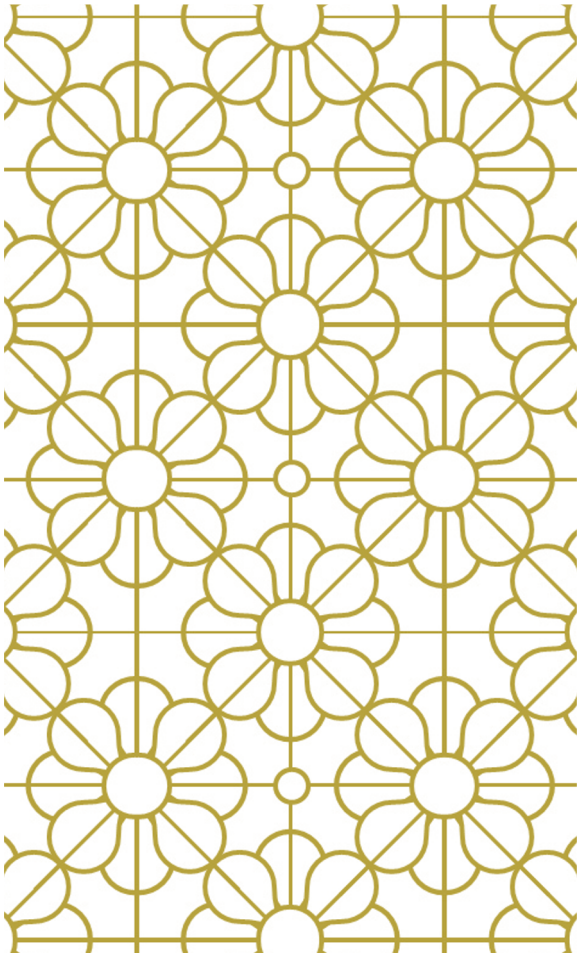

CANCER RISK ASSESSMENT: IMPLEMENTATION OF A STANDARDIZED TOOL TO IDENTIFY WOMEN AT RISK FOR HEREDITARY CANCER SYNDROMES

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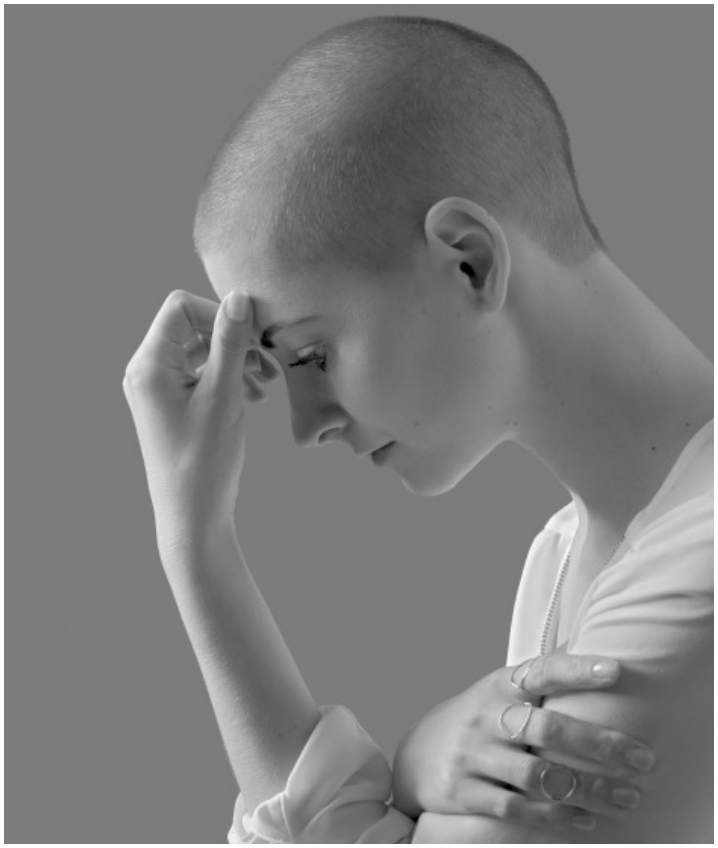
INTRODUCTION

