. This consultant should be experienced in taking previous PHHR projects through the process from planning to implementation and evaluation. A Steering Committee to include the benefactor will be selected by the Executive Vice-Chancellor of UT Medical Center. This committee will guide the project and monitor its progress.

9.3 Project Schedule

The following is preliminary schedule and will be evolved through project experience and consultations with the Steering Committee.

Month 1

- Organize project.

- Hire Student Assistant.
- Finalize agreement with Graduate Student.
- Identify Consultant.
- Provide status report to Steering Committee.

Month 2

- Student Assistant expands knowledge base on literature and vendors of technology.
- Student Assistant identifies potential patient populations.
- Consultant reviews and advises on organization and scope of project.
- Project review meeting with Steering Committee including Project Manager.

Month 3

- Graduate Student investigates hospital needs of patient populations and potential rates-of-use (return-on-investment)
- Student Assistant, with advice of Project Manager and Consultant, projects technology scenarios for populations considered by Graduate Student.

Month 4

- Graduate Student evaluates population reaction to the potential use of a PHHR card
- Student Assistant, with advice of Project Manager and Consultant, projects return-on-investment based on information from hospital administrative staff.
- Project review meeting with Steering Committee including Project Manager.

Month 5

- Preliminary population of patients is selected for more critical evaluation.
- Student Assistant, with advice of Project Manager and Consultant and review of appropriate hospital administrative staff, matures technology scenario for the selected population.
- Graduate Student and Student Assistant with support of hospital administration, Project Manager, and Consultant analyze return-on-investment and likelihood of project success using selected population.
- If necessary, project population is modified and reevaluated with appropriate impact on project schedule.

Month 6

- Project review meeting with Steering Committee including Project Manager reviews conclusion of population evaluation and expected benefits.
- Student Assistant, with advice of Project Manager and Consultant, develops technology implementation plan for the selected population.
- Technology implementation proposal is reviewed with appropriate hospital administration staff.
- Graduate Student writes thesis.

Month 7

- Student Assistant, with advice of Project Manager and Consultant, completes technology implementation plan for the selected population.
- Final project review meeting with Steering Committee includes implementation plan proposal, if justified.

Bibliography

1. Amoroso LA and Pollokoff AM. Healthcare provides many opportunities for card technologies. *Health Care Informatics* December 7, 1990: 38-39.
2. Dent M. Gemplus, private communication.
3. Rushing S. Healthcare smart cards: tragedy in plastic? Or a happy ending waiting for a venue? *Health Care Informatics* December 9, 1992: 22, 24.
4. Quick G. Introduction to smart card technology and initial medical application. *Journal Oklahoma State Medical Association* October 1994; 87: 454-457.
5. Baker T. Gemplus card development kits. Gemplus.
6. Answers to frequently asked questions about medical smart cards. Health Card Technologies, Inc. www.hct.com/faq.htm.
7. Durant P, Berube J, Lavoie G, et. al. A microprocessor card software server to support the Quebec health microprocessor card project. *MEDINFO 95 Proceedings*: 341-343.
8. Engelbrecht R, Hildebrand C, Jung E. The smart card: an ideal tool for a computer-based patient record. *MEDINFO 95 Proceedings*: 344-348.
9. Fancher C. Smart cards. *Scientific American* August 1996: 40-45.
10. Kuhnel E, Klepser G, Engelbrecht R. Smart cards and their opportunities for controlling health information systems. *International Journal of Bio-Medical Computing* 1994; 35: 153-157.
11. Lavoie G, Tremblay L, Durant P, et al. Medicarte software developed for the Quebec microprocessor health card project. *MEDINFO 95 Proceedings*: 1662.
12. Lindley R, Pacheco F. Smart practice: smart card design considerations in health care. *MEDINFO 95 Proceedings*: 349-353.
13. Ognibene P. Smart pharmacy cards to automate patient records for prospective drug utilization review. *AMIA, Inc.* 1992: 906-908.
14. Paradinas PC, Dufresnes E, Vandewalle J. CQL: A database in smart card for health care applications. *MEDINFO 95 Proceedings*: 354-357.
15. Smart cards in medicine. *Journal of Medical Systems* 1990; 14: 145-147.
16. Smart card tutorial. Gemplus.
17. Watson S. The new star of cable TV: smart cards. *Health Data Management* May 1994 ;2(4): 60, 62-64.

Appendix B

Service Provider Transcripts

1/21/97 Focus Group: UTMCK

Moderator I: Dr. Sam Burgiss

Moderator II: Dr. Susan Dimmick

Speakers: Twelve UTMCK service providers

Questions/Comments posed prior to moderated discussion:

- *Is the reader the same as the writer?*
- *Does the card have the records on it, or does the hospital also have the records?*
- *Can you put an EKG on a card?*
- *Is the reader upgradeable?*
- *Do you have the same readers in all the hospitals?*
- *Administrators at JFK Hospital in New Jersey found the smart card system not cost-effective*
- *Cards used in registration, personnel, and in reducing keystrokes would be of great benefit*
- *Make the cards good for other things, like exiting the parking garage*
- *I am not intrigued with having a lot of data on the card*

Focus Group Discussion:

Moderator II: I would like to thank you for coming to this focus group, this discussion about smart cards, because we want and need your opinion about how they might be used with particular patient populations. Many of the projects in the past have been simply launched without input, so we do need your opinions. Placing the technological problems aside, and solved, and there was a green light to go ahead and you use smart cards, we would ask you which patient populations both need the card and would actually use the card. We want to differentiate at one point in the discussion about those who might need it, and those who would actually go ahead and use the card. But, first I would like you to focus on the use of a smart card and what benefits it may have in improving relationships with patients. So the first question is, which of the patient populations that you work with right now would have the greatest need for repeated identification and verification on a regular basis?

Speaker: Medicare populations

Speaker: Patients with cancer

Speaker: Any chronic disease

Speaker: People who attend the clinics

Moderator II: People who attend the clinics. Are there any particular kind of clinic?

Speaker: Well, they are mostly TennCare. Some are not. **These people have a little identification card now, and they are pretty good about bringing it, and that could be combined with this sort of thing. It would be very helpful.**

Moderator II: So in other words you are suggesting that the card which already serves an identification purpose would have additional information on it that could be read and catalogued. Okay, which of your patient populations must repeatedly give personal facts about themselves and their diagnosis because of the type of illness they have?

Speaker: Does this all apply to this hospital, or with any institution?

Speaker: Yes, this hospital

Speaker: Kidney transplant patients

Moderator II: The kidney transplant patients. Any other types of patients that you have found have to repeatedly tell who they are and where they are in their treatment process or what kind of diagnosis they have?

Speaker: Our diabetic patients

Speaker: The outpatient labs, also. If they have diabetes or blood disease they have come back to test frequently.

Moderator II: Okay, would you define "frequently"?

Speaker: Oh, anywhere from every week to every month it goes on and on.

Moderator II: But, many patients do come back on a weekly basis and they need to say again who they are, why they are here and what they are here for?

Speaker: Well, Dr. Hannah's patients ...

Speaker: People on anti-chloral, anti-coagulates come back very frequently.

Moderator II: When you say "very frequently," how frequently is that?

Speaker: Ah, usually every week for about a month or two, and then every two weeks for another two or three months, and then monthly for life.

Moderator II: Okay. Any other thoughts about repeatedly giving personal facts that if they were able to hand a card, especially a card that had their photo on it so they could be addressed as "Mrs. Jones," and then it would read it and they would not have to go through talking about their recent diagnosis.

Speaker: Any of the populations we already mentioned. Those that apply to the first question apply to the second question, as well.

Speaker: Specifically with the **TennCare patient** we are really talking about the **pregnant patient**, and the largest percentage of the TennCare patients are **women and children**. So that is a different kind of population, and their contact with us is, we hope, limited to nine months, unless they get pregnant again. But, I mean it is not like diabetes.

Moderator II: Okay, I have a question for you. When you talked about registration, "our biggest problem is with registration," by that term do you mean our biggest problem is with identification?

Speaker: Ugh, we are creating enormous numbers of duplicate records. We've got experts here...

Speaker: Yeah, our registration system is such that it did not require that you give more than one identifier to originally log the patient in. I don't know what it is like today. I think it is better now.

Speaker: In our department once you enter someone into the system it assigns them a record number, and if you made a mistake you can't go back.

Moderator II: I see

Speaker: One patient could conceivably have seven or eight different record numbers because someone didn't put in their middle initial, or their address changed or somebody had their social number wrong. There weren't originally, and I go back a long ways here, there weren't originally checks and balances. So that now I could end up having, you now, five or six different medical record numbers.

Moderator II: I see

Speaker: The problem with that, too, is compounded with marriages and changing last names or in the case of lab work. We have a huge reference facility here where the patient doesn't walk in, the specimens are sent over and we're depending on information sent by the doctor's office with that specimen, and in the doctor's office they very well may be known as James Whatever, when it gets here our system may know him as That, Jr. Well, when you pull it up in the system and you are trying to identify it, you don't have a patient in front of you, you just have a lab specimen. And the need is to get it in the system so that the results can be handled by the lab system and then passed to financial system, and unless you've got multiple, unless you got multiple, another set up.

Speaker: This is not a problem with a person

Moderator II: Right, it is a tracking problem.

Speaker: But, if you had a thing in the doctor's office the patient could slip their card in that, and it would print out a slip to go to the lab ...

Speaker: It would be wonderful

Moderator I: And that card uses the same nomenclature that you did.

Speaker: That might actually save some money. Where is Dr. Burgiss? I was going to ask you a question, I suppose Dr. Mercer wanted the black bottom line on this, how does this make you any money?

Well, it makes you money by saving you money.

Moderator I: That's right

Speaker: And that is one way it makes you money, by saving you money. 'Cause what they have right now is utter chaos.

Moderator I: You're exactly right. You're right on the concept to put it in the computer out in the physician's office where it prints out a sheet which tells you the results of the last lab test, and you know the identification, precisely.

Moderator II: Okay, which of your patient populations are under great psychological distress because of their diagnosis and must have frequent, regular treatment or contact with hospital or clinic staff? I mean there are varying degrees of psychological ...

Speaker: I think the same group we just mentioned, except I don't know if pregnancy counts.

Speaker: It was stressful for me!

Speaker: Well, it was for me, too!

Speaker: Just think of how bad it was for those that weren't!

Moderator I: What about cancer patients, in particular? Is that a ...

Moderator II: There are varying levels of the psychological stress ...

Speaker: Cancer, renal patients, any patients with a disease process that is not going to go away.

Speaker: Maybe one way, I don't know how difficult to search medical history, but perhaps one way to go about it, but if you set a number Search the data base ...

Moderator I: One of the thoughts of the mental stress is, I have a friend who is actually on staff here at the hospital. He and his wife found out she had cancer and he actually went place after place, and you are under stress, and about in tears because you have learned this, and you are asked what your name, over and over again. I am not criticizing the process, it is just what we have right now. He just witnessed first hand and that was the reason for this question about mental stress to the patient.

Speaker: In the diabetic database, When you are putting the doctor's name in, sometimes just a tiny difference, just case, and the database was just useless, you try to pull information out of it and it doesn't tell you anything and here in the hospital you really need that information to collect insurance money. And if somebody's gotta go back and correct all that Can it be productive?

Speaker: At a great deal of expense ...

Speaker: So you are talking about saving a lot of money.

Speaker: I work in the outpatient department supervising some, and I think Dr. Register will agree the outpatient records are extremely obscure, difficult to obtain and impossible to read, very incomplete. Work done in the hospital hardly ever makes its way to the outpatient department, and I think anything that would improve access to records would be tremendously cost effective because we waste an awful amount of time, and we cannot get any information.

Moderator II: Except what you are able to prompt the patient to tell you and that record isn't complete ...

Speaker: We ask the patient when they had the x-ray, "Well, gee it was last fall sometime." Well, you can never find an x-ray from last fall. We need to be able to access the data within a reasonable period of time, not spend all afternoon trying to find it. And that causes a lot of stress to the patient and doctor.

Speaker: Creating a card for clinic patients with their past medical history on it would be, well that is a labor intensive thing. To create that kind of card to begin with would be

Speaker: If you could slip that into the computer and get all the information in the computer...

Speaker: But, the data is not in the computer already, that is, it is not there

Speaker: I must admit my personal vote would be that if we have x amount of dollars, I would rather see more cards with less data than fewer cards

Speaker: And talking about out-of-date data being harmful is such a good point

Speaker: That is very important

Speaker: 'Cause otherwise these cards one, they gets more expensive and they get more harmful.

Speaker: When I talked to Sam about this project early on I was, I mean it is a great idea, but knowing what we have now, the mess we have now, and how fragmented the medical information is already, my thoughts were that we either had to use the card for some very basic patient registration, identification issues or we had to choose a population that was small and easily identified, like the diabetic, or the renal, or the transplant patient or uhm ... some small population to test the more sophisticated application on, and then I became concerned just thinking about money about what we are

doing already with our computerized patient records and **God knows we don't want another system out there ...**

Speaker: Yeah, it has got to be coordinated

Moderator I: The two have to fit together. The other point of having a low-end card to a lot of people was the PR, loyalty, bonding concept.

Speaker: Well, if it is a card that is used for patient identification that accesses what we have already in our system, that makes it infinitely more functional and more attractive ...

Speaker: It is going to be almost two years before we get a new system operating. Do you know if our old system interfaces with

Moderator I: We haven't gone to the extent to do that yet. But, what happens is you work with an integrator, and the integrator takes the software that runs the card and ties that to your existing software so that the two can communicate. So that if you put the card in and it reads something it will access the proper date. We haven't spent the time to go into all these different parameters, yet. But, presumably we could do that, and one thought is that while our other system is coming up if we could start communicating with the old system and then merge with the new system. Then that could give us some short term relief, so to speak. That certainly will be investigated. I have other meetings planned

Speaker: You like a card you could update and keep that same number... And that is a real problem

Speaker: And right now our system is, like if I want to register somebody for lab or admission that is ... it is not in PCS, it is in another system

Speaker: Let me go back and emphasize a point about this, would be the need that you could update the information because if you look at the demographic information, that may be a good place to start. But if you look at the TennCare population the state knows 30-40% of those move more than once a year, so the information is only good at the time the patient is in front of you and it is constantly changing. And even if you look at the commercial business, what used to be standard is now yearly changing. **So the ability to update that information because the information is only as good as it is current, so I think we really need to make an emphasis that it could be changed or corrected very easy.**

Speaker: Well, what you want is that you put the card in and you pull up what you have and you change whatever it is on the screen and then it is updated ...

Speaker: Especially with the outpatient side, too, because with the MCOS only do recertification and things like that. That information if I don't get it

Speaker: Does the system automatically tag the date, anytime something is put into the system?

Moderator I: That is a very good idea, and that is something I had thought about. We need to know when that card was last accessed and that can be written on the card to let you know when it might have been updated, the last time. I think that is a very good piece of data that should be there, and that can be done

Speaker: As we get into this there is always the question of cost. I guess as we get into it, maybe not so much as cost, **as what are we not going to be able to do if we do this?**

Moderator II: Okay, which of your patients have a high number of what we call compliant patients - patients who are concerned about their condition and willing to work to improve. In other words, there are a lot of people who could need to use this card but won't. So we are trying to define patient populations who both need it, and have the motivation or ability ... Is it possible to look at a population and now whether probably speaking they are going to be a more compliant group and more likely to use this card? So if we could move away from who needs it, to who actually has the capability of using it.

Speaker: If you **make it the appointment and registration card** most of the indigent outpatients will bring it because they are bringing their little pink or blue cards now. Now, if it is more than one card they won't bring it. **It has to be one card.**

Moderator II: One universal type of card ..

Speaker: I guess, too, you have got to **make it worth something to them.** If it saves them time in line... We can't even get employees to do things that aren't worth something to them. If you consistently ... in the line if you don't have your card you go to the back and everybody who has their card can stay in line ...

Moderator II: What is it about that population that you described that makes them bring their card at this point?

Speaker: They think they won't be seen if they don't bring it. That sometimes is true.

Moderator II: Or, I know now if you don't bring your insurance card because it has to be Xeroxed. You can't just say the number on it. It has to be Xeroxed in many medical facilities. That is a big incentive to keep you insurance card with you. So there could be something like that where they know they aren't even going to have service or get the right test without the card being there, and they have to place the card in the reader because they can't just rattle off a number.

Speaker: They don't know their numbers anyway.

Speaker: Actually, people who do are people who utilize the service. But it is a lot of trouble ... either way it is a payback. **I give them my card, just not having to give all the data would be nice. Who would use the facilities the most would also be the people most motivated to bring their card back.**

Moderator II: Okay, can we recap who would be the people who use the facilities the most?

Speaker: Well, the same ...

Moderator: The diabetics, renal dialysis?

Speaker: Well **not the diabetics**. We want to keep them out of the hospital. But, **the dialysis patients, the cancer patients, chemo, and these people who get a lot of lab work for whatever reason**

Speaker: We mentioned the patients on anti ...

Moderator II: Anti-coagulates

Speaker: Yeah, the rat poison, ugh ... well it is rat poison!

Speaker: Only to rats!

Speaker: But, there is a group of **patients who come back frequently and they are the ones who would be motivated to bring their cards.**

Speaker: You also have a **reward for bringing your card**, so something like when you go through the parking, if you have your card ...

Speaker: Well, **transplant patients ... they'd bring their card.**

Speaker: It would be hard to have one card that got you out free and one that didn't with all the ...

Speaker: In terms of who uses the facilities, we have a lot of data that talks about what our number one type of diagnosis is, but I don't have any data, or **I have very little data about what patient comes here on the average once a month.** I could tell you data about who we admit to the hospital but I don't have any information in addition to that how many times are they registered for ambulatory surgery, or outpatient lab or outpatient surgery. That data is not, it's out there, I just can't get it.

Speaker: You can do it on an individual patient

Speaker: It would be more by financial, wouldn't it?

Speaker: On the kidney transplant patients, when we do outpatient therapy we charge them each time they come in, and it comes up on the screen every visit that they have made.

Speaker: But, you are talking about on an individual basis. I can't ask the system to give me a list of the patients diagnoses or problems.

Speaker: But, can you search the database and say give me all the patients who have had an encounter more than five times a month?

Speaker: I don't know. I can do that with inpatient data, but I don't have outpatient data. Talk to computer services, if they can do that type of search.

Speaker: Another complicated factor is that some patients that we know are going to be back at UT, **we register them once a month.** The patient shows up and they don't have to be registered every time. Other patients come back and we do register them every time.

Speaker: We just register them once. Patients who get blood, they are registered once.

Moderator: But, they have to be identified?

Speaker: They have a number

Speaker: **Because the registration system shows all our patients once for that month. They may have come ten times.**

Speaker: Those are called serial admissions.

Moderator I: Let me raise a procedural issue, we have 'till about fifteen after, we want to stay as long as you do, but the room needs to be used. So at fifteen after we will need to stop and clean up because Dr. Mercer's group is coming in at half after. So keep that in mind. If we don't get through things we may want to do follow up with individuals or follow-up with a group.

Moderator II: Okay, which of your patients are prone to going to multiple physicians? Is that an answerable question? All of them?

Speaker: Yes

Moderator II: Okay.

Speaker: We only have impressions of that.

Speaker: Almost everybody except the folks ...

Speaker: Any patient with a chronic disease process

Moderator I: Which ones are prone to do what you might call "physician hopping"? Instead of going through an appropriate series of primary care specialty, but search around and get drugs here and there and mix them up

Speaker: We are, or the TennCare program is attempting to assign a PCP, or one manager for them, and it would be good if this card could hold that data which would be good for that month until they got mad and changed again. But, that is a population that they are attempting to track ...

Speaker: The primary care provider in TennCare changes every few weeks. The patient doesn't always know who it is.

Speaker: That's right

Speaker: Physician-hopping and searching for drugs is a very limited, specific...

Speaker: Yeah, that is a very small number, except for the TennCare patients

Speaker: There is no way to really answer that.

Speaker: Not within our system. They would probably go to another system. I don't think they start through the building knocking on doors.

Moderator II: Okay, I am going to move now to what we consider to be the two main groups of users of smart cards: hospital, medical staff and the patients themselves. We have to have buy-in from each group in order to make smart cards work. Thinking about physicians, nurses and hospital staff - what benefits might smart cards offer for health care? From your point of view.

Speaker: Are you talking about physicians and staff having one of their own or their patients having one?

Moderator II: Their patients having one.

Speaker: Saving time on the front end

Speaker: Accurate information

Speaker: Theoretically, it will allow one provider to communicate with the other provider

Speaker: Well, the other thing is that right up until such a time as we are able to have some type of central interface grafting all the offices in the hospital, it ought to, once the patient has been registered in one spot, even though the doctor's office computer might not have them registered, once you put the card into his system you ought to be able to have it populate his registration ...

Moderator II: And what concerns might you have about your patients having smart cards? Having portable health records in essence. What concerns you?

Speaker: They will swap them about.

Moderator: Okay, security concerns.

Speaker: Particularly in the clinic they will swap them. A picture might be helpful there.

Speaker: You probably need a picture. At least in the clinic.

Speaker: Well, another thing is if their access to healthcare is entirely dependent on that card, that poses another problem. We have to care for them whether or not they have a card, like in emergency situations.

Speaker: I think in the long run it is going to be a thumbprint or eyeball scan.

Moderator I: That can be done now. I don't know that the cost is any different, thumbprint versus a photo ID. Do you know?

Moderator I: The main thing about the thumbprint is that the cost of a reader at each station. And that is a very feasible technology that a thumbprint can be taken and the parameters be stored on the card so that it is a positive ID. The reader for that thumbprint is a couple hundred dollars, maybe four.

Moderator II: Versus \$130?

Moderator I: Yeah, plus \$130. You still have to have the card reader. So it would be \$200 to \$300 to \$400 dollars. In fact, they have such as piece of technology out of Technology 20/20 that I have seen

recently. And that is a possibility for ID. Another possibility that has a lot of value to the patient in a way in ownership is to put the photograph, like you saw in the illustration.

Moderator II: But, he was concerned about the swapping.

Speaker: The swapping would mainly be in the TennCare population, and I think, **I hate to raise the price of the card to everybody to put a picture on it.** I don't know how much that picture costs, but it must raise the price of the card considerably. I wonder if you want to look at selectively picture cards.

Speaker: Well, the bar-code is the same thing as a thumbprint and a picture, and a lot cheaper.

Speaker: What, are you going to bar-code your skin?

Speaker: No, you will have it on the card.

Speaker: People will then swap cards.

Moderator I: From our registration people, **what about mother's maiden name** type thing that is used? Is that a good password, so to speak?

Speaker: No, that couldn't remember it!

Moderator I: Well, the thumbprint is indeed a possibility. And we will have to see what the trade off with what the additional costs would be.

Speaker: Well, **I don't think we can afford it. But, I think in the long run when the costs come down ...**

Speaker: Are there any perception problems with that ...

Moderator II: That was what I was thinking. The perception problem with the fingerprint in our culture is that the fingerprint is almost intimately associated with criminality, and if you are going to bond people in a positive way to the institution, I 'm not really sure if the thumbprint is ...

Speaker: But, on the other hand when you get to personnel getting into the computer, and keep from having to do passwords - **just walk up there and stick your thumb on it and it pops you up - that would be ... They won't worry about the criminality issue. It saves time**

Moderator I: Incidentally, to throw in something on the cost of the card, the possibility to put advertisement on the back of the card and get the advertiser to help pay for the card.

Speaker: **My dad used to write prescriptions, and this drugstore advertised on it, and they really criticized ...**

Moderator I: Well, that would be totally up to administrative review, of course.

Moderator II: What characteristics of the smart card themselves would there have to be in order for you to feel like you could use these cards? Just looking at general characteristics of the card, itself.

Speaker: **They would have to be almost exactly the same size as a credit card.**

Moderator II: Exactly the same size as your current credit cards for your wallet.

Moderator I: Did you get to see the one we passed around, Dr. Register?

Speaker: And **there would have to be something on it that would let you know that it really belonged to the person holding it, and there would have to be something on there to tell you when it was last used.**

Moderator II: When it was last written on ... and probably also who wrote on it as a security check.

Speaker: **Particularly in the TennCare people because most other things change once a year ...**

Speaker: **It might not be a bad idea to have, "If lost return to..." ... a central location.**

Moderator II: Okay, good idea. I am going to ask you to put yourself in the patient's shoes right now, and give me what you think they think about smart cards. What benefits, if you were the patient, would you perceive a smart card to have?

Speaker: **Not having to repeat information**

Speaker: **Quicker access**

Moderator II: **Quicker access to the care or treatment ...**

Speaker: Well, if I were a geriatric patient, which I am rapidly approaching, and I forget what drugs I am on, or I might forget. If I were a patient it might be helpful to have that on my person, so I could say, "read the card."

