



AlignCare

From Academia to Action:

The AlignCare Journey in Pet Health Equity



2024

From Academia to Action: The AlignCare Journey in Pet Health Equity

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We want to express our profound gratitude to everyone who contributed tirelessly to making the AlignCare pilot phase a success. Their dedication and tenacity laid the groundwork for the robust AlignCare operations. Our thanks also extend deeply to the Veterinary Service Providers who demonstrated patience and understanding, particularly when they faced difficulties with the ever-evolving payment system. Their willingness to work with us was instrumental in ensuring the project's success. Their commitment - above and beyond the call of duty - has not gone unnoticed, and we recognize that the project's achievements are as much theirs as ours. This collective spirit and partnership genuinely power the heart of AlignCare.



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Reference of Frequently Used Terms

- Animal Welfare Organization - AWO
- Incremental Veterinary Care - IVC
- Spectrum of Care - SOC
- Social Service Agency - SSA
- Veterinary Service Provider - VSP
- Veterinary Social Work - VSW

FOREWORD

As an advocate for both animal welfare and family health, I am proud to present this report, which exemplifies the University of Tennessee System's commitment to mission-driven initiatives. The Program for Pet Health Equity (PPHE), particularly through its flagship initiative, AlignCare, has taken bold steps to redefine pet health equity. This work is transformational, illustrating the interdependence of human, pet, and environmental health, with a focus on enhancing the lives of our underserved communities.

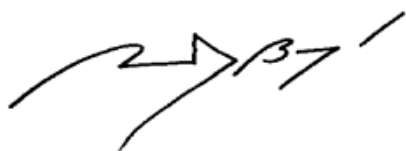
This report is a narrative of groundbreaking strategies and solid determination from the PPHE team. It presents a compelling story for the One Health model, illustrating through comprehensive research the interconnectedness of human and pet health, and their shared environment—especially in the context of our underserved families. This invaluable work offers profound insights that are reshaping policies and practices towards inclusive health services.

Reflecting on my journey as an advocate for both animal welfare and social equity, the developments detailed in this report resonate profoundly with me. The narratives of perseverance, cooperation and triumph shared in these pages illustrate the heartfelt dedication of the program's team, volunteers, and collaborators. Their dedication to positively impacting pets and their families is truly commendable and serves as a source of inspiration.

Looking ahead, AlignCare remains a guiding light for those underserved families who see their pets not just as animals, but as vital family members, despite facing barriers to accessing veterinary care. I am grateful for the dedication and vision of all those involved, especially Dr. Michael J. Blackwell and the support from Maddie's Fund, among others, who have driven this initiative forward with their expertise and enthusiasm.

I encourage my fellow leaders, researchers, and community members to join us in this ongoing effort. Together, we aim to elevate family well-being, helping to ensure that pet companionship is accessible without financial barriers, contributing to a comprehensive approach to health for all families.

Randy Boyd, President
UT Promise Mentor



PREFACE

Over the past five transformative years, the [Program for Pet Health Equity](#) (PPHE), generously funded by [Maddie's Fund](#), realized the goal of developing a One Health system to improve access to veterinary care. The system is called AlignCare, which reflects the core principle of better aligning community resources and activities to ensure essential care for underserved families with pets. PPHE's vision is that every pet, as a valued family member, receives necessary veterinary care regardless of the family's financial status. No doubt, this is an ambitious vision, but we believe that all who desire companionship with a pet should be able to do so. Contrary to the belief that only those who can afford veterinary care should have pets, we argue for the undeniable mental and physical health benefits pets bring to their people. These health benefits and the potential for [lower healthcare costs](#) make a compelling case for supporting pet companionship across all socioeconomic levels. This goal, however paradoxical it may seem, drives us to ensure that everyone desiring the companionship of a pet can do so without the fear of inadequate veterinary care. This paradox will continue to challenge us as a compassionate society.

AlignCare was inspired by a heart-wrenching experience at an animal shelter: a war veteran losing his loyal dog through euthanasia because he could not pay for needed veterinary care. Usually, I would have rationalized the outcome, having unfortunately performed economic euthanasia, but on that day and with this family, it all seemed wrong. I asked myself, "What are we doing?" "How is it that our resource-rich nation is not ensuring access to veterinary care, especially for those who have served to ensure our collective well-being?" That day, I committed to work to ensure underserved families have access to veterinary care. This tragedy propelled our mission to create the AlignCare system.

This report details PPHE's journey in pioneering the AlignCare One Health system, revolutionizing access to veterinary care. You may recognize the individual components of AlignCare; however, the innovative way they are aligned into a cohesive, structured system truly distinguishes AlignCare. This harmonious integration bridges gaps in veterinary services and casts a spotlight on the indispensable connection between humans and their pets, requiring a One Health approach. After all, most barriers to veterinary care are associated with human realities.

The impoverished or unemployed are often mentioned when the topic of access to veterinary care is being discussed because they are notably underserved subgroups. But the reality is that many pets at risk of not receiving veterinary care live with loving families with low-wage jobs. They are members of the essential workforce, with many employed in the service industries, including retail, food, housing, construction, agriculture, and public service. These individuals, like veterans and service members, contribute to our collective well-being. Another underserved subgroup, retired seniors, although no longer in the workforce, contributed to our society for

years. These individuals deserve the benefits of living with pets and having access to veterinary care.

AlignCare emerges as a collaborative research initiative involving veterinarians, veterinary social workers, animal welfare organizations, social service agencies, funders, and other stakeholders. It is more than a system; it is a movement toward family health equity, endeavoring to eliminate disparities in care. As this report shares the journey of developing AlignCare, we invite you to envision a future where every family pet receives essential care, thus strengthening our communities and nation.

We are not just reporting on this transformative research – we are offering communities a viable system, AlignCare, to improve access to veterinary care. Together, we can create a world where all pets receive the care they need and deserve.

We express our most profound appreciation to the many funders of this work, particularly [Maddie's Fund](#) and the [Dave and Cheryl Duffield Foundation](#), as well as the dedicated co-investigators, partners, consultants, and supporters. I will forever be grateful to the hardworking, creative, and committed PPHE team, whose contributions ensured the success of this project.

Join us, and together we will create a legacy—for our pets, ourselves, and society.

With heartfelt gratitude and steadfast hope,



Michael J. Blackwell, DVM, MPH
Assistant Surgeon General, USPHS (Ret.)
Director, Program for Pet Health Equity
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EXECUTIVE SUMMARY

In an emotional testimony shared in an AlignCare focus group, a mother recounted a heart-wrenching experience that underscored the profound impact of accessible veterinary care. Her family pet, a loyal dog, had suddenly fallen very ill. As the pet's condition worsened, she was consumed with dread, contemplating how she would break the devastating news to her 12-year-old autistic son. This dog was not just a pet, but the only companion her son felt comfortable connecting with, a vital source of companionship and emotional stability in his life. The mother was deeply distressed at the thought of the emotional turmoil her son would face. The financial burden of the necessary veterinary care seemed impossible, and the idea of euthanizing their beloved family pet due to lack of funds was unbearable. However, AlignCare intervened just in time. Through AlignCare's support, the dog received the urgent medical attention needed, sparing the family from trauma and preserving the bond between the boy and his dog, thereby demonstrating the crucial role of AlignCare in such situations.

This poignant story is a testament to the critical importance of ensuring that all families have access to essential veterinary care regardless of their financial situation. AlignCare's mission to eliminate disparities in pet health care is not just about animals—it's about the well-being of entire families and the irreplaceable connections that pets foster within them.

AlignCare: A One Health System for At-risk Families with Pets

This report details the research, development, and testing of AlignCare by the Program for Pet Health Equity at the University of Tennessee in collaboration with multiple investigators, community partners, and funders. AlignCare is a pioneering and innovative One Health system that holistically supports families and communities with limited means by providing access to veterinary care. This transformative system helps ensure families receive comprehensive care by aligning community funding, resources, and activities into a cohesive, collaborative system, which more efficiently reduces disparities in family health.

Although the primary reason for using the AlignCare system is to ensure that the pets of enrolled families receive necessary veterinary care, barriers usually stem from the socioeconomic realities of the people in the pets' lives. Their needs often go beyond financial assistance with veterinary care. The AlignCare system is a gateway to other essential services for vulnerable families, safeguarding their health and well-being.

AlignCare: Community-Driven Solutions

AlignCare is a ready-to-use system that functions in equivalent ways in all communities. Still, local decision-making is required to customize the system's application to the community's needs. A local AlignCare Community Council makes decisions about family eligibility and use of community funds, such as service area and medical coverage. Very often, the use of funds is directed by the donor, e.g., for senior dogs. AlignCare Health, a 501c(3) charity, manages the community's funds as directed, processes family enrollments, and pays the Veterinary service providers. The AlignCare Community Council is a diverse group representing service providers, funders, government, and community development organizations. The Council's primary objective is to align community resources to help ensure family health equity. To facilitate informed decisions, AlignCare Health provides monthly summary reports, including the number of families and pets enrolled by zip code, anonymized demographic data, type and frequency of medical conditions treated, and the cost of treatments. A community's AlignCare fund is limited and fluctuates; thus, the opportunity for families to enroll opens and pauses as available funds dictate. The Council and the families within the community are notified when these changes and others are necessary as this dynamic system functions. The reporting provides a community with information to assist in family support planning.

AlignCare: From Application to Care

When a family seeks help to access veterinary care, they usually present at a veterinary service provider, animal shelter, or social service agency (SSA). At this point of contact, an initial decision is made as to whether they may qualify for AlignCare, and if it is thought that they do, then they are given a link to go online and complete a brief application. Human Support Coordinators at these locations or in the community are trained to help families complete the application and navigate the system if they cannot perform these tasks. The AlignCare Engage software provides relevant policies, and they are instructed to select from the list of available veterinary service providers. The AlignCare Engage software provides relevant policies, and they are instructed to select from the list of available veterinary service providers the one they wish to see. Within minutes of applying, a Human Support Coordinator decides whether the family qualifies based on the directed use of community funds, for example, living in a targeted zip code or otherwise as directed by funders. After the application is approved, the family is notified. The selected provider is subsequently notified of the new AlignCare client. The family must then make an appointment per the provider's policies.

AlignCare families are responsible for a copayment of up to 20% of the cost of care. If they cannot pay the copayment, in most cases, a partnering organization may cover this expense on their behalf. This policy respects that most families needing assistance are able and willing to pay something. The family's copayment also empowers them in determining the level of care they receive. The provider discusses with the family the range of treatment options and associated pricing, and the family chooses which option fits their financial capability. At checkout, the family pays their copayment, and subsequently, the provider invoices AlignCare for the balance due, being paid through electronic funds transfer unless other arrangements are agreed to. As of June 2023, veterinary service providers discounted their services by 11.3%, families paid 16.5% of the cost of care in copayments, and third parties contributed 2.1%. Based on these shared

contributions, AlignCare subsidized the cost of care at approximately 70.1%. Spreading the cost of care among multiple payers, including a community fund from multiple sources, is a more sustainable way to ensure families have access to veterinary care.

During conversations with a Veterinary Social Worker or Human Support Coordinator, or through periodic surveys, family needs beyond veterinary care, e.g., food or housing, may be identified, connecting the family with organizations that can assist with these needs. Sometimes, a family may not know about available services or don't know how to access the services. AlignCare works best as an integrated system when it includes diverse partners who provide essential services.

AlignCare: Empowers Families, Providers, and Communities

Benefits to Families

AlignCare significantly enhances the lives of families by providing access to essential veterinary care, which in turn supports their mental and physical health. Ensuring that pets receive necessary care alleviates the stress and anxiety associated with unmet veterinary needs, fostering a more positive and stable family environment. Access to veterinary care is particularly crucial for vulnerable individuals who may face more significant challenges securing veterinary services for their pets. AlignCare addresses these barriers by connecting families with veterinary care and, through partnering organizations, essential community services, such as transportation, financial assistance, and educational resources.

By reducing the financial burden and logistical hurdles of veterinary care, AlignCare helps families maintain the health of their pets, which can prevent the escalation of medical issues that might otherwise lead to more significant health problems. This proactive approach improves the quality of life for pets and addresses broader social determinants of health, enhancing the overall well-being of family members.

Benefits to Veterinary Service Providers

Whether veterinary service providers have a formal program to help families with limited ability to pay for services or make decisions on a case-by-case basis, AlignCare benefits them. Many of the policies and procedures of AlignCare were explicitly designed around the needs of for-profit providers, who are the main point of care for most families. While partnering for-profit Veterinary service providers are asked to discount services for eligible families, these discounts are outweighed by the cost savings of being in a structured system. The savings begin when providers no longer need to invest time and resources, often involving multiple people, in determining if help can be provided, the amount of assistance, and the payment process. The cost of time and effort increases when assisting families with special needs, such as those with cognitive or language barriers.

The AlignCare system, being structured, presents minimal time commitment beyond the typical intake process, and providers know the amount and method of payment for services. Only the family approves the treatment plan before proceeding with patient care. Without the AlignCare option to serve families with limited means, providers are at a higher risk of performing euthanasia or sending the pet home with the most basic care, such as pain medication or antibiotics. The total payment received in this scenario may barely cover staff time, supplies, and overhead. When considering the cost of helping a pet in a non-structured system versus AlignCare, the benefits to the Veterinary Service Provider include:

Streamlined Payment Processes: Providers know the exact amount and method of payment, reducing administrative burdens.

- Time Savings: Less time spent determining eligibility and payment details.
- Reduced Financial Risk: AlignCare minimizes the risk of receiving minimal payments that do not cover costs.
- Support for Special Needs Clients: The system helps clients with cognitive or language barriers, ensuring smoother interactions.
- Improved Client Satisfaction: Families are more satisfied when they can afford necessary care, leading to better outcomes for pets and potentially repeat business.
- Enhanced Community Reputation: Providers are seen as community supporters, improving their public image and fostering goodwill.
- Access to Structured Support: Providers have access to a well-organized system that supports their practice and alleviates financial strain.
- New Clients and Patients: Participation in AlignCare means serving families who may otherwise not be clients.
- Veterinary Social Workers: Ability to involve social work professionals to help families struggling to understand or make decisions about the recommended care for their pets.

Benefits to Social Service Agencies and Animal Welfare Organizations

AlignCare significantly benefits social service agencies (SSAs) and animal welfare organizations (AWOs) by streamlining the process of helping families they serve in accessing veterinary care. With AlignCare, these organizations have a ready and reliable option to refer families for veterinary services, eliminating the need to spend extensive time and resources on finding providers, negotiating treatment plans and costs, and processing payments. This efficient system simplifies their operations and ensures that families they serve receive timely and appropriate care for their pets.

Furthermore, AlignCare helps organizations preserve their funds. By integrating community funding and resources into a collaborative system, AlignCare reduces the financial burden on individual agencies and organizations. Participation allows them to allocate their limited resources more effectively and support more families and pets. Overall, AlignCare enhances the ability of SSAs and AWOs to fulfill their missions, improving the health and well-being of both families and their pets.

Benefits to the Community

AlignCare offers numerous benefits to communities by providing comprehensive support to families in need, thus enhancing their overall health and well-being. By ensuring that families can access necessary veterinary care, AlignCare helps maintain pets' health and reduces the emotional and financial stress on families. This holistic approach supports healthier family units and healthier communities.

Moreover, AlignCare plays a crucial role in preventing and controlling zoonotic diseases, which can be transmitted from animals to humans. By ensuring pets receive regular and preventive care, AlignCare helps mitigate the risk of these diseases spreading within the community, thereby protecting public health.

AlignCare Health reporting provides valuable data that informs community development planning. This information can guide funders, government agencies, and public policymakers in making informed decisions that promote community health and well-being. The insights gained from AlignCare's comprehensive reporting can lead to more effective allocation of resources, targeted interventions, and policies that address the community's specific needs.

Whether through the support of funders or the enactment of government policies, AlignCare affords a way to bring about transformative changes in community health. By integrating veterinary care into the broader public health framework, AlignCare fosters a healthier, more resilient community where the well-being of both humans and animals is prioritized.

Beyond Tomorrow: Aligned Communities

Imagine a future where every family, regardless of their financial situation, has access to the veterinary care their beloved pets need, along with essential services such as housing and transportation. In this vision of aligned communities, pets are recognized as integral family members, and their well-being is vital to the entire family's health and happiness. AlignCare offers a pathway to this future by providing a comprehensive, community based One Health system that aligns resources and services to support families holistically.

Access to healthcare means individuals or communities can seek and obtain essential medical services in a timely and cost-effective manner while meeting necessary standards of suitability and appropriateness. Access to care encompasses various dimensions for human and nonhuman family members, requiring more than the mere availability of services. It involves eliminating barriers that may prevent families from utilizing those services effectively.

By adopting the AlignCare system, communities create an environment where health equity through integrated healthcare is not just a goal but a reality. Families will find support in a collaborative network that values the interconnectedness of human and pet health. Together, we can build stronger, healthier communities where every family thrives.

Join us in embracing this vision and making family health equity a cornerstone of our collective future. Through collaboration and strategic alignment of resources, we can ensure that all families and their pets receive the care they deserve.

UNVEILING THE ROOTS: THE GENESIS OF ALIGNCARE

Access to healthcare is an individual's or community's capacity to seek and obtain essential medical services in a timely, cost-effective, and suitable manner. Access, recognized as a cornerstone of public health and a fundamental human right, is crucial for promoting and maintaining health. Health Care Access and Quality is one of the five domains of Social Determinants of Health, the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.¹



The concept of access to care encompasses a variety of dimensions for both human and nonhuman family members. Access involves more than the mere availability of services; it also requires the elimination of barriers that may prevent families from utilizing those services

Affordability

determined by how the provider's charges relate to the client's ability and willingness to pay for services.

Availability

measures the extent to which the provider has the requisite resources.

Accessibility

refers to geographic accessibility, which is determined by how easily the client can physically reach the provider's location.

Accommodation

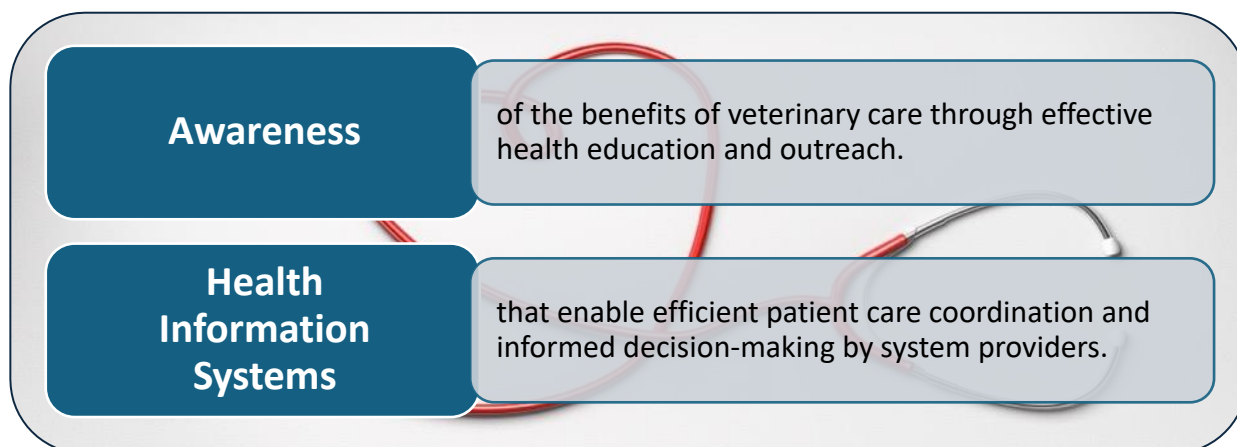
reflects the extent to which the provider's operation is organized in ways that meet the constraints and preferences of the client.

Acceptability

captures the extent to which the client is comfortable with the more immutable characteristics of the provider, and vice versa.

effectively. The complex nature of healthcare accessibility is largely encapsulated in the framework known as the "Five A's of Access to Care"²:

Recognizing gaps in understanding and communication within veterinary care, PPHE includes two additional dimensions:



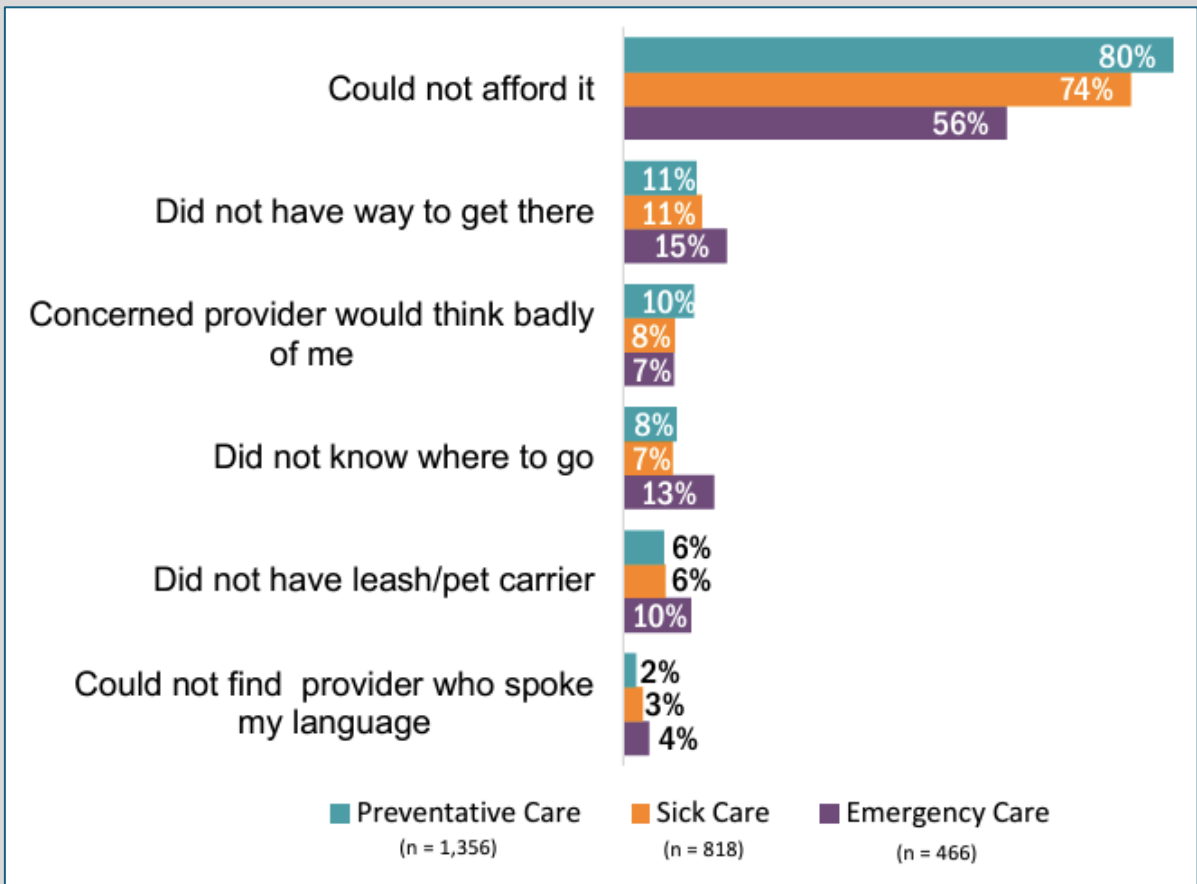
These supplementary dimensions recognize and address the need for improved education on the significance of veterinary care for families with pets, especially regarding preventive measures, and the integration of information systems to counteract the compartmentalization of data within the veterinary field. Moreover, they acknowledge the issue of siloed information within the veterinary sector that stems from a lack of comprehensive IT systems designed to facilitate the reporting and sharing of data.