1. 9 million people in the U.S. will be diagnosed with cancer in 2022

- 276,480 new breast cancers
  - (5,760 in TN)
- 21,750 new ovarian cancers
  - (450 in TN)
- 104,610 new colon cancers
  - (3,450 in TN)



GENETIC PREDISPOSITION

Hereditary Breast and Ovarian Cancer Syndrome (HBOC)

- "Inherited disorder in which the risk of breast and ovarian cancer is higher than normal"
- Increased risk of other cancers such as male breast, prostate, pancreatic, and melanoma
  - 5-10% of breast cancers have genetic link
  - 15% of ovarian cancers have genetic link

Lynch Syndrome (LS)

- Inherited mutations in mismatch repair genes (MLH1, MSH2, PMS2, etc.) leading to increased risk of colorectal, ovarian, endometrial, stomach, kidney, brain, and other cancers
- 5-10% of colorectal cancers have genetic link

SIGNIFICANCE

Women with HBOC or LS have increased lifetime risk for cancer compared to general population

- Breast: 38-87% vs. 12.3%
- Ovarian: 16.5-63% vs. 1.6%
- Colorectal: 82% vs. 4.5%

Genetic testing for HBOC/LS allows patients to learn of inherited mutation prior to cancer diagnosis

Provides guidance towards risk-reducing measures

- Increased surveillance (more frequent mammograms, colonoscopies, or magnetic resonance imaging (MRI)
- Risk-reducing intervention (chemoprevention or prophylactic mastectomy)

(NCCN, 2019; Jackson Laboratory, 2020

RECOMMENDATIONS FROM THE LITERATURE

Healthy People 2030: Increase proportion of women with family hx of breast and/or ovarian and/or colorectal cancer who receive genetic counseling

U.S. Preventative Services Task Force: Women with high-risk family hx of breast, ovarian, tubal, peritoneal, colorectal cancers should undergo genetic counseling to learn about potential genetic mutations and more frequent screening and/or interventions that may reduce their risk of cancer

American Society of Clinical Oncology: Oncologists should refer all patients with invasive ovarian cancer, late-stage epithelial cancers, or any type of serous tumor for genetic testing

Society of Gynecologic Oncology: Offer genetic testing to all patients with ovarian, fallopian tube, peritoneal carcinoma

CLINICAL PROBLEM

Despite recommendation and documented benefit in literature,

risk assessment for hereditary cancer syndromes by oncologists is low

- One study found that only 30% of eligible epithelial ovarian cancer patients were referred for genetic counseling
- Another study found that only 16.7% of surveyed physicians report using professional guidelines to make referrals for cancer genetic testing

CLINICAL PROBLEM

Barriers to standardized risk identification and subsequent referral to genetic services:

- Lack of oncologists whose primary focus is on these aspects of care
- Time constraints in busy medical/surgical care settings
- Different preferences of providers in an office

Area for practice improvement:

Lack of standardized screening process for identifying patients at risk for hereditary cancer syndromes

PURPOSE, GOALS, AND AIMS

PURPOSE: To *implement* an HBOC/LS risk identification tool for all new patients who visit the office