Speaker: Of course the other alternative to that, assuming we ever get a new system, is that you plug the card into the system and that data could be available. I guess I just have grave doubts about the reliability of medical information on the card because it is static, and things happen between the time it was last updated. Kind of like in the Army, in the military you never ever, under any condition,

pay attention to the blood type that is on a dogtag. If you do you're doomed. It is the same thing as data on the card. It is hard to rely on the data

Moderator II: So other than identification ...

Speaker: Well, other people may feel differently ...

Speaker: I see this as, if we have a new computerized information system that had links to our old optical system, then an accurate identifier, I could see that as being the most useful benefit, so you had accurate, appropriate, updated demographic information you can plug into a new system and it gives you the medical records. Then as a physician you could feel more comfortable.

Speaker: With the card, I would be uncomfortable if it could not access whatever type of encounters I could have, not just acute therapy, like outpatient or lab work or physical therapy. What good is that card going to if it can't access that information in all of those encounter points ...

Speaker: Yeah, you rapidly become disenchanted if it doesn't...

Speaker: Yes, with whatever patient population that is chosen it would have to access that little information and whatever encounter point I had in this healthcare system.

Speaker: You are still going to have to put it all on the card

Speaker: Yeah, that is a real issue

Moderator II: Your point that within the culture of being a physician you are actually prohibited from trusting information from an external source, other than identification ...

Speaker: Well, I don't know, others may feel different. But, I work in situations now where we depend on nurses to type the medication changes, and it is very hard to know whether that is updated, unless it is something that ...

Speaker: You could have them list in admissions for the hospital and why ...

Moderator II: Well, thank you very much. We will probably be back in touch. We appreciate your time.

Focus Group Results Summary:

1) Which of your patient populations have the greatest need for repeated identification and verification?

- Medicare
- Cancer, chemo
- TennCare
- Transplant patients (kidney)
- Diabetic
- Outpatients with blood disease (frequent lab work)
- Patients on anti-chloral, anti-coagulates

2) Which patients are under psychological distress because of their diagnosis?

- Cancer patients
- Renal patients
- Any chronic disease that is not going to go away

13) Thinking about physicians and nurses and hospital staff what benefits might smart cards offer for health care?

- It makes money for the hospital by saving money
- Time-saver
- Accurate, available information
- Providers can communicate with one another

Smart card benefits for patients:

- Quicker access to care
- Not having to repeat information

- Not having to remember data (i.e. Geriatric patients)

14) What concerns do you have about smart cards?

- Security concern (i.e. card swapping)
- Hospital medical record systems, computer systems interfacing, working with smart cards

Other Concerns:

- Current medical record system (i.e. Duplicate records, cannot update, change records)
- Time, stress, expense spent searching databases and records

Suggestions for smart cards:

- Low-end cards, little stored data
- Basic registration, identification info
- Make it worth something to the holder (i.e. Free parking)
- Make cards updatable, current
- Tag cards with date last modified, used and name of person who modified
- Security measures, (i.e. Photo, thumbprint)
- Small size, credit card
- Advertising on card may have negative effects
- Have instructions on card where to return if lost

2/5/97 Key Informant Interview Transcript

Dr. Freeman Rawson

UTMCK

Moderators: Dr. Susan Dimmick, Dr. Sam Burgiss, Traci Bell

Dr. Rawson is discussing the two types of patients.

Dr. Rawson ... There are the service patients. Well, for that purpose outpatient clinics were established. And the ones I know the most about are the medicine clinics. **When the resident comes on, he gets a cadre of service patients he sees regularly,** half she now, at least half... sees regularly at whatever intervals appropriate for the three years of training. **Then this person is passed on to an incoming resident. This gives some continuity, not as much as we'd like. Family practice program also has service patients, that they see in their clinics. Service patients are also seen by special arrangement in private practice. Cardiology clinic, GI, neurology clinic and so forth. Now, all these clinics are basically manned by the residents, but every one is supervised by a staff person.** In order to be a staff person at this hospital, you must have two things: you must have a teaching appointment at the University of Tennessee and you must have privileges to practice in this institution. The two are separate, but inter-related. And there are a few who have practice privileges who are not on the teaching staff, not very many. Most of the physicians here have faculty appointments and are faculty members at the University of Tennessee. This institution is the home of the University of Tennessee graduate school of medicine, which is a sub-unit of the University of Tennessee school of medicine housed in Memphis, so the patient gets, is treated by the resident. **The resident writes the orders, the resident writes the notes, the resident makes a diagnosis the resident prescribes the return visits, next week, next month, three months, six months and his or her work is reviewed by a staff person.** It is reviewed very carefully by the staff person the first year. It is reviewed more casually by the staff person the second and by the third year the staff person is there to answer questions the resident might have to help with a difficult physical examination or help with a difficult problem. After all, what is the residency program for. Residency program is not medical school. Residency program is a program of hands-on learning. You know, you don't really learn much in those lectures after lunch. When you learn is when the problem is presented to you, you struggle to solve that problem and whether you solve it perfectly or imperfectly, you've learned a great deal. And that's the purpose of a residency program...to give hands-on learning experience. **They also have experience in the in-patient department. Patients are admitted either as private patients or on the service, but we're talking about the service. The service is very closely supervised by our teaching staff, the actual care is given by the residents -**

Sam: And when you're talking about residents, you're talking about department of medicine residents...

Dr. Rawson: Well, there the ones I know the most about, **but the actual pattern is not much different in the other departments that I know of.**

Sam: Except probably radiology is a little different -

Dr. Rawson: Ah, **the sub-cross-specialties departments, I couldn't comment on.** Radiology, pathology, there all teaching programs, but they're not the practice of medicine. I mean, you know, let's face it.

Sam: They're not familiar with that. It took me a long while to figure that out. Radiology is not the practice of medicine. Medicine is medicine, pediatrics, OB/GYN, family practice, but the support sub-specialties don't practice medicine. For instance, these fellows run scans on people, but they don't provide any... they provide the analysis of the tests they run, they take care of the patient while their in the unit and if anything happens, they call a doctor real quick to come handle it, if anything goes wrong, but they don't have any real responsibility for these people, they don't know who they are, they sometimes all they know about their problems is what's written on the quest sheet. Now in pathology, the pathologist does autopsies, by then it's already too late and he provides an anatomical diagnosis. The pathologist takes specimens, that are obtained in surgery and makes a microscopic diagnosis. Is it malignant, is it a tumor, is it inflammatory disease or did they take out a hot or cold appendix, whatever. They also provide chemical tests, but they care for anybody and they don't make any suggestions on how to care for anybody, so it's not medicine. It's support. Now,

their all essential. You need an X-ray...telemedicine is a support service. Dr. Burgiss doesn't treat anybody, but he provides the instruments by which people can be treated and the information needed to operate that.

Sam: Right, it's a tool.

Dr. Rawson: Yeah, so he operates a tool and that's what the... So... Now the other group of patients we deal with are private patients. Now if you, are not on Medicaid... family practice has some private patients, but their management is not a lot different from that of their service patients, but there's another cadre of people who come here who are never on the service. They're the patient of one of the internists, who has an office an office here maybe with faculty internal medicine, maybe with Knoxville internal medicine, maybe with Dr. Lacy. Private patient visits the physician in his office, or her office, a lot more hers than there used to be, and this person is not a patient of the institution, per se, as the service are. They're patients of the private practitioners. OB/GYN have some, pediatrics have some, neurology have some, ent have some, allergy have some, and all of the private practitioners have these. Now the referral pattern for the two groups is different. Now suppose, I'm in private practice, I used to be, and you come to me and turns out you have an atrioseptal defect. You didn't know about, but we found it so I want to obtain an echo-cardiogram in my office. If I think you need a heart cardiac-catheterization, I'll get an appointment in the cardiac lab and I'll take you down there and do the catheterization, if you need it. And, then I'll call up my friend George Schuckman and say I have this nice lady from UT who's got this ASD that needs to be fixed. Would you see her and see if you agree with me that that's the thing to do and take her your private surgical patient and see her until whatever you need to do is completed and then I'll expect to see her back, because I'm the one who's going to follow her.

Susan: And why did you pick Dr. Schuckman?

Dr. Rawson: Because I know he does excellent work. Now, or I could've picked another surgeon. We have other surgeons who are very good. That's just one that popped to mind.

Susan: But you've affiliated with this doctor.

Dr. Rawson: Oh yes. Now, I might say well, gee there's a guy over at Baptist and boy, he sews those atrial defects in nothing flat. I believe I'll just send my patient over to Baptist to have this done. That's perfectly acceptable.

Susan: What would be the difference between...

Dr. Rawson: Well, it's disadvantageous to send a patient to another hospital for a procedure if you don't have to because they don't have the x-rays, the echo-cardiogram in their files. They don't have the EKG. You have to bundle the chart and give it to the pt to take it over there or fax it. So it's more difficult to send someone to another institution.

Sam: You can't meet with the other physician in the hallway and talk about it, for example.

Dr. Rawson: No you can't. And most of the time you aren't as familiar with the work of a physician at another hospital. Now there are some things that are so specialized, for instance, I decided your heart is really hopeless and you need a transplant. Well, now I'm going to have to deal with Vanderbilt or University of Alabama, so I'm going to have to call somebody down there are say I have this nice lady that needs a transplant, we hear that you do them. I'd like to talk to the person in charge of the transplant program. Then we have the big negotiation about the material and sending it there. That can be done, but it's a lot more trouble and if you didn't need to go there I sure wouldn't send you there UNLESS you said, I want to go to the University of Alabama because my sister is on the faulty down there and I just know that's the best hospitals in North America and that's where I want to go. If you're my private patient, that's where you're going, you know. I wouldn't consider trying to talk you out of it because what if you had a bad result if you came to my place instead of going to the place you wanted to go, you'd come back to my office and say you did me wrong. You wouldn't let me go to that divine doctor. You mad me go to that sloppy old fellow and he didn't do a good job. So, as a private patient, you have the right to pick the person you want to give your care and it's my job to see, if at all possible that you get that person or that location, or that hospital.

Sam: Now those are excellent explanatory reasons, but from an administrative point of view, there are reasons not to send a patient outside...

Dr. Rawson: You better believe it...

Sam: Because there's a big bundle of money that goes with that patient.

Dr. Rawson: That's right, it's not to the hospital's advantage to send people out.

Susan: But what if you have an office practice outside the hospital setting?

Dr. Rawson: Well, now let's go back twenty years. I went to all the hospitals. I said, honey what hospital do you want to go to. 'I want to go to St. Mary's.' Fine, you went to St. Mary's. **Now, 50-60% of physicians in Knoxville have an association with a particular hospital.**

Susan: One and one only?

Dr. Rawson: Yes. Many of them have received benefits from that hospital. They get a little hospital furniture, they have a little hospital rent or the building they're in belongs to the hospital. Out in Seymour, we have little building that belongs to Ft. Sanders, one that belongs to Baptist. **The doctors in there are associated with that hospital and that hospital only and you might have a rough time if you said, gee I believe I'll go to Ft. Sanders and you're in the Baptist doctor's office.** He'll say, you oughta go to Baptist. That's the only place that they do any good work, which is, I think, a little bit unethical. That makes old doctors a little bit nervous, but the fact is you're going to find more and more of the physicians in office practice outside the hospital are practicing in offices sponsored by the hospital. Now we've got one in Halls, one out in Farragut, and a new one opening up west somewhere. Do we have another one somewhere?

Sam: We also have the managed offices. There are a lot of those around. Physicians offices that we've started managing.

Dr. Rawson: We have a relationship with them. Now, sometimes those... are you familiar with Jack-in-the-Box...

Susan: Well, the restaurant?

Dr. Rawson: Yeah, the hamburger chain where they have these little, these people are often called **doc-in-the box.** The idea is you drop by and see the doc and you already know what hospital you're going to be sent to. It's kind of an extension of the hospital outpatient department. That's becoming more and more true, but there are still practitioners who could use more than one hospital. It's not convenient to use more than one hospital. **Most doctors have cuddled up to one hospital for a practical reason.** Suppose I'm in the office, it's two o'clock in the afternoon, people are already complaining that they've had to wait too long and they call from St. Mary's and say Mrs. Smith doesn't look so good. You better come out here and see her. That means I'm gone an hour. By the time I get back the office staff's mad, all the patients are mad and the day ruined. Even if I cured the lady out at St. Mary's, which is highly unlikely. So if she's over in the CCU in UT, I can call over from my office and say exactly what's wrong with this lady and I can probably get my business done in 15 minutes and get back to my office. **So you can see why a doctor doesn't want to practice in more than one hospital. Suppose you have an emergency at two places at once? How's that going to work? So, it's an incentive to use only one hospital.**

Susan: So, you said 50-60% are affiliated with one hospital.

Dr. Rawson: My guess would be right now that's about how many.

Sam: That makes a lot sense.

Susan: So the other 40% have made some kind of arrangement like that, perhaps.

Dr. Rawson: Well, there are a few who haven't. Now, there used to be doctors who wouldn't go to the hospital at all. I don't think there are so many of those now, but there are going to be more. **There are going to be more doctors who don't go to the hospital at all, only do outpatient work and if the patient is ill they refer the person to a doctor at a particular hospital for care. And there are doctors who don't do outpatient work and there are going to be a lot more of those. This is a trend.** It's more convenient, It's a lot easier that way, but it's not the best thing for the patient necessarily.

Susan: So, there's two trends- the doctor who does do outpatient work and doesn't follow his patient to a facility. He sends them to a doctor at another hospital.

Dr. Rawson: That's right.

Susan: And the second trend is doctors who doesn't do any outpatient work. Is that what you're saying?

Dr. Rawson: And the third trend is close association of an outpatient doctor with a particular hospital.

Susan: OK, the second one. He's not doing outpatient work, then is he within a hospital?

Dr. Rawson: Some are hospital employees. Especially in other places. I think Ft. Sanders has a few now. They've been trying to get some who will only work in the hospital and that's all they do. We have a few here. We have our intensivist, for instance, who runs the intensive care unit. He doesn't do any outpatient work. Of course, there have always been doctors who work for the hospital, like anesthesiologists. They don't practice medicine either. They don't have any responsibility for the guy. Pre-op evaluation, snooze them, wake them up, check them post-op and their gone. So they don't actually practice medicine either, but their hospital employees, by in large. Although, they're often hospital employees in a peculiar way. They often have contractual arrangement with the hospital where they are private contractors. Some pathologists do that. Some radiologists do that. They're not actual employees of the hospital, but they have a contractual relationship with the hospital. It's very complicated. Did I explain it or make even more fuzzy?

Susan: No I think I'm getting a clearer picture. **There's three trends. The current situation of 50-60% are already affiliated with one hospital and others are falling into these other groups of being outpatient only, inpatient only.**

Dr. Rawson: I think those are the major trends. **The division of labor between outpatient and inpatient and the trend of doctors being associated with a certain hospital,** even though their practice may not actually be in the institution.

Susan: They might as well be in terms of the relationship.

Dr. Rawson: Meaning if you work for us in Halls, you might as well be in this room, as far as the relationship with the hospital, it's just the same.

Sam: I didn't want to jump ahead...

Susan: No, go ahead.

Sam: One of the thoughts that kind of ties in with this, You're familiar with the managed practices, MSO.

Dr. Rawson: Yeah. Sort of. You could probably tell me about them.

Sam: Well, one of suggestions we've had on the patient card. We're becoming to call it a patient card and we can talk to you more about that.

Dr. Rawson: Now, I've got an idea of what I think ought to be on it.

Sam: Less smart, but anyway.

Dr. Rawson: It doesn't have to be brilliant, but some parts I don't think should be on it.

Sam: Well, we want to talk to you about that. But one of the thoughts on that is that in these managed offices is where this card should initiate. That the patients, the clients, the patients those physicians in the managed offices. Then when the patient comes to the hospital and brings their card, then they are already in the system, they're treated in a special manner. There's a bonding, a loyalty. But in that bonding and loyalty, we've got physicians out in the offices that may refer these patients over to Baptist or St. Mary's, for whatever reason. It's illustrated.

Dr. Rawson: They could. Maybe they need a sleep study. They're going to have to go to St. Mary's, Ft. Sanders or Baptist. We don't do sleep studies.

Sam: Right. And that's very valid.

Dr. Rawson: It's not convenient, but it's valid.

Sam: Right, it has a purpose, but what we would like to do to increase the referrals from the offices is be sure all that are appropriate come into UT Medical Center and increase this loyalty and bonding and one of the thoughts in talking with you is think about that situation and you know can we somehow modify those referral patterns, this might possibly modify, **do you think that these physicians out at these managed offices or do you know, do they refer to other hospitals in general?**

Dr. Rawson: **I don't think they do a whole lot, but I don't really know.** I'd have to find out about that. I don't know how many of those patients in offices that we managed go to other hospitals. Now how are you going to decide where to send those patients. Well, **you would never send a patient to a consult that you didn't feel was competent.** That would not be ethical and it would not be in your self-interest because the patient would come back and say, you sent me to that bum and I didn't like the way I was managed at all. So you wouldn't do that. **So you'll send the patient to someone you know about. Someone whose work you have observed and when you have a training program, people who leave that program know the attendings that taught them in the program and they know the kind of work they do and if the attendings do good work there going to get lots of referrals from the people that graduate from the**

program. Now for instance, cardiology is taught to the residents by members of the Knoxville cardiovascular group and when they go outside they know the members of that group and the kind of work they do and they have a tendency to refer to those people, unless the patient has a preference. Most patients don't. **Most patients want to go the doctor their doctor recommends,** but there are always some that have their own ideas or there's some particular reason why they would want to go somewhere else. So I think the presence of the training program in addition to administering the clinics is a pretty strong bond, but **I think a common card would be an even better bond. I think that would be very effective.**

Susan: So now you talked about, you said the number one or **an important reason would be referring to a doctor whose work you had observed** and know does good work.

Dr. Rawson: **That's the number one reason.**

Susan: Are there any others?

Dr. Rawson: Well, you might have a friend, might be married to your sister. You know, nothing's ever pure, but if you're an ethical person, I've already told you the number one consideration.

Susan: And there usually aren't others though, like where that person might practice...

Dr. Rawson: Well, yes. Now that might be **the patient preference, Patient might say, well I live next door to St. Mary's.** If I'm going to have a D/C and I sure don't want to come over here. So, **If you don't know people at that hospital who do that kind of work, you will call somebody you do know.** You'll say, now, if you had a patient, you use St. Mary's all the time. If you had a patient who was going to have this procedure, who on the staff would you pick to do it and why. And you're friend would say well, I know that so-in-so does excellent work. I would refer my patient to her. Well, that would be a strong incentive if **I knew this other physician to take this his recommendation.** You wouldn't just look in the phone book and say I just believe I'll use this one. That wouldn't be the proper, I wouldn't do that and I don't think most doctors would. That's not fair.

Susan: **So the usual referral process is to refer to another doctor and that doctor makes the decision about which facility to use.**

Dr. Rawson: Most of, we used to have wandering surgeons who would operate anywhere they could get an open operating room, but that's not as true anymore. **Most people who do procedures, catheterizations, surgery, endoscopy, have a favorite place to do it and their associated with the institution.** There aren't many wandering surgeons anymore. They used to be very common in Knoxville. If you wanted your appendix out, the surgeon would say what hospital do you want to go to, but I don't think that's very common anymore. Most have a place where their comfortable to practice. They know the staff. They know the facility, tools nurses, administration. When the doctor calls, the person who answers the phone knows who it is. When I call almost anywhere in the hospital, people already know who I am. That makes a doctor, you take notice of that. Not only is it important because it makes the doctor feel good, **it's important because you get something done because you talk to somebody you know.**

Sam: There's a relationship there. You know each other. You've done favors for each other.

Dr. Rawson: Yeah, you can get something done in a hurry, you don't want to lean too much on that relationship, but if you have an emergency, you call one of your friends at the hospital and say, look I've got real trouble and I need help right now. Don't call someplace they don't know you. So there, this is becoming more and more true.

Susan: **So in the office practice, the referral is to another person who then refers to a facility for a procedure, surgery...**

Dr. Rawson: Yeah, you wouldn't call St. Mary's and say I'm sending out a guy with a hot appendix, find somebody to operate on him. You wouldn't do that. That's not fair. You need to identify who's going to do it.

Sam: It's exactly like you said before, if Susan were checking into this hospital, it would be noted she was on faculty on campus. But if you went over to Baptist, it wouldn't make any difference. Not that is going to change your care, but people will appreciate that.

Dr. Rawson: We love our faculty members. I had a great many faculty members...

Susan: That's good to know. I don't know what's going to happen when we break apart, though.

Dr. Rawson: Well I don't know either.

Susan: Well I still...

Dr. Rawson: ...members of my practice, I had a good many...

Susan: But if you were to draw it, it would be people to people then to facility rather than doctor to facility. It's doctor to doctor then to facility.

Dr. Rawson: As things are done now that's the way it's done.

Sam: Doctor refers to doctor not referring to the facility.

Dr. Rawson: That's right. See if you refer to the facility, you don't really know what's going to happen, who are you going to talk to. You going to talk to the admitting office, you gonna talk to the administration, who you gonna talk to?

Sam: You can call the front desk and say I want the cardiology department.

Susan: But you do have a situation where you yourself is part of the procedure. It's your patient, you just go directly to the facility and tell the patient that you'll be there. So some occur doctor to doctor to facility or doctor directly to facility in the sense that you are following the patient yourself.

Dr. Rawson: Well a guy needs a cath, which I don't do anymore but I used to do so I call the lab and I say I got this fellow needs a cath and I'd like to do it such and such a day that would be a handy day for him: and she'd say we've got a time at ten o'clock. When I get this she's all ready and she knows what we're going to do, she's got all of the equipment ready, and we get the guy to lie down and he gets his cath. Then he recovers and is sent home or sent to the hospital or whatever. Most of these procedures are now done as outpatients. If you are going to have your knee orthoscoped, if you are going to have a mass taken off your back, or going to have gastroscopy, or going to have heart catheterization, we didn't use to do them but they're all mostly done as outpatients now. Now we have a special outpatient facility just for that purpose.

In that case the physician is going to do the procedure, makes arrangements for the facility to be available. You wouldn't call the cath lab and say can you find somebody to do this guy with aortic stenosis for me. Now I can do that because I know everybody in the cath lab and they'd pick somebody real good to do it, but that's not the way it's done. They'd be shocked if I did that

Susan: You would still either do it yourself or you would find you would refer to a physician and that physician would make the arrangements with the lab.

Dr. Rawson: Right, now there are some tests that you wouldn't do that. If you were ordering a nuclear test, nuclear medicine decides who's going to do it...but most procedures done by the physician, you'd identify who's going to do it.

Sam: But those CT and MRI and so forth, those as you said are more services with an attending physician in the vicinity rather than the procedure done by the physician.

Dr. Rawson: That's correct.

Sam: I think Dr. Smith back here...

Dr. Rawson: Dr. Smith is here all of the time, supervises everything, but the technicians actually do the procedures.

Sam: He helps in certain cases and so forth, but in general they do a good job.

Dr. Rawson: It's not a physician manipulated procedure...

Sam: But you're saying, like for instance, let's take endoscopy lab, with Dr. Adams and company in that office, what you're saying is the way that lab does procedures is Dr. Adams has a patient and says, I need to do a procedure or he has been referred a patient that he needs to do a procedure on, and he tells his office staff, I need to do a procedure on this patient. Set up a time. And then the patient is brought into the endoscopy lab, which is a hospital facility. So he has an office over in the POB Building and he has a team of four or five of them in this group of gastroenterologists. And so they bring business into the hospital because the lab is right across the hall, the endoscopy lab. But all of what Dr. Dr. Rawson is saying to us is all of that is through this flow of the physician saying I need to do a procedure and set a time up.

Dr. Rawson: Of course, that's an outpatient procedure and they go home...

Susan: But it's still instead of thinking about a hospital, I just use that as an generic term, it's really a medical facility in the broader sense of the term.

Dr. Rawson: Well, when hospitals started, a hospital was a hospital. If you were sick you went, they got a bed with a curtain around it in the ward. They put you in the bed, your doctor looked you over to see what the trouble was, ordered what was needed. When it was done or when you got better he sent you home. That's not the way it's done anymore. Now, everything that can possibly be done on an outpatient basis, must be done on an outpatient basis. **We wouldn't think of putting you in the hospital to have a**

procedure that could be done as an outpatient. And we wouldn't think of putting you in the hospital, unless, of course, you were acutely ill and needed hospital treatment. That would be a different track.

Sam: Does the physician today do the daily rounds with the inpatient?