Building on these dimensions, the Access to Veterinary Care Coalition (AVCC), established in early 2016, committed to commissioning a national study to understand the barriers to veterinary care. With a substantial grant from Maddie's Fund, the AVCC worked with the University of Tennessee Center for Applied Research and Evaluation, to conduct population research on the barriers to veterinary care faced by US households and to collate best practices among veterinary service providers (VSPs) to help families in need of financial support. AVCC's landmark study revealed a distressing crisis: families face multiple barriers to veterinary care ([Figure 1a](#)), with 28% reporting they had experienced a barrier to veterinary care over the previous two years.³ While financial constraints

were the most common reason for their inability to obtain the desired care, lack of access is not merely a financial dilemma but a reflection of a deeper societal issue. A follow-up survey is being conducted to measure if repercussions of the COVID-19 pandemic and veterinary workforce limitations may have exacerbated these barriers.

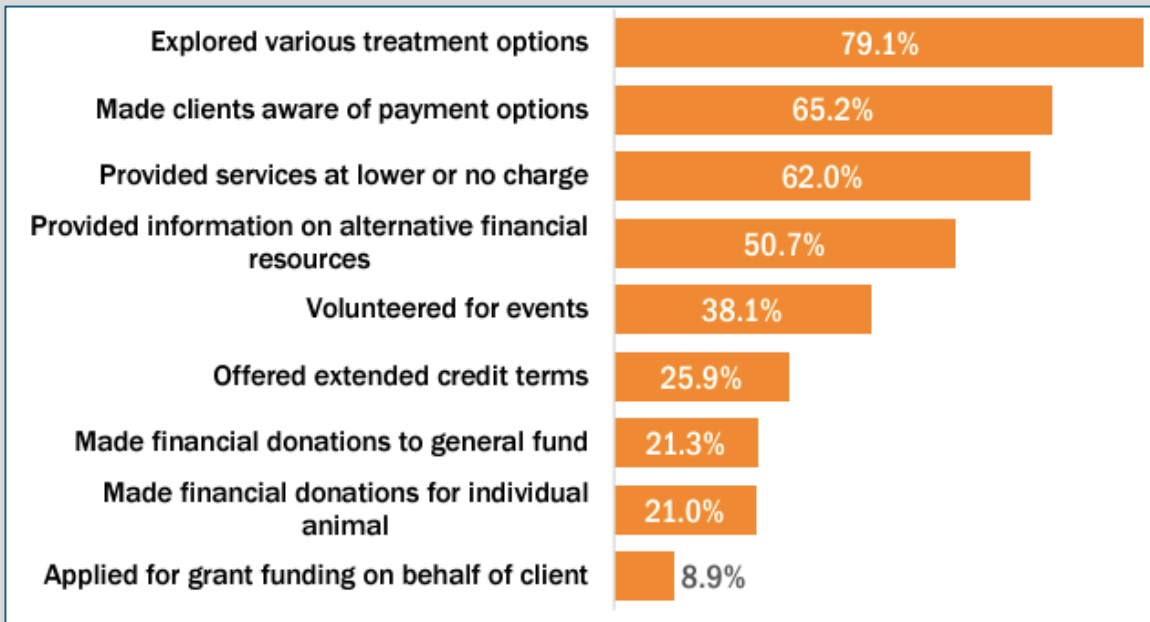
Figure 1a. Reported Barriers to Veterinary Care.³



Veterinarians participating in the AVCC study reported having employed various strategies to address the needs of underserved pets (n = 470) (Figure 1b). Almost all engaged in private practice (98.4%) reported implementing at least one financial strategy in the past year.³ The most frequently cited strategy was exploring various treatment options with the client; other common strategies were informing clients of payment options.³



Figure 1b. Methods Veterinarians Used to Assist Families Needing Financial Support.³



The AVCC's comprehensive national study brought forth the pivotal report, [*Access to Veterinary Care: Barriers, Current Practices, and Public Policy*](#).³ This report articulates five strategic recommendations for stakeholders dedicated to dismantling barriers to veterinary care and ensuring equitable access for all pets:

1. Enhance veterinary care delivery systems to include all socioeconomic demographics.
2. Embrace incremental veterinary care (IVC) models to reduce instances of non-treatment.
3. Increase the dissemination of accurate and comprehensive information to educate families with pets.
4. Craft and advocate for public policies facilitating more accessible veterinary services and supporting pet retention.
5. Identify and prioritize additional areas of research.



Since its release, the report has seen extensive circulation across the US and other countries. It is a foundational guide for veterinarians, AWOs, policy makers, community leaders, and other stakeholders in expanding access to veterinary care. The report's influence has extended beyond its initial release, becoming a frequently referenced document in numerous presentations and articles. It has been cited in 11 academic journals, with 8 of these citations appearing in international publications.



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In July 2018, with support from Maddie's Fund, the PPHE was established at the University of Tennessee College of Social Work to expand the work of the AVCC. PPHE's mission is to foster national collaborations and influence public policy to remove barriers to veterinary care by engaging in community service, social and public health research, and educational activities. The development of AlignCare became the primary project of PPHE.

Access to veterinary care is a multifaceted societal problem, predominantly linked to socioeconomic challenges, leading to many pets not receiving necessary veterinary care. Given the situation's complexity, PPHE advocates for a One Health approach, aiming for an inclusive healthcare system that considers both human and non-human family members (pets). Such an approach represents a forward-thinking move to empower VSPs to better assist families who face economic hardships. The absence of a comprehensive support network makes families particularly vulnerable to various challenges. Illness or injury with any family member can send ripples through the home, amplifying stress and hardship, especially when the affected member is a pet who may not be able to communicate their needs effectively. The resulting strain can lead to a host of physical and mental health problems within the family.



Additionally, the inability of families to afford veterinary care impacts the veterinary profession, reflecting a broader societal issue—the lack of a comprehensive healthcare system that ensures veterinary care accessibility for everyone. Within the current veterinary landscape, VSPs disproportionately bear the financial burden of care, which can lead to significant ethical and emotional challenges. These challenges manifest as moral distress, a state of psychological and emotional suffering experienced by veterinary professionals when their care decisions are constrained by external factors conflicting with their ethical standards.⁴ Such distress arises when VSPs face constraints that prevent them from offering what they consider to be optimal care. These constraints lead to difficult decisions regarding treatment options and allocating scarce resources. Too often, VSPs must confront the heart-wrenching prospect of economic euthanasia

when the cost of treatment exceeds a family's means. The repercussions of moral distress are profound, potentially leading to burnout, depression, and decreased job satisfaction among veterinary care teams. VSPs are encouraged to acknowledge moral distress and provide adequate support and resources to help their teams manage these problematic professional situations.



Maintaining the human-animal bond is paramount, given its proven benefits. Research indicates that pet interactions can result in physiological and psychological advantages, such as reduced cortisol levels, lowered blood pressure, lessened feelings of loneliness, enhanced social support, and improved mood.⁵ Yet, financial obstacles often lead to painful decisions by families to surrender or euthanize their pets, resulting in the loss of these substantial health benefits.



Research indicates that pet interactions can result in physiological and psychological advantages, such as reduced cortisol levels, lowered blood pressure, lessened feelings of loneliness, enhanced social support, and improved mood.⁵

It is unrealistic for most individuals to pay all their healthcare expenses out-of-pocket, even using credit. Instead, most rely on various forms of financial assistance, usually private and public insurance and other forms of financial aid, without which they would face a barrier to accessing human healthcare. With the rising costs of veterinary services, families will increasingly face an economic barrier to care until a more robust financial assistance system becomes the norm. Unlike the broad use of insurance in human healthcare, currently, pet health insurance represents less than 4% of the annual transactions in veterinary medicine.⁶



Enhancing veterinary care access necessitates the adoption of One Health systems to effectively:

- Address the primary financial challenges faced by families.
- Decrease the instances of medical non-treatment through cost-management and patient care strategies.
- Foster connections between human healthcare and veterinary services by coordinating financial support and amplifying interprofessional collaboration.



AlignCare, as a One Health system, aims to expand access to veterinary care for families in financial need, creating an environment that empowers VSPs to utilize their skills. Without such a framework, VSPs often work in communities with considerable unmet veterinary needs and untapped potential, hindered by a lack of cohesive resources.

AlignCare

Serving Families, Pets and Communities

Understanding the Underserved

To develop the AlignCare system, PPHE first had to understand the needs of underserved families and how a subsidized veterinary care system would work within One Health. These challenges were complicated by the COVID-19 pandemic, which exacerbated barriers to care. National pre-pandemic data suggested that nearly 29 million dogs and cats resided in homes benefiting from the Supplemental Nutrition Assistance Program.³ Also, many pets live with middle-class families who survive from paycheck to paycheck and have little to no saved emergency funds. Millennials, projected to earn less than previous generations,⁷ and Baby

Boomers, retiring on restricted budgets with less than three months' worth of savings,⁸ represent significant portions of families with pets. These statistics paint a clear picture: access to veterinary care is not just a current issue and is likely to intensify. As the US Department of Labor⁹ reported in January 2021, *"the unemployment rate fell by 0.4 percentage points to 6.3 percent, and the number of unemployed persons decreased to 10.1 million. Although both measures are much lower than their April 2020 highs, they remain well above their pre-pandemic levels in February 2020 (3.5 percent and 5.7 million, respectively)."*





Low-income and BIPOC families remain the largest group of unbanked households due to insufficient funds to meet the minimum balance requirements or distrust of financial institutions.¹⁰ Low-income families may have a monthly budget, but they are often unprepared for emergencies or critical care situations. The costs associated with veterinary services frequently surpass the financial means of low-income families. Consequently, these families frequently confront the agonizing decision of forgoing necessary care for their pets, resorting to economic euthanasia, or surrendering their beloved companions in the hope they can get the veterinary care they need. This predicament exacts

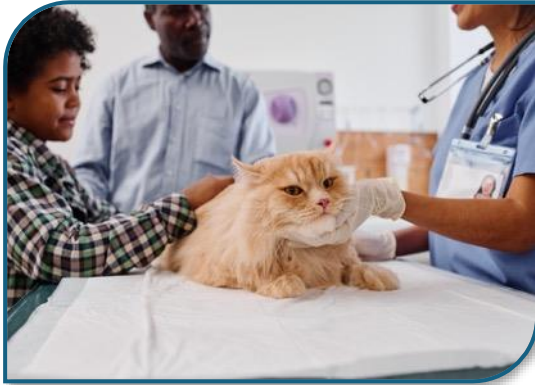
an emotional toll on all parties involved: the pets endure prolonged recovery from illness or injury, their families are distressed, and in surrender cases, AWOs incur additional expenses for housing, feeding, and rehoming the pets. Having a better understanding of families' financial barriers allowed PPHE investigators to begin building the foundation of the AlignCare system, including system operations, family and community education, and the integration of Veterinary Social Work (VSW).

The AlignCare Concept

The inception of the AlignCare concept was driven by a fundamental belief in universal access to veterinary care, supported by the findings of the AVCC study. Designed to implement the AVCC report's five key recommendations, AlignCare leverages the One Health framework to integrate the health needs of families and pets within their broader ecological context, ensuring comprehensive healthcare provision.

To mitigate barriers to care, AlignCare cultivates interprofessional partnerships and fortifies support systems for families with pets. By connecting these families to dedicated veterinary care teams, AlignCare ensures that both human and pet health needs are addressed holistically.





Across the United States, there are resources for routine wellness and preventive care in many communities. However, often, there are inadequate options for low-income families when an urgent need for veterinary care arises. This service gap is the primary target of AlignCare. The effectiveness of AlignCare is made more evident by its ability to streamline services for enrolled families. It achieves this by aligning the efforts of VSPs with those of community partners, including social service professionals, government, and funders committed to the holistic health of the community. This collaborative network equips social service professionals to offer comprehensive, wrap-around support to families, broadening the options available to VSPs, thus improving the community's overall welfare.

Benefits to Veterinary Service Providers

Mitigating the risk of turning away prospective clients or euthanizing patients due to financial constraints.

Eliminating the need to negotiate payments with a third party for each case and visit.

Establishing transparent and streamlined processes that integrate with business operations.

Expanding services to a broader demographic, particularly those previously hindered by economic barriers.

Promoting the human-animal bond by keeping pets with their families.

Enabling a primary focus on delivering quality care given the integrative client support provided by others.

Cultivating workplace satisfaction and emotional wellness for the veterinary care team.

AlignCare

AlignCare enables communities to support bonded families in need, resulting in improvements to overall community health and well-being.

Benefits to the Community

Increasing the number of families able to access veterinary care.

Reducing the occurrence of families forced to choose euthanasia or pet surrender due to inability to pay for veterinary care.

Enhancing disease prevention and control by improving public health through veterinary care.

Optimizing local resources to address barriers to care systematically.

Establishing advisory councils to foster community support for veterinary care accessibility.

Implementing a One Health system that prioritizes financial barriers to care.

Ensuring that pets with urgent health issues receive timely care.

AlignCare

An integral aspect of enhancing access to veterinary care is the societal recognition and inclusion of pets as family members, which expands the traditional definition of family. According to Pew Research Center survey,¹¹ the majority of families with pets (97%) consider them to be members of the family. The interconnection between human and pet healthcare sectors underscores a need for multidisciplinary collaboration and transparent communication to dismantle existing silos. VSPs, AWOs and Social Service Agencies (SSAs) are called to recognize the pivotal role pets play in the overall well-being of families and to integrate this perspective into the resource allocation process. Solutions will be more holistic and family-centric by emphasizing that access to veterinary care is rooted in human economic and social challenges.



Veterinary care for pets in distress is not just about the pets, but it is crucial for the well-being and stability of the entire family.



AlignCare is at the forefront of ensuring that families stay whole, recognizing that timely veterinary care for pets in distress is not just about the pets, but it is crucial for the well-being and stability of the entire family. This approach is about more than just treatment; it is about preventing the emotional and financial strain that can arise when care is delayed. By promoting swift recoveries and reducing the need for difficult decisions like euthanasia or pet surrender due to financial constraints, AlignCare plays a crucial role in maintaining family integrity.



Central to the AlignCare system is the role of Veterinary Social Worker (VSW). VSW professionals provide invaluable support, offering families guidance and emotional support during challenging times of pet health crises. This strengths-based approach is about intelligent resource allocation, ensuring that help reaches as many families as possible and that pets and their families get the support they need. Moreover, AlignCare is paving the way for innovative financial solutions in veterinary care, making it more accessible and less burdensome for families facing economic hardships. This holistic approach is a testament to AlignCare's commitment to nurturing the human-animal bond by bridging gaps in healthcare accessibility.

LAYING THE FOUNDATION: THE ALIGNCARE ENGINE

AlignCare was initiated as a comprehensive, three-year, multi-site research and development project to establish a sustainable model for families with limited financial means to access veterinary care. This ambitious project unfolded in three distinct interconnected phases corresponding to specific goals for each of the three years.



For the AlignCare system to be effective, it needed to address the dimensions of access to veterinary care.

Availability – There cannot be a system that improves access to veterinary care without participating for-profit VSPs, considering they are the primary source of care for the vast majority of families ([Figure 2](#)). It is likely that since the 2018 findings, more families have been utilizing animal shelters and community programs due to socioeconomic shifts, in part driven by COVID-19.

Affordability – Given that VSPs have limited resources to assist families who cannot afford services, implementing a subsidized care system, like AlignCare, is essential. AlignCare facilitates financial assistance with funds from multiple parties, including private citizens, foundations, businesses, and the government.

Accessibility – VSPs serving low-income communities are also likely proximal to them. This proximity matters in that it mitigates transportation challenges. AlignCare provides these VSPs with a viable option to better serve their communities.

Acceptability – AlignCare's enrollment materials are available in English and Spanish.

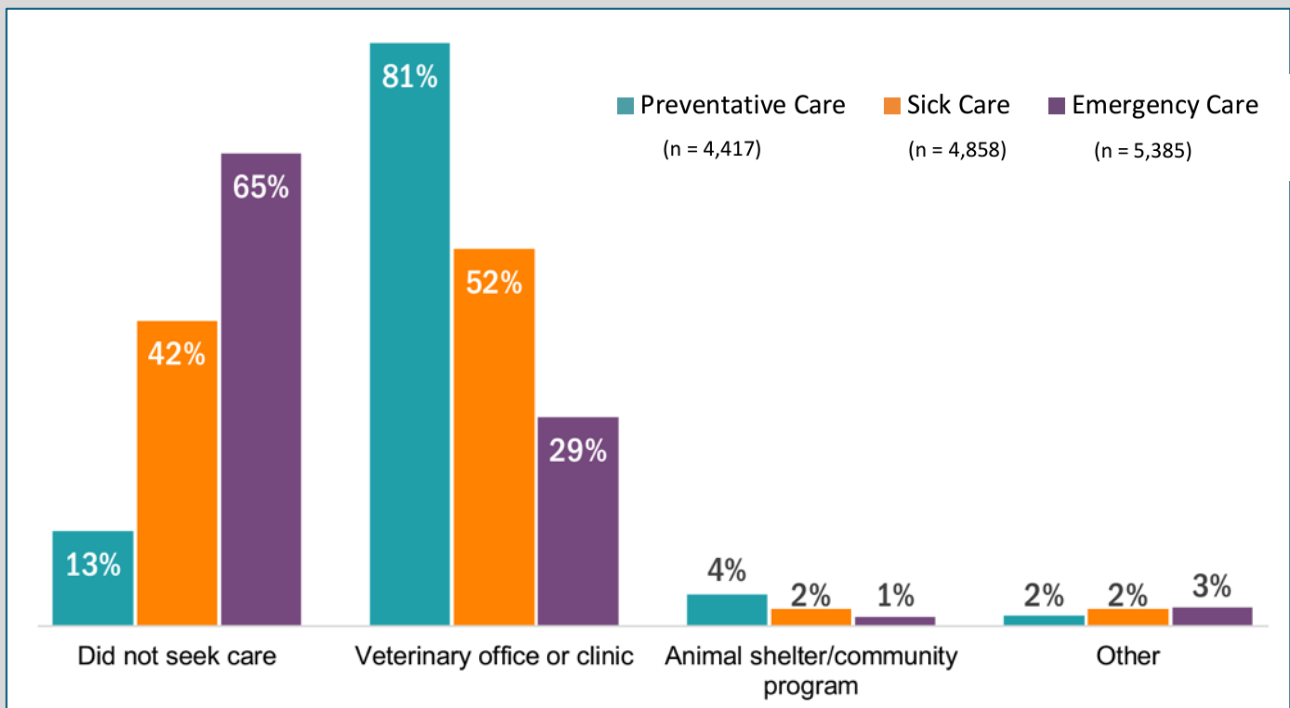
Accommodation – VSPs agree to follow their usual business practices when serving AlignCare families, including presenting all treatment options. If the family has a disability, e.g., cognitive challenges, AlignCare VSWs intervene to facilitate communication.

Awareness – The AlignCare system provides enrolled families with information about the proper care of their dog or cat by giving them access to Preventive Vet's vast archives. In addition, after a diagnosis, relevant information is made available, so the family is better informed. This feature becomes more important when a family has cognitive challenges and cannot comprehend all the VSP shares during their appointment.

Health Information Systems – VSPs are notified when an AlignCare family selects them as their care provider. VSPs can communicate with a VSW when seeking support in working with the client, enabling efficient patient care coordination and informed decision-making by providers. VSPs can also reach out to VSWs for emotional support to help reduce compassion fatigue.

The logo for AlignCare, featuring the word "Align" in a bold, dark blue font and "Care" in a lighter blue, sans-serif font, all enclosed within a rounded rectangular border.

Figure 2: The Sources Families with Pets Use to Obtain Veterinarian Care³



Model Development



PPHE mobilized seven project teams comprising 23 co-investigators, each bringing a wealth of knowledge and expertise to the research and development of the AlignCare system:



Incremental Veterinary Care: This team, consisting of veterinarians with diverse clinical experiences, established a conceptual framework for IVC where the goal is to do something for the patient to avoid non-treatment. General parameters for a tiered diagnostic and therapeutic approach to patient management were crafted ([Appendix 1](#)). Assumptions made about the state of veterinary medicine included:

- Most veterinarians have experienced the need to adjust their recommended treatment plan because the client was unable or unwilling to pay; thus, they are familiar with the IVC concept.
- Veterinary colleges provide limited formal training in how to make IVC decisions.
- IVC decisions are not defined and standardized, and treatment protocols are poorly documented and shared.



Business: The Boyd Center for Business and Economic Research at the University of Tennessee devised financial strategies for the AlignCare system, addressing payment structures, family copayments, and VSP service discounts. They referenced existing healthcare models like Medicaid and Medicare to inform the AlignCare business model, with financial viability and sustainability in mind.