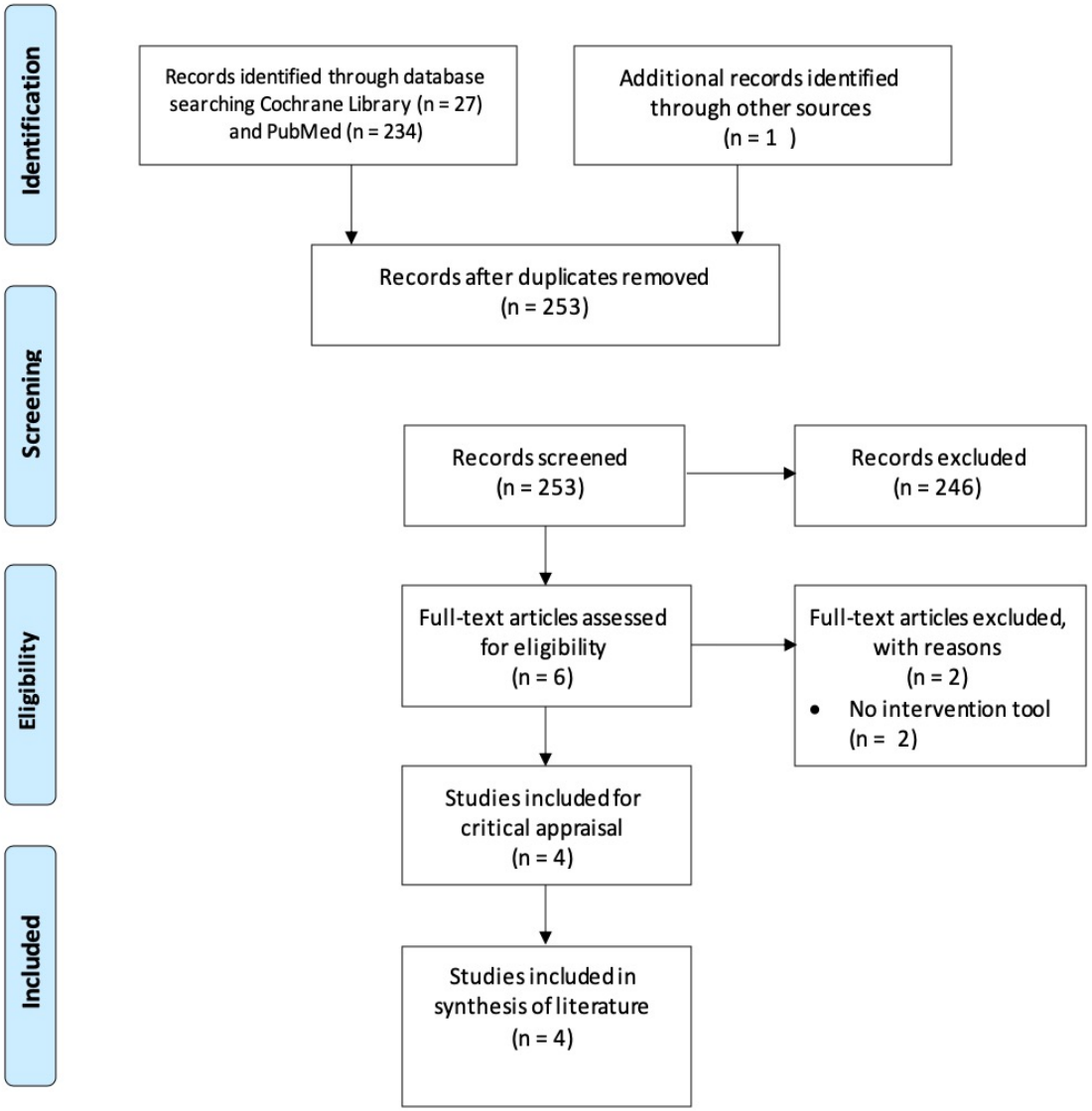
GOALS: *Identify* patients at risk for hereditary cancer syndromes (HCS) and *refer* them to genetic services for further evaluation and treatment options

AIMS: To *increase* the number of patients screened for HCS risk and referred to genetic services by 25% within 3 months

PICOT QUESTION

"In adult, gynecologic oncology patients (**P**), how does implementation of standardized methods of screening for hereditary cancer syndromes (**I**) compared with the usual standard of care (**C**) affect the number of patients who are identified as being at risk for hereditary cancer syndromes and then receive genetic counseling (**O**) within 3 months (**T**)?"