Dr. Rawson: Sure you bet. Once or twice a day you see those patients. Rounds are like housework. Once you got them done you start them all over again. All doctors do that. **Our patients on the service have rounds by the house staff supervised by their staff person and the private patient is seen everyday by his or her private doctor.**

Sam: Now going back to our endoscopy lab example. We've got a patient out here in our managed office. **They get a card and if they come in here and use that card in Dr. Adam's office and when they come in here for their endoscopy, they use that card in the endoscopy lab, then we're getting that kind of connectivity.**

Dr. Rawson: Well, that's what we want. Oh look at that. fifty-five plus.

Sam: Yeah, Traci's in the fifty-five plus club.

Traci: Yeah, I'm in the club.

Dr. Rawson: How'd you get in that? Bon Secures St. Joseph Healthcare... Yeah, I think that's the way it oughta be. If you want to know what I think the card oughta do. **I think the card should have all the sociologic data like who I am, when I was born, what church I go to, what minister needs to be notified if things go bad, my caretaker or next of kin to be notified, my address, phone number, social security number, all the identifying data, all the numbers you need to put in for insurance...**

Susan: Allergies?

Dr. Rawson: Allergies and other permanent medical facts.

Susan: Like...

Dr. Rawson: Like, I had my appendix out when I was 14 years old. I don't have a uterus anymore because that was removed and they took the ovaries too, darn it.

Sam: Your permanent medical history.

Susan: Static medical information.

Dr. Rawson: Right, **things that are never going to change, but I don't think you oughta put things on that might change unless it's very easy to alter it. Medication list would be a good example of things put on that every time a patient was seen, this is going to be added to.** Because, you know, I quit taking that medicine last week. It's on that card, but I'm not taking it or my diagnosis of rheumatoid arthritis got changed to osteoarthritis last week. So, information like that, or if you put an electrocardiogram on it, which you can, it's OK if you have the data on it, except that there might be a more recent one. So if you're going to put that on it, you're going to have to update it every time that fact changes, so **I think static facts need to be on there.** So if you had your uterus out, it's not going to grow back. You can't put it back in. That's that. If you had pneumonia that you recovered from last year. Well, that's not going to change. You still recovered from pneumonia. So you can put that on there. **You could also put a record of admissions a person has had at an institution and put what the diagnosis was upon discharge.** That's never going to change. They might have made the wrong diagnosis, but it'll never be changed. So I think all the identifying data, all the sociological data and even that's not going to be perfect because women change their names all the time. They get married they get divorced. I've got a million stories about that. So, we have to have the ability to change it when that changes. People move. People's telephone numbers change and by golly, they change insurance carriers. The most static facts will be the medical history, if you're allergic to green beans, you're always allergic to green beans. But, the other sociologic and identifying data, **you have to have the ability to keep that up to date.** Lady comes in and says, I've changed my name from Jones to Smith because I decided I didn't like Mr. Jones anymore, so my name is Smith now. Well, you won't believe what that does to a hospital record, by the way. We have 59,000 hospitals with the wrong name on them. How did that happen? Well, the patient changed her name. Even men change their names. Man comes in as Hobart C. Jones. Comes back 5 years later as H. Caramel Corn Jones. The computer doesn't have anyway to know that so you have two records. We can't have that. We have to find a way to avoid that. Another thing that happens is that his name has been Hobart C. Jones all his life, but his wife call him Caramel Corn. So when she registers him in the outpatient department, she doesn't even remember the H. She registers him as Caramel Corn Smith. Well, you can't find any of his hospital records, or office records or anything else because their all under Hobart C., so you can't find them.

Susan: Well, what about the social security number. It never changes, so why don't we use it?

Dr. Rawson: **Most institutions now use the social security number as the primary identifying number.** It has certain disadvantages. I used to run an office, so I know.. A disadvantage is random filing. Now random filing when you're using computers which we will soon be using. Random filing is a dickens of a problem in our office. Social security number has a lot of digits. You want a system that begins with one and ends with 1000 because you want to add new records at the end of the stack. Now if you have to add new records in the middle of the stack, you have to move half those records every day of the week. So you can see why people didn't like the social security number because they're always in the middle. You can't put them on the end. So, when mechanical filing systems were used, the social security number wasn't a very good number, but **now that people have electronic filing systems, I think that ought to be the main identifying feature of the card.** That ought to be the thing the scanner sees first. Unfortunately they're not always right. We have several thousand wrong social security numbers in our files, but most people can dig up a social security card they can show you or a tax return they can show you. You can usually identify their social security number. Some people even know theirs.

Traci: If you're a student, you've got to know it. That's the first thing you learn when you go to school.

Dr. Rawson: That's your only identification at UT.

Traci: You have to put it on everything.

Dr. Rawson: That's my identification at UT. That's how I get in, that's my computer identification.

Sam: Well, Blue Cross Blue Shield, for example. You have your social security number on your insurance card.

Dr. Rawson: **I think you ought to plan to use that.** The reason I told you all the stories about the names is so you have an idea how much of a problem names can be.

Traci: And you can't go back and update or change, if you finally locate the record, can you change the name so it's all the same so it's all under one number?

Dr. Rawson: You can, but it's very difficult to find the records. I don't think that'll be a problem in the future, because everything will be entirely computerized and everything's going to be filed under the social security number. I don't think that will be the problem, but it has been a terrible problem in the past and it's a problem in private offices, too. But I think that's changing. Almost all offices are computerized and even if the records are in some other format, the computer understands the social security number and can identify the format the records are in. For instance, in the group I was in, I think they have 48,000 numerical records, but they can identify it by your social security number because it's in their computer.

Susan: While we're on this subject, I checked out, from the literature, what the advantages are on patient cards. Since you know the actual reality of the way it would be, we'd like you to comment on whether you strongly agree, agree, neutral, disagree, strongly disagree with their identified advantages for these patient cards. **Do you think that it would result in quicker registration to have a patient card...**

Dr. Rawson: **Yep, I sure do.** I certainly do. I like that.

Susan: How about **creating an identity for the hospital and it's association?**

Dr. Rawson: I don't think it's superb, but **I think it's an advantage.** I agree with that.

Susan: What about **promoting patient loyalty?**

Dr. Rawson: I think that's **an advantage.**

Susan: What about, do you think it would have the capability of **reducing anxiety at registration?**

Dr. Rawson: **I sure do.** I think it's really, I think it's... You know, people love cards...

Susan: They seem to. There's an average of nine cards that people carry.

Dr. Rawson: You know, we even get most of our... Oh you're going to show me yours. I bet you got a hundred of them.

Susan: Well statistics say, on the average people nine pieces of plastic.

Traci: I have eleven and that's only one credit card, so... I have my AT&T card, Bally's card, student id...

Sam: See, when I went to school, we didn't have cards.

Dr. Rawson: We didn't have any cards at all. I got about six or eight in my pocket.

Susan: See, well then you're at the average.

Dr. Rawson: I got all kinds of cards.

Susan: That's our rationale for what's one more card.

Dr. Rawson: Yeah. So, I think that's right. **Yeah, I think it'll reduce the medical records problem especially if the social security number is used as the identifier.** I think very much.

Susan: And then whatever other advantages you think there might be that are not in the list there.

Dr. Rawson: Quicker registration, identity, hospital, patient loyalty, anxiety at registration reduced, duplicate medical record numbers, which we shouldn't have, of course, but we do.

Susan: You know, the other thing is that it creates identity for the hospital, but it's also the sense of creating an identity for the array of groupings that there are. There's not just a hospital. There's the managed service organization, the system itself.

Dr. Rawson: Because it's a medical care system now, instead of a hospital.

Susan: You want to make sure you can track them through that system with the card.

Dr. Rawson: Well, let's see. **Another thing that good smart card would do would be to, it should make it easier to keep track of sociologic data.** Of course, it's a disadvantage, too because when the smart cards are run through the machine in the outpatient department, the... Have you ever ordered anything over the phone with your credit card? The lady at the other end of the phone is always very friendly and she says this is the National Wholesaler, where I buy stuff for my wife, over in North Carolina. And she wants to know my credit card number, which is the identifier she uses for me or she wants to know that little number on the catalog. Then she says do you still live at 874 North Parasol Hollow in Seymour, Tennessee 37865-3184? So, **the person processing would have to ask that and make sure that's still correct.** Do you still have Blue Cross Insurance or have changed? Do you still have TennCare or have you changed, have you changed your TennCare carrier. Carrier still with, read it off. That would have to be checked every time.

Susan: But saying yes or no rather than giving that information every time...

Dr. Rawson: That's right. Now when the lady talks to me on the phone, she not only is getting the information, but she's letting me know we're a customer at her store. That's not just an accident that they do that. We sent you a catalog, you've dealt with us before. We have this information on you and if it's correct, why your our regular customer. I think **that's a lot better than admitting clerk saying, what's your social security number? What's your name? Are you married, widowed or divorced? What's your address, your phone number? Did you bring your insurance card?** You know.

Sam: And in fact with such a card, we can even print it and let the person read it, but that might be offensive in some cases because we have some patients who can't read.

Dr. Rawson: I wouldn't even consider that. I think it oughta come up on the little screen and the clerk reads it off and says, you know, you're Ms. Smith and want to make sure we have the right address for you, and the right phone number and your right insurance. And so, the patient says, yeah, that's all right, then you don't have to change it. And if it's changed, she needs the capability of changing it.

Sam: And you don't need to ask every detail question. If you still live on Willow Lane and it's the same town, then you can ask, well, has your phone changed recently. And you don't have to ask all the detail questions.

Dr. Rawson: If she says, we've moved last month. Well, then where'd you move? I think that's much better than asking the patient all those questions. So I think that'd be a definite advantage of promoting a feeling of...

Susan: A feeling of we knew you?

Dr. Rawson: Yeah. **Promote a known feeling. I think that's a definite advantage. In fact, that might be one of the biggest advantages.** I know you're a consumer. Everybody's is a consumer. What do you like best about the place where you get your service or you get your product? You like if they know who you are. You want it to be convenient and you want them to know who you are. My grandfather was a merchant and he was also a consumer, and he always said be somebody's customer. That's kind of old-fashioned, I know, you know. Now, we've got to take bids on everything, but... You have to do that. I just spent an hour this morning on a bid. Company bid \$800 less for an inferior EKG machine.

Sam: And you've got to tell why you don't want that.

Dr. Rawson: We've got to figure out some way to talk to purchasing into spending the extra \$800 for a better product. One gave a local service, the other didn't. As far as I'm concerned, \$800 is pin money for local service. Local warranty service. Anytime you can get local warranty service, take it. You know, you got to send the thing to New York, you don't know when you'll get it back.

Susan: What do you think some of the reasons are that patients prefer one hospital over another?

Dr. Rawson: Well, lots of reasons. **One reason, is sometimes they were born there.** Now that might not mean anything to you, but it means things to East Tennesseans. Well, I was born Ft. Sanders. **Another reason, all my records are there.** That's another reason. **I went there last year and I got wonderful care, better than I expected,** that's another reason. **It's in my neighborhood. I've got a friend or relative who works there. My doctor who I've been going to for 25 years says it's too much trouble to go anywhere else so I want to go to the hospital where he can see me.** Those are just some of the common things I heard when I was in practice about why they prefer a certain hospital. Now I always like to tell the story about the woman who told me she'd rather go to St. Mary's and die than go to Baptist and get well.

Susan: Now that's loyalty.

Dr. Rawson: That's somewhat of an exaggeration. People do exaggerate, you know, but people do have, sometimes pretty strong loyalty. I don't think they're as strong as they used to be, though.

Susan: How strong do you think a **geographic consideration**, you know the west-siders.

Dr. Rawson: Oh, I think it's **very important.** Patient lives out near Parkwest. He wants to go to Parkwest. You know, his wife..

Moderator: I can't imagine that...

Dr. Rawson: Oh he does.

Susan: I know that he does, but I live near Parkwest and I would prefer...

Dr. Rawson: Well, you have other loyalties, but he lives near Parkwest. His wife doesn't really like to drive, especially at night. If he's going to be in the hospital, she wants it to be there where it's handy.

Sam: That's chasing the elderly, you're right.

Dr. Rawson: **The older people are much more likely to have a geographic preference.** I live right over the hill from that place. I could walk there from my house, you know. That's why Ft. Sanders bought Parkwest because the people who have money all live out there.

Susan: A lot of them do anyway. Are there any other physicians who might be willing to share their insights about physician referral patterns. Or are there any sources? Is there anything you know of that tracks that sort of thing? Or have you read anything in journals?

Dr. Rawson: Physician referrals... I haven't really thought about that.

Susan: Well, later if you do, give us a call.

Sam: Anybody you think, or some of the hospital people you think we should talk to...

Dr. Rawson: About referral?

Sam: About referral or any other aspect.

Dr. Rawson: I think there are several people you ought to talk to. I would find out admits people to the faculty internal medicine. I'd find out who admits people to the residents practice. **I would go to the admission office and find out the people who register our patients.** See, the admission office registers people for outpatient procedures as well. Talk to them about the problems they have registering people to be admitted to the hospital and registering people for outpatient procedures and they will know, I'm just imagining how they'll feel about a smart card, but they'll know how much help that'll be to them.

Sam: We had some of those people in our meeting the other day and maybe we should go back and talk to them some more, inpatient outpatient registration.

Dr. Rawson: I'd talked with a guy or the woman, who actually does the work. I wouldn't talk to the supervisor, they don't know anything. Talk to the person, find one or two **people who'll talk to you who actually admit somebody do the paperwork and calls the orderly to take them to the unit and find out what problems they have and find out whether a card would be of assistance to them.** Now who knows who refers who to whom? I hate to tell you this, but I think you ought to talk to Dorothy Davis. Dorothy has been here for thirty years. I've known her for most of that time, 20 to 30 years and she is out nurse practitioner. And Dorothy knows more about how things are done than anybody I know. So, you might talk to Dorothy and you can tell her I suggested that you might ask her and you ask her the questions about how easy is it to get somebody referred and how do you decide how the referral is done and what kinds of problems does she have getting somebody to see people who need to be seen. You know, what a nurse practitioner does? A nurse practitioner sees patients in conjunction with one or more physicians. I

don't think you care about her relationship with her supervising physicians. I'm sure you could ask her, but what you want to know is how things flow around this place and she really knows.

Sam: And you said she was involved with a lot of the TennCare patients?

Dr. Rawson: Oh, yeah. She knows, she can tell you anything you want to know about TennCare.

Sam: Does she work in the clinic?

Dr. Rawson: She works in 222, in faculty internal medicine clinic. She's a doll, very, very smart woman. Anytime I'm really hard up, I call Dorothy. Very smart woman, she knows how to get everything done. You've got a lump on your skin and you want it taken off right now, she knows how you can get that done. So, she'd be a good one for you to talk to. I don't know about other physicians. One of the troubles with the practicing doctors is that they have other fish to fry and it's hard to get their attention, particularly administrative problems.

Sam: To be frank, that's one of the reasons why we're so happy you have time to talk to us all day long.

Susan: Without you, what would we really know.

Sam: That's right. And the ones in the heat of their practice don't have time for us.

Dr. Rawson: They really haven't got time.

Sam: I mean, you don't blame them, but they just don't have the time.

Dr. Rawson: If there's somebody in the waiting room who wants to be seen right away, you can't do something else. You have to see that person. That's the way you'd feel, wouldn't you? If you were out in the waiting to get your toe looked at and the doctor's in there talking to some administrator. Boy, fie on that.

Sam: I think we're pretty well finished with the questions you had. Let's talk about a what if. You gave us a list of things you thought should be on a smart card and I agree with you, static medical information, stuff that's not going to change, basic identification information. I think if we do a smart card, that's a good level to do. In the realm of things, just to give a comparison, a card that would hold that, we're talking about a \$10 card, give or take, roughly. If we just have the patient name and insurance information, we're down the \$5, \$4 or \$5 card. OK? Those are true smart cards. They're the card with the chip in it and the whole thing. That guy, that's a real smart card. Let's think about another scenario. What if we had a card that was a buck, OK? And all this card could hold was your name, patient identification number...

Dr. Rawson: Social security number.

Sam: Social security number. Those three things. That's all we can put on this card, those three.

Dr. Rawson: A semi-smart card.

Sam: Yeah. But it's only \$1. If you could provide this to a lot of patients, they could lose them and their cheap to replace and basically it opens the door. Suppose they went to this office practice, and use it repetitively in this office practice and then they get referred to a physician in the hospital and they maybe use it in his office and into registration and it opens the door in registration, as we talked about. In other words, they know when you put the card in and swipe it, it brings up the demographics you were talking about. It brings up the address, the phone number and you verify this. You have the same conversation, but it's not on the card. The card is the identifier.

Dr. Rawson: All right. Now, what you're talking about is transferring the information that you and I think needs to be on the smart card into our computer and the smart card will bring up that page. **I think if it's more feasible and cheaper to do it that way, that's the way you ought to do it because some of the cards are going to be lost or misplaced. So I think that'd be very feasible, but we need to have a computerized system where the smart card brings up that information.**

Sam: Well, in a way it's an easier system to do from a computer standpoint. And what I'm talking about is the difference in these two cards. Here's some other examples. This one's got a nice picture of a hospital.

Dr. Rawson: Oh, that's nice.

Susan: That's what I wanted to ask you. Would you think of putting the facility's picture on or the person's picture on, if you had to choose? What do you think would be better?

Dr. Rawson: I'd put the person's picture on it. I'd put the facility's name, but I think the person's picture is a fantastic idea, if it's economical.

Susan: Yeah, and if it's not...

Dr. Rawson: If it's not, I'd put the facility's picture on it, but I think...

Discussing Photos and Insurance Fraud

Dr. Rawson: So if I get the person's picture on the card, that's a real good guard against fraud.

Sam: In your opinion, how do you think patients would see that, in a positive way...

Dr. Rawson: Well, it's my picture.

Susan: Well, as long as you don't say, that's a horrible picture of you.

Dr. Rawson: That's what you're supposed to say. Anytime you see a passport photo, you're supposed to say, this must be your grandmother. That's what you're supposed to say. You didn't catch that at all.

Susan: No, I didn't because I'm very sensitive about that.

Dr. Rawson: The pictures on cards and identification and passports usually are poor.

Susan: That's why we were wondering whether it was even worth the effort because people don't tend to like these kinds of pictures.

Dr. Rawson: Yeah but, well I don't know if it's worth it or not.

Susan: You know if you've got the social security number on, you're saying a lot of fraud can still occur because Traci and I could swap out because she likes my plan better than the student health services plan.

Dr. Rawson: Are you Traci?

Susan: Could be...

Dr. Rawson: Probably you're not, but if I didn't have that, you could be Traci just as well as anybody else.

Sam: At least you know it's not Dr. Rawson. Or you could see the difference in the two of us. You'll still have some questions of doubt in some cases, but...

Susan: I guess, I'd like to know how big a problem fraud is versus the cost of putting on a photo.

Dr. Rawson: Now that I don't know. Administration could probably, insurance companies could tell you how much of a problem fraud is. So, It might not be worth it, but I don't think it'd hurt the patients' feelings. Driver's license has your picture on it. They ask you for this thing at all kinds of places now, as you board a plane, you have to show an ID or can't get on a plane anymore.

Traci: Even when I go to my health club to work out and I don't have my picture on the card and I just took the card in because I don't want to carry my purse and all that junk in to go work out and the lady said, we need a picture ID. She said you could even photocopy your picture and tape it on the back of the card if that will help so you don't have to bring in three different pieces. Because I just want to carry that one card and my keys in and not have to deal with all this other stuff.

Dr. Rawson: Now that would be a great place for fraud because anybody could use your membership card.

Sam: But, that's exactly, I mean, the concept of if we don't put a picture on it, and not only fraud of the insurance, but people being a member of the club who are not a member of the club. Because there's potential that we could take these cards and give free parking and discounts on this and that.

Dr. Rawson: Not only could you, but it would be... The biggest complaint in my office is...

Susan: Parking.

Dr. Rawson: You better believe it.

Susan: It's a problem everywhere.

Sam: Aren't you going to validate my parking so I don't have to pay.

Dr. Rawson: Aren't you going to validate it, doc? I go to a doctor up north and she puts a "stomp" on it. So people are really sensitive about parking, especially parking charges.

Sam: Then it's very clumsy to say well, I need to see your driver's license also to...

Susan: That's true Sam.

Dr. Rawson: But if you're going to give other benefits, you've got to. (put photo on it)

Sam: I think it's very important, unless we find the patients are going to be objectionable to it. We have to test it.

Dr. Rawson: Well, I think you'd probably have to have a trial run.

Sam: The concept I'm talking about here, with the proper computer support is a \$1 card could do practically the same as a \$5 card...

Dr. Rawson: I agree with you completely.

Sam: And we could distribute it to a whole lot more patients.

Dr. Rawson: I think that's absolutely correct.

Sam: And to be frank our computer interface is easier with a \$1 than a \$5 card. What happens with a \$1 card is you know the line where they type in your id number, instead of typing in the id number, they swipe the card through, so its not a complex computer interface. Whereas the smart card to read all that information and prepare it and out it up on the screen requires a more complex situation from a computer integration point of view. In other words, we'd have to pay more for the software to integrate the two computer systems together. Where as with this, it's like the keyboard entry that comes off the card.

Dr. Rawson: It's like the little things they have in the store when they swipe your credit card. All that gives them is it the number. And then the computer gives out the information.

Sam: It's exactly the same idea.

Dr. Rawson: Well, if our computer system is capable of doing that

Sam: The new one will be. I'm not sure the present one is. We'll have to look at the integration and see how the present one is.

Dr. Rawson: I think it's just as good as having it all one the card.

Sam: And a \$1 will be easier to sell to our administration and we'll be able to distribute it in larger quantities.

Dr. Rawson: Now another thing you are going to want to be sure of is all our facilities that we're associated with will be able to take advantage of this, so that when a patient goes to one of your managed offices, swipe and it works there too.

Sam: And then when they come in the hospital, it works too.

Dr. Rawson: Works at the admitting office, works when they come in for an x-ray, maybe in the cafeteria, you get a 10% discount, you have a hot dog for 95 cents. People really love stuff like that.

Sam: Or you get a free dessert with your card or free drink today with your card.

Dr. Rawson: Or have a special promotion. Doesn't have to be the same every time. We could give away ice cream...

Sam: The gift shop. Parking

Dr. Rawson: Parking. People would absolutely adore that. You know when we moved to UT. We moved from Baptist in 1970. One of the reasons we moved was UT had lots of free parking. Our patients absolutely adored it. They were delighted because they were paying considerable amount to park and there were acres of parking and it was all free. Well, you know what happened.

Susan: Well, I'll go to the north pediatric clinic. I use Pediatric Consultants, a UT group. I will go north to that office before I will come here because of the parking. Well, if you can't get there and maybe you've got a sick kid to drag around... But, that's just to illustrate that maybe it shouldn't be the most important consideration, but it is.

Dr. Rawson: It's very important. Hospital loyalty. Parking is involved in that too. I don't want to go to that hospital, it's heck to find a place to park. I want to go somewhere where I can... Well, store loyalty. Why did people desert downtown and go out to the mall? Mall's got a place to park right in front of the door. Whereas downtown, there's no place to park, you've got to pay. Parking is very, very important. And if you offered parking discount even or free parking.

Sam: It'd be up to administration. I don't know what the revenues are from parking, but...

Dr. Rawson: They're considerable. They weren't much to start with, but they've gotten so they're pretty...

Sam: Or a discount even. 20%, 10% whatever. I mean, that would be an incentive.

Dr. Rawson: Bring in your card and get a 10% discount on parking.

Sam: Right.

Dr. Rawson: Terrific, we ought to be able to afford that.

Sam: But, it'd be up to the administration on how they want to do this.

Dr. Rawson: Ft. Sanders would have to give a 10% discount on all their parking or we'd get all their business.

Susan: That's right and they don't have as much parking space as we do, I bet.

Dr. Rawson: Not as much as we will after the parking garage is finished.

Sam: Well, they're fenced in over there. Absolutely fenced in. We've got a cow pasture. **Dr. Rawson:** Well, do you know the unique competitive advantage that UT has over any other hospital? While you're recuperating you can watch the cows and the ducks.

Discussing recovery time and managed care

Dr. Rawson: Everybody's on a track now. We have drive through surgery, drive through delivery.

Sam: That was even part of the president's state of the union address. He recognized a lady who is trying to change the legislation so we don't have drive-through mastectomies.

Dr. Rawson: Oh that's a real problem, drive-through mastectomies. That's been a disaster. Now some state shave already passed laws...

Dr. Rawson: Now the HMOs aren't going to stay the way they are now. HMOs are cash cows. They are allowed to cherry-pick their population and they are making money hand-over-fist. And they are doing things who are disadvantageous to the patients and the courts are going to regulate them, It's inevitable, so that certain minimum standards will be met. And I think staying overnight after your mastectomy is a darn good way to start. I sure wouldn't want to go home after that. Well, anything else or are we... Did it help you any? Answer my questions?