Population Research: Tasked with developing a comprehensive evaluation framework, the University of Tennessee College of Social Work Office of Research and Public Service focused on enabling data-driven decision-making. Outcomes would inform system improvements, resulting in better resource utilization and efficiencies.



Public Health: Faculty at the University of Tennessee in the Department of Public Health, College of Veterinary Medicine, and College of Social Work systematically reviewed published literature regarding the associations between living with pets, chronic physical diseases, and mental health. The team also surveyed these associations, including questions regarding access to veterinary care. Findings from the research were disseminated in two reports, Barroso et al's¹⁴ *Cat and/or Dog Ownership, Cardiovascular Disease, and Obesity: A Systematic Review* and Scoresby et al's¹⁵ *Pet Ownership and Quality of Life: A Systematic Review of the Literature*.



Social Service: Comprising experts in Social Work, the team accomplished the following:

- Development of a tool to assess the human-animal bond's strength. Dr. William Nugent developed and tested the *Family Bondedness Scale* (FBS) ([Appendix 2](#)), an assessment tool to facilitate research where the human-animal bond is a relevant variable. It is especially suitable for research where the degree to which people consider their pet a family member is a focus.
- VSW faculty and staff at the University of Tennessee College of Veterinary Medicine (CVM) addressed practical ways to work with SSAs.
- The building of the AlignCare family enrollment process and policies ensuring case management follows regulations.



Education: Anne Tomsic of Preventive Vet developed a comprehensive scoping document that outlines how, when, and where educational materials designed for the whole family should be distributed for maximum impact, fostering a more educated society of families with pets.

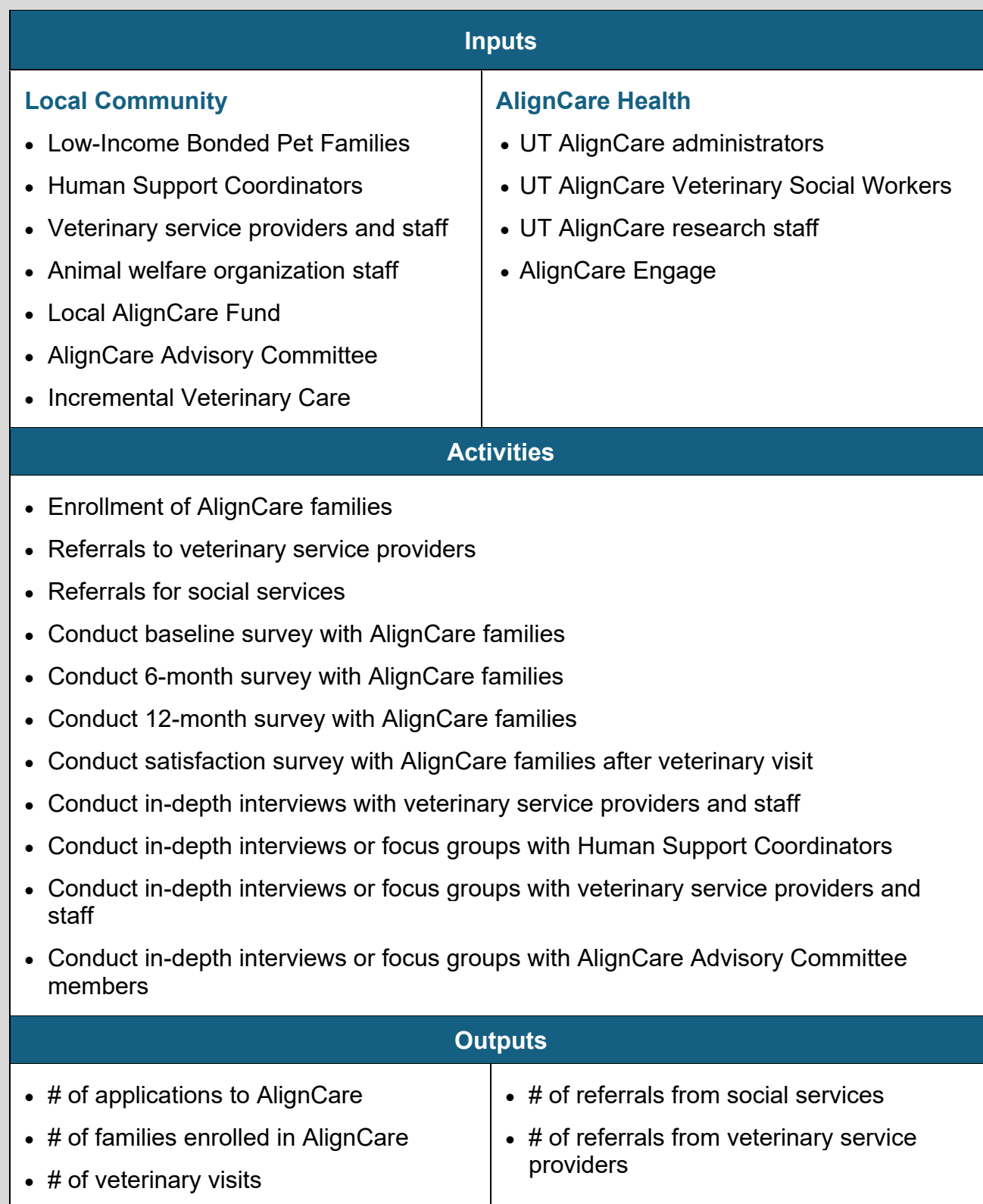


Legal: Legal advisors were consulted to navigate the complexities of animal laws and Veterinary Practice Acts, providing critical insight into AlignCare's operational feasibility within the existing legal framework.



These multidisciplinary teams developed a robust foundational model ([Figure 3](#)) for improving access to veterinary care and fostering an environment where the health and well-being of pets and their families are seen as interconnected and essential.

Figure 3: AlignCare Logic Model



Short-Term and Intermediate Outcomes

AlignCare Families and Pets

- Reduction in barriers to veterinary care experienced by families with pets
- Improved sense of overall satisfaction with life
- Reduction in levels of stress related to having a pet
- Increased support system
- Increased number of spayed/neutered animals
- Increased satisfaction with veterinary care

Veterinary Service Providers

- Increased sense of efficacy in meeting needs of low-income patients
- Decreased moral distress

Human Support Coordinators

- Increased sense of efficacy in meeting needs of low-income clients and their pets

Long-Term Outcomes

AlignCare Families and Pets

- Increased awareness of pet needs and responsibilities
- Reduction in diagnoses attributed to lack of preventative veterinary care
- Reduction in pet relinquishments due to treatable medical conditions
- Improved health of pets of low-income families

Veterinary Service Providers

- Increased job satisfaction
- Increased knowledge and comfort with incremental veterinary care

Local Community

- Strengthened collaborations between veterinary care providers, animal welfare organizations, and social service providers to serve needs of low-income population

Incremental Veterinary Care: Balancing Medical Recommendations with Resource Realities

Based upon a recommendation of the AVCC, AlignCare was built on the concept of incorporating IVC. The cost of veterinary care to families with limited means must be controlled because many cannot afford all recommended treatments, even with financial assistance. Incremental patient care typically refers to a healthcare approach that emphasizes gradual and step-by-step management of a patient's health condition. The idea is to provide interventions in smaller, more manageable (affordable) increments, allowing for adjustments based on the patient's response to treatment. It is often contrasted with more intensive or immediate comprehensive approaches to treatment, sometimes referred to as "gold standard care."

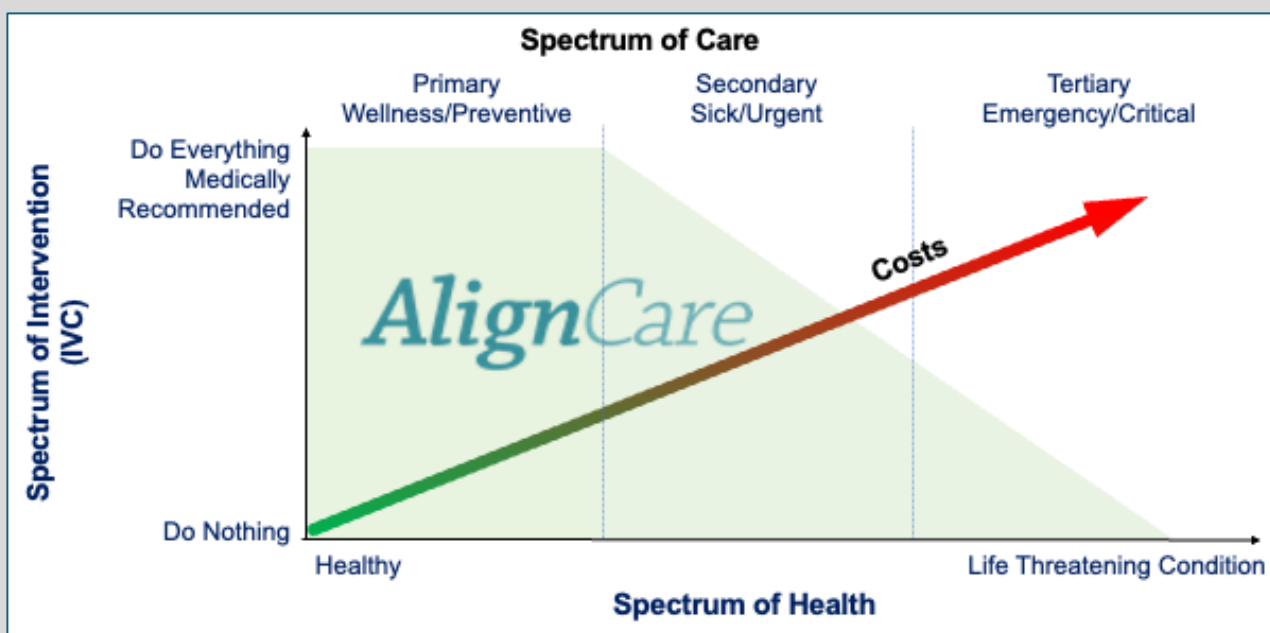


Spectrum of Care (SOC) is a broader term encompassing the full range of health services a patient might receive, from preventive care to acute care, chronic disease management, and palliative care. It refers to the entire scope of care available to patients, depending on their needs at any given time.



While "incremental care" relates to SOC, they are different. IVC refers specifically to the approach and pace of treatment, while SOC refers to the complete array of possible health services available to a patient, as illustrated in [Figure 4](#). Harmonizing our language is critical in a One Health system providing equitable veterinary care to families of all socioeconomic strata. More dialogue among veterinary care professionals is essential for cultivating a collective understanding and consistent application of terms and methodologies to enhance access to veterinary services.

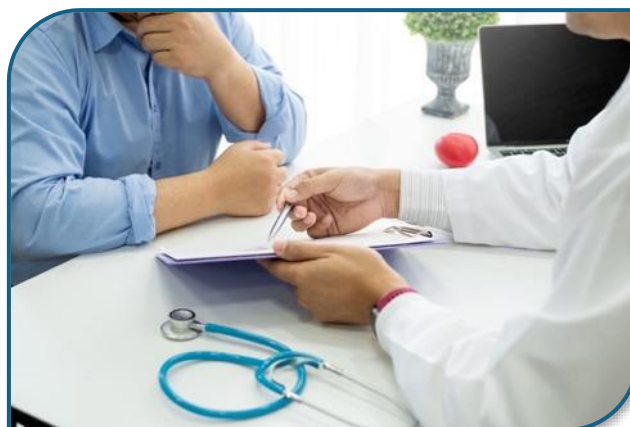
Figure 4: Incremental Veterinary Care vs. Spectrum of Care



Correlation of cost and the continuum of SOC and IVC. The shaded area is intended to show that as the costs of care increase, fewer families receive care, even with AlignCare assistance.¹²

VSPs are often faced with the challenge of providing care within a family's budget constraints. This economic reality usually prevents the implementation of the full spectrum of medically recommended treatments. Yet, even within these confines, the path of IVC—a process where the attending veterinarian allocates limited resources based on scientific knowledge and professional judgment—offers a viable option.

IVC is the action applied across the SOC options. For example, [Figure 4](#) illustrates three SOC ranges and a spectrum of interventions. They are related, both being fluid and existing along a continuum, but they are also different concepts. Consider the scenario where a veterinarian, aiming to maintain a patient's health by preventing illness, identifies five interventions (e.g., vaccines and parasite control) in the wellness/preventive SOC. However, the clients' financial limitation means not all interventions can be performed during that visit. In this instance, the veterinarian





prioritizes which ones to perform within the client's ability to pay, i.e., selecting the three most critical. This judicious selection process is IVC, guided by professional judgment. The remaining two interventions in this scenario may be performed at a subsequent appointment, ultimately achieving all recommendations. When treating an illness or injury, especially complicated, more costly cases, IVC decisions are more likely at the heart of patient management.

IVC transcends a mere treatment strategy, embodying a comprehensive philosophy centered on achieving optimal patient health within the realities of economic and practical limitations. This nuanced approach to medicine is deeply personalized, reflecting a commitment to ethical practice. Guided by this philosophy, veterinary care teams systematically evaluate and address their patients' most urgent health needs, structuring a hierarchy of SOC treatment options that can be scaled according to the client's financial capacity. The primary objective is the prevention of dire situations where economic factors lead to no treatment or, in the most heartbreaking cases, avoidable euthanasia. IVC is a multifaceted model, weaving together the veterinarian's clinical knowledge, active client involvement, and thoughtful management of available resources. This strategy safeguards the valued human-animal bond and navigates the complexities of healthcare economics with empathy and pragmatism. In doing so, IVC fortifies the foundation of veterinary practice, ensuring that care delivery remains compassionate and equitable.

IVC is a nuanced approach that intersects clinical and nonclinical aspects of veterinary practice.

It encompasses:

- A **patient-centric** approach that leverages experience-based medicine, focusing on problem-solving to achieve the best possible outcomes for the family while maintaining the human-animal bond amidst resource constraints.
- **Case management is tailored** by the veterinarian's clinical judgment to address diverse clinical scenarios effectively.



- A **tiered diagnostic and therapeutic strategy** among the SOC options, evolving based on the veterinarian's intuitive judgment, aimed at delivering optimal care in stages.
- The deliberate **avoidance of nonessential procedures** to manage costs, ensuring financial resources are directed toward critical care.
- A commitment to **active case follow-up**, with possible inclusion of in-home care measures that clients can competently perform, thereby fostering a proactive partnership in the patient's health management.
- **Client education** regarding priority health issues and prudent financial allocation to benefit the pet's well-being.
- A preventive ethos that champions **early diagnosis and timely intervention** to avert more severe health complications.
- The cultivation of a robust monitoring system hinging on the veterinary care team and the pet's primary caregiver to ensure a vigilant watch over the pet's health response, necessitating regular, **transparent communication**.



The success of IVC also hinges on two prognostic indicators:

- 1) The pet's primary **caregiver's willingness to actively engage** in the medical care process, demonstrating a dedication to collaborative efforts with the veterinary care team.
- 2) The caregiver's ability to effectively communicate with the veterinary care team and accurately **execute care recommendations**.



This IVC framework empowers veterinarians and caregivers, fostering a shared commitment to the pet's health journey.



Despite the practical applications of IVC, there remains a notable gap in evidence-based standardization due to the myriads of variables at play. Advancing research is imperative to refine patient care strategies incrementally, explore cost control through technology, and develop client communication methods that empower families to provide guided care at home. The insights from such research should be integrated into continuous professional development for practitioners and educational programs for veterinary students.

As with any treatment plan, the risk of client dissatisfaction exists when IVC necessitates less extensive care than might be ideal. Therefore, establishing clear and reasonable expectations with clients is crucial, as is obtaining informed consent to safeguard against potential liabilities. Informed consent serves a dual purpose of ensuring clients are well informed about the care options, risks, and costs associated with treatment, as per AVMA's recommendations, and may provide legal protection for VSPs. The AVMA underscores the importance of communicating clearly with the client or authorized agent, assessing and explaining the risks, diagnostic and treatment alternatives, and providing a prognosis. An estimate of costs should be transparently conveyed, and the client's or agent's understanding and consent should be documented, whether verbally or in writing, to affirm their agreement to the recommended course of action.¹³



Building from the logic model, pivotal questions arose central to the system's feasibility and sustainability:

- Who is eligible for assistance?
- How will families enroll, and how will data be collected?
- What business model should be used?
- What veterinary services should be included in the coverage?

- How can costs be shared across partners?
- What education opportunities would benefit partners?
- Where and how to integrate VSW?

Eligibility

AlignCare recognizes the availability of resources for wellness and preventive care and strives to fill the gap in veterinary services regarding sick or injury care. For this reason, families in need of only wellness/preventive care are referred to other community organizations.

AlignCare exists to increase access to veterinary care for vulnerable populations. Based on this mission, family eligibility requirements were identified:

- Have a pet with an urgent need of veterinary care.
- Provide proof of active enrollment in a means-tested assistance program.
- Engage in annual communications with AlignCare Health and participate in surveys at intake, 6 months, and 12 months post-enrollment.
- Be a bonded family, thus excluding breeders, hoarders, foster care, and community cats.
- Have the ability to use email and a smartphone for app-related activities or seek assistance from others, e.g., family or an SSA.



A decision was made to implement means-testing for families, ensuring that information provided to grantors and partners accurately reflects service to those in need. Instead of conducting means-testing directly. Participation in government assistance programs (e.g., Section 8 Housing, Medicaid, SNAP, reduced lunch programs) served as the qualification criterion for enrollment.

AlignCare Engage: Technological Integration for Streamlined Operations

To develop a platform tailored to the AlignCare system, PPHE partnered with Pelican Engineering, a firm that builds scalable, data-centric software products. Launched on March 1, 2021, *AlignCare Engage* is a comprehensive software platform that simplifies and expedites the enrollment of bonded families and enables invoicing by VSPs. Its functionalities are central to the execution of the AlignCare system:

- **Enrollment:** The software streamlines the process of enrolling families, VSPs, AWOs, and SSAs joining the AlignCare system, ensuring a smooth and user-friendly experience.
- **Invoice Management:** AlignCare Engage automates invoicing, allowing for efficient tracking and management of financial transactions between families, VSPs, and AlignCare.
- **Data Collection:** A critical component of AlignCare Engage is the capacity to capture data on the veterinary services provided, informing future planning and policy development where IVC is foundational.



The implementation of *AlignCare Engage* is a significant advancement. This technology is not just an operational tool; it embodies the transition of AlignCare from a conceptual model to a functioning system. *AlignCare Engage* marks a significant step towards realizing the goal of providing comprehensive, accessible veterinary care to underserved communities, and it exemplifies the potential for technological solutions to revolutionize community health systems.



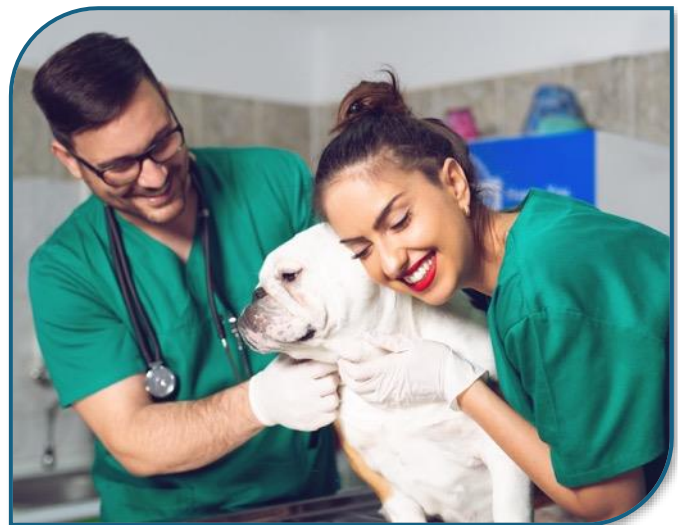
More detailed data through the *AlignCare Engage* software will provide a clearer picture of the medical needs and associated financial implications of serving low-income families, enabling more accurate projections. Over time, AlignCare policies may be adjusted accordingly.