LITERATURE
SEARCH



CRITICAL APPRAISAL

- **Studies were reviewed using rating scales and guidelines such as the Johns Hopkins Nursing Evidence-Based Practice (JHNEBP) to determine strength.**

- **Level and quality of evidence were assigned based on JHNEBP guidelines for research evidence**
  - All studies assigned level III evidence
  - All studies assigned quality grade A or B, indicating high-quality evidence

RECOMMENDATIONS

1. There is *good and consistent* evidence towards implementation of a screening tool to increase prevention and early detection of HBOC & LS
2. Synthesis of the literature does not suggest that one screening tool takes precedence over another
3. It is recommended that the practice site implement a screening tool that most closely suits the needs of the Gynecological Oncology office in respect to patients, clinicians, and administration

IMPLICATIONS FOR PRACTICE

- **Transtheoretical Model of Change was guiding framework for this project**
  - Precontemplation, contemplation, preparation, action, maintenance
  - Provides practical guidance in planning/implementation to improve and sustain improvement of a current practice
  - Addressed provider, staff, & patient readiness to adjust from former standard of care to EBP
- **Institutes are required to meet standards to maintain funding & qualification**
  - Commission on Cancer: Cancer programs required to uphold procedures for cancer risk assessment, genetic counseling, and CGT services to maintain accreditation
  - Programs required to document # patients who receive genetic counseling
  - To meet standards, standardized measures must be in place
- **With successful implementation, this model for risk assessment for HCS may be broadened to other offices/facilities**

PROJECT SETTING

Gynecologic Oncology Office

- Predominantly white patients age >18
- 3 MDs, 4 NPs, rotating resident physicians, genetic counselor, registered nurses, medical assistants, administrative staff
- Medical-surgical office within a large, multispecialty medical facility in East TN

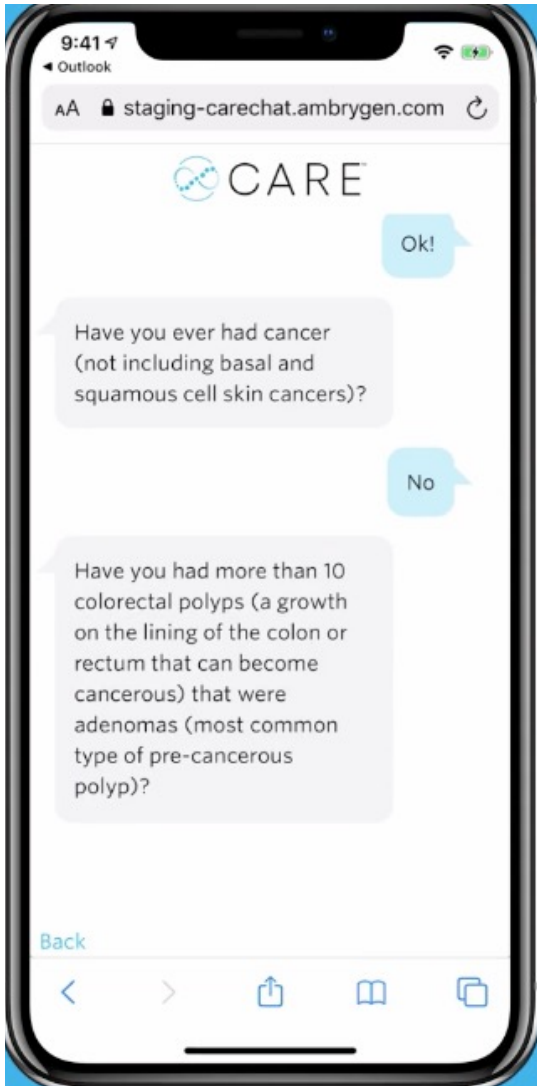
Participation Criteria:

- 18 years of age
- New patient visit for any reason (medical or surgical)