Susan: Oh absolutely.

Moderator I think this was good timing of this session for us to better insight about the referral patterns in the clinics.

Dr. Rawson: I think the one buck card with the rest of the information readily available. It doesn't do any good if it's in the patient's pocket. When it's needed is at the interface.

Sam: One thing it does is gets the price way down, so that price is not such an obstacle. It makes a less expensive interface if we can get that system to work like we're talking about. Or maybe it works with the old system. It is not political threatening to our new patient registration system. There's nothing smart about it. All it does is swipe the number in.

Dr. Rawson: It's a semi-smart card. It's a credit card.

Traci: It's like your ATM card. You stick it in and it pulls all of your accounts and everything up.

Dr. Rawson: Right, that's not on your ATM card. All that is the identifying number.

Susan: So all the qualms about patients carrying around their own records. None of that anymore.

Dr. Rawson: I don't really have a lot of qualms about people carrying around the kind of record I'm talking about. I think you have a right to have that information written down, I don't think there's anything wrong with that.

Sam: Another realistic point. Now, we've got what you'd like to see on the smart card, which I agree with, but how long would it take us to agree with the medical staff, etc. about what we should put on this card, if we get complicated and put a lot of things on the card.

Dr. Rawson: As soon as you start putting any sensitive data on the card, you're going to get in trouble.

Susan: Even allergies, though. How can you really trust that person has all those allergies.

Dr. Rawson: Allergies are funny things. Are you allergic to penicillin?

Susan: I am.

Dr. Rawson: Are you really? You might be, but 50% of the people who say they are allergic to penicillin really aren't.

Susan: Well, you know what? I tried it again and you know what?

Dr. Rawson: It happened again.

Susan: So, I am. I really am.

Dr. Rawson: But most doctors when an allergy is documented, it is accepted as fact. But nobody thinks there couldn't be other allergies that aren't there. You might be allergic to streptomycin, but you don't even know that. But many drugs have the same allergens, but the doctor knows this. He's going to pick a drug that does not cross-react with a drug you're allergic to. So, it's not all that simple.

Susan: So there might be a lot of debate even about something that, on the surface might not be non-threatening.

Sam: The point is that if you had the card that had nothing on it, but the name, and identifying number. Really you know you only need one identifying number, whatever you decide that is.

Dr. Rawson: You need to make it the social security number. Because once you get an ID number that's not the social security number, we're going to start... Well, you've heard the stories about our records. That's a disaster.

Sam: If we just have that on the card, we won't discuss for 6 months what to put on the card. We'll get this job done.

Susan: You're saying we could have the name and the social security number?

Dr. Rawson: You don't really need the social security number on it.

Susan: But, if we want to personalize it, we should want their name.

Sam: Well, they don't see their name on the card, on the mag stripe, they don't see their name.

Susan: Oh you're talking about what's going to be on the mag stripe.

Sam: On the mag stripe on the back we can put the social security number, we can put the name and we can put one other number.

Dr. Rawson: **I don't want you to have another number. The biggest mistake you can make in your office is to have a patient number, a lab number and an x-ray number.** You can't imagine the trouble you get into the first couple of weeks. So, **you have to have one number that does everything and I think it ought to be the social security number.**

Sam: I agree. And I talked to our computer services about that and they said, well, there are patients don't have a social security number...

Dr. Rawson: There aren't any.

Sam: Illegal aliens. Well, I guess newborns, but you're supposed to get one soon.

Dr. Rawson: You get one right away. When I was growing up, you didn't get one until you went to work, but when my kids were born, we ran right down and got one right away.

Sam: But now, I think they order one before they're born.

Susan: I wish.

Sam: OK, but even so, you could put a serial number or something that'll substitute until you could get a social security number for this patient, you could fix that problem is what I'm saying. You need to talk to our computer services people and convince them on subject of social security number. I definitely agree with. The basic point I want to make is if you put a small amount of information, a basic number stuff on this card and possibly only the social security number, you don't have a 6 month discussion about what to put on the card.

Dr. Rawson: **And there won't be any agreement about what to put on the card. Some doctors will want all kinds of information and some won't want anything on there. Depending on what kind of work they do.** Some will want to know how many children they have, when their birth dates are, **actually if you have another number the birth date ain't a bad number to have.**

Sam: Yeah, because that's a good identifier. In my case, it makes a big difference between me and my son, who's a junior. It's a good way to identify us.

Dr. Rawson: There are two of us, too. My son's name is Freeman L. Rawson and you wouldn't believe the confusion that can cause, but our birthdays are different. Our social security numbers are different. But the **birth date isn't a bad identifier.** Also if you have somebody who comes in and you swipe the card and their birthday is 1921, and it's Traci, whoops! That's not your card, Traci.

Traci: I can't be in the 55+ Club.

Sam: What this card will do, this dollar card, this will hold one set of characters, up to 70 characters that can be numbers and letters, that can be the name. And two other sets of numbers, so **it could very nicely do name, social security and birth date.**

Dr. Rawson: **I think that would be magnificent.**

Sam: I don't think that birth going to change.

Dr. Rawson: That birth date will never change and most people know when that was.

Sam: And if you have all three of them it helps correlate because if the name comes up wrong, birth date's right, social security number's the same, you can say, well, Ms. Jones has you name changed lately?

Dr. Rawson: Oh I forgot to tell you, I got married again last week. I had a patient from Morristown, a very dear lady. I'd seen her for a good many years and she called in and was so upset with the office staff, you couldn't believe it. I was shocked how upset she was. She said, they didn't know me. I found out what had

happened. She had remarried and she decided she didn't like her first name and was using her middle name so there was no common identifying name. Naturally, the people didn't have any record on her. She said I've been coming to you for 25 years and they didn't have a record. Boy, was she burned up. I finally figured out she had given them a different name.

Sam: In one of the groups I talked to, that's why they put all three kinds of information on the card, so that you have the record and can see if things have changed.

Dr. Rawson: I think it's a great idea.

Sam: The idea is...

Dr. Rawson: Can you put the picture on for a buck?

Sam: The dollar doesn't include the picture, but it possible could.

Dr. Rawson: Then You could put a picture of the medical center then.

Sam: One of the things I'm toying with, and try this on. One of the problems is printing these cards out in these different offices, that doesn't work too well. So what I'm looking at is having a Polaroid passport-style camera. They might write the card out there, they may not, They may take the photograph out there and the name and send it to us and we go on campus possibly, even their printer and print the card including the photograph, pick it up with the video camera and print it all on the card and mail it back to the patient.

Dr. Rawson: I think it'll work great.

Sam: The idea of using the Polaroid keeps the patient form coming to a central point. That will never work.

Dr. Rawson: No, if you get, you have to get it right there. Like when you get your auto license.

Sam: And it's expensive to have all the equipment out there when we have the Polaroid.

I would think the patient's picture would be a optional feature if it's too expensive or cumbersome, just put a picture of the medical center on there. That's a very good quality. This is the format, this is the form. They've taken my name and Traci's name and printed it on the form so the basic card it made with its coloring on it. On campus, they are printing all of this on the cards because these colors match so well. But if they can print Traci's picture on it, they can do ours.

Traci: They just had a blank stack of those and they printed my picture, library bar code and everything while I was there.

Dr. Rawson: They did it as you sat there and gave it to you? That's be even better.

Sam: If we do this, we might put a facility right here in the hospital, but we still have a problem of these managed offices out there. We can't get one for every one. You're talking about \$5,000-\$10,000 for every one. We could take the photographs out there and mail them to them.

Susan: This is the new license. They do it all right there, just like this UT card. They do it all right there and actually they'll let you look on the computer to see if you like that view.

Dr. Rawson: Oh no, they didn't ask me that.

Susan: There's a lot of information on it. See, if you look right there, there's another picture right there and then if you move it back and forth you can see Tennessee and some kind of verification.

Dr. Rawson: Oh, yeah. That's nice. Mine is old. See, you don't have to get any new licenses when you get my age.

Traci: I have one. It's good until '98.

Dr. Rawson: I have to get one on 2001.

Sam: What else? Do you have any knowledge you can lay on us today.

Dr. Rawson: I can't think of anything. I hope what I told you was right.

2/10/97: UHS KEY INFORMANT INTERVIEW

Moderators: Dr. Sam Burgiss, Dr. Susan Dimmick

Participants: Don Lee, Cindy Marquart

Cindy: I have been on both sides of the street, so I am real familiar with both ends. In a physician's office, generally speaking, on a regular basis you don't have the long question and answer session that you might have in a hospital. That usually only occurs in a situation with a new patient. Most of the encounters in outpatient registration are not very time-consuming. It's basically, "Has your address changed, has your insurance changed, do you have a new phone number?" **I could see the applicability in outpatient registration if the computer system is such that this will help it come up quicker. Right now they type in the social security number and the name, and the problem is not that they can't identify the patient quickly. It is that the system is so slow that it doesn't bring it up, and that is the time-consuming part of outpatient registration, not asking a litany of questions.** And in an office setting you basically, when they come in the front door you ask them has your address changed, has your insurance changed? And often it hasn't. And I don't know that it would help. **Also the problem I have in identifying patients is when they put the wrong account number on the super bill and they punch it back here. So one problem with identifying people ends up back here, not up there. They identify them right. They just can't put the right account number on the super bill. I don't think it would speed anything up. You've got to think of it from a patient's perspective and when they come in the last thing they want to do is to take out their driver's license and their insurance card, and now you've given them another card. Half of them won't have it. The TennCare population, I can just about guarantee you, they won't bring these things and we have had massive experience with that. They just don't bring them.**

Don: They'll lose it. Fifty percent lose their card.

Cindy: The Medicare patient will get flustered and upset - the older Medicare patient 75 and above - will get upset. What does it look like? Where is it? That is what they go through. They get very aggravated. The current managed care situation in this town is such that people are changing very frequently their insurances. **So I don't want insurance. I can't take your card if it has insurance on it because I can't trust that it is going to be right.** So in that situation, maybe as often as once a year you are going to be making a new card, and most of the healthy people only show up at your office at least once a year. Little kids, of course, would show up more often. **But, I guess I am more inclined to say, and we have discussed this before, that the social security number, date of birth and name would be all I would be willing to bet on at this point. You can't even count on MediCare because secondary insurances are changing right and left ... So to put insurance information at this point I wouldn't be in favor of.**

Sam: Right, and I think that is kind of where we were coming to. We had some of the same comments from a focus group over in the hospital. They just said it changes so often, and I think that is a very valid point. And one of the things that to get back to is TennCare. Dr. Rosson's comment - he was in the group - was that the TennCare people have to bring their card to receive care, and then he said it would be great if we could combine this card with the TennCare card. Well, you got a lot of different TennCare cards out there, and that is just practically impossible so one thing that we suggested with TennCare, which might be helpful with the other situations, is to get a little plastic pouch that bundles these cards together as one item.

Cindy: But they don't have to bring their card to get services. That is a misconception by a physician. They change their doctor frequently which means the TennCare card is often inaccurate. The MCOs don't get the cards out to the patients on time, and you can't wait on a card to serve a patient. You either look it up on a list or you make telephone calls in order to verify that that patient is the TennCare patient with the TennCare plan with the primary care doctor they say ... Those cards you might as well throw in the trash. ... He's not at the registration desk, and we are.

Sam: Yeah, I understand. That was just a contribution he made in a session. One of the interesting things that you may have heard of is the ads for Baptist talking about a senior card. We know that Baptist has a card, in fact a magnetic stripe card, and they are using it for their seniors. Apparently ...

Cindy: They have bought a specific insurance plan that Baptist sells and that is who they are giving those particular cards to

Sam: Okay, one of their products, their insurance products, so to speak

Cindy: They have a product called Baptist Select which is a product between regular Medicare and supplemental insurance. I believe that is the population they are giving their cards ... Medicare people don't have a pharmacy unless they have a supplemental health insurance policy. So this one provides them probably with pharmacy benefits

Sam: So in effect this is the insurance card?

Cindy: Correct

Sam: It may be a mag stripe. Well, our Blue Cross/Blue Shield is a magnetic stripe. I don't know what it is used for.

Cindy: Well, no I don't think I have ever seen anybody read it.

Sam: You don't know whether it has anything written on it!

Cindy: Right, it might be blank for all I know! But, it does have a mag stripe on it.

Sam: So what they are really doing is an insurance program. Not really a loyalty, bonding concept.

Cindy: And the card really may be very valuable for that type of thing.

Sam: And that seems to be what we are coming around to. If you go beyond the three items you mentioned, they are subject to change. Even the name can change. But, some programs put all three items as a verification point.

Cindy: I guess I would have thought the doctor's would have been more enthusiastic about allergies and if you're a diabetic, you're a diabetic. It doesn't go away.

Sam: They have been some. And, in fact, we had a session with Dr. Rawson and he did say that the historical medical would have some value, such as have you had an appendectomy? That is not going to change.

Cindy: How many babies have you had? I have a thyroid condition, and it isn't going away. You are allergic to penicillin forever.

Sam: What we ought to do, Susan has outlined several questions, we may already covered some ...

Susan: Did you want her to talk about the photo aspect?

Sam: Oh, yeah, that's right. This is a good opportunity. One of the thoughts that we had is something similar to this card, but using a photograph for identification, to prevent cards from being interchanged, and also use that for a somewhat personalization of the card. In fact, one of the groups I talked to you, you could certainly with all this information written on the back of it you're going to need to put the name on it, well, it could get exchanged so they put the name on it. Along those lines we were thinking about the photograph, and Caroline has done some research into that, and with people we have talked to in the hospital this is a prevailing thought on identifying the card to the person. Also, it could be used as you progress through the hospital ... But, let's let Caroline talk just a minute about the photograph concept.

Caroline: Well, like you said, at a previous meeting they brought up the problem of people swapping the cards in some populations, and the photo would be a good idea. Well, hopefully a good way to positively ID a person. I brought my student ID card. It is a digital imagery process, just like a student university card or the new Tennessee driver's license. For the patient, on his end, just like when you get a driver's license, you go in, sit down, have your picture snapped and he waits approximately two to three minutes. You mentioned not being able to get the card out to the person. Well, if they were waiting there, it would only take just a couple of minutes for them to get it. For the office, they would have a photo station with a digital camera hooked up to a PC hooked up to card printer. All the pictures are stored on the computer - so if they did lose their card, and did not want to come in to have another picture taken, you could have it printed out from memory and have it shipped to them. They have color printers, black and white printers. I was talking to a man who said by mid-March all the VA hospitals across the country will have black and white photos put on their mag stripe cards. But, as a positive ID, it is a really good thing for the cards, and it is a brief process.

Sam: One of our thought processes on this is if your issue point became your MSO offices, if that made good sense, instead of having equipment at every office you could have a Polaroid passport taken, and then the equipment back at the hospital would marry that image to the card and mail it out to the patient. It might be more cost efficient, but it needs to be looked at. So that was one concept of personalizing, identifying, preventing the card from being accidentally traded, or on purpose, that we had looked at. That was the most prevailing. You can do some things with fingerprints, but that takes more electronics and it is

not as accurate, as reliable, and it doesn't have the personal effect, also. We might let Susan go ahead with some of the questions we had outlined for the discussion and see if we have any other thoughts

Don: I am trying to come up with value for me and for the patient and for the hospital. In a scenario like this ... this is tied into various offices and the hospital can read them. I can see where there would be some benefit to the patient and to the hospital, maybe if you generate these with a scheduled admission, test schedule so that when Don Lee, the patient, is in to see the doctor and he says I need to go to the hospital for this test On my way out generate me the card and then I can show at the hospital ... you don't have the added stress of having to sit and go through the registration process or when my primary care physician sees me and refers me to another group within the PMG you could generate a card that could be used at their office instead of sitting and spending 15 to 30 minutes filling out forms for this new doctor You just use the card to basically register the patient. I am struggling with having just three bits of information on it - seeing what good that would do.

Cindy: You are not registering them. It doesn't take 15 minutes of filling out paperwork. That is where your assumption is wrong.

Don: In an office it takes 15 to 30 minutes

Cindy: The very first time you do it. But after that it's over. And the very first time you are still going to have to put all that crap on the card you are still going to have to do it. An after that it is on the computer. All you do is pull it up and say ... you ask for their address change. You don't sit there for 15 to 30 minutes every time you come.

Don: The first time

Cindy: The first time you do. But, you are still going to have to type all that crap on the card, and what have you saved after that.

Don: No, you don't do it on the card if you're a patient in my office and I have been following you for years. All right my question is, you've got a problem and I am going to refer you to a specialist down the hall and to the hospital for tests. Well, that is two 30 minute periods you are going to spend ...

Cindy: It is not 30 minutes, Don. It never has been.

Don: Fine. Whatever it takes at the hospital

Cindy: Another thing is, all the questions asked at the doctor's office are not going to be the questions asked at the hospital. There are other things asked, that are required, and the hospital is probably not going to take the doctor's office - the way they have prioritized the insurance if there is more than one insurance... so they are going to ask all those questions again. I just wouldn't put the insurances and that type of thing on it. You can put the address and social security and all that, but I wouldn't put insurance ...

Sam: The basic concept is the pre-register, so to speak, and make it easy for the patient to come into the hospital whether the card carries that information or the information put into the computer is linked and the card is your ID link. Either one of those, I think you're right, is a valid positive to the patient. I know an administrator who recently had the experience of going through our own hospital with his wife who has been diagnosed with breast cancer, and he said it was horrible. You stop here and you answer questions. You stop there and you answer questions. And in the meanwhile you are in this state of shock. He recognized the problem. Now, I don't know whether the smart card will solve all that, or not. It won't without a good computer system behind it to support it, or without putting all the necessary data on the card. Another realistic thought that we had in implementing and getting started with the pilot, we want to have the information that you need, but the more information we want on the card the longer it will be before we decide what information will go on the card. But, I think you have a positive point there that that can make a positive impact.

Susan: There are different ways that the card can be used: as a portable medical record which doesn't seem to be very feasible at this point; as an identification card, which you are saying there is really not that big a problem with identification. The third is to create a bonding effect or loyalty. But, we are not really sure that a card would do that. It is said that it might do that. But, we have to get a better handle on what patient flow is within these MSOs, and the linkage, or lack of linkage, with the medical center. ... So that is what we should focus on right now. Is how patients flow to these MSOs and whether there is an automatic referral system to this medical system, or what other options there are for referral. I don't know if doctors in these MSOs automatically refer to UT Medical Center, for example...

Don: We do not require that our doctors admit to UT hospital. Most do.

Cindy: The non-admission part

Sam: What about a referral to a specialist? Might they admit them to another hospital?

Don: I am not sure there are any specialist we don't have at UT. ...

Sam: That is patient preference. You've got to honor that

Cindy:(insurance plans)

Susan: So basically there is no problem with referral between the MSOs and the medical center. You are not having to convince physicians or patients to use the medical center

Cindy:if service is not up to par ... the doctor won't refer ...

Susan: Do you see a use at all then for a patient health card to create a connection between the MSOs and the medical center. If there isn't one, there isn't.

Don: That is hard to answer

Susan: Do you think patients want a patient-health card of some kind?

Cindy: If they think it will get them something If it will get them in there quicker. They don't have to go through a bunch of stuff. If they perceive ... whether it is or isn't. ... But, if it is not going to get things done quicker ...

Don: They are advertising at Baptist, "It comes with a discount." ... There is value ... If we had a card that, it doesn't have to give a monetary advantage, but it is a VIP ... yeah, people will like that.

Cindy: But, it doesn't make any difference if you still have to ask them, what is your insurance, and you still have to sign the forms ...

Susan: Well, the idea about the photos was that at least you could be greeted. If there is a photo and a name, at least I could greet you as who you are, instead of initiating a rather cold process of "who are you." They would personalize the process.

Cindy: Our ... is not that cold. They are called by name ... They know your life history. It is not a cold process, I don't think. And as far as identification we have talked about giving them a room number and letting them go up like a hotel and registering up in their rooms to personalize it. But, the bottom line is the person is up there in a gown ... and there purse is on the other wall ... you think they want to haul it all ... You have got to think about those kinds of things that go on ...

Susan: Are there any particular patient populations, if we thought more about the smart card, for example renal dialysis patients. These cards are capable of logging the last setting on the machine that sort of thing, for diabetics their last glucose reading. Are there any particular patient populations that might benefit from the card ...

Cindy: Radiotherapy ...PT ... (renal, pregnancy, kids - the first three years, the ER)

Susan: And what would be the benefit to the patient ...?

Cindy: ...

Don: This is why I hired Cindy. I am thinking just the opposite. I think something could be done with point checks ...

Cindy:The emergency room is the most problem with identification ...I guess I am not real in favor of this mass ...the emergency room you give everybody the card and it helps you find that person ...

Don: ...if you go visit diagnostic you take this card and speed up the process ...

Cindy: The way the emergency room works now most of those people are frequent flyers. They are not trauma people ...

Don: Hypothetical, theoretically ...

Cindy: Right. But they are using it as a primary care clinic. But, right now if you want to know a real problem, that is a real problem.

Sam: Those frequent flyers in the ER right now are primarily TennCare and they are not going to have the incentive to bring their card.

Don: Right.

Sam: You mentioned something a moment ago that fits very well with some of the other groups. You get a discount or free parking or discount on meals in the cafeteria. Things of that nature to make the patients return with their card. That is something that can be done.

Susan: How many MSOs are there? Twelve, or..

Don: Do you know the difference between an MSO and MCO?

Susan: Barely.

Don: An MCO is a managed care organization, that is an insurance company. We, the MSO, we manage physician groups. We are PMG now, physician management. We are in the business of managing physicians practices, providing ...we do everything but provide medical care, take care of everything for the physicians ...hire and fire employees, pay salaries. We are not at all connected with providing insurance services. That is what the MCO does. The MCOs are ... Travelers, Blue Cross ...

Susan: But, there are satellite clinics that are university health service clinics that are connected with the university.

Don: Yes, we manage those groups. Halls, Farragut, 20 some locations ...

Susan: Are there specialty groups of physicians that you put together?

Don: Mostly primary care - your general pediatricians, internal medicine physicians and family medicine physicians. The gatekeepers where the patient comes into the system and then they are referred. More and more a patient has to go to his primary care physician to get to the specialist that is a requirement that the MCOs ...

Susan: Okay, so could a card like this facilitate the extra movement that is now required because of managed care from seeing the gatekeeper person, and then being referred to different type of physicians

Don: Yes, that is what I was thinking that our physicians ... refer to a subspecialty group and then we could generate the card selectively ... so they are going to get value out of that card if they hold onto it because it saves time. Can you alter the information on the card?

Sam: Oh, yes

Susan: So you are talking about a UT family. So this brings the patient into the family and they have tangible evidence of being a member of the family?

Don: That is what I was thinking.

Susan: It could possible work that way because if they have options, if they decide not to go ...

Don: Then the card is no good if they decide to go to the ... (UT group, we can scan the card) If they decide to go somewhere closer to home if they live in Blount County the card will be of little use ...

Susan: But, I was thinking of their options as being I could choose University health services, or I could chose Baptist, or I could choose St. Mary's. What is going to make me choose to remain a family member of the university's health service? And that is where we were thinking that the card may have its greatest utility.

Cindy: ...he has referral preference ... he decides who the patient is going to go to ... unless the patient is smart enough to make some comment about it, that is where they go. I don't question mine generally .

Don: Well, this is where we differ. I don't think ...

Cindy: You are not at the registration desk when they yell at you. It is true

Don: ...

Cindy: ...

Don: That (referring to UT) is what we expect of our physicians. ... Service is the deciding factor, though ...

Sam: ...

Cindy:

Susan: But, you are saying that even if he refers to PT or OT or an array of other services, this card wouldn't speed up the process?

Cindy: If the computer system were such that when you read it, it brought up the information, that is the function of the memory of the computer system. If that is fixed, yes it probably would ...

Don: ...why not just use the card and load up everything ...

Cindy: ...(you can't trust that information on the card is correct)

Don: Well, sooner or later you are going to have to make that assumption.

Susan: If it is within the system?

Don: Sooner or later within the system we have got to make that assumption.

Sam: So the card is generated, created ...

Don: If you pull it up and review it is much quicker

Cindy: ...

Susan: Where is all the information gathered? Primary care to the referring specialist, the referring specialist to the hospital? Where is the breakdown in the validity of the information, if it is going to occur?

Cindy: Whoever put it in.

Susan: Where is it put in for the first time? The primary care?

Cindy: ... it depends on how the patient enters the system. If they are in a gatekeeper model then likely the primary care office. If it is someone who can still refer, you don't have to go to the primary care ... if you get really sick and show up at the ER it ends up there first ...there is no set place.

Susan: What is the typical? Is there a typical?