Business Models

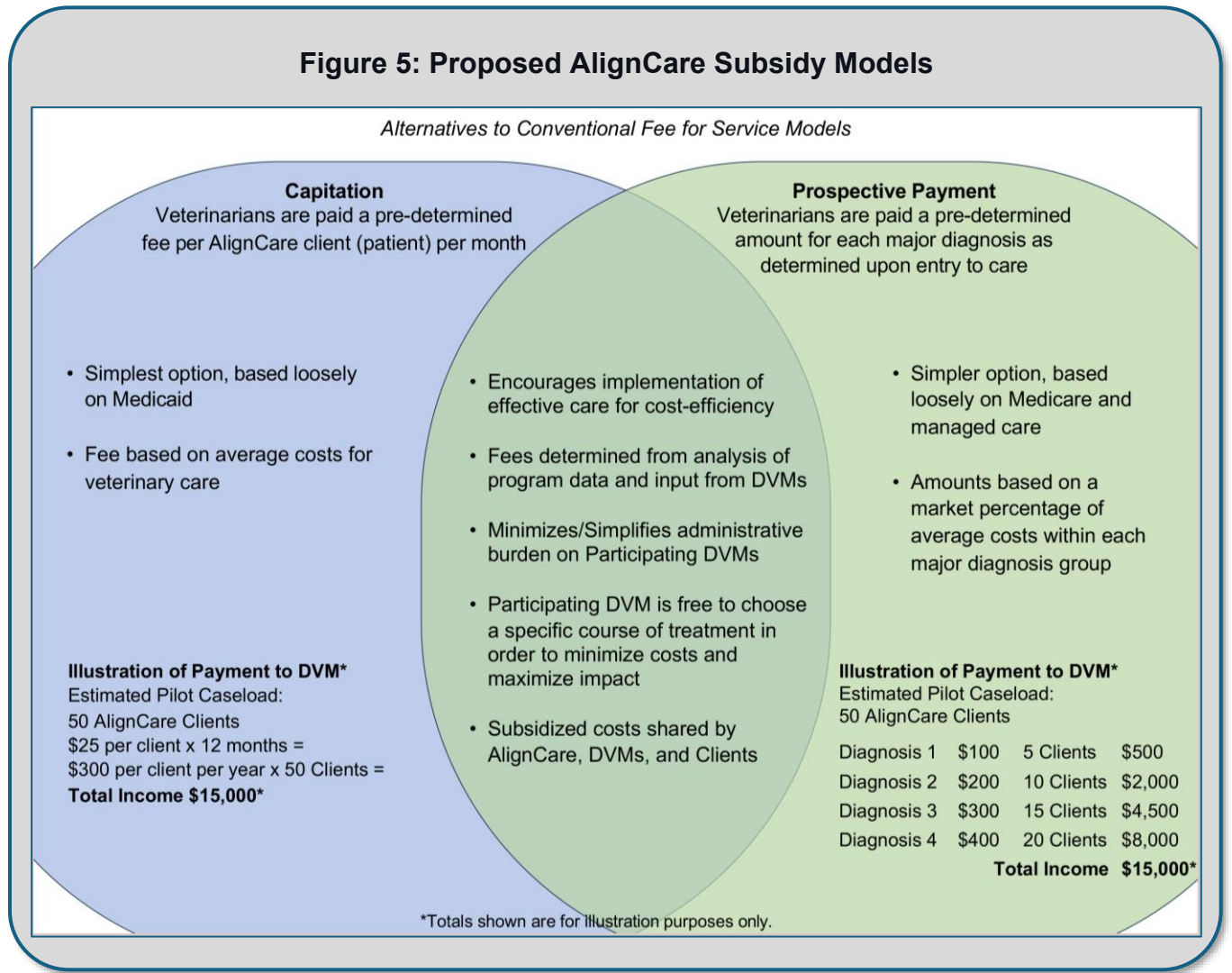
PPHE collaborated with the Boyd Center for Business and Economic Research (Boyd Center) to develop a pricing strategy. The Boyd Center also explored successful financial assistance models from human healthcare systems. Brittany Permaul (Blair) conducted a literature review on *The Influence of Business Practices and Public Assistance on Veterinary Care* ([Appendix 3](#)). Established models of human health insurance were compared to propose an alternative to a traditional fee-for-service model, where VSPs are paid for individual services as they are rendered.



The business team compared Medicaid's capitation model with Medicare's prospective payment. The capitation model would pay the VSP a set amount per AlignCare family seen each month regardless of the procedure or treatment. Prospective payment reimburses the VSP a specified amount for a given diagnosis. In prospective payments, the fee structure would be re-evaluated each year to adjust for inflation or other variable changes. Both the capitation and prospective payment models give veterinarians the flexibility to choose the most effective and cost-efficient treatment, thus encouraging incremental care. However, a disadvantage of both models is the burden of responsibility on veterinarians to manage the services provided within the funded amount of the established fees.



A Venn diagram (Figure 5) was created to provide a comparison of the two subsidy models and was presented at the 2019 Access to Veterinary Care Symposium and AlignCare planning meetings.



However, the challenges in stakeholders' understanding of adapting human healthcare models to veterinary practice prompted rethinking of the business models. As a result, focus shifted from capitation and prospective payment models to the more flexible approaches of bundled payments and fee-for-service. In the healthcare industry, particularly in settings like hospitals or clinics, the pricing strategy that assigns fixed costs to specific categories of care, such as non-complicated gastrointestinal issues or skin allergies, is often referred to as “case-based” or “episode-based” pricing. This strategy is part of a broader category known as “bundled payments,” a system that groups payments for the multiple services patients might receive during an episode of care. For instance, instead of charging





separately for each test and treatment a patient receives for a skin allergy, the healthcare provider would charge a single bundled price that covers all related care.

To explore the option of bundled payments, PPHE had to first understand the most prevalent needs of families with pets. Using the prevalent health conditions sourced from claims data reported by pet insurance companies,¹⁶ PPHE compiled a list of the top 20 illnesses and injuries affecting dogs and cats. The list was organized into “Care Categories” (Figure 6) to simplify the tracking of health services utilized by enrolled families and help allocate resources for the most commonly required treatments. This categorization is a foundational element of the AlignCare system, facilitating efficient care management and the ability to monitor and adapt the system to the evolving healthcare requirements of the pets served. The Care Categories encompass various conditions, characterizing the most needed and covered veterinary services.

Figure 6: AlignCare Care Categories

Allergies	Chronic Illnesses	Dental Conditions
Ear/Eye Conditions	Internal Medicine Conditions	Injuries
Musculoskeletal Conditions	Skin Conditions	Euthanasia
Wellness/Preventive (rechecks, prescription pick up, spay/neuter)		

Once Care Categories were established, PPHE needed to understand the average costs of care to each. In researching the pricing of veterinary care from multiple sources, including the AAHA Veterinary Fee Reference Guide,¹⁷ there was little data that took into consideration the IVC approach. These data sources reflect the average costs of the full range of care options, from basic to gold-standard treatments. Low-cost VSPs are a source of IVC pricing, but the lack of

standardization and readily available data presented a barrier given this study's time and resource constraints.

Given the lack of available IVC pricing data, PPHE opted for the fee-for-service model as the most prudent to test AlignCare by permitting VSPs to charge their usual fees, discounted if for-profit. The intent is to eventually understand the pricing of bundled veterinary services when IVC is utilized. As the AlignCare system and others report data on IVC, more accurate forecasts of the costs to reach underserved families will be possible.



AlignCare Coverage

Establishing clear coverage is essential for VSPs to have confidence in their decision-making process, knowing when reimbursement is guaranteed. PPHE insisted that AlignCare would refrain from dictating specific diagnostic or treatment methods, instead prioritizing procedures deemed necessary by the attending veterinarian for the patient's prognosis and treatment. However, PPHE also aims to optimize fund allocation, restricting coverage to palliative care or euthanasia when the prognosis is dire.

AlignCare Service Coverage

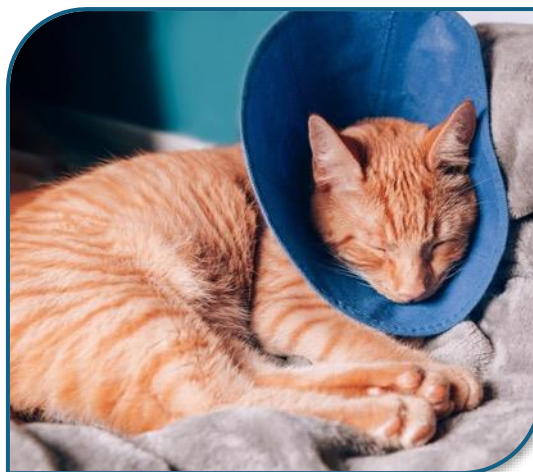
AlignCare coverage DOES cover:

- Prescription foods
- Prescription medications
- Flea, tick, and heartworm preventatives
- Vaccines
- Sick/injury care
- Chronic illnesses
- Hospitalization
- Palliative care
- Euthanasia (includes group disposal)

AlignCare DOES NOT cover:

- Boarding
- Grooming (unless medically necessary)
- Microchipping
- Diagnostic testing and procedures that do not change the treatment plan or prognosis of the pet.
- Treatment for pets with a poor/grave prognosis (palliative care or euthanasia is covered in this instance)
- Individual cremation

PPHE advocates for responsible care of pets and encourages families to spay/neuter their dogs and cats; however, this is not a requirement to receive assistance through AlignCare. The goal is for enrolled families to establish a long-term relationship with their VSP for all services. However, when more affordable services are available through AlignCare affiliates, e.g., nonprofit spay/neuter organizations, families are referred to them to control costs. Participating VSPs understood and accepted the importance of this policy in enabling AlignCare's sustainability. Providing the SOC needs for a community requires collaboration among multiple providers where there is minimal overlap and gaps in services for families.



Cost Sharing

For financial sustainability, a cost-sharing model is essential, where the expenses associated with care are distributed across multiple stakeholders, including providers, assistance programs, and direct contributions from families. This strategy ensures that no single entity bears the burden of veterinary care costs, making comprehensive care more accessible and affordable for all involved parties. Partnering for-profit VSPs were asked to discount services to AlignCare families and use IVC patient management strategies to maximize health outcomes within budget constraints. During the testing of AlignCare, the target cost-sharing distribution with for-profit VSPs who discounted services was 20/20/60:

- For-profit VSPs discount their fees by 20%.
- Families pay a 20% copayment at the time of services.
- AlignCare fund pays the remaining 60% balance.



Collaboration Agreements

Successful partnerships in the AlignCare system are formalized through Collaboration Agreements. These documents are essential in delineating the roles, responsibilities, and mutual expectations among all parties, including PPHE/AHI, VSPs, SSAs, AWOs, and Human Support Coordinators (HSCs). Notably, the agreements for VSPs were refined multiple times to optimize service timelines and financial processes, with significant amendments aimed at improving the efficiency of invoicing and service discounts.

VSP Discounts



Not having reliable information about the amount VSPs are willing or able to discount services and understanding the broad diversity among them, it was decided for the testing of AlignCare to ask participating for-profit VSPs to discount their fees by 20% for AlignCare families. PPHE found that not all services could be uniformly discounted by 20%, e.g., prescription diets generally were not discounted. Thus, an addendum was added to the VSP agreement, listing exceptions to the standard discount rate. In some instances, VSPs offered more than a 20% discount.

Low-cost and nonprofit veterinary care providers are not asked to provide additional discounts, as their services are already provided at a reduced rate.



Copayments

Microdata from the Bureau of Labor Statistics Consumer Expenditure Survey (Tables [1](#) & [2](#)), which spanned a decade of pet-related spending patterns (2007 - 2017), was analyzed to inform this decision. The dataset ([Appendix 4](#)), included demographic and geographic variables, providing insights into the expenditure habits of families, especially those within AlignCare's socioeconomic focus.

Table 1: Average Expenses based on 2019 Poverty Guidelines

2019 Poverty Guideline	Family Size	Mean Pets/Supplies	Mean Pet Services	Mean Veterinarian Expenses
\$12,490	1	515.90	88.37	114.79
\$16,910	2	648.31	70.39	126.17
\$21,330	3	534.24	27.65	73.59
\$25,750	4	567.78	81.07	71.58
\$30,170	5	591.14	11.63	62.42
\$34,590	6	629.20	20.55	71.92
\$39,010	7	1456.31	31.74	13.57
\$43,430	8	647.00	34.68	26.18

(Reported After-Tax Income <= poverty guideline; Reported family size equal to 1-8)

The analysis revealed that pet-related spending is more pronounced in smaller households, with a more significant portion allocated to pet supplies rather than veterinary services. Furthermore, families receiving public assistance spent less on pet-related costs than the general population. Notably, expenditures on veterinary services were consistent among households at or below 200 percent of the federal poverty line.

Table 2: Average Expenses by FPL Ratio

FPL Ratio	Count of Households	Mean Pets/Supplies	Mean Pet Services	Mean Veterinarian Expenses
<=50%	792	474.91	63.71	103.97
51% - 100%	1,553	540.54	32.41	80.83
101% -150%	2,291	579.67	50.76	102.36
151% - 200%	2,522	546.18	49.79	121.21
>200%	21,237	698.12	122.10	244.99

Calculated based on year of interview and reported after-tax income

** Based on maximum expense in any category of \$5,000*



As of June 30, 2023, contributions from AlignCare families amounted to \$348,201, validating their commitment to their pets' health under the AlignCare program.

Considering these findings and the complexity of adjusting copayment amounts based on variable income data, PPHE opted for a uniform copayment approach. A fixed rate of 20% was established for all families, calculated after any applicable discounts. This approach simplified the payment process while ensuring families contribute meaningfully to their pets' healthcare costs. The implementation has proven effective, with most families able to pay a 20% copayment and some resourcefully obtaining support from AWOs, personal networks, and fundraising activities. As of June 30, 2023, the average cost to AlignCare per visit was \$212. Contributions from AlignCare families amounted to \$348,201, validating their commitment to their pets' health under the AlignCare program. This contribution surpasses the discounts offered by VSPs and is approximately one-fourth (24%) of the amount paid by AlignCare ([Table 3](#)).

**Table 3: Summary of AlignCare Veterinary Visit Costs
April 1, 2020 through June 30, 2023**

	# Served	# of Visits	Price of Veterinary Services	VSP Discount	Paid by 3rd Party	Paid by Family	Paid by AlignCare
Total	2,020	6,978	\$2,114,140	\$240,238	\$45,149	\$348,201	\$1,480,558
Cat	477	1,320	\$345,956	\$34,519	\$6,677	\$57,842	\$246,918
Dog	1,539	5,648	\$1,767,150	\$205,628	\$38,472	\$290,152	\$1,232,904
Other*	4	10	\$1,034	\$91	\$0.00	\$207	\$736

*Rabbits, roosters

Subsidy and Copayment Protocols

The AlignCare subsidy covers the balance after the VSP discount and family copayment. VSPs invoice for services through the *AlignCare Engage* software, ensuring a streamlined financial management process.



Acknowledging that financial hardships can be situational and vary significantly among families, a thoughtful protocol was implemented for situations where the copayment may be waived. This protocol, activated in rare cases of extraordinary financial burdens, includes:

1. **Partner Support:** An AlignCare partner, e.g., AWO or SSA, assists with the family's copayment obligations by paying the copayment (partially or in full) or a portion of the total charges, thus lowering the amount of the copayment paid by the family.
2. **Payment Plans:** The family inquires whether the VSP is willing to offer a payment plan. In some instances, the VSP decided to permit the family to pay them the copayment in installments over time.

3. **Comprehensive Assessment:** Critical questions are posed to ensure an understanding of the family's situation, including:
- Has the family reached out to extended family and friends for assistance?
 - Are there additional circumstances impacting the family's ability to pay?
 - Is the family capable of contributing a lesser yet meaningful amount?
 - What is the veterinarian's diagnosis and treatment plan, and the estimated cost of the recommended treatment?
 - Are there more affordable treatment options?
 - What is the long-term prognosis for the pet?
 - Will the need for a waiver be a one-time situation or an ongoing issue?



This review process aims to balance the need for financial support with the responsibility to uphold the integrity of the copayment system.

In chronic illnesses requiring ongoing veterinary care, copayment waivers are reassessed every quarter. Reassessment ensures that financial support is provided responsibly and adjusts to changes in the family's circumstances. During the pilot, the need to waive copayments was infrequent, reflecting the efficacy of AlignCare's financial support structure and the resourcefulness of the families enrolled.

Invoicing Process for Veterinary Service Providers

Efficient administrative processes are essential to the success of the AlignCare system, particularly regarding invoicing. PPHE recognized the importance of establishing a straightforward invoicing system that would not burden VSPs, allowing for prompt payments and accurate data collection. To address the unique requirements of AlignCare, the University of Tennessee developed an interim system of managing invoices and payments to VSPs.

This initial system was functional but not optimal for scaling operations. It became apparent as veterinary visits increased that a more sophisticated automated

The AlignCare Journey in Pet Health Equity



system was needed. Consequently, the invoicing process was refined to its present form through several updates and modifications—a streamlined procedure that integrates seamlessly with the *AlignCare Engage* software. The system is designed to be user-friendly for VSPs, ensuring they focus on delivering care rather than cumbersome administrative tasks. The transition to this improved system has been instrumental in maintaining timely and accurate financial tracking and reporting.



For a detailed account of the invoicing system's evolution and functionality, see [*Streamlining the Invoicing Process in AlignCare*](#).



Education for Partners: Embracing a One Health Approach

As PPHE delved deeper into developing its model for AlignCare, it recognized a crucial need: educating partners on the evolving One Health model. This education ensures a coordinated effort across services, addressing the multifaceted needs of families and their pets, ultimately leading to better health outcomes for the entire community. The pandemic impacted the availability of veterinary care, highlighting the necessity for a more unified and collaborative approach to community support.



For VSPs and AWOs, the increased demand for veterinary services came at a time of limited support, making it clear that education on the One Health approach is vital. This approach extends beyond financial constraints to include logistical considerations such as appointment scheduling,

transportation reliability, and the ability of families to manage pet care at home. Veterinary care teams must take a holistic view of a family's situation when considering accessibility to veterinary care.



SSAs play a critical role in this ecosystem. They know pets' integral role in family dynamics, influencing households' emotional and physical well-being. For instance, SSAs should understand behaviors stemming from financial pressures, like families sharing meals with pets, and address them with appropriate interventions. Furthermore, SSAs consider additional systemic challenges, including pet-friendly housing policies and support during human inpatient care situations.

It may be seen how the education of AlignCare partners is not merely beneficial but fundamental to the system's success, anchoring the entire framework in knowledge and collaboration.

Integrating Veterinary Social Work

Originating at the University of Tennessee, VSW is a unique specialty within the social work profession that attends to the welfare of all species through excellence in global interprofessional practice. VSW professionals are pivotal in supporting families with pets and the veterinary care teams that serve them. They address the emotional and psychological needs at the intersection of human-animal relationships. Crucial aspects of their work include mediation, trauma-informed care, and managing compassion fatigue.

The AlignCare Journey in Pet Health Equity

The role of VSWs is vital, as the close bond between pets and their families is deeply intertwined with the family's overall well-being. Their role extends to helping prevent burnout among those who work with animals and reducing the risk of suicide among veterinary professionals.

Social workers earn the VSW Certificate through training in four essential domains:

1. Intentional well-being
2. The link between human and animal violence
3. Animal-assisted interventions
4. Animal-related grief and bereavement
- 5.



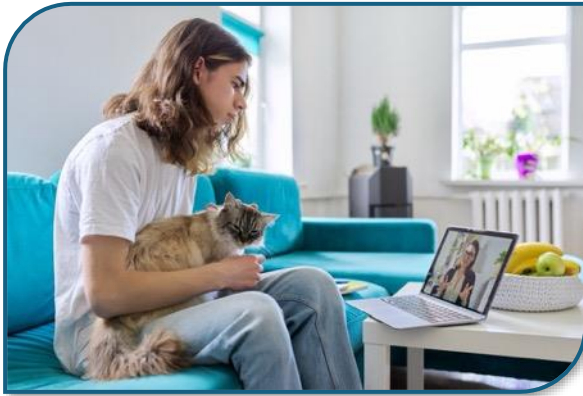
AlignCare is designed to harness the expertise of VSWs, resulting in a framework that integrates veterinary medicine with social service, ensuring comprehensive care for families with pets. As more VSWs are trained, AlignCare and the community will benefit. The following discussion presents some of the critical roles of VSWs in the AlignCare system. However, due to the scarcity of VSWs, the system also depends on other family support and social work professionals to undertake many of the responsibilities typically handled by VSWs.



VSWs act as the communication hub, ensuring seamless interaction between AlignCare, enrolled families, VSPs, and the broader community network. They may assist families through the application process, provide case consultations for veterinary teams, and help bridge gaps between service providers and families.

Moreover, VSWs connect families to community resources, from food banks and therapeutic services to support groups, e.g., pet loss. This holistic approach ensures families can navigate the complexities of living with pets and receive the necessary support, particularly during challenging times.





During AlignCare enrollment families can request various types of assistance, such as help with housing, public aid, mental health services, or obtaining pet supplies. VSWs are available to families at any point post-enrollment for support, acting as advocates and liaisons with relevant social services. This collaborative effort with social service organizations embodies a practice of empathy and respect, ensuring comprehensive support for families. Individuals within AlignCare partnering organizations can also seek the support of VSWs.

End of Life Decision Support and Follow-Up

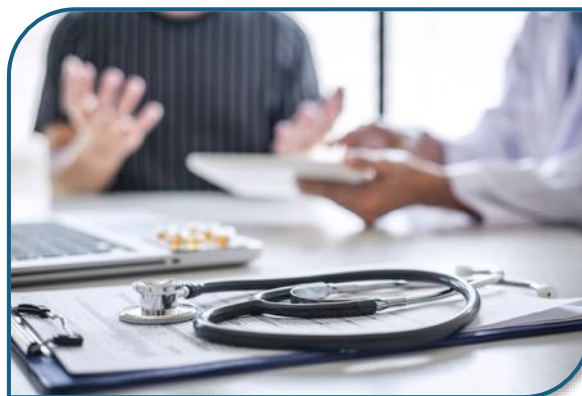
In the profoundly emotional and challenging period preceding a pet's end of life, the expertise and empathy of a VSW become invaluable. These professionals offer support and guidance to families and VSPs alike, helping to navigate the complexities of euthanasia decisions. Trained in the delicate issues of animal-related grief and loss, VSWs work in tandem with VSPs to provide a compassionate framework for families facing the prospect of losing a beloved pet. Families are assisted through the phases of anticipatory grief when a pet's passing is imminent, with ongoing support during the active grieving that follows a pet's death. This support is crucial in helping families make informed, heartfelt decisions about their pet's care and well-being.



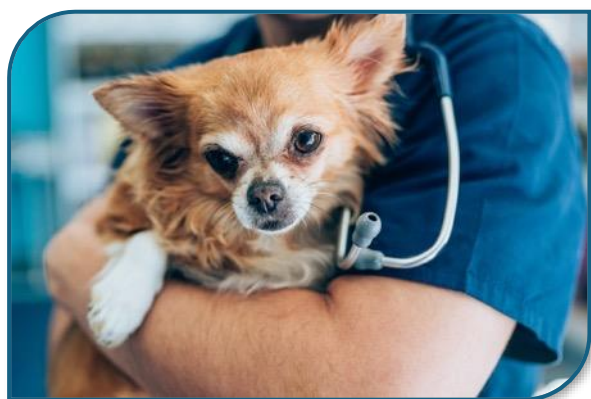
For instance, when a family learns of their dog's diagnosis with an incurable, aggressive cancer, the VSP may refer them to the VSW. The VSW can provide much-needed emotional support, helping the family process the devastating news and understand the support available. A proactive approach is taken, with the VSW scheduling periodic sessions, e.g., weekly, to assess the dog's quality of life and prepare the family for the difficult decisions ahead.