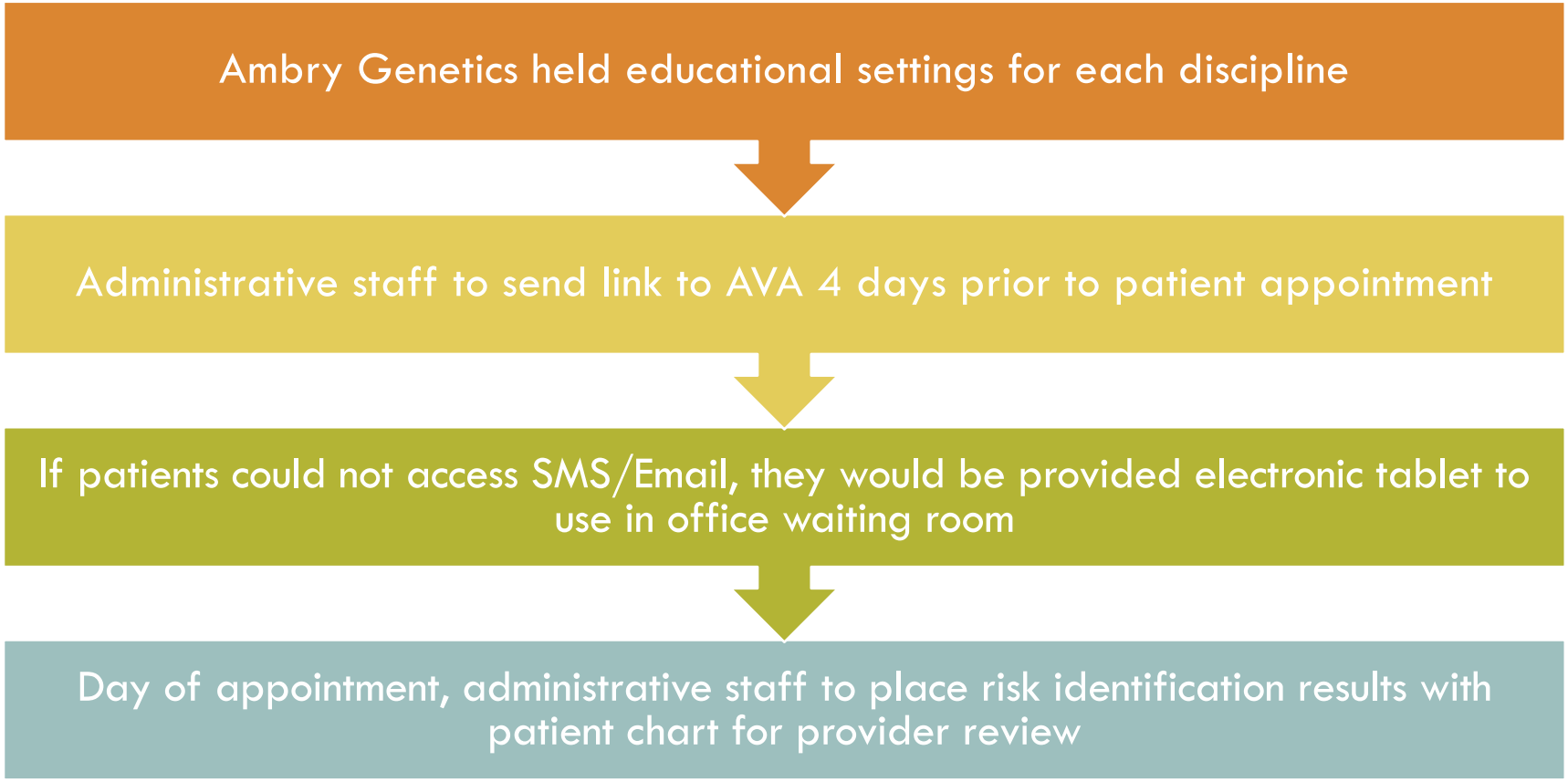
AMBRY GENETICS: CARE PROGRAM

Ambry's Virtual Assistant (AVA)

- Artificial intelligence, HIPAA-compliant, adaptive chat bot system
- Text message (SMS), Email, Kiosk
- Gathers personal and family hx
- Determines eligibility for and interest in CGT; Provides patient education
- Rights to NCCN guidelines, which are automatically updated
- Interactions are automatically uploaded into Ambry Provider Portal



INTERVENTION PROCESS



DATA COLLECTION

- **Retrospective chart review from year prior to implementation**
  - Performed manually by investigator and NP
  - Personal & family histories compared to NCCN guidelines for risk identification
- **Prospective data drawn directly from CARE Portal**
  - For patients who declined or did not complete use of tool, manual chart review performed to ascertain if they would have been identified as being at risk if they had completed use of tool

DATA ANALYSIS

Descriptive Statistics:

- Age
- Race
- Use of/Lack of use of AVA screening tool
- Method of tool use
- Positive risk identified
- Does demographic data impact participation in screening tool use?
- Does implementation of CARE program increase risk identification?