Cindy: No, it is wherever you enter ...

Sam: ...would the MSO have the insurance inf. accurately?

Cindy: ...We have 55 doctors and we have 250 specialists and those 55 doctors are not

Don: ...managed care is just coming into East Tennessee, and there are still a lot of specialists that act as primary care specialists. In other words, a lot of insurances will allow me to go straight to the orthoped ... my back hurts ...there is much more of that than gatekeeper ... still a lot of that in East Tennessee.

Susan: What is the trend?

Don: To go to the gatekeeper. You can't go to the orthoped because in the future, you go to the orthoped's office and it is \$350. You can go to a primary care for \$50

Susan: What kind of time period are we looking at for that gatekeeping to set in?

Don: Three to five years ... It is already there for TennCare ...

Susan: Well, if we were already there in the gatekeeping mode, would that increase or decrease the utility of the patient health card

Cindy: ...what you are dealing with is a bunch of information that a \$6.50 an hour employee collects. They turn over fast ... as health care becomes more and more complicated ... insurance is changing far too quickly ...

Sam: ...

Don: ...I'd say our primary care has about 80,000 active patients, and an active patient has been in to see that doctor within the last three years ...

Sam: Do you feel like, in some respect, if that patient who comes into that office and needs to be referred to a specialist or hospital, some sort of card, if the infrastructure were there, would help in that transition?

Don: I can see where it could. I see two options: I see using the card, or I see once we go through this computer upgrade ... applying the card to the hospital ...

Sam: Kind of like before this upgrade the smarter card would be useful and then after that maybe an ID only card ...

Don: ... I understand it is a five year program ... I think the value ...(not registering for 30 minutes) ...that is where I see the card ...

Cindy: ...(doctors' offices all have different computer systems)

Sam: If you did that you would have integration software which connects the smart card with system A, system B, system C ...

Cindy: ...

Sam: Well one of the things in my discussion with Steve ... basically the MSO offices are one system, and then inside the hospital is another system. Then you go out to the specialist office and it's a hodge podge. But, if we could deal with something that is in hospital and MSO, then we are probably dealing with two systems ...

Don: That is what I was hoping that referrals to the hospital ... our offices are ... instead of saying

Sam: The card becomes the connectivity between the two systems and carries the data ... That is a possibility in dealing with either the high-end magnetic card or possibly the smart card. Smart cards are \$5 to \$10 type cards ... and in the case you are talking about there, the card could be issued without a photograph on it and it could be personalized when you come into the hospital. So the benefit there ... (

tape ends) ... And the photograph is not a necessity. We can do the card without a photograph. It was one thought that it might be positive.

Susan: So the situation depicted in this little infomercial, that that man had a choice because he didn't like the service at Hospital X or Hospital Y, is not a realistic?

Cindy: No, it is not.

Susan: So you are not really competing for patients out there. You just understand which pool of patients the facilities going to pay for because of insurance considerations?

Cindy: **You are competing if you are on the insurance plan.** But, everybody is not on each insurance plan, so it narrows the field on which you compete. In other words, Baptist and St. Marys have a thing called They can only go to where that insurance ... **insurance dictates wherever you go in most cases and there is not many insurance that will allow you to go anywhere you want to.** There are usually some type of restrictions and they vary from very less to very ... **Most plans that we will be in we will be competing with Fort Sanders ... because we are aligned with them. We negotiate together.**

Susan: So the card as a bargaining chip in the attempt to lure patients to particular clinics or particular hospitals - that isn't even true.

Cindy: I don't think so. I think if you can give them value they will not gripe about coming to our facility. They are more likely to chose, tell me if I am wrong Don, to go to AmService Centers and places like that than they are to choose between two hospitals. The hospitals are pretty ... in the way they do their billing stuff. **They are more likely to choose the AmService Center or Outpatient diagnostic center cause if they have to park, they can get in and out. Then they are to choose because of a card or registration process.**

Don: But, now the lady in the commercial ... registration process ...

Cindy: I am not sure there is much difference in them now and I am not sure that there will be that much difference ...

Don: But, what I am saying with regard to the population, **you give it to a patient that is being sent to the hospital for specific tests, and you make it a non-painful experience for the patient. That will impress them. Especially if they have been in places where they have had painful experiences before. A painful experience - being in there all day for a 20 minute test.**

Susan: There is no question people complain about repeating information over and over again.

Don: Yeah, they do to us. Well, I was just down at the orthopedics' office. **Why do I have to give it to you. Because there is no connection between these two offices.**

Susan: So that would be the patient benefit, to reduce the pain ...

Don: Yeah, I think so...

Susan: The psychological pain of being involved in this whole process. What are the benefits for the institution? We have some listed here. The literature claims quicker registration. I have heard you say it really wouldn't.

Cindy: There is a point in the process now at outpatient registration. It is a little bit longer than inpatient. We have measured it. We had to because the surgeons were griping it was us that was hanging up the patient from getting upstairs. We talked about the half-day experience - not getting your test done.

Registration is not the reason why. It is inefficiency in the whole rest of the thing.

Don: **But, also in the next three to five years the competition with the hospitals is going to break down into hand-to-hand combat.**

Susan: I guess I am having trouble understanding what the competition is going to be if patients really don't have a choice. I am on this insurance plan and I really don't have a choice even if you treat me horribly where can I go?

Don: **Most choices are narrowed.** But, most choices don't say, "If you buy this insurance you can only go to one hospital."

Cindy: **There's usually two.**

Don: **There is usually two - UT and Fort Sanders**

Cindy: **In most cases, or St. Mary's and Baptist.**

Sam: But also on the long term, even with TennCare, the patient can change the insurance.

Cindy: **No, they can change it once a year. They can change a primary care doctor every day if they choose.**

Sam: That is what I meant. On the long term they can change there insurance. If they can't get what they want here, they can make a change on their total insurance package with another carrier.

Don: If you have insurance where you can either go to UT or Fort Sanders, **right there the warfare is between UT and Fort Sanders to get that patient who has insurance A.** The secondary battle is between the insurance plans. Plan A offers ... Plan B offers ... **So the first battle is to get the patient in one of those two MCOs, and the once the patient chooses an MCO, then the battle is between which institution gets the patient.**

Cindy: If you are a BlueCare patient you can choose your primary care doctor. You are either going to choose one at UT or Fort Sanders, and you can change that any way you want. Also, all of the specialists at UT and Fort Sanders are in that network. **Most of the time what will happen is a Fort Sander's doctor will refer to a Fort Sander's specialist.** But, if you as the patient raise your hand and say, "I happen to like Dr. So and So over at UT." **You still have that choice if you can convince your doctor to send you.**

There is some choice left, but it is not where you and I can go anywhere at anytime we want without a substantial ... and the competition is narrowed in most cases between two hospitals instead of four.

Susan: And then I also have the choice if I don't like my plan, I can switch plans.

Cindy: **Usually once a year.** And they are not all going to be all-or-nothing plans. You've got the Cadillac plan where you can go to a specialist if you want to without asking. You've got the point of service plan which you can choose to opt to got to the specialist, but you pay more. You've got the HMO plan which says you got to go to your primary care doctor come hell or high water. If you go anywhere else you pay all of it. So most people will have that array of choices. Martin Marietta has that kind of choice. Alcoa has that kind of choice. UT basically has at least two of those choices. Health Source ... You don't have that middle of the road policy at this point.

Susan: So can the card help even the narrowed choice scenario? Can it make any difference?

Cindy: It might make a difference if you do it like what he is saying. **If you are going to get referred to somebody, you give them the card at that point. But, to willy-nilly give the card anywhere is useless. Except to get it identified in the computer. I still think there is value in that - social security number, date of birth and name - and when it pulls up the list, it will give you an automatic match and there is no discussion about the registration, about putting in the wrong numbers and matching the wrong thing.**

Susan: What about a photo? Advantage or not an advantage with that?

Cindy: **I think they are going to ask enough other questions that the photo is not essential and you are adding expense to it. And the other thing is once they are up in the bed you can't identify them by that photo. You will only identify them by the armband. I do think there has got to be a way to put a photo on the armband. I think there is value in that because that is what they ask a lot up in the floor. "Are you Mrs. So and So?" They keep matching up pieces of paper. So I think that the photo would be helpful on the armband**

Sam: Let me ask this question, what if you had an ID card with magnetic stripe with the photo on it that is attached to the arm when you come to the hospital, that is encapsulated and attached there ...

Cindy: **If you could make it small enough so that it doesn't not interfere with care and that ... Yes, I do think that is valuable. For one thing you can bar code it. But, I also think the picture is good because that gives you extra comfort to the caregiver who is about to shoot them with something and wants to make sure it is the right patient!**

Don: ...**(put it on the bed)**

Cindy: **I'd rather it be on the patient. If it is small enough and you can bar code it, Don. It will be all right.**

Sam: What about around the neck?

Cindy: No, that wouldn't work. It would get in the way.

Sam: But, if it is credit card size and it is attached to the armband ...

Cindy: I don't know. **You are going to have to get it much smaller than a credit card.** You might be able to get by with it being The picture is not that big.

Susan: And the card would trigger the printing of the band? In other words, you would read it in and somehow it would print out the photo and all the basic info ...

Cindy: All that is on the band now is the doctor's name and the patient's name, maybe social security number and maybe date of birth, and the date of admission. It doesn't go ...

Sam: You are thinking if the card is like this it will be a fairly big band.

Cindy: Yeah. If it was only this wide. Maybe you could get by with that.

Sam: You wouldn't have it dangling from your arm band...

Cindy: No, I am talking about putting on like a watchband just making it a little bit ...

Susan: And that card would trigger the strip of information that you could put in the plastic. ... That would be an added use that hasn't been brought up yet.

Don: Attach it to the bed

Susan: They move you when they take you to surgery ...

Cindy: Don, it has to be attached to the body.

Don: But, the chart goes with you to surgery

Cindy: It does. But they still ask you, "Are you Mrs. So and So?" I want it attached to the person. Just like babies - they get babies mixed up.

Don: That is why the last thing you remember when you go to have your knee operated on is somebody asking if they are going to operate on the left knee.

Sam: Some people label them these days!

Cindy: Some people have not labeled them and made mistakes.

Susan: That would be an innovation.

Cindy: ...numbers can be looked at wrong, people can be drugged and not answer you the right question. You can look at their face and see they look reasonably similar to what's on that arm band, that gives you some kind of comfort. Those arm bands can't be removed except with scissors. They don't fall off. They are permanent until you cut them off.

Sam: And if the pictures are pre-stored they can easily be generated.

Cindy: ...

Susan: But he is suggesting the whole process is triggered at referral time, referral to the hospital. And at that point the picture would be taken. Right?

Don: Right ...

Sam: And I was thinking you don't take the entire list of all the patients and send them to them. I was thinking that if we did something in the MSOs and you were using them in the MSOs you just issue them to those patients. Because you just don't get your money back.

Cindy: ...radiotherapy ...chemotherapy, some PT, some OT ...

Susan: Pre-natal

Cindy: Prenatal, maybe kids in a pediatric practice.

Susan: Surely there are statistics on how often kids visit the first three years.

Cindy: Oh yes, there are protocols. It is not rocket science ... the American Academy of Pediatrics ...

Susan: If we were thinking about pediatrics, what use would there be for the mothers for bringing their kids in repeatedly every few months?

Cindy: Just being able to walk in ... being identified not having to stand at the desk.

Sam: If you look at it like most of us look at an ATM. Why do you like an ATM? You go and you know it is a routine. I know when I go to the doctor's office I have to sign my name in and so forth. But to have a card reader right there. ... I was just thinking how can we make it have the effect that an ATM has had?

Susan: Well, the effect of an ATM is that I can get my money 24 hours of the day, seven days a week and I don't care if the bank is open or not.

Sam: But, I use the ATM beside the bank instead of driving up to the window ...

Susan: But it is still the convenience factor more than anything that drives the popularity of that. Now what is it about, what would this card do ...

Cindy: You have got to remember that ... it is not important as an ATM ... They still expect (the doctor with the little black bag) ...

Susan: Maybe my experience is different. But, I am never greeted. I am only talked to very nicely when I am paying my bill. I come in and I sign my kids in, let's say for pediatrics, and the first I hear, I never hear my name, I hear my child's name being called into the room and the admitting nurse has my chart by then

and says, "How is Robbie today?" So I am not sure that swiping the card through is going to decrease personalization that doesn't, in my opinion, exist.

Cindy: In my offices you come in, you sign in, and ... we ask is the insurance the same is the address the same ... and my pediatrician (sounds a lot like yours)

Susan: And I have been with him for 10 years! So it is not that I am missing personal contact. It is just that for that, I never hear a greeting. There is usually more interaction at the end.

Sam: Usually when you approach the desk nobody says, "Good morning. Please sign in." The pad is just there. You do it. And you walk away.

Don: We have three or four receptionists that amaze me at the number of people they know when a patient walks in. ... I wish I had one for each office. Those people are hard to find, just naturally friendly.

Susan: And they have been there long enough.

Sam: The people behind the desk are busy. They are busy doing their job. And I think everybody when they go to the doctor's office if you see a form there, and you put your name on it. That is the procedure.

Susan: You don't expect anything else but that.

Don: ... receptionists ... we do surveys and they always rank up there ...

Sam: Well, I think that is part of what you are saying, Don. We have looked at the other hospitals and we are all kind of doing the same thing. One of the thinking of this on the part of the benefactor and others who have given suggestions is the smart card, or patient card, a way to get ahead of the pack?

Susan: It may not be. That is what we are out talking to people about. If you still have to compete with Fort Sanders for patients, and you have built this club membership idea or you are a part of the UT family - they have to have tangible evidence of that. Well, the card is tangible evidence of that, and it could serve that function. But, if we are going to get down to the point where look I have this kind of insurance, I can only go to this hospital and these physician groups then why do we need the card?

Don: You are always going to have a degree of competition. It just been reduced. And I can see you two people talking, comparing their experiences: "Well, my doctor gave me this card and I went to the hospital and there was no hassle. The just took my card and I was pre-registered." And someone else says, "Well I went to this hospital and it took all day." I think it's going to come to just a small difference in the future. Cost-wise we have got to be competitive with one another. If you are not good in that then you are going to go out of business. The doctors they are pretty much the same. The differential is going to be customer service.

Susan: Does this card have the potential to increase customer service?

Don: I think anything has the potential if it gives the customer value. What is value? Value is a discount, saving money or saving time. Save me aggravation.

Sam: ... well these are excellent thoughts...

2/20/97: Registration Focus Group Transcript

Moderator 1: Sam Burgiss

Moderator 2: Traci Bell

Moderator 3: Caroline Ragsdale

Participants: Three medical center registration managers

Moderator 1: Thanks for coming back to talk with us. We thought there might be a few things you could elaborate on from the first meeting. Some profound things came out of that meeting and one of the things the physicians said if we put medical data on the card it was subject to change and they'd rather have no data than bad data. We could put some medical data, like if you've had an appendectomy, that's not going to change, but even so they want to know that's accurate data. We also got some other comments outside of that session saying, let's look at this from the point of view of giving a lot of people the card and becomes an entry into the hospital, a bonding, a loyalty situation. One of the suggestions was made that you give these out at the MSO's and that you give the patient the card and when they come into the hospital, we know who they are. They're kind of pre-registered depending on the level of our computer communications, whether now or five years from now... they're pre-registered... part of the club. They can improve the referrals from those offices and make the patient feel better with that... and also make your operations possibly more efficient with that... make the patient feel better. So we can look at it like that. We also met with Don Lee and Cindy concerning the MSO offices. A couple of observations, one thought was that a simple ID card might be good so you can ID that patient. Another concept was that before the big computer in the sky gets put in, that a smart card could be written in the physicians' offices and brought into your office with that data might be good. That was a little bit of a different concept. Along with this, we've also looked at technology. We've been looking at smart cards and since then we've also looked at another patient card form, the magnetic stripe card, just like a credit card. We've looked at a couple of companies, one is Eltrax. Here's one with my name on it and another with the facility's picture. They're all just magnetic strip cards. What can you put on this? The standard format is you can put three of information on it and often they use name, social security number and birth date. These are relatively inexpensive, about a buck a card, a reader for \$300. So, it's \$1 a card here. the low-end smart card you're talking about a \$4 or \$5 card. High-end, we're talking about a \$15 card. Depending on the information, like transferring data from the physician's to you office, it might be a medium smart card of \$7 or \$10. That's what we've done and we really wanted to talk to about one, do you have anymore thoughts since we last met and then take this process a little bit further and what do you think about this because it's turned around and focused into an entry-type of card. There hasn't been a strong focus on cancer patients or this or that, but we're getting a lot of focus on an entry-card. That's where we are.

Speaker: I guess I agree with the concept of an entry card. **I think that's great, but I have some vehement reservations about trusting information from a physician's office.** Typically, they depend on us for information, especially if you're looking at anesthesiologists and those, they totally depend on us and my experience with physicians' offices is **they're not nearly as up-to-date on their information**, in the long-run as we are. To have a card and for them to gather the information to put on the card, **I would have some severe reservations about not checking the information with the patient because I have a really short period of time to see that patient.** Whereas, particularly with a physician relationship, you've got patients who come back. So, if they've it wrong, they'll have the opportunity to see that patient before I will again. I guess that's my general statement about that.

Speaker: Well, I'm highly opinionated about this process and I think if you look at it from the standpoint of giving someone a card that they can carry that ties them, then I'm for that 100%. I think that's a very good idea. Past it having anything on it, except identifying the patient...if we're looking at the operations that I'm responsible for...if that's going to expedite the patient, **it will not expedite the patient in any way.** And also you have to look at it from the standpoint if we do this, has anyone looked at **how quickly these cards can be produced because that's also going to be an issue.** If I have a pretty good operation now, and we're talking about streamlining this, if 100 of those patients today don't have these cards and we're going to be generating them at the point-of-entry, there's some question there if we're

talking about that. Those are some of my main concerns about the card. **I think if it's looked at from the standpoint of something that ties us to them, I think that would be fine.**

Speaker: This concept is great because we do have difficulty identifying patients, **but the reason we have difficulty in identifying patients, particularly physicians' offices is we want full, official name and they tend to just go with whatever they call you.** Like Jimmy or Jim, in our system it may be James. If this system is scanned and it has Jimmy on there, then it's not going to find it in our system. So, details like that...

Speaker: I'm also concerned about someone that may not be as efficient as I am that generates that card. **I may, at that point, take that information from that card and it may have the wrong social security number, it's not going to hit my computer.** So, I also have concerns about that. If you're still relying on one person that generated that card the first time and I'm concerned that of that's social security number is wrong and I swipe that into our system my social security number in the system is correct, then it won't hit. The other issue that's relevant to me is we're looking at this from a point-of entry. Well, the way that our environment's going, **I can't wait to the point-of-entry to identify the patient. We need to pre-register and we need to pre-cert ahead of time, so I've already identified these patients in my system before this patient ever arrives.** We've already done a lot of work to identify whether it's correct or not correct before the patient ever comes in.

Moderator 1: Those are a lot of valid points and on the last issue that you talked about. One of the concepts that the card could be... the patient is already registered, when they walk in the door, we know we know they have a good card and a valid card and it matches your system and they're already registered and here's who I am. You're right, there's a real question about how we get that card made accurately wherever the card is made and we can talk through that. Another thing is positive thing about using the magnetic strip card instead of the smart card is a smart card can bring data in, but in time that concept will go away when we have everybody in the system. This is a longer term investment. This same company makes these for Baptist senior program. They're doing this same concept. They sent me a card with my name on it, but I don't know where it is. One of the questions you asked is who to give the card to, everybody in the physician's office, repeat patients or only to those patients you plan on admitting into the hospital? So there's a initial question. Another one, how do you give the card to the person? How do you give the card to the person? If you can give it in advance, the physician's office can provide the basic information... three items. We also talked about is having the photograph on the card. And when they have the photograph on it, it gives you better identification that you have the right person. It helps some. The physician's office could send a form with full name, Social Security number and date of birth and a Polaroid. That comes in here and the card is made and the photograph is put on it and mailed back to the patient. Now they have their membership card. That would work quite well if you selected the sicker patients because you have some time delay that you could get the card to them before they come in. If you selected the sicker patients because you knew they would have to come in, then it could be their pre-registration card. You already know who the patient is, you've got the date and have had time to verify the data is right. You can do matches to see if it's right. If this patient is scheduled to be admitted or have a test, you should have a card that's already in their hand that you've verified the information on.

Speaker: I don't know... I'm not following this one. Are we talking about... the patient is sitting in the physician's office... the physician will call us to set up... **The way the process works now is basically a physician's office will call and say I want to set up an MRI, they talk to the scheduling folks and get the basic information from the patient and with those identifiers go in and see if the patient's been here before. If the patient's been here before, then the information is already brought forward.**

There's very little that's done from that point. Then when the patient walks in on the day of service, we confirm the information with the patient we already have...

Speaker: We also would hope that this is generally with in two or three days... we're not talking about a week out. **We try to do service pretty quick.**

Moderator 1: So, with that scenario, let's try one and see what works.

Speaker: Yeah, I'm just trying to figure out where this smart card will fall in this process.

Moderator 1: Suppose a physician in his office says, we're going to issue card to all of our repeat patients, especially people who have been to UT medical center in the last year. People who have been in the office more than three times in the last year. When you issue cards to those people, there's a high probability of

coming to the hospital. Go ahead and issue those cards and the way those cards are issued is the doctor's office provides to us three pieces of ID information and a photograph... that's sent in here. What we can do is make a card with the ID information and the photograph, but also see if it matches what you've got... to see if it matches with your records. In fact, if you wanted to... you said you pulled up the record to see if the patient had been in, you could create a record for that patient that is ready for their first visit. I don't know whether that fits or not, again, I'm just brainstorming. You could go ahead and have that patient registered in your system.

Speaker: We're doing that already, when they call and schedule.

Moderator 1: Right, but this would be in advance when the card is issued. Now, they haven't scheduled a service yet. The patient doesn't need a service yet. We don't know that this patient needs a service, but let's select a group that is likely to need a service. And those are ones who have been in the hospital in the last year... maybe those who have been in my office three times in the past year... whatever parameters we set on these.

Speaker: But not in the hospital?

Moderator 1: Not in the hospital. Just patients of that physician. So we issue all of them cards and we issue the cards the way I talked about it... the doctor's office provides the information, we make up a card, put the photograph on it and you have the opportunity to grab that information and verify it with your records... create an empty record so to speak and we mail the card out to them. Then a service is needed. Now, you've got a card in the hand of the patient, you verify the card in their hand has valid data on it and schedule is made like you talk about... patient walks in with card in hand, you can swipe the card and re-verify the card... be sure you have the right person. Then if you have a more positive identification of that patient because you have already pre-identified that patient... you haven't pre-registered, but you've pre-identified them two months ago, whatever the case may be. Does that fit? Does that make any sense?

Speaker: I guess we are tying the patient to us via the card, but as far as the process, **I don't know that you're saving us any time or effort because other than... instead of typing the patient's name in, we're swiping the card.** That's the only thing we're saving. We type the patient's name in and the stuff comes up and it may very well have already been printed before they even get here, especially with 6 a.m. admits, **a lot of that printing is done the night before, so virtually I don't even need to tell the system because I told the system they were coming in sometime yesterday that they would be here today.** So, that process is already... it's late in the game for that kind of process. It is maybe tying that patient to us. You know, from the patient's perspective, it may seem like it's saving them some time.

Speaker: I agree.

Speaker: And if it does that, then that's a positive effect and I don't have a problem with that.

Speaker: Another thing is when you talk about coming in, my perception, **this is much less important than insurance cards... and I have to beg for insurance cards.** So, if you didn't give this to me right when I came in, I can accurately identify you in my system by asking you your name, birth date is... so that by the time they got this card, I already have them identified... the one's we do not, that's an issue that we currently have is that they have to give us insurance cards.

Moderator 3: How long does the registration process take right now?

Speaker: It's a wide variance depending on how much information we have in the system. How many insurances they have. **It could be as short as three minutes... it could possibly be as long as ten and it can get even longer if we get into questions about authorization...** how payment can be received... we have to make a decision on that before the patient can be seen.

Speaker: What might be a good idea, is for you to walk over there some time and let us register you, so you can kind of see what happens because that will give you a little bit better idea of what we're dealing with. While there is time that is used up front, I think the vast majority of situations that we run into... **we don't detain the patient up front for registration information. The registration is done, it's the waiting to go somewhere else** and if I don't get that information then... the ability to collect an account is totally depends on these two guys and if they don't do it right, I don't collect. It's pretty cut and dry, if they don't do their job right, we don't collect the money.