Mediation Between Family and VSP

VSWs within the AlignCare system fulfill an essential function as mediators, resolving disputes that may arise between families and VSPs. Their mediation efforts focus on finding resolutions that uphold the interests of all involved parties, including the pet's well-being. Potential resolutions could entail changing VSPs, warnings about possible disenrollment from AlignCare, and fostering mutual appreciation for the efforts to safeguard the pet's health and well-being.



A case that exemplifies the VSW's mediating role occurred when a client expressed discontent with their VSP to their community VSW. The client's behavior included inappropriate language and blaming the VSP for a pet's death in the past. Consequently, the VSP was reluctant to continue providing services. Upon consultation, the VSW recognized that the client was dealing



with personal hardships and unresolved grief, which were impacting their interactions with the VSP. The client was willing to cooperate with the VSW to reconcile with the VSP. In discussions with the VSP, it became evident that despite the strained relationship with the client, the VSP's dedication to the pet's health remained unwavering. A mutual understanding was reached, and the VSP agreed to continue the pet's medical care, with all future communications to be channeled through the client's mother. This agreement allowed the pet's medical needs to be met while managing the sensitive interpersonal elements.

Navigating Treatment Plans

In the AlignCare system, the responsibility for determining treatment options lies squarely with the VSP. AlignCare maintains a policy of non-interference in these vital healthcare decisions. Nonetheless, VSPs have the support of AlignCare when faced with complex treatment decisions or challenges related to a family's adherence to treatment plans.

VSWs are integral in situations where treatment adherence is a concern or when exploring various



treatment options. They assist by bridging communication gaps between the family and VSP, addressing obstacles to compliance, and considering incremental care approaches that suit the family's unique needs.

A case illustrating the effectiveness of this partnership involved a VSP ready to discontinue serving a family that repeatedly missed their dog's heartworm treatment appointments. After several attempts to resolve the issue, the VSP engaged the VSW for support. The VSW identified underlying mental health challenges as a significant factor affecting the family's ability to keep appointments.



Responding proactively, the VSW crafted a customized plan to enhance the family's compliance with the treatment schedule, appointing themselves as the focal point for reminders. By implementing a reminder system that included calls and text messages, the VSW ensured that the family received the necessary support to manage their appointments effectively. This intervention enabled the VSP to focus on providing medical care. At the same time, the VSW addressed the family's broader needs, strengthening the care partnership and ensuring the pet's well-being.



Connecting Families to Community Resources

One of the critical functions of the VSW is to facilitate connections between families and local community resources, particularly during times of crisis. These interventions can be crucial for

distressed families, providing much-needed support and alleviating additional burdens during challenging times.

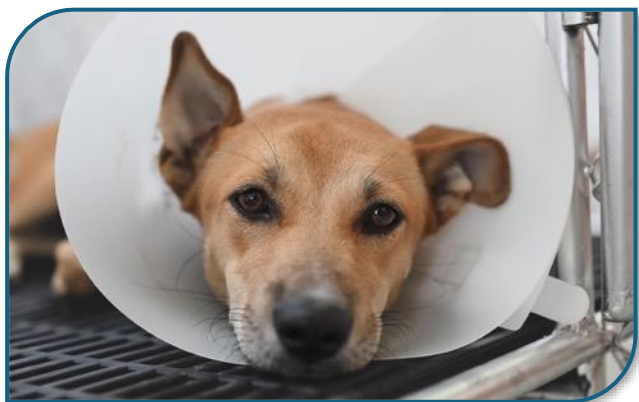
A case that underscores the value of the VSW's work involved a family impacted by COVID-19. Upon hospitalization due to the virus, they were confronted with the immediate risk of their dog being left without care because the pandemic compromised their support network. The family was in jeopardy of losing their pet.

The VSW promptly intervened to address this critical situation by networking with local organizations to secure temporary housing for the dog, ensuring the pet's safety and well-being. This timely assistance from the VSW safeguarded the pet and provided the hospitalized family with the comfort of knowing their cherished dog was being cared for. This peace of mind was vital, allowing the family to concentrate on their health and recovery without the added anxiety over their pet's situation.



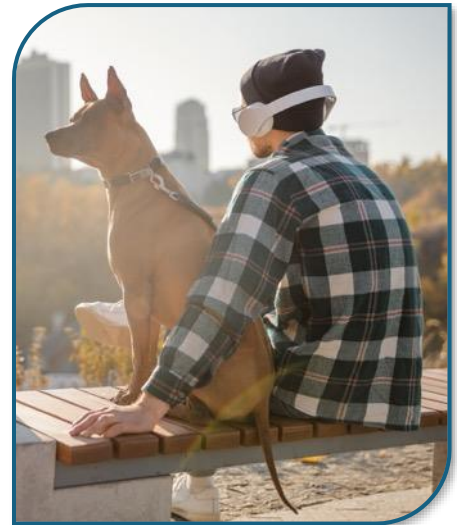
Family Support and Check-In After Treatments

VSWs in the AlignCare system offer ongoing support to families following traumatic incidents with their pets, such as serious illnesses or accidents. They provide a space for families to process their emotions and validate the distress such events inevitably bring to all involved, pets included. This support becomes particularly vital when VSPs cannot provide such support due to their own time or resource constraints.



A case that illustrates the VSW's role involved a family dealing with the aftermath of their dog being hit by a car. While the pet initially received emergency care, the ongoing medical costs quickly became daunting. After seeking assistance through AlignCare, the family was connected to an AlignCare VSP for continued medical treatment. The VSW's involvement extended beyond financial guidance; they also provided crucial emotional support, helping the family manage the crisis and ensuring the dog's recovery process was carefully monitored.

Reflecting on the evolving role of VSWs, it is clear their work is dynamic, constantly adapting to the shifting needs of the families they serve, and PPHE structured AlignCare accordingly. The role of VSWs exemplifies a commitment to enhancing family services and stands as a testament to the importance of ongoing efforts to refine these services. As the field of VSW progresses, it reflects a commitment to bettering the lives of families and their cherished pets, highlighting a path marked by adaptability and continuous improvement. With the foundation of AlignCare set, it was ready to be tested.



IN THE TESTING GROUNDS: REFINING ALIGNCARE

To validate the effectiveness and replicability of the AlignCare system, PPHE embarked on a systematic pilot to test the model, supported by multiple grants dedicated to developing the system and the comprehensive analyses of data gathered. This phase was crucial for establishing the potential sustainability of the AlignCare concept and its broader application.



Embarking upon the critical stage of testing AlignCare, PPHE understood that this was a pivotal moment in the life cycle of this initiative. In this real-world application, the actual value of AlignCare could be measured and refined. Testing is where theory meets practice, data transforms into wisdom, and PPHE's dedication to enhancing access to veterinary care for all is rigorously challenged and sharpened. PPHE laid the foundation for the AlignCare pilot on July 1, 2019. Core components vital to the system's success were crafted, such as Collaboration Agreements, Vendor Contracts, Partner Training and Onboarding Procedures, Intake and Enrollment Forms, and the initial Family Health Management Tool using the Healthie app, accompanied by comprehensive Guidance Documents.

This stage of development emerged as a critical opportunity to listen, learn, and refine, exploring both achievements and challenges faced. It also highlights the feedback mechanisms that helped shape decisions and the adaptive strategies that transformed AlignCare from an idea into a vibrant ecosystem capable of serving the complex needs of diverse communities. The following sections provide insight into the tangible impacts of PPHE's efforts, offering a clear view of the research and methodologies driving AlignCare's evolution.

Pilot Communities

The scope of the AlignCare pilot was thoughtfully constrained by scale, geography, and time, encompassing 400 to 500 families across 8 to 10 communities for an 18 to 24-month period. The selection process began with a well-defined rubric ([Appendix 5](#)), which was used to assess the readiness of 12 potential communities. Two essential criteria were crucial for consideration: the availability of at least one VSP capable of addressing sick or injury care, and the active involvement of an SSA. The



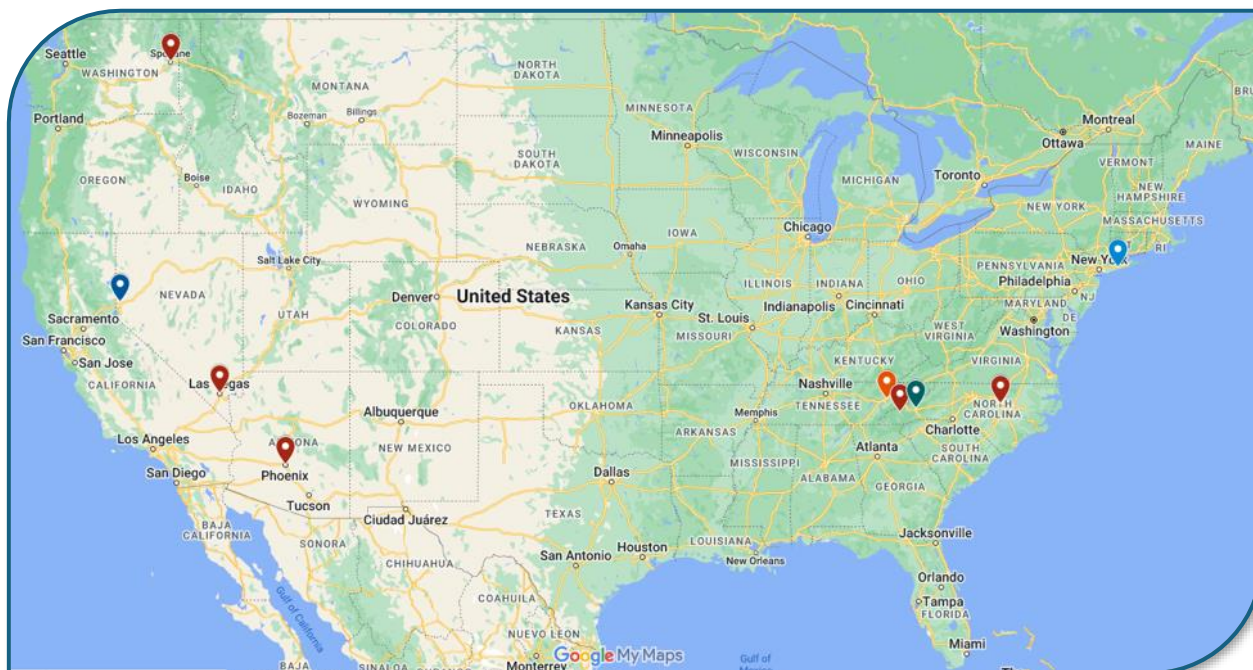
ramifications of the COVID-19 pandemic, particularly its impact on employment, emerged as a decisive factor in finalizing the participant list.



Enrollment of the first families commenced in March 2020. By the pilot's conclusion in June 2023, 1,398 families had successfully been enrolled and received care from 26 VSPs across 9 pilot communities and Los Angeles, California¹. This approach implemented real-time data analysis, a strategy that allowed for swift and precise adjustments to maintain the integrity of the AlignCare system. At one point, it was decided to momentarily pause veterinary care enrollment and support to conduct an in-depth data review. This pause was crucial for evaluating the program's effectiveness and implementing necessary refinements in preparation for a wider rollout.

The pilot phase included 9 distinct communities from across the nation, each demonstrating a robust commitment to the AlignCare model:

- Knoxville, Tennessee
- Las Vegas, Nevada
- Reno, Nevada
- Cherokee, North Carolina
- Asheville, North Carolina
- Raleigh, North Carolina
- Spokane, Washington
- Long Island, New York
- Phoenix, Arizona



¹ Los Angeles implemented AlignCare during the pilot phase as the first demonstration project.



These communities each showcased unique strengths that were instrumental to the program. For instance, one community exemplified an exceptional synergy between VSWs and VSPs. At the same time, another revealed the pivotal role played by SSAs, especially in offering mental health support and services to veterans. The varied experiences and capabilities of these pilot sites were invaluable, vastly contributing to the adaptability and depth of learning for AlignCare, thus setting a solid foundation for its future growth.

Partners

Recruiting collaborative partners was a foundational step in the AlignCare pilot, with PPHE meticulously gathering data to pinpoint low-income areas and identify potential allies. The strategies for recruiting partners were multifaceted and included:

- Engaging with VSPs and SSAs already collaborating with AWOs.
- Scouting for human and pet services near housing assistance programs, such as homeless shelters and HUD-funded housing projects.
- Targeting services within low-income communities and specific zip codes associated with economic hardship.



Through discussions, the need for formal Collaboration Agreements became evident, underscoring the necessity for clarity in the roles and responsibilities of partners. These agreements were tailored to reflect the unique contributions of each partner, aligning with their mission and the resources they could offer to support AlignCare-enrolled families. Partners were primarily categorized into one or both of the following roles:

- **Referral Agencies:** Partners were instrumental in directing families needing veterinary care assistance towards AlignCare resources.
- **Providers:** Comprising three main groups:
 - **VSPs:** Both for-profit and non-profit entities that delivered sick and injury care to pets of AlignCare families using IVC.
 - **AWOs:** Animal control agencies and non-profit organizations with family support programs, e.g., food pantries, pet resource center.

- **SSAs:** Organizations that offer direct support services to families enrolled in AlignCare, e.g., mental health services.

This structured approach to partner recruitment was essential for building a robust network capable of supporting the multifaceted needs of AlignCare families.



Recruitment Challenges and Solutions

In the recruitment phase, VSPs highlighted the necessity of a streamlined pre-approval process for family assistance. They shared experiences of families enduring prolonged wait times while awaiting treatment authorization. In response, PPHE restructured the AlignCare system for prompt application processing, prioritizing rapid enrollment, especially for urgent care scenarios. However, in situations where the prognosis is dire, the coverage scope is responsibly adjusted to palliative care or humane euthanasia options.

Establishing partnerships with corporate VSPs presented unique challenges due to complex organizational protocols that required significant time and resources to align with PPHE's objectives.



Moreover, when collaborating with SSAs, safeguarding sensitive family information emerged as a crucial concern. The initial referral framework carried the risk of inadvertently disclosing private details, such as a family's use of a homeless shelter. AlignCare has instituted stringent privacy protocols to combat this, ensuring that referral sources remain confidential and family privacy is uncompromised. These enhanced privacy measures are now embedded in Collaboration Agreements, solidifying them as cornerstones of PPHE's partnerships with SSAs.

Veterinary Social Work as a National Practice

The inaugural year of the pilot saw an intensive focus on family assistance and the development of critical operational forms and protocols. This work was performed by the PPHE Director of VSW and the Western Regional VSW Coordinator, supported by a dedicated intern group from the University of Tennessee, Stony Brook University, and New York University. These students, particularly those committed to the VSW certificate program at the University of Tennessee, each devoted 500 hours to the project as part of their academic scholarship. Their contributions were invaluable, encompassing application processing, data management, support for VSPs, and direct family assistance services, totaling approximately 90 hours of work each week. This

substantial input significantly bolstered the program's capability to enroll and assist families nationwide.

The VSW team was instrumental in creating operational tools that streamlined families' enrollment and case management processes. Within the initial year, they developed a comprehensive set of resources:

- A detailed policies and procedures guide
- A clear delineation of VSW scope of practice
- Forms ensuring compliance with the Health Insurance Portability and Accountability Act (HIPAA)
- Comprehensive screening and enrollment documentation



These documents were continually refined to respond adeptly to the changing needs as new pilot sites were initiated. The AlignCare Community Manual received regular updates to reflect the dynamic nature of policies and procedures, including introducing new guidelines, revising existing ones, and the removal of outdated protocols. The VSW team committed to communicating all changes effectively to families and collaborative partners.



Collaborating closely with VSPs, the VSW team played a pivotal role in guiding treatment options, preparing for end-of-life care, and offering support in instances of pet loss and grief. Direct case management was available in states with licensed social workers, while the team provided educational support elsewhere and connected families with local mental health professionals as necessary.

Meticulous records of family interactions were captured securely on the Healthie platform—a HIPAA-compliant system—at enrollment, one week later, and one month after. With the evolution of AlignCare Engage, features were developed to transition away from Healthie's usage.



Moreover, the VSW team employed structured scripts for interactions to ensure consistent communication across AlignCare discussions, which helped foster a strong rapport with enrolled families. The data collected included a broad spectrum of metrics, such as demographic information, residential stability, history of homelessness, access to transportation, the pet's spay/neuter status, the human-animal bond, pet behavior and traits, and veterinary medical records. This extensive evaluation also considered those with pets physical and mental health, life satisfaction, and the stress associated with caregiving responsibilities, offering a holistic view of the families' situations.

As the volume of family enrollment increased, the labor-intensiveness of completing interviews and surveys necessitated the engagement of a contracted service to manage these tasks more efficiently.

Veterinary Social Work as a Community Practice

In February 2021, PPHE initiated a strategic shift to transition family support from a national level towards local resources. To accomplish this, PPHE utilized a three-tiered approach: development of HSCs, utilization of Master of Social Work (MSW) interns and contracting with local VSWs and social workers.



Human Support Coordinators

PPHE developed the role of HSCs to connect families with community resources. HSCs are dedicated, community-based subject matter experts who liaise between AlignCare families and VSPs. The VSW team developed a 10-module training program for HSCs, delivered across the

pilot communities through five 2-hour sessions from March to May 2021. This training included creating a customized community resource list that addressed the needs of all bonded family members relevant to each locality.

This unique support system is a vital resource of AlignCare due to HSCs training in critical areas of VSW, including:

- Animal-related Values and Ethics: Animals and Poverty
- Boundaries & Self-Care
- Community Building: Identifying potential Advisory Group members
- Community self-assessment
- IVC concepts
- Human Engagement
- Empathy Map
- Active Listening Skills
- Grief & Bereavement: End of Life Values & Goals
- Mental Health, Suicide Prevention & Making a Referral
- Veterinary Well-being, Compassion Fatigue & Conflict Management
- AlignCare Policies & Procedures:
 - Enrollment and Application Review
 - Determining Eligibility
 - Using the AlignCare Engage App for Family Enrollment



MSW Interns

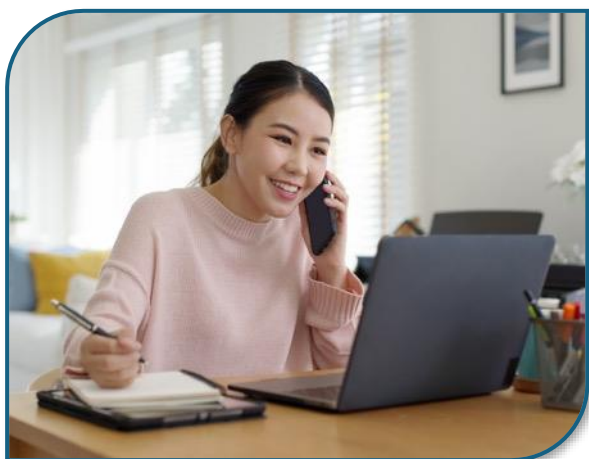
MSW interns' support was vital, leading the PPHE team to collaborate with additional universities to provide field placement opportunities for second-year MSW interns. Interns were placed with an AlignCare partner to support case management, including assistance with end-of-life decisions and mediation between families and VSPs.

Local Social Workers

PPHE's commitment to ensuring the efficacy and responsiveness of the AlignCare program led to the contracting of social workers in Los Angeles, California, and Reno, Nevada. These professionals were pivotal, providing tailored training, offering technical support, delivering case consultations, and nurturing community engagement. The presence of these local social work experts proved to be invaluable, enabling the provision of immediate, on-the-ground assistance to families. Their support was particularly crucial in addressing multifaceted issues such as housing instability, mental health challenges, and transportation barriers.



In addition to directly assisting families, these social workers extended their expertise to AlignCare partners. They facilitated the learning of de-escalation techniques and provided case consultations for matters beyond the partners' expertise. The scope of referrals managed by the social workers was broad, encompassing a spectrum of human service needs, emotional support for families, specialist veterinary care, and liaising with family support teams when necessary.



Moreover, PPHE VSWs, in collaboration with the local social workers, took on the essential task of conducting family recertifications. This process entailed conducting interviews with enrolled families to gain updates on the well-being of the families and their pets after receiving treatment. It was more than a procedural check-in; it reinforced the bond between the families and AlignCare. These phone interviews were instrumental in verifying ongoing eligibility and providing PPHE with deeper insights into the evolving needs of families, ensuring that the assistance provided remained as impactful and relevant as ever.

AlignCare Family Enrollment Process: Strategies and Technological Integration

During the pilot phase, PPHE implemented various referral strategies across communities to determine the most effective means of family entry into the system. The primary sources of family referrals were AWOs, SSAs, VSPs, and a combination of referral groups.



A notable trend emerged: most referrals come from VSPs, followed by AWOs. Communities with access to low-cost VSPs or those in lower-income areas observed higher referral rates and subsequent veterinary visits.

The collaboration with SSAs highlighted an opportunity to include pets in their intake processes, acknowledging pets' significant role in family dynamics. However, the potential for SSA partnerships was not fully realized due to the pandemic's onset, which redirected SSA resources to other essential services.

Early during the pilot, the structured enrollment process was through the Healthie platform, involving several steps:



1. Families initiated enrollment by contacting info@aligncarehealth.org
2. An auto-response email provided a Healthie registration link
3. Families filled out the application form within Healthie
4. Proof of public assistance was emailed to AlignCare for verification
5. A VSW contacted the family for an enrollment interview within 24-72 hours

Challenges such as difficulties uploading eligibility documents were addressed through direct support from PPHE staff. Continuous refinement of enrollment forms and procedures ensured a smoother user experience.

The forms included:

- The Application Form
- An agreement form affirming adherence to AlignCare's guidelines and policies
- "Welcome to AlignCare" statement

- Enrollment form with a Week 1 interview
- One-month follow-up interview

Implementing the *AlignCare Engage* platform brought significant improvements, allowing for automation and efficient application management.



Features included:

- Notifications for VSWs upon family application submission.
- Categorization of applications by status.
- Detailed information on families' and pets' veterinary visits.
- Automatic actions post-approval includes sending a welcome email to families upon approval and notifying VSPs of newly enrolled families.

AlignCare's enrollment process evolved during the pilot phase, leading to refinements in enrolling and onboarding families. The current process is a model for future operations.

Integrating Veterinary Service Providers into AlignCare

VSPs play a pivotal role in the success of AlignCare, and the pilot phase provided valuable lessons on how to integrate best and support these key partners.