TABLE 1

SAMPLE DEMOGRAPHICS

Demographic	Pre-Implementation (n = 97)	Post-Implementation (n =101)
Average Age	57.6	54.7
Race		
Caucasian	87 (89.7%)	91 (90.1%)
African American	4 (4.1%)	4 (4.0%)
Hispanic	3 (3.1%)	4 (4.0%)
Asian	1 (1.0%)	2 (2.0%)

[a]HCS = Hereditary Cancer Syndromes

METHOD OF TOOL USE

N = 101

- **Completed use of tool: 67/101 (66.3%)**
  - Identified as positive risk: 24/67 (35.8%)

- **Declined/Did not use tool: 34/101 (33.7%)**
  - Manual review of these patients revealed an additional 12/34 that would have been identified as a positive risk had they completed use of tool

- **Method of tool use:**
  - Email: 50/67 (74.6%)
  - Text Message (SMS): 14/67 (20.9%)
  - Tablet in Office (Kiosk): 3/67 (4.5%)

DEMOGRAPHIC ANALYSIS

- Chi-square test of independence demonstrated **no significant association** between **race and complete use of the screening tool** (X^2 (1, N = 101) = .067, p = .796), determining that race did not affect one's decision to utilize the tool.

- Independent-samples t-test demonstrated **no statistical difference in age between patients that completed the screening tool and those that did not complete the tool** (t(99) = -.165, p = .869).

- **Age was significantly different in relation to the method of tool used to complete screening,** however (Welch's F(2, 16.576) = 10.803, p < .001).
  - Decrease in age from 66.2 (± 7.9) for the **kiosk** tool to 46.9 (± 10.3) in the **SMS** tool, a difference of 19.2 (95% CI, 2.4 to 36.1), which was statistically significant (p = .021).

FINDINGS

Risk Identification

Significant relationship between implementation of tool and positive risk status
($X2$ (1, N = 72) = 14.184, ($p < .001$)

- **Pre-Implementation:** 97 new patients (n=97)
  - 37 meet NCCN criteria for being at risk for HCS (38.1%)
  - 3/37 were correctly ID'd (8.1%)

- **Post-Implementation:** 101 patients offered screening tool (n = 101)
  - 67 completed use of tool (66.3%)
    - 24/67 meet NCCN criteria for positive risk for HCS (35.8%)
    - 24/24 were correctly ID'd (100%)

100% of positive risk patients who utilized screening tool were identified*

FINDINGS

- **Implementation of this tool was associated with an increased number of patients screened for Hereditary Cancer Syndromes**
- **It was not associated with an *immediate* increase in referral to genetic services**

- **Pre-Implementation:**
  - 0/97 patients screened in a standardized manner (0%)
  - 3/37 patients identified as "at risk" were referred to genetic services
- **Post-Implementation:**
  - 67/101 patients screened in a standardized manner (66.3%)
  - 0/24 patients identified as "at risk" were referred to genetic services *during time period studied*

DISCUSSION

Strengths:

- Magnet-recognized project site encourages education, scholarship, research
- Multiple providers, large office staff, access to large sample of patients
- Sample demographically representative of local population
- Rights to NCCN guidelines, updated in real time provides long-term usability

Limitations:

- COVID-19 prevented intended 3-month implementation period
- Pre- and post-implementation samples were not during the same months
- No standardized measures for genetic referral after risk identified
- Lack of demographic diversity

DISSEMINATION PLAN

- Present to project stakeholders
- UTMCK Research Council
- Submit to Clinical Journal of Oncology Nursing

QUESTIONS?

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