Moderator 2: Is there a point or any situation during the registration process, either admitting into the hospital or outpatient, that a card like this would save time, that you know of? If they came in, had the card

and you could pull it up right then... **Is there a situation where this would be advantageous to the patient or to you to have something like that?**

Speaker: To save the time, I don't think so from our standpoint...

Moderator 1: What about after they leave your office... they've registered and they're going down the hall and they have three or four other tests or stops to make... I have been told, I don't know whether this is true or not, but I have been told by people on our administrative staff, who've come in with husbands or wives, that they... and it's fine, you've got to ask your questions, you've got to verify the information to know that everything is going to get paid... but what they've complained about, at least to me, is they go to the next place and are asked some of the same questions, and the next place and the same thing. A, is that true and B, can we help that somehow?

Speaker: It is true, in that you're providing that information to the physician's office and you're providing that information to us... and if you go to multiple physician's offices, you will provide that information, you will provide that information multiple times.

Moderator 1: Right, because everybody has a separate computer system.

Speaker: Exactly. And none of them interact. And really, you know, **if I felt like I could trust the information in the physicians' offices, I probably would be more open to this idea. It's just that their information is usually not very good.** They don't put much emphasis on it.

Moderator 3: So, everyone's kind of double-checking everyone. It's kind of what it sound like to me.

Speaker: Everyone is gathering the same information.

Moderator 3: And you would do this whether you had the card or not, because you don't think you would trust the card?

Speaker: One of the things you need to... one of the concepts we have **is we do review information, but we don't necessarily capture it again.** We keep everything in the system, but we have a lot of things in place that allows us to scan pieces of information and make sure we can... you know, you were in here last week, is this still your address? Have you changed to this new insurance? It's those type of items is what we do. We don't really re-capture it again. **We try at the very first registration... we fill out everything.** Then as you come back, we go through the certain process that allow us to review and make sure nothing has changed without checking every piece.

Moderator 1: What about, as we said, the patient goes to the hospital... the patient goes to the hospital... this is what I've been told is one of the biggest frustrating items... I don't think the patient minds one time, but three times... and... as they go through... what if their within the hospital, let's think about the hospital service. **They go from your office to the GI lab over here, do they have to re-answer those questions over in the GI lab...** and yet we're kind of on the same computer system, I presume.

Speaker: To my knowledge, they wouldn't answer the same questions. Now, the tech may come out and say, your name is and let me check your birth date, in case... Now it wouldn't be necessarily for financial reasons other than it's more and more accurate. You could have a situation where you're in the clinic and they schedule you an MRI at 4 o'clock that afternoon and for some reason, they're registered twice. We do run into situations where we're got two services in the same slot in the same day and for some reason, the patient is registered twice. I'm not sure why that happens, but...

Moderator 1: Seemingly, from what you've said, they run into this **problem of answering questions repetitively by going from hospital to doctor's office where they have a totally different system.**

Speaker: They can very well do that and I can guarantee that that happens.

Moderator 1: What about... let me ask this question, we're just trying to learn and see what fits because... do you issue the **armband** for every inpatient, outpatient that walks in the door?

Speaker: We issue them for all hospital admissions.

Moderator 2: For every inpatient admission?

Speaker: We also do it for clinic procedures, ambulatory surgeries, radiology and straight lab work.

Moderator 1: ER patients have it, all inpatients have it, anything that's invasive or... radiology. One of the suggestions that we were getting... I wasn't sure, you've got better insight than I have... I wasn't sure how this would work... One of the suggestions was if you did a card and captured their picture, that you print an armband with the picture on the armband. Now, I wasn't sure how that would be helpful if the armband can't be detached, but seemingly this person had mentioned this... that it would be helpful in identifying and

being sure you had the right patient, rather than just relying on armbands. Now, what's your thought on that?

Speaker: Do we have a big problem with identifying patients? I mean, you know, that would be the reason you would do that. Granted on a rare occasion, we've got somebody in here that takes sister's TennCare card and is admitted and that happens, but that's a real, real rare...

Moderator 1: Well, I wanted to throw it out, because it has been suggested to me and I wanted to see if it really worked. The idea of a photograph on the card is that we thought it makes it more personalized, makes it more a member of the club kind of concept, oh and by the way, it does help make sure sister doesn't come in with the wrong card.

Speaker: And if that's what we're trying to achieve, then that's fine. I was just trying to figure out if we're running into a situation where we're having a high percentage of people we can't identify.

Speaker: No.

Moderator 1: Not that I know of. And I couldn't understand if the armband has been attached and hasn't been cut and taped back on, why would this be wrong? Why would be uncertain that this is the correct ID for that patient? I don't know why, but that was suggested, so I wanted to see what you had to say about it.

Speaker: You could easily access our system... at a physician's office system by coming in and giving us erroneous information and there's really no way of stopping that. At one time, we had a system in place where we asked you for your driver's license in the ER and then we got a city councilman in and that procedure got changed real quickly. He was offended, so...

Moderator 1: This would kind of do the same... One of the thoughts I had as you talked is you could... you get accurate information... it could be carried to a doctor's office via a smart card, with the data written on a card. Now, whether they would believe your information, whether or not they would have a computer and participate. And another problem with that is integration. Over there in POB, I'm sure there are dozen different computer systems if not more for the different offices. So, you've got to integrate the card into every one of those computer systems and there's a cost in that. You don't want to deal with too many computer systems... integration costs.

Speaker: If we've got a patient that is going to an oncologist and we know they're going to come back for a series of chemotherapy sessions, I can see a real use for this because chemotherapy, we've have to assign a room to them so we can't set them up as a series and basically I think every time they come back we re-register them and those situations... If I made the card, then I wouldn't have a problem at all with that because I've got control of the data and it's something that we've got a little bit more control over...

Moderator 1: You'd see it as a positive where you know this is going to be a return patient admitting into the hospital.

Speaker: And if there was some way that we could get the cards issued with good data to the reference lab patients. It's got be better information than we're getting now. That might be a good use for it.

Moderator 1: You mentioned earlier, and I remembered what you said... seemingly the problem was you would get a sample into the reference lab from one of these managed offices with a name that you couldn't identify with and you asked if there was a possibility the card could print out a piece of paper that we could attach or something like that. You know, it might be that if we worked with the offices... name standardized, other information standardized, that may help you with the reference lab. Because a name... it's a little bit like the scenario I was talking about earlier where you'd go ahead and issue these cards, the magnetic stripe cards to the most likely patients... most likely in the doctor's office to be admitted... and they already would have this card and when a sample is sent in, if you've seen this ID and you've verified this ID, then when the reference lab sample comes in, you know it's a good ID.

Speaker: We know it's as good as the information when we issued the card. You know, with all our patient populations, the reason we go so far as to re-check a lot of this information or re-verify this information or ask if it's correct is because our population, especially TennCare, which is about 35%, is real transient. Even the state admits they move on the average of three times a year. So they're real transient, plus the insurance information changes because they have the opportunity to change primary care physicians every month if they want to and carriers at least once a year. Then you've got last names that change and change back and marriages and divorces...

Moderator 1: About the only thing that doesn't change is the birth date and the Social Security number, almost everything else changes.

Moderator 2: Along with that, when people change their names, several of the other people that we've talked to have mentioned the **problem of duplicate records**. First of all, is that a problem and would this help you if you had James P. Smith instead of Jim Smith or Jimmy Smith? Would it help you to have the full name in cutting down on duplicate records instead of having eight records for Jim, Jimmy and James? Would that help in pulling out the right information and getting a complete record for the person?

Speaker: It probably would help from this point forward. We've still got a database to clean up and it would only be helpful each time they use that card and any other input other than by that card would still run the same risk. Because basically, if we can match it up then we leave it as one. If we have any information that differentiates at all, you don't dare put them together because that's worse really than having them separate.

Speaker: It's also the people that do not return, commonly. This is for new people who are set up and return in an environment that we get duplicate medical records on, not the ones who are long term repeats, it's the new ones.

Speaker: In the emergency room, we can't help in the John Doe situation but to create a duplicate record. It happens all the time.

Speaker: That's a weakness in the system. I mean, if you've got a **trauma patient** coming in, you want a name on them, you want a record because they can't start x-ray or lab without a record set up. **We don't have time to get a name on those.** We just know they're coming in and it's bad, so we set up a dummy record intentionally and unfortunately with the system the way it is, you can't combine those records back together until their discharged. So, that's the creation of a lot of this and it's just the lesser of two evils.

Moderator 1: Let me interject. Traci and Caroline have a list of questions here to ask.

Moderator 2: We've hit on some of them.

Moderator 1: Well, that's what I was going to tell you. Watch the questions and see if we haven't hit some, then bring them in as we go, because we've got a good train of discussion and so forth. I was going to go back to... we've talked about issuing cards to the most likely patients. If you... could this be helpful to you if we provided a form to the physicians' offices, if you decided what to put on the form... name, specify full name, first, middle, last, junior, senior, etc., Social Security number, date of birth and other things you want. Some of it we wouldn't even put on the card... other things you want. And that document, that form comes into us with a photograph, would that start helping you get that data more accurate. I understand you said you didn't trust the physicians' offices, but maybe you could be selective about the data you want and stuff you could kind of trust them about. You bring that in and set up that patient record and then when the patient comes in you could kind of have a head start on that. If the patient has the card, as you just talked about, and walks into the emergency room at least the patient that has that card can be quickly identified to your record and you know it's a match and you've eliminated a few of these duplicate records. Possibly. I'm just looking... does that make some sense?

Speaker: There's a problem. We're talking about current system?

Moderator 1: Well, we're talking mostly about current system, but we need to look ahead to the new system too.

Speaker: Well, with the current system, I see a huge problem with this with our database with all these people... setting up all these medical records that are empty.

Moderator 1: Right. That's the problem with the existing system.

Speaker: We're running out of numbers, aren't we?

Speaker: Yeah. **We're doing all of this work to set up names and birth dates.**

Moderator 1: Yeah, and you've got a stretched system as it is.

Speaker: Now, if we have a new system, you know. That might not be a bad situation because at least that might prevent the first trip in and having to give all this information. They could be treated like a repeat patient, a former patient and say, oh Mr. Jones, the information I've got here is you live at such and such a place, your insurance is Blue Cross, can I have a copy of that card and you know. That probably **would be a pretty good marketing situation** and I could see that that would be a good experience for that patient.

Moderator 1: When are you going to have the new system or is that a silly question?

Speaker: Well, you wave that wand. I don't anticipate... The earliest I heard was August of '98 would be when we would start implementation.

Moderator 1: So, a year or more away. So one of the things we could look at is... we could try... if it makes good business sense... Try working with a smart card, let's call it a patient card for general, in the next year, maybe as you suggested, the patient that you know is going to come back in the hospital... that would allow us to learn what we could do, what it could do for us, how the patients accept it, how it works with, you know, a pilot program. In other words, that's what we want to begin with if we do the card, that's what we wanted, a pilot program. I've been told the elderly, the senior at Baptist is a pilot and they're going to give it to everybody. Whether that's true or not who knows, but you do want to do some type of pilot and maybe what you suggested, Lesa, may could be considered a good pilot. Where you have control of the situation, you have a repetitive cancer patient coming in once for a week for a month is the usual situation. They come in six times. And so one of the things you could do is... now photograph of a cancer patient is another issue.

Speaker: That may be something you could bring in down the road, a photo.

Moderator 1: Right, down the road. But you could issue their card while their in the hospital. You could get their card back to their bed. You mentioned something, Danny, that is a problem of getting insurance cards, much less another card.

Moderator 2: If we give them to the patients, will they bring them in?

Speaker: I disagree with what was in the other meeting. When the physician said that all the patients bring then in is... the reason they think they bring the in is we remake cards all the time. I got out of the card business and went into the label business because they would not bring them back in. It was a huge issue.

Moderator 1: One of the thoughts there, if it fits. Some people have said, they have to bring two cards. One of the things we could do for anybody, whether it's the clinic or for me with Blue Cross Blue Shield is with our card issue a plastic pouch that will hold two cards and there's one item to bring back in, if that makes sense. But I'm glad you've commented that it's not as ideal as we projected. Yeah, they have to have a card, but you make them one.

Moderator 3: So every time they came in and didn't have one, you made them one.

Speaker: We had so many patients in that clinic that wouldn't bring them in, we stopped giving them to them to take home. We had boxes of them because we had to make them over every time, so we would just start keeping them there.

Moderator 3: What if there was some sort of incentive?

Speaker: Well, that's one of the questions I have. You know we talk about Baptist and how good there's does. Doesn't theirs have some perks, like free parking? I mean, you could give me anything and give me free parking and I'd bring it back.

Moderator 1: That's a very valid point and other groups have... and I'm not sure what Baptist is doing with it, but other groups have done stuff like free parking, discounted parking and discounted meals, discounts in the gift shop, other kinds of stuff like that.

Speaker: They give free parking, I've heard that.

Moderator 2: Would that help?

Speaker: I think that makes it a total different concept of what we're really saying the card does. I mean if it's going to do something like that, a patient's going to love an ink pen if it'll give him free parking. We really need to evaluate why it's being accepted. That's the way I feel.

Moderator 1: That's a good point

Speaker: Because parking is a big issue around here. I could have a patient who's doing fine with me, and it'd be easier to give him \$2 because it really upsets people that you don't validate their parking and it's the type of an issue that can really make something attractive. Because if you're talking about handing this card to people and every time they leave it's free parking, you've got a friend.

Moderator 1: They've just parked their car out there and they've got this ticket and some of them bring it and to see if you can validate or something so they don't have to pay and you've told them no and now you're going to ask them for their mother's maiden name, you know. They're not very happy about this. Now, that makes a lot of sense.

Speaker: Especially if they've set there three hours because somebody didn't call in and get it pre-certified.

Moderator 1: So, you've got a patient that's bothered.

Speaker: But getting back to those chemo patients... I think there would be an incentive for those patients if they knew they didn't have to... that's an isolated group and we have to do them different from everybody else.. But if you told them OK, here's the card and you've got it for a week and... They're usually a better... They're a little more conscientious than the regular clinic patient. Clinic patients were... they usually just kind of go... And what is really more focused is probably the chemo patients...

Moderator 1: Chemo, cardiac patients, they're sick, they know they're sick, they want to get well. The clinic patients are coming in, like fix me.

Moderator 2: Are there other groups, other than chemo patients, that you could think of that would benefit from this program and would tend to bring it back more so than the clinic patients?

Speaker: The chemo patients are... those are a focused group and I'm not sure that... most... I can't think of anything else that comes in here repetitively.

Speaker: Rehab, radiation...

Speaker: Do we set those up as series, though?

Speaker: But, if you're talking about something that a patient comes in and has to be re-identified, even though they're series at each of those departments, they still have to be identified, if you're talking about that particular concept. Even though they're not registered they still have to be identified.

Moderator 1: So are you saying they enter the hospital on a different day and have to be re-identified or on the same day they come in your office?

Speaker: Well, to me it's just as important when Mr. Davenport comes in today, even though I'm not registering him in the system, I'm still going to be servicing him and I'm going to be put in charge of him and he still needs to be identified again if we're truly talking about this as identification.

Moderator 1: So, he'll come into your office and have to be identified?

Speaker: He'll go straight to the department and I hope they'll be identifying him.

Moderator 1: Suppose he had the card, would that facilitate that identification?

Speaker: I guess it depends on which department you're talking to. I don't know if PT goes through a process of identifying the patient or if they just call their name and assume Mr. Davenport is, in fact, Mr. Davenport from yesterday.

Speaker: You know, do you want to swipe this card and have a seat or do we say, Mr. Davenport your birthday is this right? I mean, so you're either saying is it this or Mr. Davenport, what is your birthday to re-identify when you're talking about identification.

Speaker: You'd probably have to talk to the individual departments because I don't know if the ancillary departments... how they go about re-identifying patients.

Moderator 1: Another thing, let's suppose... continuing down the line that you're talking about. We've got repeat patients, probably cancer patients. We give them a card and they go through the hospital and Danny's told them they get free parking and they love it... they go through the hospital with the card, but can't use it at the next place, they're going to get it out and they're going to say, well we don't take that card... if we don't put the infrastructure in the hospital... Now we might be able to draw a line between us and the POB's and say this works in the hospital, but not in the physician's office. See what I'm saying, They're going to get disappointed if they don't get to use it again and they have to answer the same questions. I don't think they'll mind if you use it and you say... verify with them... good morning Mrs. Jones, I see your date of birth is so-in-so and you go on and have a seat. So, that's... that's the thing about that. It's got to be, have the infrastructure behind it so it has a long-term positive effect.

Speaker: Let me ask something about chemo patients. If we know they're going to be here the next five days, we register them the first day and pre-register them for the next four days, right? So they just come in and pick up their paper work.

Speaker: We recognize them and greet them and know their face.

Moderator 1: So they don't spend the night in the hospital, they come back every day for five days. So you pre-register them the rest of the days. So if they come back in the next days and use their card, then they've used that card five times in that first week.

Speaker: They've got their parking paid five times at least, anyway. Yeah, **they've only gone through our system really once, because from that one registration we go ahead and prepare that paper work for the next five days.**

Moderator 1: But when they come back a month from now for another series, they come back with their card again.

Speaker: Yeah, and we can probably do the same thing... we can probably go through the questions and set it up just like the last time.

Moderator 1: Cancer to me... I've worked in PET for several years and watched patients from a little different perspective and I think that patient population would be very... It seems to me that cardiology patients they figure they can get fixed and they're going to live. The cancer patient goes away and says, well when is it going to reoccur, when am I going to die. I think it's a really good group from a focal point because they're really interested in their care, they appreciation of anything we do for them. And it's really tragic for them to have to answer questions repetitively. In fact, one of the illustrations given to me... one of the people going through the hospital with a spouse with a cancer situation. It's a pretty tough time finding that out.

Speaker: Well, maybe too, we're developing this chest center and maybe this is something... they want this to be a unique service and maybe this would tie it even more with being a unique service. Because I know they're registering in the physician system and they're registering in our system.

Moderator 1: And in that situation, it might be that there are three physicians and we could...

Speaker: It might be worth exploring. That's a new program anyway.

Moderator 2: Just to recap, we have a list of things that came from other groups about what would be a benefit. We wanted to talk to you because you are the people who actually admit the people in, you ask them the questions and pull up their file, whatever. There's a couple of things and we may have touched on some of them, I just wanted to be sure we got your opinion on whether you think this card would actually deliver a benefit of this nature. **Quicker registration. In outpatient you said not really because they're pre-registered.**

Speaker: Right. I can identify them quicker by typing in their name than I can by them finding this card.

Moderator 2: In inpatient, ER is this...

Speaker: It's about the same. Now with inpatient admissions there are about 20% that are pre-admitted. The majority of the rest come through the emergency room or are direct admits. We don't see them before, so we wouldn't have access to their card.

Moderator 2: OK, but creating an identity for the medical center... you've all kind of said that the loyalty, the bonding...

Speaker: Yeah. That's a good point about it.

Moderator 1: To you that's the strong... especially if you offer free parking.

Moderator 2: Promoting patient loyalty. I'm going to go to UT and get my parking free, I'll get 10% off, my husband can eat free in the cafeteria or get a 20% discount...

Moderator 3: What do you think about the photo along those lines?

Speaker: Well, one of the concerns I have that hasn't been addressed... even if it's a small group of people... I'm responsible for 500 registrations a day not counting emergency room and **I can't have this vision of putting photographs on the card and people don't bring their cards and they're right in front of me and I have to make them a new card. I have a concern that I've not heard been addressed. We're talking about huge volumes of people.**

Moderator 1: The front-end overhead of that... That was one of the thoughts in going out to the managed offices. You could do it in advance and you kind of don't have them standing in front of you and you have to make a new card. I'm kind of thinking, based on what we've said in here, the potential scenario is we have pilot with cancer patients... That's a situation I don't think we want to have a photo. That's a tragic situation from a photograph point-of-view and I say we start the pilot program off without a photograph and learn.

Speaker: Right. You know, **I think we need to take a smaller group and look at it and see how it works because we're giving you what we know as of today, but as fast as this environment is changing, my view 6 months from now might be totally different.**

Moderator 1: Yeah, that's exactly right. And I just thought of an idea while you were talking. You know what the car rental places do if you've got their membership card, you go to a special line that's shorter. There's another, I don't know if that would work.

Moderator 2: You'd have fights breaking out in the waiting room.

Speaker: I'm also concerned that if they come in with this card, they'll expect us not to ask them any questions. I mean, I know people and I know that... if you've got that card you shouldn't be asking me if I'm still married or if anything has changed.

Moderator 1: Your right. You have to approach that very carefully and when you give them the card, you don't want to exceed, build up their expectations too much. This will help us identify you. Now next time you come, we'll have to ask you if you're still at the same location and so forth but this will help. You have to put that in the right light in their minds and so forth, but if you gave them free parking, but if administration won't go along with free, maybe a buck off.

Moderator 2: Would this reduce, not so much anxiety, but frustration in the patient's point-of-view, whether it simplifies your registration, do you think that the patients would perceive this as something that will help me get into the hospital faster?

Speaker: I don't know. I would hate to approach it in that light because if we failed to meet an expectation in any way, then we've got a big black mark. And a lot of the things... the waiting and frustration like that is not something I can control.

Moderator 1: We're not going to give you a dollar off because you wait a long time, but we're just going to give you a dollar. We're not going to tie it to how long you have to wait.

Moderator 2: Do you think there are any disadvantages for patients, your system or the hospital if we were to introduce this... say it's going to be implemented, whether to patients just coming in or chemotherapy patients, are there any disadvantages that can you can foresee on the front-end that we might need to address?

Speaker: The expectations aspect of it. I think you need to be extremely careful with what exactly this is going to do for them. I would rather they be wonderfully surprised by what they get from this rather than them to have expectations of receiving something and then, oh to find out it's just a scam.

Speaker: My concern is making the card. That's my biggest concern. Patient shows up, they don't have one and I'm responsible for making them one. That will actually slow the process for the patient. That's my biggest concern.

Moderator 1: Well, let's talk about that for a minute. If we take the photograph off... that's one big piece of time. And basically, there's a unit attached to the computer that's capable of writing the card based on information in your computer. And one of the things they do is print they print name, but also another thing they do is print the Social Security number on the card. Some of them... that just makes them a little more personable to print the name and Social Security number, not many people want their birth date printed on the card. So, you have to be real careful about this. So, the only thing that has to be done is the card is written, and I don't know the details yet, but I imagine it's about as fast as the swipe, and is printed out... Now, that would be... it takes some time, but it would be probably fairly fast. We need to find out. If we want to go that scenario, we need to find out what that would take to do that.

Speaker: That's the reason Danny said we got out of the card business and went to the label business... just purely a time situation.

Moderator 1: The card business? Oh in the clinic...

Speaker: The address-o-graph. See I took it out downstairs also because we were always standing around waiting on cards to print.

Moderator 1: Right.

Speaker: Have you seen our label system?

Moderator 1: It would be good for us to take a look at your whole operation. Let me ask you another question. This is one of my crazy ideas, but I wanted to ask to see if it made a lot of sense. You use the armband now. Is there any way the card can substitute for the armband, realistically? So, that you don't have to issue the armband, but maybe not. I'm just brainstorming, just asking questions. One of the thoughts is, you can hang it around your neck. The patient hangs it around his neck the entire time their in the hospital, especially with the photograph someday. Then you've got the photograph and so forth, but then it can be

removed from the neck, the armband can't be removed unless you have a pair of scissors in your hand. You can dangle the card from the armband, but I'm not sure that's a good solution. I just want to brain storm it. I'm not saying it is or isn't, but I just wanted to think a minute, does the card help replace, or replace the armband? You could out it wider like this, but then you may limit some access. Your pulse point is covered up, for example.

Speaker: I don't know, I guess. I can't envision that happening, but you know, that would probably be totally decided on by ancillary departments on what they would be comfortable with and what they wouldn't. **Right now, we pull off one of these labels and that's what makes the armband.** It's a pretty simple process.

Moderator 3: Do you use the labels any where else?

Speaker: Labels. That's what labels a vile of blood, about everything we do, instead of trying to reprint the name or whatever. They'll just print out 15-20 labels and send up to the floor with identifying information.

Moderator 1: So that's a part of the information from the record that's printed off on the label.

Speaker: It has a bar code on it too.

Moderator 2: So is the bar code the primary identifier? You said it has what on it, I'm sorry.

Speaker: It has the medical record number and the account number. It has the medical record number when you get the file and the account number when you reach a particular encounter. You just marry the information on it as far as name, social security number, date of birth, sex, gender.

Moderator 3: So, those labels have a good deal of information on them.

Moderator 1: And you can match those labels to the armband when you're taking a sample and so forth, to be sure you have the right label.

Moderator 2: Say we do use these cards and a patient brings them in, what would you want as the primary identifier? What information would you want on the card when you scanned it in? Would you want it to match the Social Security number that's already in the database? Would you want it to match the name? Is there another number on there, maybe the bar code?