Notable insights from this phase include:

- VSPs experienced in working with third-party payers adapted to AlignCare's billing and reimbursement protocols with greater ease, indicating that prior experience in similar systems is beneficial and reduces the need for additional support.
- Providing VSPs with clear and concise guidelines was identified as crucial. It enabled them to deliver care with assurance and without the delays associated with waiting for pre-approval from AlignCare. As a result, the VSP



Collaboration Agreement was amended to offer a more explicit assurance of reimbursement, thus giving VSPs the confidence to proceed with necessary treatments.

- The pilot phase revealed that VSPs who assigned a dedicated office or practice manager to act as the AlignCare liaison exhibited superior communication and management capabilities compared to those who depended solely on veterinarians or customer service representatives for these tasks.



Streamlining the Invoicing Process in AlignCare

The initial phase of testing AlignCare did not come without its challenges. Among the most prominent was developing a robust and responsive invoicing system. The University of Tennessee undertook the significant task of establishing processes that could accommodate the receipt and processing of invoices and ensure that payments were meticulously managed, and funds were drawn from the correct accounts. This task was far from ordinary; it required the University to adopt a somewhat atypical business operation tailored to the AlignCare system's unique needs.



Thus, the invoicing process within AlignCare has undergone significant refinement. Initially, PPHE relied on a rudimentary system utilizing Google Sheets and email submissions for invoicing until the *AlignCare Engage* platform was built. This manual process was fraught with issues like duplicate billing, delayed entries, and suboptimal budget tracking. *AlignCare Engage* allowed VSPs to consolidate all financial and visit information into a unified system. This integration facilitated automated invoice generation and dispatch, improving inefficiency and tracking. Yet, as the number of veterinary visits rose sharply, this system began to show strain, with processing

delays leading to delinquent payments and tension with VSPs. The challenges were exacerbated by limited access to necessary accounting reports within the University of Tennessee system.

To address this, PPHE worked closely with the University of Tennessee Accounts Payable Department to refine the invoicing process. A pivotal change was the transition from individual invoice submissions to compiling statements, allowing for the processing of multiple invoices simultaneously, thus streamlining the operation. Further improvements included establishing an invoice reconciliation system to enhance tracking and budget management. The Boyd Center for Economic Development played a role in implementing a rolling average system for more accurate forecasting of expenses and remaining months of service.

Policies were developed to manage funds effectively, using the three-month rolling average:

- Three months of remaining service – New family enrollment is suspended.
- Two months of service remains – Veterinary visits are limited to pets needing monthly prescriptions and ongoing care.
- One month of service remains – All veterinary visits are suspended to ensure payment of outstanding invoices.



A weekly financial report that includes monthly spending, a three-month rolling average of expenses, and a service prediction is provided to PPHE team members. Community partners receive Community Update reports monthly or as needed.



Enhancing the AlignCare Invoicing System

AlignCare Engage brought about a significant change by centralizing data entry and adding the capability to add notes to invoices, categorize invoices as unprocessed, unpaid, or paid, generate monthly statements, and track invoices to specific grants. Even with the added features, manual input still poses a human error risk. Financial miscalculations resulted in payment delays due to the need for invoice corrections. Introducing an auto-calculation feature within *AlignCare Engage*

has considerably curbed these errors. Delayed invoice submissions posed another significant challenge, exemplified by a case where over 100 invoices were submitted at once for services rendered three months prior. This experience led to temporarily suspending services in the affected community to prioritize allocating funds for outstanding invoices.

To streamline the invoicing process, PPHE implemented several strategic changes:

1. **Invoice Submission Guidelines:** Wording in Collaboration Agreements was modified to specify a seven-business-day timeframe for invoice submissions following service provision, creating a more explicit expectation and reducing delays.
2. **Regular Processing Schedule:** PPHE now dedicates specific days of the week for invoice processing, helping VSPs schedule their submissions better.
3. **Proactive Communication:** PPHE began issuing reminders about submission deadlines to VSPs to facilitate timely payments, e.g., a reminder on November 5 for all October invoices to be submitted by November 15.



Moreover, staff turnover at VSPs and AWOs emerged as a recurring issue, with new staff members unfamiliar with the invoicing system. In response, PPHE crafted a training video covering enrollment verification and invoice submission procedures for new personnel. This resource has minimized the need for live training sessions and enabled new staff to train at their own pace.



These improvements have led to a more efficient invoicing process and reduced the time between service provision and invoice submission. AlignCare's ongoing refinements, internal operations, and external communications have significantly enhanced financial workflows.

PPHE and Pelican Engineering are partnering with veterinary software companies to integrate data more seamlessly, which will further simplify the invoice submission process for VSPs and enhance the overall efficiency of service payments.

Advancing Veterinary Social Work within AlignCare

During the pilot phase, PPHE implemented several strategic initiatives to enhance its collaboration with partner organizations and more effectively serve families enrolled in AlignCare:

- Launch of the *AlignCare Engage* App to facilitate more accessible access to AlignCare services.
- The AlignCare website and family enrollment materials were translated into Spanish, expanding service accessibility to a broader community.
- In Los Angeles, California, the team increased its HSCs to five, enhancing the community's capacity to assist families.



The intake process was refined to allow families a choice in answering questions across six vital life domains:

1. Housing
2. Nutritional resources
3. Mental Health Resources
4. Public Assistance
5. Health Care
6. Pet needs (food, collar/leash, carrier/crate, fencing, or pet caregiving)

The responses are designed to provide AlignCare VSWs with additional information on the needs of the enrolled family. Once enrolled, the VSW is alerted if a family indicates one or more areas of need, enabling them to provide the family with relevant resources.



Throughout implementation, the VSW team faced several challenges reflective of broader national issues:



- Resources were stretched thin due to COVID-19, impacting the capacity to support additional families and causing funding priorities to shift towards pandemic recovery efforts.
- Technical challenges with online systems and communication barriers led to an increased reliance on AWOs for family enrollment and support.
- Families encountered other barriers, such as mental and physical health issues and lack of transportation, which VSWs had to navigate.

As the pilot phase concluded across communities, focus shifted towards intensifying support for families. By June 2023, the VSW team had made numerous adjustments to meet the evolving needs of communities and families, solidifying the integral role of VSW in enabling access to veterinary care. The VSWs built a veterinary and social service framework to support veterinary care teams and families needing veterinary care, reflecting the important evolution of VSW as a cornerstone of the AlignCare system. By the end of the pilot phase, AlignCare stood as a testament to the power of empathy, strategic data utilization, and community cooperation in creating an impactful and compassionate One Health veterinary care system.



Reflecting on AlignCare's Pilot Phase Journey



From March 2020 to December 2022, AlignCare's pilot phase unfolded, leaving a lasting mark on 9 US communities. This period saw a dedicated push towards community sustainability, with a temporary pause in some areas as they transitioned to local leadership. Nevertheless, PPHE's engagement with prospective communities continues, ensuring ongoing support for families and pets already in the AlignCare system. Originally, PPHE aimed to reach up to 500 families during the pilot phase, ultimately surpassing its goal through steadfast collaboration and additional funding, serving 993 families. Veterinary care was made possible by the partnership of 26 diverse VSPs, including non-profit and for-profit, united in their commitment to family and pet well-being.

Data collection was an essential practice of AlignCare, offering invaluable insights into pet health trends and family demographics. This information became instrumental for policy enhancement and support customization, addressing the unique needs of each family. VSWs were integral to AlignCare's mission, providing critical emotional support during grief and facilitating communication between families and VSPs. The VSWs also played a crucial role in supporting the VSPs and AWOs by providing essential training on mental health topics. The training included addressing compassion fatigue, teaching effective mediation techniques, promoting active listening, and emphasizing the importance of setting boundaries. Technological innovation played a vital role, with the AlignCare Engage software revolutionizing family and VSP enrollment processes and serving as a comprehensive database for tracking veterinary care details.



Through meticulous analysis, candid feedback, and a commitment to excellence, testing has demonstrated the resilience and adaptability of AlignCare and underscored the indispensable nature of continued innovation in our quest for pet health equity. The adjustments made during this phase significantly enhanced the AlignCare system, notably the invoicing process, the provision of VSW services, and the efficiency of data collection procedures. These refinements were not just incremental improvements but critical in advancing the AlignCare system. Demonstrating the program's ability to evolve and adapt, they addressed the dynamic needs of families and VSPs with increasing precision and responsiveness.



Key Takeaways from the Pilot Phase

The pilot phase of AlignCare was a period of dynamic growth and adaptability, with the system tailoring offerings to meet each community's diverse and distinct needs. While AlignCare's foundational structure is crafted for ease of integration, its real-world application has demonstrated considerable flexibility, manifesting in various ways, such as:

- Customizing eligibility criteria to better align with the specific needs prevalent within local communities.
- Defining service areas with precision to ensure comprehensive coverage that respects the geographic nuances of each community.
- Tailoring coverage details to cater to different locales' unique healthcare requirements and priorities.
- Expanding care categories to further distinguish them into more detailed classifications, i.e., transforming the general 'wellness' category into specialized segments such as spay/neuter, prescription food pickup, and prescription medication pickup.

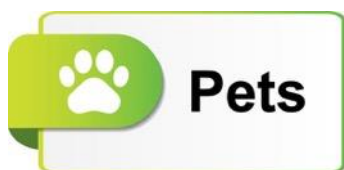


These thoughtful adjustments and programmatic refinements throughout the pilot phase have enhanced the efficacy of AlignCare's system and culminated in invaluable lessons. These insights have subsequently crystallized into practical guidelines that are now instrumental in facilitating the seamless integration of new communities into the AlignCare system.



PIONEERING INSIGHTS: RESEARCH AT THE CORE OF ALIGNCARE

PPHE recognizes the complex and interdependent relationship between the well-being of people and their pets and the overall health of the community and environment. In a concerted effort to reinforce the One Health approach and validate the efficacy of the AlignCare system, targeted research was initiated to gain a comprehensive understanding of the distinct needs across three key interconnected demographics: the pets as non-human family members, the human members of the family, and the VSPs who deliver care. PPHE established a dynamic, mixed-methods program evaluation framework to facilitate informed decision-making and policy development. This framework has been instrumental in collating and analyzing diverse data streams, which include insights from the AlignCare application process, detailed analyses of veterinary service invoices, periodic and structured surveys with enrolled families at critical post-enrollment intervals (3, 6, and 12 months), as well as surveys, in-depth interviews with both families and VSPs and focus groups involving active participants of AlignCare. Through this integrated research approach, services and policies can be continually refined to better serve the involved network of life that defines AlignCare communities.



The research initiative was strategically designed to delve into specific questions about each of the integral components of the AlignCare system:

1. **For the pets:** The research concentrated on grasping the intricacies of the medical conditions being treated and the ensuing costs involved. Such data are indispensable for accurately projecting budgets and planning for future funding necessities.
2. **For the pets' families:** The investigation focused on pinpointing families in urgent need of financial support for their pets' healthcare and gauging the broader impact of veterinary care accessibility on their overall well-being. The critical areas of inquiry encompassed:
 - Gauging the psychological and emotional uplift from receiving veterinary care.
 - Measuring the quality of interactions and respect between families and veterinary care professionals.

- Identifying the specific types of pet-related information that families find most valuable.
 - Exploring avenues for the evolution of the AlignCare program to meet the needs of families more effectively.
3. **For the VSPs:** The aim was to discern the effects of the AlignCare system on the capacity of VSPs to serve families with limited financial resources adequately. PPHE actively sought feedback on necessary enhancements that could streamline operations for VSPs, focusing on ensuring that new program integrations do not impose undue burdens on their practice.



PPHE's objective was to adopt a holistic research methodology to enrich understanding of the interwoven aspects of pet health, human welfare, and the collective well-being of communities. The endeavor is a commitment to perpetual enhancement, ensuring the system evolves in tandem with the diverse and changing needs of every participant in the network.

What PPHE Learned about AlignCare Families

From January 2020 to June 2023, AlignCare enrolled families across nine diverse communities.

Detailed demographic analysis during this timeframe yielded significant insights:

- Most human participants (79.3%) identified as female.
- The average age among these enrollees was 45.8 years.
- Households typically included 2.0 pets.
- Overall, more dogs than cats were enrolled.

These demographic details not only enhance PPHE's understanding of those who utilize AlignCare but also serve as critical data points to refine and customize the system to align with the distinct profiles of its users ([Table 4](#)).



Table 4: Demographic Characteristics of AlignCare Families**Enrollment Statistics: January 2020 through June 2023**

Families enrolled: 1,783

**Enrolled Human Family Member****Gender**Female: 79.3%Male: 20.7%**Age**

Average age: 45.8 years

Race/Ethnicity*

Asian: 1.6%

Black/African American: 12.4%

Hawaiian/Other Pacific Islander: 1.3%

Hispanic: 33.2%

Native American/Alaskan Native: 4.0%

White: 63.8%

Other: 3.2%

**Enrolled Non-Human Family Member**

Cats: 548

Dogs: 1,455

Other: 36**

Average #: 2.0 pets per family

Spay/Neuter Status

Yes: 60.8%

No: 33.1%

Unknown: 6.1%

*Family could select more than one; thus, the total exceeds 100%

** Fowl, rabbit, gecko

Families enrolled in AlignCare also face multifaceted challenges that significantly affect their overall quality of life. It is particularly noteworthy that AlignCare families report a higher incidence of days with compromised physical and mental health compared to other families with pets facing similar financial constraints ([Table 5](#)). This critical insight underscores the complex health-related adversities those within the AlignCare community encounter. It emphasizes the necessity for a holistic support approach that transcends veterinary care, attending to the full spectrum of their physical and emotional well-being.

Table 5: Physical and Mental Health of Low-Income Families with Pets

Families Enrolled: 1,783	AlignCare Families (n=494)	Families with Pets Living Below the Poverty Level (n=372)*
# of days in the past 30 that physical health was not good	9.4	5.5
# of days in the past 30 that mental health was not good	10.5	5.5
# of days physical or mental health prevented normal activities	10.3	7.0

*Data from a national study conducted by PPHE

Despite these challenges, families participating in AlignCare are more likely to report obtaining the crucial social and emotional support they require ([Table 6](#)). This pattern may suggest that the AlignCare system, potentially through its One Health strategy, is successfully meeting more than just the pets' healthcare needs—it also provides emotional support to the pet's family. This holistic support empowers these families to face their challenges with greater efficacy and fortifies their overall resilience and quality of life.

Table 6: Emotional Support Role of Pets in AlignCare Families

How often do you get the social and emotional support that you need?	AlignCare families (n=478)	Pet families living below the poverty level (n=366)
Always	32.4%	29.5%
Usually	27.4%	28.1%
Sometimes	23.8%	21.6%
Rarely	14.0%	12.3%
Never	2.3%	8.5%

AlignCare families receive much of their social and emotional support from their non-human family members.



“AlignCare has allowed me to take care of my pets with veterinary care I couldn’t afford on my own. My cats are a big part of my life and I’d be mentally and emotionally devastated if they died and I could have done something. My cat Alley has been given a couple more years because of AlignCare assisting with her difficult medical conditions.”

– AlignCare Family

The insights derived from the AlignCare system paint a vivid picture of the deep connections between humans and their pets. Evidenced by the Family Bondness Scale outcomes in [Appendix 2](#), it is clear that the bond is more than just affection, it is a significant attachment. The FBS offers a quantitative measure of this bond, with scores ranging from a minimum of 23 to a maximum of 115. Impressively, the median score for families in the 30-day post-enrollment phase stood at an exceptional 112, signaling an intense emotional rapport and a potent bond with their pets.

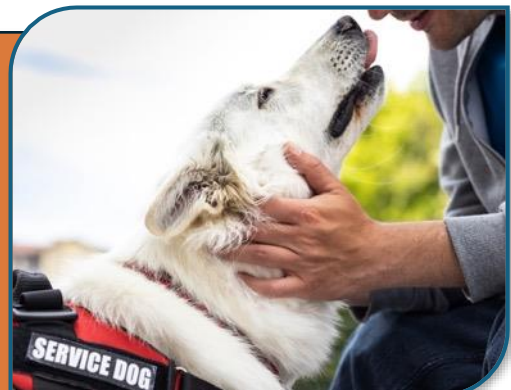
When it comes to veterinary care engagement, the figures since AlignCare’s inception until the midpoint of 2023 are telling:

- The program has served 1,397 families and 2,020 pets.
- Together, they have benefited from 6,978 veterinary visits.
- In terms of financial contributions, AlignCare families have invested a substantial \$348,200.68 in their pets’ healthcare needs.



“By helping my dollars stretch, relieving stress about medical bills and cost. Maggie is everything to me. She is my service dog, she looks after me! Helps keep me going!! It is a gift from God!”

– AlignCare Family

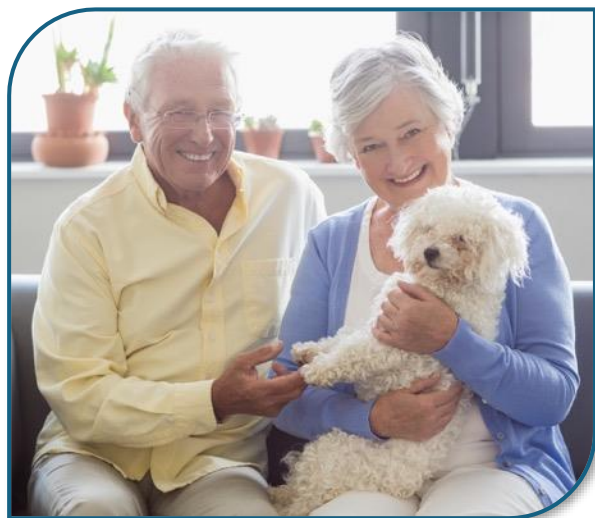


These results underscore the broad reach and significant impact of AlignCare and shine a light on the commitment families have to the welfare of their pets, a commitment they uphold even in the face of financial hurdles.



Veterinary Visit Data Analysis

Over approximately two years, PPHE conducted an in-depth examination of data from visits made by families enrolled in AlignCare, focusing on visit frequency, nature, and associated expenses ([Appendix 6](#)). The analysis encompassed all visits during this period to ascertain prevalent reasons for veterinary consultations, with a subset of data analyzed for cost considerations. The subset consisted of cases where pets had more than four visits, aiming to shed light on the factors necessitating multiple visits for pet care. To maintain data integrity, the cost analysis focused on categories with over 50 visits to avoid distortion from exceptionally high or low-cost outliers ([Table 7](#)).



Preliminary findings revealed that the most frequent motive for veterinary visits among families was for wellness care, encompassing routine check-ups, vaccinations, parasite screenings without infection indication, and visits for dispensing preventive measures. Notably, the prevalence of wellness care visits might be inflated due to instances where pets received such care alongside consultations for minor medical issues, raising questions about whether these visits would have occurred solely for wellness purposes. Following wellness care, common reasons for pet consultations included dermatological issues and musculoskeletal ailments such as arthritis.

Further analysis of the subset data spotlighted three areas necessitating considerable ongoing care: musculoskeletal, dermatological, and gastrointestinal conditions, each accruing over 500 visits throughout the study duration. These categories were also associated with per-visit costs ranging from \$250 to \$300, constituting the most financially burdensome aspects, with cumulative expenses totaling between \$115,000 and \$250,000. These findings underscore the substantial impact of these conditions on families enrolled in AlignCare, emphasizing the imperative for continued support.

Table 7: Reasons for Visit in Cats and Dogs with More Than Four Visits

Reasons for Visit in Cats and Dogs with More Than Four Visits ¹									
Reason for Visit			Subcategory	All Visits		Cat Visits		Dog Visits	
	Total ²	% ³		Total	% ³	Total	% ⁴	Total	% ⁴
Musculoskeletal	581	15.3	Arthritis	272	7.2	8	2.9	264	97.1
			Injury	153	4.0	11	7.2	142	92.8
			Masses	87	2.3	14	16.1	73	83.9
GI	556	14.6	Liver	114	3.0	12	10.5	102	89.5
			Food	95	2.5	43	45.3	52	54.7
			Vomiting	79	2.1	20	25.3	59	74.7
			Diarrhea	79	2.1	9	11.4	70	88.6
			Decreased Appetite	62	1.6	11	17.7	51	82.3
Wellness	555	14.6	Vaccines	186	4.9	28	15.1	158	84.9
			Flea & Tick Prevention	145	3.8	46	31.7	99	68.3
			General Checkup	105	2.8	21	20.0	84	80.0
			Heartworm Prevention	81	2.1	0	0	81	100
Skin	527	13.9	Allergies	234	6.2	7	3.0	227	97.0
			Masses	124	3.3	10	8.1	114	91.9
			Infection	108	2.8	14	13.0	94	87.0

Reasons for Visit in Cats and Dogs with More Than Four Visits¹

Reason for Visit			Subcategory	All Visits		Cat Visits		Dog Visits	
	Total ²	% ³		Total	% ³	Total	% ⁴	Total	% ⁴
Internal Medicine	424	11.2	Thyroid Disease	127	3.3	19	15.0	108	85.0
			Diabetes Mellitus	120	3.1	10	8.3	110	91.7
			Cushing's	66	1.7	0	0	66	100
Cardiorespiratory	393	10.4	Heart	194	5.1	3	1.5	191	98.5
			Heartworm	49	1.3	0	0	49	100
Injury/Illness	210	5.5	Open Wound	66	1.7	24	36.4	42	63.6
Urogenital	202	5.3	UTI	87	2.3	2	2.3	85	97.7
			Urinary Stones	67	1.8	0	0	67	100
Dental	198	5.2	Periodontal Disease & Stomatitis	152	4.0	25	16.4	127	83.6
Ears	151	4.0	Infection	88	2.3	13	14.8	75	85.2
Total	3,797			2,940	77.4	350	11.9	2,590	88.1

¹ Categories greater than 5% above the mean are highlighted. Color intensifies as deviance increases.

² Total number of visits includes subcategories with too few visits for further analysis.

³ Percent of total visits by category or subcategory.

⁴ Percent of subcategory visits by species.

In addition to visit frequency and associated costs, PPHE endeavored to extract insights into incremental care, disease prevention strategies, and the advantages of timely intervention. The heterogeneous nature of AlignCare sites meant that the collected cost data reflected diverse treatment approaches, hindering definitive conclusions on the benefits of incremental care. Nevertheless, instances were identified where diseases could have been largely prevented, if not entirely, including contagious illnesses, injuries, toxin exposures, and conditions that can be prevented through spaying and neutering.

These findings point out the urgent need for financial assistance to families and enhanced community education initiatives. While widespread awareness exists regarding preventive measures like spaying/neutering and the dangers of certain foods, there remains a knowledge gap regarding their rationale and broader implications. This underscores the critical role of programs like AlignCare, not only in providing financial support to families with pets but also in fostering community-wide education to promote optimal pet care practices.

Veterinary Care Utilization

The patterns observed in veterinary service utilization by AlignCare families depict a varied landscape of healthcare needs and visit frequencies. The average number of visits per family is 5, while the median number of visits is 2. These data related to veterinary visits per family implies a balanced demand for veterinary care among the participating households. Breaking down these figures further:

- A majority, or 51.3%, of the families accessed veterinary services minimally, with just 1 to 2 visits. This might suggest either minor health issues in their pets or perhaps proactive and successful health management strategies by the family.
- On the other end of the spectrum, a smaller yet significant 12.1% of families accessed the program more extensively, with over ten visits recorded. These cases represent pets with more complex health concerns, chronic conditions, or acute illnesses that require continuous and detailed veterinary attention.



This variance in service usage illustrates the flexibility and responsiveness of the AlignCare system to accommodate the diverse medical needs of pets across its network of families ([Table 8](#)).



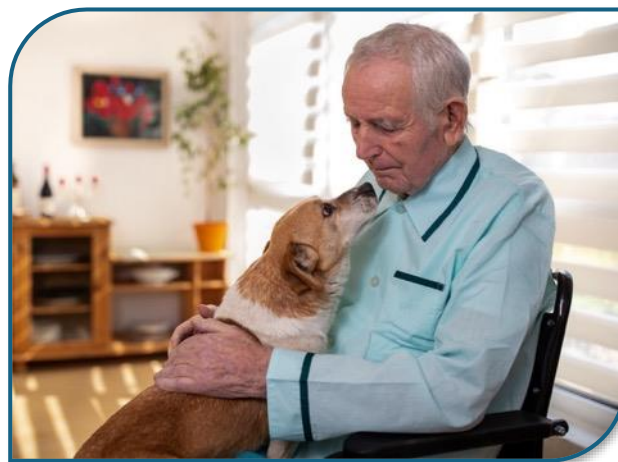
Table 8: Frequency of Veterinary Visits Among AlignCare Families

# of visits	% of families
1-2 visits	51.3%
3-5 visits	22.8%
6-10 visits	13.8%
> 10	12.1%

The data from AlignCare offers a nuanced view of the complexities surrounding veterinary care access for enrolled families. Notably, despite being eligible for veterinary services, 21.9% of families did not take advantage of the available care, suggesting the existence of obstacles beyond just financial limitations.

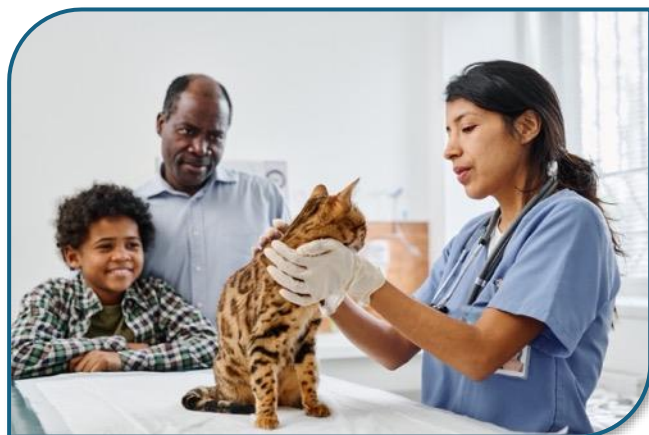
The major impediments identified include:

- **Health constraints:** A significant 28.6% of the families cited their own health issues as a barrier to accessing veterinary services, pointing to the need for an integrated health approach that considers the physical capabilities of the pet's family.
- **Logistical hurdles:** The lack of convenient transportation and difficulty in securing appointments were also reported as substantial barriers, highlighting the necessity for veterinary services that are both geographically accessible and offer flexible scheduling to accommodate various needs.



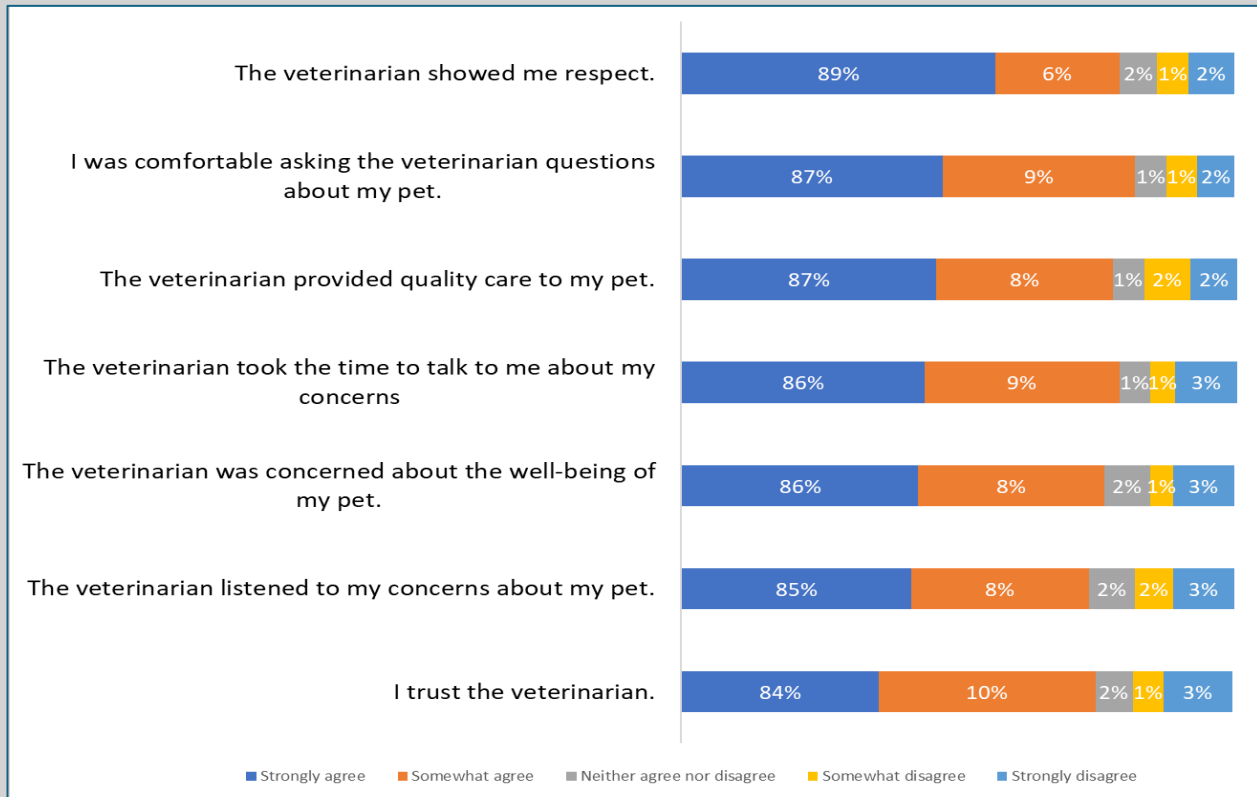
Conversely, the response from families who did receive veterinary care was highly favorable ([Figure 9](#)):

- **Satisfaction:** Families reported high satisfaction levels using AlignCare-affiliated VSPs, reflecting well on service quality.
- **Positive Interactions:** The families reported feeling respected and at ease when communicating with veterinarians, indicating effective communication channels and a nurturing service environment.
- **Strong Advocacy:** An impressive 92.6% of families indicated they would recommend their veterinarian to others, signaling deep trust and endorsement of the care provided.



These insights underscore the importance of holistic strategies tackling financial and non-financial barriers to veterinary care. Additionally, they highlight the crucial role that respectful, communicative, and accessible veterinary services play in ensuring positive outcomes for pets and the overall satisfaction of their human companions.

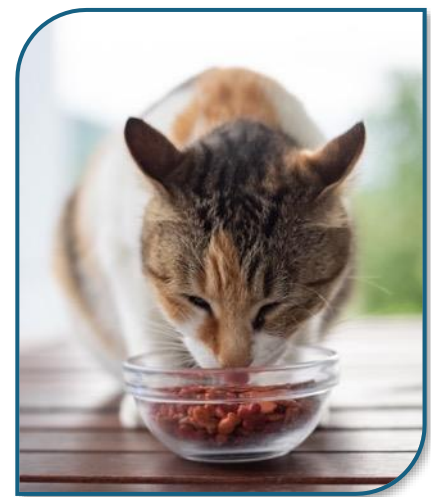
Figure 9: Care from Veterinary Service Providers



PPHE’s all-encompassing strategy within the AlignCare initiative transcends the provision of direct veterinary care. Acknowledging the importance of pet care, PPHE delved into identifying the types and kinds of informational resources that would significantly benefit families.

In the process of conducting six-month follow-up surveys to gauge the experience of families within the AlignCare system, specific inquiries were made about the sort of information families were interested in receiving ([Table 9](#)). The insights gleaned from their responses reveal three principal areas of focus:

1. **Preventative Health:** routine health check-ups, early indicators of health issues, and knowledge regarding consistent health maintenance habits.
2. **Nutritional Guidance:** optimal feeding practices, understanding the specific dietary needs of their pets, and making informed choices about nutrition that bolster their pets’ health and vitality.



3. **Vaccination Protocols:** their appropriate administration timelines, and the significance of vaccinations in disease prevention.

Table 9: Six-Month Survey: Information Desired by AlignCare Families

Types of information desired	(n = 425)
Preventative care	38.4%
Nutrition	31.1%
Recommended vaccinations	29.6%
Behavior training	28.0%
Socialization with other pets or humans	24.2%
Exercise for the pet	20.9%

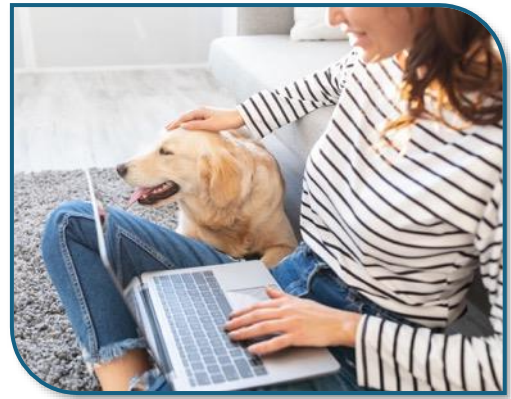
This collective feedback further cements the significance of thorough pet health education within the fabric of AlignCare. Through the provision of this knowledge, AlignCare is positioned to enable families to adopt a proactive and enlightened stance in overseeing the health and overall well-being of their pets, fostering not only improved health outcomes but enriching the human-animal bond in the process.

Feedback from AlignCare families revealed a desire to obtain more information about how to care for their pets, such as geriatric pet care, dental health, and resources for free vaccinations and spay/neuter procedures. In response, PPHE collaborated with Preventive Vet, inaugurating the InfoRX resource to fill the educational void faced by families with pets.



InfoRX emerged as a trusted wellspring of information, offering foundational knowledge on a spectrum of ailments and conditions identified during veterinary consultations. Post-visit, families receive an automated email with a link to Preventive Vet's comprehensive InfoRX library. This initiative ensures that families are furnished with pertinent information in a timely manner, augmenting their grasp of their pets' healthcare challenges.

InfoRX's content is meticulously curated to augment the veterinarian's counsel, thus empowering families to provide more effective home-based pet care. It also primes them for more enlightened, constructive dialogues with their VSPs regarding ongoing and future care strategies. The adoption of this resource by AlignCare families—evidenced by 2,941 interactions with InfoRX—underscores its utility and the profound influence of making educational content readily accessible, which is instrumental in driving pet health outcomes.



In 2023, the *AlignCare Engage* app was enriched with a direct link to Preventive Vet and InfoRX, offering families an even more streamlined channel to valuable health resources for their pets. Complementing these automated educational provisions, AlignCare's VSWs play a pivotal role, offering tailored guidance on crucial pet care facets, including the merits of sterilization procedures, securing pet-friendly living environments, and forging connections with local aid resources. This synthesis of on-demand educational resources and the personalized touch of VSWs encapsulates AlignCare's all-encompassing ethos towards uplifting the health and happiness of all family members.

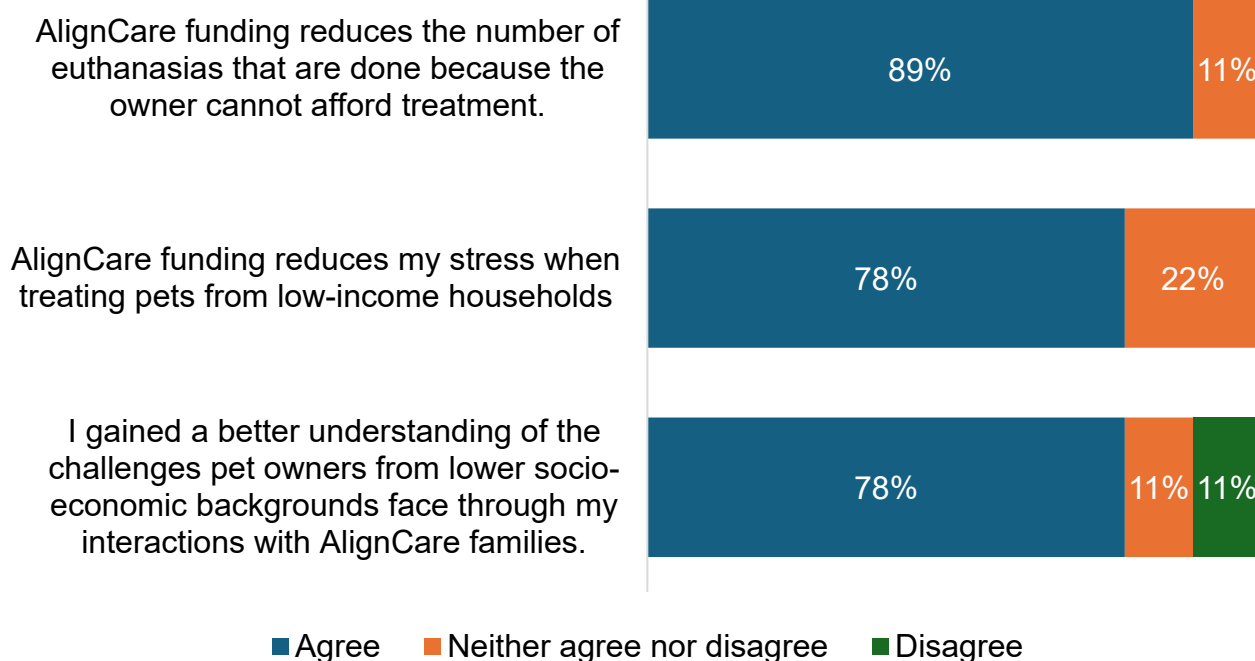
Veterinary Service Provider Feedback: Enhancing Veterinary Practices Through AlignCare Support

PPHE's examination of the VSPs' experiences within the AlignCare system, while encountering a survey response rate lower than expected, has nonetheless revealed crucial perceptions from the participating veterinarians:

- **Mitigation of Economic Euthanasias:** VSPs have reported that AlignCare's fiscal aid has reduced the number of economic euthanasias.
- **Alleviation of Financially Induced Stress:** VSPs have noted a decrease in the stress that typically accompanies financial discussions with clients who cannot afford care ([Figure 10](#)).



Figure 10: Survey: Veterinary Service Providers' Perspectives on Impact of AlignCare



Quotes from AlignCare Veterinary Service Providers

It (AlignCare) has allowed us to provide services to animals of families who are struggling to access care. It has helped to keep families together and their family members from being euthanized or from suffering needlessly."

"AlignCare has allowed us to provide more thorough and complete medical care to patients that otherwise would not have been able to run diagnostics and would have opted to try symptomatic outpatient care."

"The reception team feels less stress and compassion fatigue with AlignCare cases because they do not have to have uncomfortable conversations with owners regarding credit/loan options knowing they are not eligible, or it is not feasible for them; not to mention the euthanasia option that they sometimes have to present."

"AlignCare has had a positive impact on our community and our practice. It has helped clients who otherwise would not be able to afford veterinary care and has helped us extend the resources we have available to help people and pets even further."

These findings and comments shared by VSPs illustrate the extensive reach of the AlignCare system. Not only does it benefit families and their pets, but also the fabric of veterinary practice. By reducing financial factors that often loom over veterinary decisions, the AlignCare system has fostered a more compassionate, less economically strained atmosphere within the veterinary community.

Veterinary Service Provider Perspectives: The Resonating Impact of AlignCare

The reflections from VSPs engaged with AlignCare paint a vivid picture of the system's profound effects. Their shared experiences underscore several pivotal enhancements:

1. **Broadened Care Accessibility:** VSPs have highlighted AlignCare's critical role in expanding healthcare reach, allowing them to deliver necessary treatments to pets of financially constrained families. This expansion has been instrumental in averting needless euthanasia and maintaining the integral bond between pets and their families.
2. **Community and Practice Enrichment:** VSPs reported that support from AlignCare has augmented their capacity to serve a broader segment of the community, thus amplifying their impact.
3. **Comprehensive Veterinary Services:** AlignCare has granted VSPs the latitude to conduct medical interventions, surpassing the limitations previously imposed by economic barriers and ensuring that pets receive a fuller SOC.
4. **Diminished Financial Strains:** The program has alleviated the heavy burden of financial conversations from the shoulders of veterinary staff. The teams can focus on care rather than costs with financial barriers removed.
5. **Empowering Veterinary Solutions:** AlignCare has equipped VSPs with alternative strategies to support families with pets under duress, mitigating frustration and fostering a more conducive and affirmative operational environment. These commendations from VSPs echo the extensive and layered benefits of AlignCare, spotlighting its indispensable role in elevating animal care standards and nurturing the well-being of pet families and the veterinary community. The testimonials reinforce the program's efficacy in sculpting a veterinary care landscape marked by empathy, accessibility, and comprehensive support.



Veterinary Social Work Insights: The Compassionate Pillars of AlignCare



VSWs are critical in the AlignCare One Health system, providing pivotal support across the veterinary care spectrum. For families enrolled in AlignCare, VSWs have proven instrumental, with a notable 39.8% indicating they had interactions with a VSW and a remarkable 95.1% expressing satisfaction with the services received. The value of VSWs extends to VSPs and their teams; 77.8% of VSP respondents recognize that VSWs enhance their capacity to manage demanding scenarios, especially in facilitating challenging discussions with clients and identifying supplementary resources. A case in point is the compassionate intervention of a VSW assisting a vulnerable individual facing financial hardship, showcasing the profound impact of VSWs in mediating sensitive situations. The data underlines the indispensable role of VSWs in nurturing family welfare and strengthening the capabilities of VSPs, thereby raising the quality of care within the AlignCare framework.



VISIONARY HORIZONS: SHAPING THE FUTURE OF ALIGNCARE AND PPHE

Effective April 29, 2023, AlignCare Health Inc. (AHI), a Tennessee public benefit corporation, achieved 501(c)(3) exempt status from the Internal Revenue Service. AlignCare operations will transfer from the University of Tennessee to AHI. During the transitional period, AHI is proactively forging partnerships and collaborations with government entities, corporate sponsors, and philanthropic organizations. These strategic alliances aim to secure financial support and extend AlignCare's reach to additional geographical areas, enhancing access to care in more communities. PPHE and AHI will maintain a working relationship, primarily with PPHE analyzing the data captured by the AlignCare system.



Educational Mission: Expanding Horizons

PPHE is expanding its educational endeavors, which are as diverse as they are dynamic. With a steadfast commitment to spreading knowledge, PPHE is developing a comprehensive array of educational offerings:

1. **Varied Learning Experiences:** PPHE's educational tools will include interactive workshops, informative seminars, engaging presentations, community-focused town hall meetings, accessible online learning modules, and various informational resources. These are designed to resonate with and educate a wide-ranging audience—from veterinary and social work professionals to students, pet families, animal welfare advocates, policymakers, and engaged community members.



2. **Awareness and Advocacy:** Through these educational channels, PPHE is instrumental in enlightening the community about the urgent necessity of veterinary care access. It also highlights the profound significance of the human-animal bond, thus fostering a more informed and compassionate society that recognizes the value of every animal's life.



Building Alliances for Veterinary Excellence

1. **Multidisciplinary Coalition:** PPHE has pioneered the formation of a robust coalition with 28 CVMs across the US and Canada. This alliance leverages the diverse expertise of CVM faculty from specialties including Community Practice, Shelter Medicine, Public Health, One Health, and Small Animal Clinical Sciences.

2. **Educational Advancement for DVM Students:**

With a collective vision, the coalition dedicates itself to elevating the educational experience of veterinary students. It emphasizes service learning and active student participation to deepen understanding of veterinary care access.

3. **Collaborative Efforts in Education:** Facilitated by regular monthly assemblies, the coalition is evolving into a pivotal forum for CVM faculty and staff. Here, they share resources and co-develop curricula to refine and proliferate successful models of veterinary care practices.



Advancing Veterinary Culture and Education

1. **Prioritizing Community Engagement:** The coalition is championing a paradigm shift within veterinary institutions and professional training programs, underscoring the critical role of community involvement. This strategic move aims to integrate community engagement as a core component of veterinary training, recognizing its profound impact on educational outcomes.
2. **Assessing Educational Outcomes:** There is a concerted effort to refine the evaluation of service-learning's effectiveness concerning student performance and overall well-being. By developing more nuanced assessment methods, the coalition seeks to quantify and enhance the tangible benefits of experiential learning environments.
3. **Unified Endeavor:** The widespread engagement of veterinary colleges in tackling the challenges of veterinary care accessibility signals a firm, shared resolve. It marks a collective movement towards embedding these values more deeply within the fabric of veterinary education.