Speaker: There's three primary pieces of information... their name, their social security number and their birth date.

Moderator 1: That's consistent with what we've heard other places too.

Speaker: What about medical record number?

Speaker: Our system will only take pieces of those at a time. So the first part of my process is what is your name, what is your birth date. If that doesn't hit it, I'll say have you been here before. If that doesn't get a match, I'll back out and say, what's your Social Security number. So you have to do multiple inquiries to make a hit within the system.

Moderator 1: And presumably, if you had the information on the card and you did a scan, it would address that inquiry for you. You know, that's the kind of thing has to be worked out.

Speaker: MR number wouldn't be a bad idea somewhere down the road.

Moderator 1: Well, we have levels of cards. The simplest level can store three numbers and one of them can have alphas in it, the other two cannot. This is the standard format of the card. (Detailed explanation of character limits). They also make this card and reformat the data in non-standard credit card format and can have up to 700 characters on it, but that's a more expensive system. The readers are \$1,500 each. So, whereas the reader for the standard card is like \$300. **So it looks like from our discussion, that we're focusing on is you issue cards to repeat patients, possibly the cancer population as a pilot... no photograph on it.** We've got a few things to work out, but that seems like a workable possibility as a pilot. And then in a year, a year-and-a half, when you have the new system in, then you see that you would have a better identifying situation... well, we'd just look and see what's feasible at that time. Do we go out to the managed offices with it, whatever makes good sense after we've learned how to do it. OK. So you've had... **this bonding, loyalty point has been a real positive. Saving time, not necessarily a savings of time, but there may be a perception of savings of time. And then on down the road there could possibly be... the problem you mentioned with your lab samples coming out of the managed offices, then you could get positive identification.**

Discussion followed of when to tour registration set-up and possibly interview patients.

2/26/97

INTERVIEW: DR. BELL

Topic: Chemotherapy patient pilot

Dr. Burgiss: We wanted to let you know what we are doing, and it is close to your interests in the cancer center, and also to ask your ideas on this. What you think about these concepts any suggestions you may have on this ...

Dr. Bell: One correction, I am not part of this leadership business here at the hospital. I am just a doctor that works here. **My first comment, to Mr. Albers credit, it futurisitic thinking. My second comment would be that I don't think you are going to get people in East Tennessee to buy into the concept of, how did you describe it, like an ownership card or club card? I am not sure. I would have to think about that.**

Dr. Burgiss: You are not sure about the patients buying into that?

Dr. Bell: Correct

Dr. Burgiss: What if this patient that, for example the cancer population where you have a more diverse population that is really concerned about what is happening to their health ...

Dr. Bell: That is different. **Now you are talking about a disease-oriented card. I would say that would probably go. Because they'll keep up with that.**

Dr. Burgiss: Now, another thing we know is this is being used in an East Tennessee population over at the VA clinic in Cedar Bluff. They are using it, and they like it. Their patients like it. But, again you are dealing with another segment of the population. It is a military-oriented. They want to make sure they get better care, etc.

Dr. Bell: They are used to having cards issued to them. That identifies them as whatever they are.

Dr. Burgiss: They grew up with dog tags.

Dr. Bell: Right. **I would just say the first thing that comes to my mind is yes about the probable potential.** Now I would have to learn more about the technology - where it has been and where it is going. But I think the most critical thing at this point since the university has already spent an enormous amount of time and money trying to get the medical information system where it is, to the point now down to two or three venders, to the point where it is going to buy one of these medical information systems here within this calendar year. **I think the next logical thing would be is to go to them and say, "Can your system download information onto my card and me load information from my card into the system so they can talk to each other?"**

Dr. Burgiss: Cause without it your wasting your time.

Dr. Bell: Right.

Dr. Burgiss: Let me back up ... Curtis is very supportive, in fact Curtis was the one who suggested the club card, the friend, loyalty card and all it has is the basic ID information that accesses the computer. And I sat down with Buddy Feign ... but this is being coordinated with the new software that we may get. And Curtis sees it as being compatible with, in other words the card as ...

Dr. Bell: **I don't care what they say, the venders have go to see it as compatible.** With all due respect to the administration, since we are on tape here, I would say it is a nice idea and all, but until I talk to the venders that are actually going to be doing the application, I don't care if everybody thinks it is a good idea. They've got to tell me, "Yeah, we can talk to that card, and that card can talk to us." Otherwise it is just chatter as far as I am concerned.

Dr. Burgiss: They're an integration company that works with cards and they write the software that makes the card talk to the patient. That can be worked out. That is a very valid point. We believe that is feasible from what we understand from Buddy and his group and we understand from the card vender. But, yes, we have not brought those two together, yet. And it may be that these cards are already interfaced somewhere ...but that is a very valid point. It has to work together. And all the people we have talked to feel like that can be done.

Dr. Bell: So to your knowledge there are other health care facilities in this country, like a Mayo Clinic or University of X,Y,Z, that have taken this concept and actually put it into action.

Dr. Burgiss: In this country there is an active program at the University of Wisconsin, Madison, or in Madison, there has been an active program in Oklahoma City. Now Oklahoma City is revamping their program and they did the wrong thing, in my opinion, they tried to issue the cards, real smart cards, to a lot of people and they were going to be used when they were picked up in an ambulance to access data and the ambulance could see the data about the patient. Good concept. But, think about how often that card is going to be reused, and it is going to be lost, and people if they don't use the card they are going to throw it out of their wallet. So you have to do something where the patient has incentive to do this because they care about their health or maybe they get free parking or other things. They have to have an incentive. And also it has to see that it is paying off for them so ... There are not too many programs in the U.S. There are a lot elsewhere. The reason, at least in France is public health care. They can mandate ... Whereas we are not in that situation. And going back to Bud Albers, he had a bad experience going into an emergency room where his medication or medical history would have been valuable, and before the U.S. gets to that point and cards are used everywhere ... a lot of things have to happen. Of course we are going in that direction, but what we can do to make good business sense to us ...

Dr. Dimmick: (inaudible referring to magnetic stripe)

Dr. Burgiss: Magnetic strip is being used with a group in Alabama that has several different offices. It is a health care management organization ...

Dr. Dimmick: I don't have the list. But there are 27 now.

Dr. Burgiss: Yes. And all of these samples come from places that are using them. This is Scottsdale, Arizona.

Dr. Bell: Is it the Mayo Clinic in Scottsdale?

Dr. Burgiss: Here's Bryan Memorial in Nebraska. There are quite a few using the magnetic, including Baptist next door. This is Sun Health. We talked to these people. They are using it quite successfully. They say it makes their check-in more efficient. And the patient really loves it. And in all these cases to be successful the patient needs to get a reward out of it. In fact, Baptist is giving free parking, and we have patients checking in here and saying well when I go to Baptist and show my card I get free parking. Our registration people told us that the other day. So ...

Dr. Bell: I could see where this would very easily be applicable to oncology patients and I think they would have a high buy-in because the way oncology care is delivered. It is like multiple specialties, like they may go to one doctor on Monday and another on Wednesday and another doctor on Friday. There is no way the information could transfer that rapidly in a non-integrating information system like you are talking about. What I want to convince the administration here to do ... is they are going to hard wire every patient exam rack or computer terminal and, futuristic thinking again, what we want to be able to do sit down and have a screen for every patient encounter that is basically a yes/no comment screen so that this is normal this is abnormal. And when the patient gets up and leaves the room that data is already stored in the computer so if they go down the hall and see another doctor they have immediate access to what has already gone on. Now I could see that smart card putting it into the computer, transferring the data onto the smart card, going off and when the patient comes back three weeks later for their next check there it is. Again, the key is, those people have got to talk to the information people and find out if that is doable. But as far as the applicability to oncology patients it would be reasonable to do.

Dr. Burgiss: Now in your example they're using the actual smart card and storing clinical data on that card, how does that data supplement what is already stored on the computer for that patient?

Dr. Bell: It wouldn't.

Dr. Burgiss: It would be a duplicate. And you would have them duplicate it just for the benefit ...

Dr. Bell: Well, let's say a patient goes off-site to Dr. A's office out in West Knoxville. They have an information system that can read that card.

Dr. Burgiss: They can read it. And even though it is disconnected to the physician's office they need to be able to read the card and have the information.

Dr. Bell: Right.

Dr. Burgiss: That is a very good potential application so that they have continuity of the data wherever they happen to be.

Dr. Bell: Well, it happens all the time. People go see other doctors. They come to see me and they have seen other doctors. I ask them when have you seen Dr. X last. Well, he said he would send you a note or a copy of the lab. **It happens all the time - over and over. That drives the cost of medicine up because there is so much duplication because I can't get Dr. X's records.** You've got to have this test. I am sorry you've got to do it again, sorry.

Dr. Burgiss: And your office and staff has to spend time looking for that

Dr. Bell: I don't want to talk about it. Yes, **hours and hours**

Dr. Burgiss: And also another thing is positive identification, having the patient you think you have, you pull the right data. Like your cancer patient comes in and the wife is telling the man's name, and she calls him something else instead of how it is registered in the hospital.

Dr. Bell: Well, another thing, you were talking about the emergency room, take that same oncology patient, and he could have had several encounters during the week in the outpatient or inpatient setting. **Everybody is gone for the weekend and Saturday night the patient comes to the emergency room, there it is.**

Dr. Burgiss: I think that is a good concept. That is really what Bud Albers wanted to achieve. He wanted to build a computer network, or a network where you could carry a card to another point. And I think that is the way to do it on a regional basis, on a national basis. That is far better than building all these computers everywhere, so to speak. What about as a pilot the concept that registration had of the cancer patients coming in for chemotherapy and using magnetic stripe cards with that? How do you feel cancer patients would accept that?

Dr. Bell: Fine

Dr. Burgiss: One of the things that we thought about doing is a general card as a bonding or loyalty card with a photograph, not for cancer patients ... But, chemotherapy patients with ID cards to re-enter registration of the hospital ...

Dr. Dimmick: Why do you think these patients would like that kind of card? What would it mean to them.

Dr. Bell: Well, first off it gives them a sense of ownership. **This is where I go to get my care. This identifies me as a patient in that facility. And the other thing is it saves a lot of time because they have to fill out forms and answer questions ...**

Dr. Dimmick: Do they have to every week?

Dr. Bell: Every time

Dr. Dimmick: So it would spare them that?

Dr. Bell: Yeah, just go in, take that magnetic card swipe it through, just like at the grocery store. "Oh, Yes Mr., Smith welcome back. You were just here yesterday. We have all your stuff. Has anything changed? No. Have a seat. We will be right with you."

Dr. Dimmick: Can you give us a scenario for the average cancer patient coming in for chemotherapy, is it up to a week?

Dr. Bell: It could be a week, or it could be one day a week. **There are so many variables to it.**

Dr. Dimmick: Okay, but they are repeated.

Dr. Bell: **They are repeat offenders, that's right.** It could be once a week, weekly for two months, it could be five days a week for a week, off two or three weeks,**but in between some of those treatment visits there are usually doctor visits or lab check visits where they come in and have their blood checked to see their body's response to the chemotherapy.**

Dr. Dimmick: And every one of those encounters requires some kind of paper work

Dr. Bell: Absolutely. **It requires a registration so that there is a record they have been here ..**

Dr. Dimmick: What kind of information would you want to see on this magnetic stripe card?

Dr. Bell: Just the simple stuff. **The demographic stuff we all get asked every time we go to a new doctor's office. Name, address, telephone number, social security number, insurance information.**

Dr. Dimmick: The date of last visit?

Dr. Bell: Could be. **If the magnetic card would transfer that on a daily basis that would be great.**

Dr. Burgiss: The smart card will. The magnetic card is another question.

Dr. Dimmick: You have different levels of readability and writeability

Dr. Bell: If it would keep a running tally of the last time seen that would be nice. "Oh, Ms. Smith we see you were here yesterday what did you have done?"

Dr. Dimmick: But, you would be happy if it just did the demographics?

Dr. Bell: Absolutely. Whip it through there, it all comes up. Eventually we will get to the point where we don't need a hard copy. **But, in order for you to go into outpatient registration and go across the hallway and get a chest x-ray they have got to create your demographics and spit out a form that says you are who you are with another piece of paper that tells the other people what to do. But, you whip that card through there and the form is printed.** They say, "Ms. Smith will you have a seat we will be right with you." It would save a lot of time.

Dr. Burgiss: What you are telling us may work well with the sample patient situation we are talking about. We have not done a survey yet, but ... when we talked to registration and the processing people in the hospital we get a different view. **No this doesn't happen. But, I think the patients have told you it happens.**

Dr. Bell: Oh, they do all the time. Everyday

Dr. Burgiss: Exactly, and one of the things we would like to do is to talk to ...

Dr. Dimmick: ... to them, and ask them what their experiences are

Dr. Burgiss: Yes, talk to the patients. We have not done that yet because we haven't gotten to that point. But we would like, if you would allow it, to sit in your waiting room and while they are waiting talk to them.

Dr. Bell: How many people do you want to talk to?

Dr. Dimmick: Well, close to 20 people ...

Dr. Bell: I think that is a reasonable number. **But, I think you should take a mix, in other words you should take some new people and you should take some of the ongoing treatment people and you ought to take some people that are way down the pike, 4, 5, 6 years out. Those that come in once or twice a year. Then they can tell you if it would have been helpful when they were going through the acute phase of your treatment. People that are going through their acute phase could tell you it is a hassle. I go to Dr. A, Dr. B, Dr. C, x-ray this and that. That is the way to learn.**

Dr. Burgiss: One of the positive things for the patient that could come out of this interview is that the patient is leaving your office and going down the hall off to another office or to get a test done, the interviewer could take them there, make sure they get there and then sit with them and do the interview at that next stop.

Dr. Bell: I guess the only real key is to figure out how to pick those 10 or 20 patients ...

Dr. Burgiss: We already have an idea

Dr. Bell: Really?

Dr. Burgiss: Yep, we have the form already approved.

Dr. Bell: I was going to say I can't imagine that being ...

Dr. Burgiss: ... so we did it. Even though we are not actually doing anything but asking questions, we have to have approval and the patient's consent.

Dr. Bell: Really? Have y'all written up a consent form.

Dr. Burgiss: Yes. I didn't bring it with me this morning. But, it is approved.

Dr. Bell: **Just fax me a copy and I will look at it. I mean I will be happy to find 10 or 20 patients.**

Dr. Burgiss: We'll fax you a copy of it and then you can coordinate, let me know when and so forth.

Dr. Dimmick: We have two other graduate students who work on the project that we should be able to cover and do it quickly ...

Dr. Bell: **If were to use my patient population it is basically all day on Tuesdays and half a day on Fridays ...**

Dr. Burgiss: We'll do it anyway you want.

Dr. Dimmick: Half-day morning on Friday?

Dr. Bell: Like nine to 12 - something like that, roughly.

Dr. Dimmick: Can you comment about what psychological savings to the patients there might be due to the card?

Dr. Bell: I will, but let me ask a question first. **Do you want to try and identify these persons ahead of time and let them know that they are going to be asked these questions when they get here, or do you just want to say when they get here, "Hey how about getting involved in this project? This is something we want you to do."**

Dr. Dimmick: I think advanced notification would be better if possible.

Dr. Bell: It is just going to take a little legwork. More of somebody's time.

Dr. Dimmick: I could see us getting 10 to 12 people on consecutive Tuesdays if we put in the time on that end.

Dr. Bell: Okay, now the psychological benefit to the patient ...

Dr. Dimmick: If we were to implement the magnetic stripe card, what kind of benefit, psychologically, for the patient?

Dr. Bell: Three words: continuity of care. It is just less hassle. Yes

Dr. Dimmick: Less hassle, less paperwork ... and to be known because they come here often.

Dr. Burgiss: ... they go here and they go there... its brutal ...

Dr. Bell: Again, one of the things we want to do in the next space is to have these multidisciplinary site plans so the doctors all come to the one spot ... the surgeons are there the oncologists are there, here they come

Dr. Burgiss: They're not lost in the hallway.

Dr. Bell: Well, yeah, and they aren't lost over the telephone when Dr. A is sending them to Dr. B and he is sending them to Dr. C and that process is taking two or three weeks a supposed to two or three days. That is the way to do it properly. **There again you could use the mag card to identify from different doctor to different doctor. But the smart card there, you take this comprehensive medical history that is on the screen that everybody agrees upon and instead of asking those questions 47 times ...**

Dr. Dimmick: Do you think doctors would accept the validity of the information on the card?

Dr. Bell: There would be a learning curve

Dr. Burgiss: One of the things that we talked about is ...

Dr. Bell: For sure, for sure

Dr. Burgiss: So there was kind of another reason to think about well just simple ID for the chemotherapy patients in the pilot, and while you are doing that pilot work on another application, like smart cards with your clinical data on it. ... Give us a start while we are looking at the next step.

Dr. Bell: Sure

Dr. Burgiss: And you learn a lot that way. I am always in favor of starting with a pilot situation

Dr. Bell: Instead of trying to conquer the world ... and then trying to go back and clean it up.

Dr. Dimmick: So do you think the incentive for your patients would be that they don't have to fill out that paper work? Is that incentive enough for them to remember to bring that card?

Dr. Bell: I don't have access to this information, but I understand repeatedly in patient satisfaction surveys ... **this issue about parking ... maybe that would be incentive enough.** 'Cause there are some people, you talk about a \$2 or \$3 parking fee, even though by most standards that is not a lot of money, and if they don't have a car, and they drive 70 or 80 miles and they have to pay their neighbor to stay off work to take them to the doctor, you better believe that would be incentive.

Dr. Dimmick: So you would give them the whole thing, rather than a percentage discount on parking?

Dr. Bell: Yeah, absolutely.

Dr. Dimmick: (Inaudible)

Dr. Burgiss: (Inaudible)

Dr. Bell: Oh yeah, then you sell it to the administration by saying look at all the ancillaries that are coming out of that. **It is not like it is an isolated doctor visit where they come and get checked and their doctor gets something out of that - the hospital doesn't because there is no ancillary. If they are on treatment they are going to be getting something, blood tests, x-rays, facility usage fees, you name it, whatever, there is incentive for that. That is distinctive though from the patient just coming back to get checked.**

Dr. Dimmick: Right

Dr. Burgiss: So vendors who come to this hospital get free parking while we charge the patients who bring the money over and over

Dr. Bell: That is right. You know it is interesting when we moved up to this office space four years ago ... I got tired of listening to people fuss about parking. You get behind people and they be saying, "If I park it

is going to cost me an extra dollar!" You would be surprised. Because a lot of places around here don't charge for parking. ... **But, we went to the administration and said okay as a group we will pay for our patients' parking.** Tell us how to do it. You know they couldn't figure out how to tell us how to do it. I am serious. We actually offered to pay a flat monthly fee, to pick up the tab, so to speak, for the people we see through here, and this covers a huge spectrum of patients - general surgery, trauma, vascular, transplant, oncology, all kinds of patients come through these doors. **They couldn't figure it out. We did offer to do it.** Maybe give us a stamp and let us stamp it, you account for it and then send us a bill here. Unbelievable
Dr. Burgiss: I firmly think ...

Dr. Bell: That is an excellent question you asked: Would the ownership, hassle-free aspect of that card be enough incentive to get them to remember to bring it every time? Possibly. But if you want to throw a little something in there and say and you get free parking.

Dr. Dimmick: That is for the pilot. At least to get them started so we could monitor the use of the card ...

Dr. Bell: So what do you want me to do next? Do you want me to find a list of patients?

Dr. Dimmick: We have a student assistant who can make calls and do the legwork so we can get the 10, 10 and 10, the groups.

Dr. Bell: So we have 10 new patients, that will take a little longer.

Dr. Dimmick: Ten new ... Do you think maybe Caroline could do the legwork because if they ... and we really only want to talk to oncology ... on Tuesday would be beneficial.

Dr. Burgiss: We could do that. Do you want this student to come here to your office and work with your people, however you want to do that ...

Dr. Bell: We'll work with ...

Dr. Dimmick: ... they sign confidentiality pledges ...

Dr. Bell: Okay, let me tell Trish about this and I can tell her what we want, and I can tell you, 9479, and we'll find the people and get it done, and maybe you could get here to be thinking about a format for a questionnaire.

Dr. Dimmick: You will see the questions. And the point of it would be to understand from their point of view what ... paperwork, the card and what that might do ...

Dr. Burgiss: ... we don't want to create expectations ...

Dr. Bell: And you don't want something that will take 20 or 30 minutes ...

Dr. Dimmick: What about taping?

Dr. Bell: I would not. It doesn't bother me, but a lot of people ...

Dr. Dimmick: Right, it would bother them

Dr. Burgiss: We talked about this idea of putting photographs on the card which would be very appropriate in some situations. But, another technology used is the fingerprint. But, that has a bad connotation ...

Dr. Bell: We have heard some stuff about them doing that for bank credit cards ...

Appendix C

Patient Interview Summaries and Questionnaires

Cancer Patient Interviews

Dr. John Bell's Office

Friday, March 14

Tuesday, March 18

Friday, March 21

**Interviewers: Caroline Ragsdale
Traci Bell**

I. What are two of the most common problems, if any, that you encounter when you first come into the Medical Center or one of its clinics?

- Every time I go... updating or filling out forms... why don't they just look in the computer, it's all there?
- Paperwork. I have to fill out the same thing... same information at each doctor's offices. I have to carry a list of medications.
- Waiting. (Not for Dr. Bell, but in other offices)
- None really. I'm with TennCare and they get me here early. Looks like it would save time and help the girls at the desk.
- Asking questions about medical procedures. It's hard to answer, remember... especially when you're in treatment. It could become a national thing... you go out-of-town, and have an emergency, they have your card... alert them about my chemo port... the card could access that... give them reactions to certain medications.
- None, because I don't tolerate them. If I go to the hospital, it's for a purpose and I want to be waited on. I'm very nice to people, too. That makes them want to help you.
- None
- Transportation. I was on a stretcher and he hit every wall on the way to my scan and asked me personal questions.
- I usually don't have any at the hospital, but I have long waits at Dr. Hannah's office.
- Waiting, but that's not too extreme though. Outpatient surgery is where I've had to wait the most.
- Filling out forms and having to tell them about my medications, especially since I'm on so many.
- None, it's been great to me.
- They did not read my blood work-up before surgery and I was rejected at the last minute. I was also prescribed Vicaden, but I am allergic to Codeine and if you're allergic to Codeine, you aren't supposed to take Vicaden. (mother of pt. said this.)
- Not any. My sister works here and shows me where everything is.
- I requested lab work results be sent to two doctors and one doctor never got it. I always have to fill out extensive forms in the lab and then they end up chasing the results down anyway.
- I cannot write so someone has to always be with me to fill out forms.
- I have no problems at UT. I never have to wait or fill out excessive paperwork.
- I do not like having to list all my surgeries on forms. For one thing, I can't remember them all.
- It seems like I spend a lot of time waiting, especially in the lab.

II. Next we'd like to talk about some of the possible advantages of using patient cards. Please tell me whether you agree, are neutral, or disagree with the following statements.

- a. Using a patient card might make my registration easier?

- 19 out of 19 agree
- b. Using a patient card might save me some time when I check into the hospital?
 - 18 out of 19 agree
 - 1 out of 19 neutral
- c. Using a patient card might make registering at the hospital more convenient for me?
 - 18 out of 19 agree
 - 1 out of 19 neutral
- d. Using a patient card might keep me from feeling anxious when I register in the hospital?
 - 11 out of 19 agree
 - 7 out of 19 neutral
 - 1 out of 19 disagree
- e. Using a patient card might reduce the number of questions that I am asked when I register?
 - 17 out of 19 agree
 - 2 out of 19 neutral

III. Do you think you would feel more loyal (more likely to return) to a hospital if the hospital gave you a card like this one to use?

- 7 out of 19 more loyal
 - I'd feel like they knew me.
 - More loyal - Nothing could make me feel more at ease at UT, really though.
 - It would mean a lot less time and inconvenience.
- 1 out of 17 don't know
 - I had a bad experience at Woods (Etowah) with a card. They gave it to me, but I had to answer the questions anyway.
- 8 out of 17 no difference
 - I like Dr. Bell.
 - It's a good idea in so many ways and people do get nervous when they register.
 - I'm not one to switch doctors. I've been here for four years and they take good care of me. If I have any problems with the hospital, I just tell my doctor and he sees it gets taken care of.
- It would not matter in my case because I am already set with 2 or 3 doctors in different hospitals.
- We like UT and there are two hospitals where we live. But I like the doctors here.
- The card should be universal and then I can use it anywhere.

IV. Can you think of another possible advantages for using a patient card?

- No, other than what I've already said.
- Hold more information about allergies, blood type... too much trouble to keep up with personal medical records... as much information as possible. I've had an aneurysm and can't have an MRI.
- I'm a slow writer... information on a card would help. My hands are swollen sometimes and it's hard to write. Sometimes I pick them up the day before and bring them back.
- Avoid name duplication. There are two Linda Welches in the area.
- Not really. As long as they can pull up my record.
- I don't know if anyone has mentioned the word secure... People would feel more secure because it gives them a sense of belonging to UT. They're a preferred customer. I'm a PC.

- No
- Not really. Unless you go to a new doctor and have to fill out all those forms.
- Saving time and aggravating questions. Its usually from doctor's office to doctor's office.
- No, they sort of do that now because the information is in the computer. When you go new places, you have to fill out forms and this might help.
- Your doctor would be a main drawing card through to the hospital. (?)
- Nothing other than medications and telling them my history over and over. If it pulls up the record, that's a help.
- No
- In the case of allergies, they would prescribe medicine that I am not allergic to.
- It would be useful if it had insurance information on it.
- I would want my name on it, and then it would be a good identification card.
- It would be helpful in emergency situations.

V. Now let's look at possible disadvantages. Please tell me whether you agree, are neutral, or disagree with the following statements.

- a. It would be hard to remember to bring my patient card with me.
- 19 out of 19 disagree - It'd be like a credit card.
 - Keep it in my purse.
 - Put with my insurance card.
 - It would go with my credit card in my wallet.
- b. The patient card might not access the correct information about me. (Are you worried the card may not access the correct information?)
- 1 out of 19 agree
 - I guess it's possible
 - 1 out of 19 neutral
 - 17 out of 19 disagree
 - Not really, if it was wrong, I would know it and tell them.
 - As long as you give them the right information to begin with, it would be fine.
 - Not if it's your card.
 - If it's put in the computer, it should work.
 - If it's accessed right, it should come up.
 - If the initial information is correct, it should be OK.
 - The information would be controlled and correctable. I don't think I would be mixed up with anyone.
 - If something were incorrect, I would have it changed.

(Supplemental question) Is there any information you would not want on the card?

- 11 out of 12 said no
- 1 out of 11 said "Make sure medications were right."

VI. Can you think of any other possible disadvantages to using patient cards?

- 13 out of 14 said no
 - I would want medications on it. If they didn't know, it could kill me.
- 1 out of 14 asked, "What about duplicate names?"

Is there any certain type of information you would like to have on the card?(Supplemental)

- Allergies
- Surgeries

- Just whatever is necessary to access my medical record.

VII. What kind of incentives would it take to get you to remember to bring the card with you when you come to the doctor's office or the hospital?

- 14 out of 19 none
 - I'd keep everything in my wallet. Some people forget stuff by nature. Incentives wouldn't help.
 - Reducing paperwork would be incentive enough.
 - I can't imagine someone not carrying it on their person. You need that for identification and authorization.
 - If a person does not have sense enough to bring the card, and see its advantages, then they will never be reliable enough to bring the card.
- 2 out of 19 parking
 - What about discounts on parking? I think Baptist does that.
 - Parking fees. Baptist has free parking for seniors.
- 1 out of 19 cafeteria discounts
- 2 out of 19 offered suggestions - 2 cards, key chain

VIII. Have you ever had or used a patient card like the one we are talking about?

- 17 out of 19 said yes
- 2 out of 19 said no
 - One plastic ID card was distributed by Woods Memorial in Ettowah
 - One from Methodist in Oak Ridge.
 - Neither had a magnetic stripe

IX. Could using a patient card help solve some of the problems you have encountered when entering a hospital or one of it's clinics?

- 12 out of 18 said it would solve
 - have to fill out forms when going to any other doctor or to have tests done.
 - I'm not familiar with all of my medications.
 - Duplicate names.
- 3 out of 18 said it makes no difference
 - I haven't had any problems and have been in in-patient and out-patient and everything's been fine.
- 2 out of 28 said they didn't know
 - Never had any problems, but thought it would expedite things in the hospital.
- 1 out of 18 said it would not
 - I've not had any problems.

Questions to help understand the group we've talked to.

a. What is your age?

- Average age 65
- Age range 40 - 87
- 65
- 73
- 58
- 53
- 54
- 86
- 54
- 72
- 54
- 60

- 71
- 60
- 68
- 40
- 72
- 77
- 87
- 67
- 69

b. How long have you been in cancer therapy (or been treated for a cancer-related illness)? How often do you visit the hospital? (Some were not asked on the third day because we already knew their treatment regime.)

- Finished in July. I've been on and off of chemo and radiation for two years. I visit Dr. Bell every three months and have to see Dr. Hannah every six weeks to flush out my chemo port. I'm still on tomoxin for breast cancer and have radiation with that. I had chemo with colon cancer previously.
- Not yet. I just had surgery last week. Dr. Bell did surgery and I had home health, but will start radiation soon. I'll come everyday for 33 days and take tomoxin.
- Haven't started yet. I'm a new diagnosis, so I'll visit much more soon.
- I'll begin soon.
- Not in any right now, but I was in them for the past two years and am coming every 3-4 months now.
- Not in any. I had biopsies in 1991.
- Medication. I see Dr. Bell every 6 months and go to Dr. Regester in internal medicine.
- Will start soon. When I start radiation, I'll come for eleven days straight.
- Had surgery in 1993. My cancer recurred in 1994 and I had 10 months of chemotherapy and had tumors removed in 1995 and 1996, followed with radiation. Follow-up with Dr. Bell every 6 months, every 2-3 months with Dr. Hannah and every three months with Dr. Green.
- I just had surgery and have to come back every 3 months for the first year.
- I've been coming to UT since 1986 for a kidney transplant, then I had heart surgery and a stroke.
- I've been coming in since 1993, but it's just follow-up now. I'm in remission.
- Currently in chemotherapy now and go see Dr. Hannah every three weeks for four hours. We go to Executive Park Drive because we don't have to pay to park there.
- I've had three cancer operations and I have to see Dr. Bell every 3 months. I also go to Dr. Ellis in faculty medicine.

e. Which hospital have you used most frequently in the last three years?

- 15 out of 19 said UT exclusively
 - UT. We pass two hospitals on the way here. My husband said no matter how sick he was, I had to take him to UT even though it was further.
- 2 out of 19 said UT and another hospital
 - UT and Ft. Sanders Parkwest.
 - UT and Mayo Clinic
- 2 said other hospitals
 - Woods Memorial
 - St. Mary's and Baptist

Gender

- 17 female
- 2 male

Additional Comments or Questions

- 12 out of 14 said no
 - Not really. Liked having picture on it.
 - I like the idea.
- 2 out of 14 commented
 - This is good for UT. You know, UT is really a progressive hospital and they've made many advances within the last 10 years even. They never stop trying new things and this is another way to help the patients.
 - Having cat scans and mammograms... the card could help get you in and out faster.

Outpatient Interview Summary

Thursday, April 3

Friday, April 4

Summary Comments

- Overall patients had very few negative comments regarding UTMCK, and seemed very pleased with their experiences at the hospital.
- Areas where waits and forms were issues of concern to patients seemed to be physical therapy, radiology, and endoscopy (in fact, one interviewer was asked to complete a form for a patient who did not have his glasses.)
- Several senior patients commented on the difficulty they had remembering past surgeries and medications. They were in favor of having more information on the card, such as medications and allergies.

I. What are common problems, if any, that you encounter when you first come into UT Medical Center?

- 14 out of 24 said they had no problems
- 2 out of 24 said parking was a problem
- 2 out of 24 said waits were a problem
 - especially in MRI and radiology
- 4 out of 24 said paperwork was a problem
 - especially in outpatient registration, physician therapy, radiology, and POB offices
- 1 out of 24 said not being served dinner during a stay
- 1 out of 24 was visiting for the first time

II. Please tell me whether you agree, disagree or feel neutral regarding the following advantages associated with the patient cards?

- a) Using a patient card might make registration in the hospital go more quickly.
 - 23 out of 24 agree
 - 1 out of 24 felt computer problems would inevitably slow registration
- b.) Using a patient card might make registration in the hospital more convenient for me.
 - 22 out of 24 agree
 - 2 out of 24 were neutral
- c.) Using a patient card might keep me from feeling anxious when I register at the hospital?
 - 11 out of 24 agree
 - 7 out of 24 were neutral
 - 6 out of 24 disagree
- d.) Using a patient card might reduce the number of questions that I am asked when I register?
 - 24 out of 24 agree

III. Do you think you would feel more likely to return to a hospital, or be more loyal to a hospital, if the hospital gave you a card like this to use?

- 15 out of 24 responded more loyal
 - They would have all your information and know you on a regular basis.
 - It would save me time trying to figure out these forms.
 - I would feel more familiar with what they are doing.
- 6 out of 24 said it would make no difference
 - This is where my HMO pays me to go
 - It depends on how successful you are in accomplishing the goals
- 2 out of 24 responded maybe

- Maybe, but it really depends on my doctor
- It depends on the attention given besides the card, and the card should have no problems, like with the stripe?

IV. Can you think of any other advantages for using the patient card?

- The computer would automatically accept you if you had the card.
- Things would go quicker, smoother, and you would have easier access at the hospital.
- There would be less duplicated work.
- I go blank when I have to fill out forms at doctors offices, so it would help me in that way.
- The hospital would have better, update information on you, including background and medications.
- It would be good in emergency situations.
- Many older people that I work with cannot read or write. It would be good for them.

V. Please tell me whether you agree, disagree, or are neutral regarding the following possible disadvantages to the card?

- a.) It would be hard for me to remember to bring my card.
- 23 out of 24 disagree
 - 1 out of 24 agree
 - We lose things all the time. Things get lost.
- b.) I am afraid the patient card won't access the correct information about me.
- 18 out of 24 disagreed
 - If it's in the computer, it should be right.
 - 3 out of 24 were neutral
 - 3 out of 24 agreed
 - Anything with a mag stripe has been known to screw up.

VI. Can you think of any other possible disadvantages to using the patient card?

- Privacy concerns
- Losing the card and someone else using it
- Faulty magnetic stripes
- Putting correct data on cards

VII. What kind of incentives would it take to get you to remember to bring the card with you when you came to the doctor's office or hospital?

- Knowing you will have a lot more hassle may be motivation enough.
- It is not going to matter, some people do not remember things.
- They should have another card on file if you forget it.
- Discounts in the cafeteria

VIII. Have you ever heard of a card like this one before?

- 20 out of 24 said no
- 4 out of 24 had heard of similar cards
 - Akron City Hospital (14 years ago)
 - Ft. Sanders (several years ago, no longer used)
 - Prescription-Paid ID card, Martin Marietta Health Plan
 - Memphis Baptist Hospital (ID card, 10 years ago)

IX. Could using a patient acrd help solve some of the problems you have encountered when entering the hospital or one of its clinics? (Please respond would solve, would not solve, makes no difference, or don't know.)

- 15 out of 24 said it would solve

- 5 out of 24 said it makes no difference
- 4 out of 24 said they didn't know

X. Demographics

a.) Age and gender

- Average age 53
- 15 females
- 9 males

b.) Why are you at the hospital today?

- MRI
- Pet scan
- CAT scan
- X-rays
- Cancer surgery follow-up
- Physical therapy
- Endoscopy

c.) How often do you come to the hospital or one of its clinics?

- 4 out of 24 were visiting for the first time
- 5 out of 24 visit less than once a year
- 5 out of 24 visit between 2-4 times a year
- 6 out of 24 visit the hospital more than 5 times a year
- 4 out of 24 data not available

d.) Which hospital have you used most frequently in the last three years?

- 12 out of 24 said UTMCK
- 2 out of 24 said Blount Memorial
- 2 out of 24 said none
- 6 out of 24 responded with one of the following:
 - Ft. Sanders, Baptist, Memphis, Sweetwater, Bradley County or Cumberland Medical Center in Crossville

Hello, my name is (say your name). I'm a graduate student at the University of Tennessee. I am working on a research project that will help us better understand how patients might react to the use of patient health cards. A patient card is a card that would have your name, birthdate, and social security number. It also might have your address, phone number and insurance provider stored on it. These cards can be read by a simple machine and bring up this basic information at the doctor's office or hospital. (Show example.) The card also could be used for hospital registration or to identify you before a test or examination in the hospital.

We are interested in finding out what advantages or disadvantages there might be for a card like this. Therefore, we need to spend about 10 minutes with you to find out your opinions about patient cards. (**Obtain Informed Consent.**)

I. First, we'd like to understand from your point of view how things go when you first come into the UT Medical Center.

What are two of the most common problems, if any, that you encounter when you first come into the UT Medical Center or one of its clinics? (**Probe** for insights on this.)

II. Next, we'd like to talk about some of the possible advantages of using patient cards. Please tell me whether you strongly agree, agree, are neutral, disagree or strongly disagree with the following statements. (Check one.)

	SA	A	N	D	SD	DK
a. Using a patient card might make my registration in the hospital go more quickly.	--	--	--	--	--	--
b. Using a patient card might save me some time when I check in at the hospital	--	--	--	--	--	--
c. Using a patient card might make registering at the hospital more convenient for me	--	--	--	--	--	--

- d. Using a patient card might keep me from feeling anxious when I register in the hospital

Year	1990	1991	1992	1993	1994	1995
1990	1991	1992	1993	1994	1995	1996

- e. Using a patient card might reduce the number of questions that I am asked when I register

[illegible]

III. Do you think you would feel more loyal to a hospital if the hospital gave you a card like this to use? (Check one.)

More loyal _____ Less loyal _____ No difference _____ DK _____

IV.

Can you think of any other possible advantages for using a patient card?

V. Now let's look at possible disadvantages. Please tell me whether you strongly agree, agree, are neutral, disagree or strongly disagree with the following statements. (Check one.)

SA A N D SD DK

- a. It would be hard to remember to bring my patient card with me.

Parameter	Value	Unit	Source
Initial concentration	100	mg/L	1
Initial pH	7.0	-	1
Temperature	25	°C	1
Time	0-24	h	1
Agitation speed	150	rpm	1
Agitation time	10	min	1
Agitation distance	10	cm	1
Agitation height	10	cm	1
Agitation width	10	cm	1
Agitation depth	10	cm	1
Agitation diameter	10	cm	1
Agitation radius	10	cm	1
Agitation area	10	cm ²	1
Agitation volume	10	cm ³	1
Agitation mass	10	g	1
Agitation weight	10	g	1
Agitation force	10	N	1
Agitation pressure	10	Pa	1
Agitation stress	10	Pa	1
Agitation strain	10	Pa	1
Agitation energy	10	J	1
Agitation power	10	W	1
Agitation efficiency	10	%	1
Agitation yield	10	g/L	1
Agitation productivity	10	g/L/h	1
Agitation selectivity	10	%	1
Agitation specificity	10	%	1
Agitation sensitivity	10	%	1
Agitation stability	10	%	1
Agitation reproducibility	10	%	1
Agitation reliability	10	%	1
Agitation accuracy	10	%	1
Agitation precision	10	%	1
Agitation resolution	10	%	1
Agitation detection limit	10	mg/L	1
Agitation quantification limit	10	mg/L	1
Agitation recovery	10	%	1
Agitation recovery limit	10	%	1
Agitation recovery accuracy	10	%	1
Agitation recovery precision	10	%	1
Agitation recovery resolution	10	%	1
Agitation recovery detection limit	10	mg/L	1
Agitation recovery quantification limit	10	mg/L	1
Agitation recovery recovery	10	%	1
Agitation recovery recovery limit	10	%	1
Agitation recovery recovery accuracy	10	%	1
Agitation recovery recovery precision	10	%	1
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Agitation recovery recovery recovery recovery recovery recovery recovery recovery recovery resolution	10	%	1
Agitation recovery recovery recovery recovery recovery recovery recovery recovery recovery detection limit	10	mg/L	1
Agitation recovery recovery recovery recovery recovery recovery recovery recovery recovery quant			

- b. The patient card might not access the correct information about me.

VI. Can you think of any other possible disadvantages to using the patient card?

VII. What kind of incentives would it take to get you to remember to bring the card with you when you came to the doctor's office or hospital?

VIII. Have you ever had or used a patient card like the one we are talking about?

Yes _____ No _____ DK _____

If Yes, what kind/where?

IX. Could using a patient card help solve some of the problems you have encountered when entering a hospital or one of its clinics?

Would solve _____ Would not solve _____ Makes no difference _____ DK _____

X.

These are the last questions and the answers are used just to help us understand and describe the group of people we talked to.

a. What is your age? _____

b. How long have you been in cancer therapy? _____ (months/yr)

c. How often do you have cancer therapy treatments? _____

d. What kind of cancer therapy treatments do you have?

e. Which hospital have you used most frequently in the last 3 years?

f. Male or Female (Circle one.)

Thanks so much for your time!

Hello, my name is (say your name). I'm a graduate student at the University of Tennessee. I am working on a research project that will help us better understand how patients might react to the use of patient health cards. A patient card is a card that would have your name, birthdate, and social security number. It also might have your address, phone number and insurance provider stored on it. These cards can be read by a simple machine and bring up this basic information at the doctor's office or hospital. (Show example.) The card also could be used for hospital registration or to identify you before a test or examination in the hospital.

We are interested in finding out what advantages or disadvantages there might be for a card like this. Therefore, we need to spend about 10 minutes with you to find out your opinions about patient cards. (Obtain Informed Consent.)

I. First, we'd like to understand from your point of view how things go when you first come into the UT Medical Center.

What are two of the most common problems, if any, that you encounter when you first come into the UT Medical Center or one of its clinics? (Probe for insights on this.)

II. Next, we'd like to talk about some of the possible advantages of using patient cards. Please tell me whether you agree, are neutral, or disagree with the following statements. (Check one.)

	A	N	D
a. Using a patient card might make my registration in the hospital go more quickly.	--	--	--
b. Using a patient card might save me some time when I check in at the hospital	--	--	--
c. Using a patient card might make registering at the hospital more convenient for me	--	--	--

A N D

d. Using a patient card might
keep me from feeling anxious
when I register in the
hospital

-- -- --

e. Using a patient card might
reduce the number of questions
that I am asked when I register

-- -- --

III. Do you think you would feel more loyal to a hospital if the hospital gave you a card like this to use? (Check one.)

More loyal ____ Less loyal ____ No difference ____ DK ____

IV.

Can you think of any other possible advantages for using a patient card?

V. Now let's look at possible disadvantages. Please tell me whether you agree, are neutral, or disagree with the following statements. (Check one.)

A N D

a. It would be hard to remember
to bring my patient card
with me.

-- -- --

b. The patient card might not
access the correct information
about me.

-- -- --

VI. Can you think of any other possible disadvantages to using the patient card?

VII. What kind of Incentives would it take to get you to remember to bring the card with you when you came to the doctor's office or hospital?

VIII. Have you ever had or used a patient card like the one we are talking about?

Yes _____ No _____ DK _____

If Yes, what kind/where?

IX. Could using a patient card help solve some of the problems you have encountered when entering a hospital or one of its clinics?

Would solve _____ Would not solve _____ Makes no difference _____ DK _____

X.

These are the last questions and the answers are used just to help us understand and describe the group of people we talked to.

a. What is your age? _____

b. Why are you at the hospital today? _____

c. How often do you come to the hospital or one of its clinics? _____

d. Which hospital have you used most frequently in the last 3 years?

f. Male or Female (Circle one.)

Thanks so much for your time!

Appendix D

Telephone Summary from Sun Health

2/5/97 Telephone Interview Summary

Jim Aldred, Director of Marketing

Sun Health, Phoenix, Arizona

Interviewers: Traci Bell, Sam Burgiss

Can you bring us up-to-speed on what your program is all about?

We had an old and very unattended program called Care Card. It was unmanaged and worked with a poorly managed database, so we let it die a natural death and then created a program with a broader strategy. Our population base is primarily older, so we took the 14,000 records that were in the other program's database and researched to see that they were up-to-date and proceeded from there. Now, we have a package of health and wellness services in a membership-based card called the Advantage Program. There's more than 20,000 people in it now.

Why did you decide to continue with a card program after you discontinued the Care Card?

Well, we have two main goals with the Advantage Program. One is to increase brand loyalty and we needed to identify ourselves as a whole system, an integrated delivery system. We're not just a hospital, in fact, we want to keep people put of the hospital if we can. It's a positioning strategy to make us responsible for health and wellness, not just in-patient treatment. We wanted to build awareness and **value** with the residents of the community. By doing this, we are promoting additional ways to interact with us other than the acute care setting. The program is designed to promote health and wellness among people 45 and older. The second goal is to link all of our patients across the system. It helps us recruit new members and we can expose them to the entire Sun Health system. The key is managing the database well. The Personal Advantage program is shifting from a hospital card to a system card because we also link with our managed care partners.

How does the process work, exactly?

The card is a means to an end really. We are able to swipe the card through and are positive we're pulling up the exact record. The card must link to a database for the system to work. Each patient is assigned a computer identification number (CID) and the registration people access the main database of patient files to match the number and get the record.

What are some of the benefits you see from using magnetic strip cards in your system?

It's definitely faster than the old way of doing things because the patient has a common record and we have a positive way to ID them. All existing patients are coded and new patients are assigned a number and given a card as soon as they register. This process helps add value to the Sun Health experience. We offer benefits with the card, too, like free health and wellness screenings, which helps us because if we see people more often and can screen for potential problems, they won't be as likely to need a hospital admission. We also give card members a discount at the out-patient pharmacy. It's a tool to link the system together in the mind of the consumer. It's also benefits patients in other ways. One day the mall called the hospital to help ID a disoriented man that was wandering around. He had his Advantage card and we were able to enter the number and pull up his record and call his wife. Another lady came into the ER and was semi-unconscious, but we swiped her card and got a positive ID and her medical records in a matter of seconds. Next we want to put this system in ambulance service vehicles. The card has numerous applications, but I don't think it's a good idea to use the card as a general mass marketing approach. You need to start with a specific population. Registration is much more efficient which is a positioning tactic because this adds value to the consumers experience. You want people to choose you and stick with you.

How did you decide and focus in on a specific population?

Well, we already had the records from the out-of-date program so we started there. But we're trying to customize the program to our particular community. For instance, Dell Webb, invited Sun Health to be part of their activity centers. Many of our patients live in planned retirement communities and by inserting their cards in to exercise equipment at it tracks their exercise plan and matches the equipment to that specific plan. By swiping the card, it automatically programs the machine. We're getting ready to start that next week. It's all conceptual level marketing.

How did you promote the card program?

It was a full-scale public relations campaign. We offered incentives to program members. They might get a free newspaper to read if they were admitted to the hospital or family members could receive a free meal in the cafeteria. We also offer healthy discounts for things that are related to staying well, like pharmacy, florist or maybe eye glasses. The discounts have to be relevant to the Sun Health delivery system though.

How did you actually make and issue the card?

We have a card issuing work station in the hospital, which automatically links the card to our database. Then the system creates a random 8-digit CID number printed on the card. The card number is then linked to the social security number in the patient file. We print the person's name and CID number on the front of the card. Like I said earlier, we actually issued the first round of cards by using our old database population. We checked the social security numbers, found 14,000 names and sent out cards. Plus, we tested and re-tested the system before we mailed them to be sure it would work. We're exploring how to link the card to a national database.

Have you run into any opposition from doctors or other health care personnel?

Surprisingly, not really. We kept them well-informed every step of the way and really stressed the benefits to patients. We also got IS on board from the beginning and they went to bat for us.

Is there anything else that you've found out or think is important?

The program has to be clearly linked to the Medical Center. And you need to be sure the registration clerks are enthusiastic about the whole thing. We walked them through it and they loved it. They almost saw themselves as front line marketers and would ask people if they had their cards first thing. We also had signage up everywhere that they could refer to when explaining about the Advantage card. Basically, if the card meets the consumers needs you keep and increase your business.

- Very highly recommended Eltrax
- Started program in March of last year
- Citrimax is their database management service
- Compricare serves as export link to card technology

Vita

Traci E. Bell was born in St. Louis, Missouri, in 1973, and grew up in Paris, Tennessee. She graduated from Henry County High School in May, 1991, and attended The University of Evansville in Evansville, Indiana. In May of 1995, she received a Bachelor of Science Degree with a major in Mass Communications specializing in journalism and public relations. While pursuing her undergraduate degree, she worked as a public relations intern for St. Mary's Medical Center in Evansville and as a news-editorial intern for a Miramar Communications, Inc., in Malibu, California.

She entered the Master's program in Communications at The University of Tennessee, Knoxville, in August of 1995. During the summer, she worked as an intern with Shandwick Public Relations Agency in St. Louis, Missouri. Working as a graduate assistant, she published a newsletter each semester for Undergraduate Academic Affairs and developed a web site for First Year Studies. Her Master's of Science Degree was conferred in May of 1997.