The collaborative endeavors of PPHE, alongside veterinary colleges and the broader veterinary community, are set to usher in a new era of veterinary care delivery and access. This united approach is anticipated to yield considerable improvements in animal welfare and client service, signifying a transformative step forward in veterinary care and education. Such progress

promises to enhance the lives of pets and their families, reflecting a significant leap in the compassionate provision of veterinary services.



Veterinary Students

The PPHE coalition of CVMs is making significant strides in preparing future veterinarians to address the challenges of access to veterinary care. The focus on hands-on, service-learning experiences is vital in sensitizing these aspiring professionals to the realities many families face in obtaining veterinary care for their pets.

Educational Gaps and Efforts:

1. **Bridging Communication and Care Option Gaps:** While veterinary colleges excel in teaching complex procedures, there is a notable gap in training students to effectively communicate a range of care options that consider both efficacy and cost. This gap is particularly evident in serving underserved communities.
2. **Student Aspirations:** Many veterinary students strongly desire to serve communities better. They seek training that will enable them to discuss financial constraints and offer diverse treatment options to families.



3. **PPHE's Role in Education:** To address this educational disparity, PPHE endeavors to facilitate the equipping veterinary students with the skills to provide various management options and navigate detailed conversations about diagnostic, treatment, follow-up, and cost-related issues.

Innovative Educational Concepts:

1. **New Terminologies:** Educators are introducing concepts like “Incremental Veterinary Care” and “Goal Oriented Care.” These terms encourage veterinary students to engage in deeper, solution-focused dialogues with families, balancing quality care with affordability.
2. **Beyond the Gold Standard of Care:** While the “Gold Standard of Care” is often emphasized in veterinary medicine, it is crucial to recognize that such a standard may not be financially feasible for many families. The introduction of alternative care models like the “Spectrum of Care,” “Contextualized Care,” “Incremental Veterinary Care,” and “Goal Oriented Care” enables veterinary professionals to adapt their practices to suit the needs of diverse populations.
3. **Diversity, Equity, and Inclusivity:** Access to veterinary care requires inclusion in services, provided through diverse means, e.g., IVC, to reach socioeconomically diverse families, with health equity the goal.



By embracing these educational and operational shifts, veterinary professionals can demonstrate a holistic commitment to meeting the diverse needs of families with pets. This approach aligns with PPHE's dedication to enhancing access to veterinary care and healthy bonded families, contributing to a more equitable and inclusive veterinary care landscape.

Veterinarians

The emphasis on educating veterinarians is critical to improving veterinary care accessibility. As primary providers of veterinary services, veterinarians play a pivotal role in advocating for and implementing strategies that enhance access to care. Stull et al¹⁸ highlight the importance of pet owners and veterinarians acknowledging the availability of various care options. In this context, resources and continuing education opportunities offered by PPHE are invaluable.



PPHE's Ongoing Initiatives:

1. **Collaboration between VSPs and Social Services:** PPHE encourages partnerships between VSPs and social service agencies. These collaborations will better address the comprehensive needs of families, including aspects beyond pet health, such as housing, food security, and transportation.
2. **Resources from Specialty Practice Veterinarians:** Recognizing AlignCare families' challenges in accessing specialty veterinary services, a network of specialist is in development. These specialists will support VSPs within the AlignCare system by offering consultative services. VSPs can refer complex cases to these specialists through the AlignCare Engage platform, facilitating seamless communication and information exchange.
3. **Development of a History Algorithm with Pelican Engineering:** In partnership with Pelican Engineering and the IVC Team, PPHE is developing an algorithm to streamline veterinary visits. Integrated into AlignCare Engage, this tool will allow families to complete a pre-visit questionnaire about their pets' health history. This pre-appointment access to a patient's history by VSPs will enhance the efficiency of veterinary visits, saving both time and resources.





These initiatives by PPHE are steps towards creating a more inclusive and accessible veterinary care system. By fostering collaborations, utilizing technology, and emphasizing the importance of education and awareness, PPHE is paving the way for a more holistic approach to veterinary care, one that considers the diverse needs of families and their pets.

Social Workers

The education of social workers and mental health providers on access to veterinary care is essential, as it allows them to integrate this knowledge into their practices, thereby offering more comprehensive support to individuals and families. The PPHE VSW team collaborates with Social Service Agencies to deliver training on the human-animal bond and its impact on clients' mental health and well-being. This initiative reflects a growing recognition of the interconnectedness of human and animal health and the role of pets in family dynamics.



Training Outline for Social Services Agencies:

1. **Incorporating the Human-Animal Bond into Practice:** This includes integrating concepts like genograms (family tree diagrams) and treatment plans that acknowledge the significance of pets in family systems.
2. **Support for Animal Care Providers:** Training on how to support professionals involved in animal care, addressing their unique challenges and needs.
3. **Partnership in Access to Veterinary Care:** Educating SSAs on how they can be effective partners in facilitating access to veterinary care and enhancing the support they provide to their clients.



Field Placement Collaborations

PPHE and AlignCare have established partnerships with Colleges of Social Work in some communities where they operate, providing field placement opportunities. These positions are instrumental in fostering the next generation of social workers, offering masters-level social work students a practical environment to develop skills in supporting bonded family units at various levels.

Current collaborations include:

- **University of Tennessee, Knoxville:**
Offering field placements for students to gain hands-on experience in VSW.
- **University of Southern California:**
Providing opportunities for social work students to engage with families and understand the complexities of the human-animal bond.
- **University of Nevada, Las Vegas:**
Facilitating practical learning experiences for social work students in community settings.



These field placements are an integral part of PPHE's strategy to enhance the overall support ecosystem for families, particularly in the context of their relationships with their pets. By training social workers and mental health providers to understand the human-animal bond, PPHE contributes to a more holistic approach to care that recognizes the importance of pets in family and individual well-being.

Animal Welfare Organizations

To enhance the understanding of the human-animal bond and its reciprocal impact on health among animal welfare and social service professionals, members of the PPHE team have been actively participating in relevant conferences. These events serve as platforms for presentation and learning and for facilitating essential discussions with organizations seeking guidance in human needs assessment and developing VSW programs.



Challenges in Animal Welfare Organizations:

1. **Workplace Stressors:** Professionals in animal shelters encounter various stressors, including heavy workloads, physical labor, challenging environmental conditions (like noxious odors and loud noises), strained work relationships, and a lack of social support.
2. **Organizational Factors:** Additional challenges include insufficient training and frequent scheduling changes, contributing to workplace stress.
3. **Compassion Fatigue:** These factors collectively contribute to high rates of compassion fatigue, a significant issue within AWOs.



PPHE's Response and Initiatives:

1. **Addressing Burnout and Compassion Fatigue:** Recognizing the prevalence of burnout and compassion fatigue, PPHE understands the need for more comprehensive and accessible training for all levels of animal welfare professionals.
2. **Conducting a Needs Assessment:** PPHE is conducting a needs assessment aimed at front-line animal welfare professionals to tackle these issues effectively. This assessment will identify existing gaps in training and support.
3. **Gathering Input for Tailored Training:** The needs assessment seeks direct input from these professionals on the types of training they require. This participatory approach ensures that the training developed is closely aligned with their needs and challenges.
4. **Developing Training Modules:** The information collected from the needs assessment will be instrumental in creating targeted training modules. These modules will address the identified gaps and provide relevant, practical support to animal welfare professionals and volunteers.



By taking these steps, PPHE is proactively working to mitigate the challenges animal welfare professionals face. The organization's efforts to develop tailored training and support systems demonstrate a deep commitment to enhancing the well-being of those who dedicate their careers to animal welfare. In turn, this positively impacts the overall quality of care provided to pets and supports the sustainability of the workforce in this sector.



Policy Makers

Educating local commissioners about access to veterinary care is crucial for multiple reasons, each significantly enhancing community well-being. The focus on this education stems from the understanding that informed commissioners can make impactful decisions that benefit both pets and the broader community. Here are the key areas where educating commissioners is vital:

1. **Animal Welfare:** Commissioners with a thorough understanding of the importance of veterinary care can support policies that enhance animal welfare. Ensuring pets receive proper care leads to healthier pets and reduces the likelihood of preventable illnesses and diseases.
2. **Public Health:** Educating commissioners about the public health implications of veterinary care is crucial. Pets often interact closely with humans, and any lapse in their healthcare could pose public health risks, particularly with zoonotic diseases.



Proper veterinary care, including vaccinations and health screenings, protects the pets and the community members they interact with.

3. **Economic Impact:** Informing commissioners about the benefits of helping families access veterinary care can lead to more cost-effective solutions than relying solely on shelters. It helps in understanding the broader financial implications and the potential savings for taxpayers.
4. **Emergency Preparedness:** Commissioners aware of the role of veterinary care in emergency preparedness can ensure more comprehensive crisis management plans. Including veterinary services in these plans ensures that pets' health and well-being are safeguarded during emergencies.
5. **Animal Welfare Organizations:** Educated commissioners can contribute to policies that effectively manage animal populations, emphasizing keeping pets with families, reducing strays, and preventing overpopulation. This approach can alleviate the burden on AWOs, allowing them to focus resources on animals in urgent need.
6. **Community Engagement:** Programs supporting animal welfare and the needs of underserved families foster a more engaged and cohesive community. This engagement can lead to many ideas and solutions for local issues.
7. **Donors:** Raising awareness among donors about the challenges in accessing veterinary care can lead to more empathy and financial support. Educated donors are more likely to support sustainable solutions and advocate for policy changes that improve accessibility to veterinary care.



By focusing on these areas, local commissioners can play a pivotal role in creating humane, cost-effective, and community-oriented solutions that support underserved families and their pets, leading to healthier communities overall.



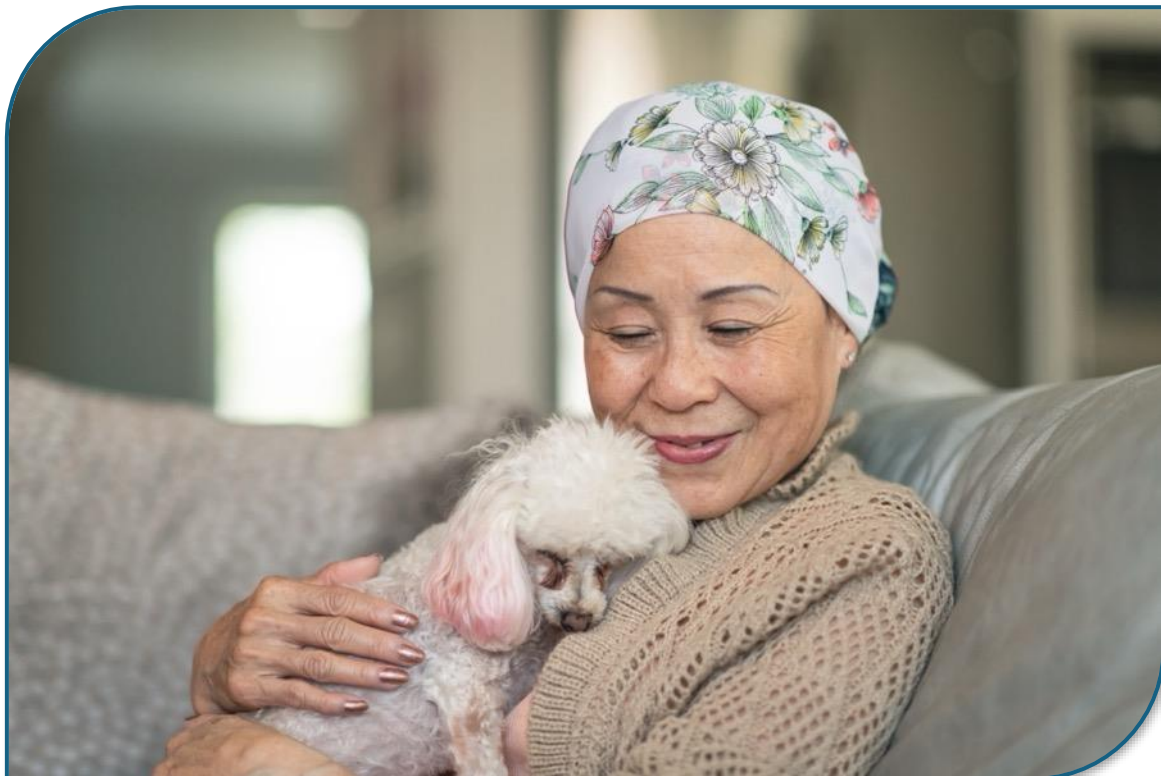
Empowering Communities: The Heart of AlignCare's Model

Moving forward, the next steps involve establishing community ownership. This represents a significant shift toward empowering communities, marking a pivotal moment in PPHE's approach to collaboration and local engagement. This approach champions using local resources to support families with pets, building a collaborative spirit to overcome obstacles to veterinary care access. The initiative's ambition was clear: to weave a supportive network within the community, connecting families in need to essential veterinary services and securing the health of pets and their families alike. Creating community councils is a critical step toward the longevity and self-sufficiency of AlignCare through community ownership. Councils foster an infrastructure that the community not only utilizes but also actively guides.



AlignCare Los Angeles was the first demonstration community to implement the AlignCare system utilizing community ownership, enrolling their first families in 2022. As of June 2023, 467 families had 1,412 AlignCare visits for their pets from numerous zip codes across the city with AlignCare veterinary service providers. The experience in Los Angeles has been invaluable in helping us understand the steps most communities will need to take to implement AlignCare as a viable option for their families. PPHE continues to collect data and feedback from community partners to refine the model.

Experience shows that the Director of Community Engagement (DCE) role is essential. These community advocates are the cornerstone for building the infrastructure for AlignCare to thrive locally. PPHE remains steadfast in supporting these roles, securing initial funding for DCE positions in Reno and Las Vegas, Nevada, and Knoxville, Tennessee, and continues to seek additional support for additional communities. As more communities consider adopting AlignCare, prioritizing funding for a DCE is recognized as a crucial step. It is the groundwork upon which the community can start to steer AlignCare toward sustainable, locally driven veterinary care access, ensuring that decisions about funding utilization and service eligibility are made by those who know their community best.



CONCLUSION

As we draw the chapters of this report to a close, the AlignCare initiative stands as a testament to innovative solutions in the pursuit of One Health, eloquently addressing socioeconomic barriers to veterinary care. This system, now poised for broader implementation, exemplifies PPHE's unwavering dedication to a future where every pet's health is not a privilege, but a given right, driving systemic change toward true pet health equity.



The journey of AlignCare and PPHE is far from complete. Our road ahead is paved with opportunities to dissect further the intricate ties between socioeconomic status and veterinary care accessibility. It demands a robust interdisciplinary research agenda to assess the efficacy and scalability of interventions designed to bridge these gaps. Future investigations will delve into pets' multifaceted roles in our lives—particularly their impact on the physical, psychological, and communal well-being of individuals in underserved communities.

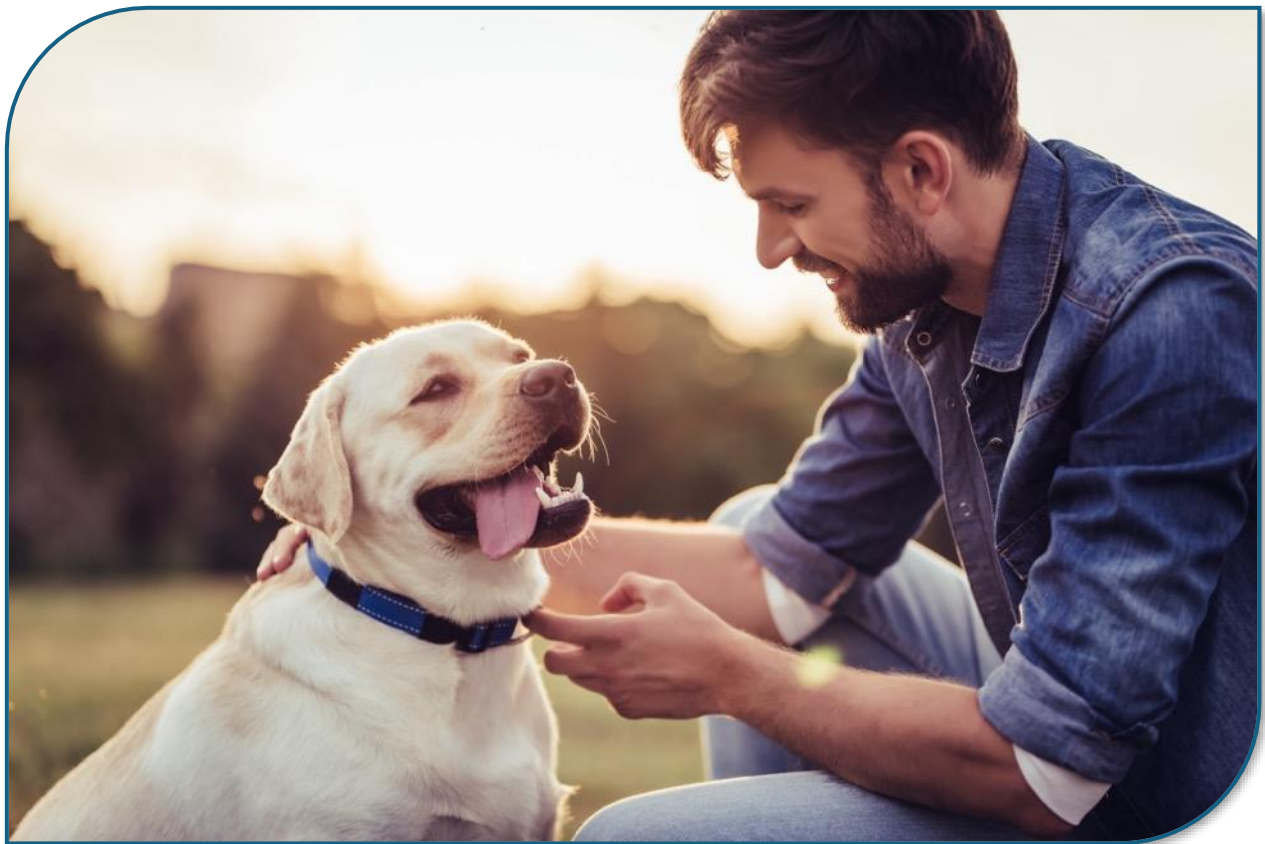
These explorations will shape policies that not only open doors to veterinary care but also fortify the health equity of entire families.

Policymakers are called upon to acknowledge the critical role of pet health within public health frameworks and to enact legislation that facilitates veterinary care access for low-income families. This change is essential for nurturing the human-animal bond that profoundly affects our societal fabric.



The clarion call now goes out to all stakeholders: unite behind a One Health approach that enshrines pets' well-being as central to community health. We urge a collective advancement in access, knowledge-sharing about responsible pet care, and robust advocacy for policies that honor the significance of pets across all socioeconomic boundaries.

In all, AlignCare transcends its contributions to veterinary medicine by standing as a beacon for bonded family health equity. It vividly illustrates how strategies, when imbued with compassion, ingenuity, and a commitment to fairness, can elevate the quality of life for pets and their families. With communal strength and resolve, the AlignCare system is poised to revolutionize veterinary care, championing the noble principle that every pet deserves the highest standard of care. Together, we can and must make this vision a reality.



REFERENCES

- [1] US Department of Health and Human Services. Social Determinants of Health. Healthy People 2030. <https://health.gov/healthypeople/priority-areas/social-determinants-health>. Published 2020. Accessed February 1, 2024.
- [2] Penchansky, Roy D.B.A.*; Thomas, J William Ph.D†. The Concept of Access: Definition and Relationship to Consumer Satisfaction. *Medical Care* 19(2):p 127-140, February 1981.
- [3] Wiltzius A, Blackwell MJ, Krebsbach SB, et al. Access to Veterinary Care: Barriers, Current Practices, and Public Policy. TRACE: Tennessee Research and Creative Exchange. https://trace.tennessee.edu/utk_smalpubs/17. Published December 17, 2018. Accessed August 28, 2023.
- [4] Jameton A. What Moral Distress in Nursing History Could Suggest about the Future of Health Care. *AMA J Ethics*. 2017;19(6):617-628. Published June 1, 2017. Accessed October 11, 2023. doi:[10.1001/journalofethics.2017.19.6.mhst1-1706](https://doi.org/10.1001/journalofethics.2017.19.6.mhst1-1706)
- [5] Wein H, ed. The Power of Pets. News in Health. Available at: <https://newsinhealth.nih.gov/2018/02/power-pets>. Published March 6, 2018. Accessed October 5, 2023.
- [6] North American Pet Health Insurance Association (NAPHIA). North American Pet Health Insurance Industry Continued Exceptional Growth Rate In 2023. NAPHIA. <https://naphia.org/news/soi-report-2024>. Published April 10, 2024. Accessed April 16, 2024.
- [7] Megna M. Pet Ownership Statistics and Facts in 2023. Forbes. Available at: <https://www.forbes.com/advisor/pet-insurance/pet-ownership-statistics/>. Published April 10, 2023. Accessed October 2, 2023.
- [8] Parker K, Menasce Horowitz J, Brown A. About Half of Lower-Income Americans Report Household Job or Wage Loss Due to COVID-19. Pew Research Center's Social & Demographic Trends Project. Available at: <https://www.pewresearch.org/social-trends/2020/04/21/about-half-of-lower-income-americans-report-household-job-or-wage-loss-due-to-covid-19/>. Published April 21, 2020. Accessed August 17, 2023.
- [9] US Bureau of Labor Statistics. The Employment Situation - March 2022. US Bureau of Labor Statistics. <https://www.bls.gov/news.release/pdf/empst.pdf>. Published 2023. Accessed October 11, 2023.

- [10] FDIC. How America Banks: Household Use of Banking and Financial Services, 2019 FDIC Survey. FDIC. Available at: <https://www.fdic.gov/analysis/household-survey/index.html>. Published 2021. Accessed October 11, 2023.
- [11] Pew Research Center. About half of U.S. pet owners say their pets are as much a part of their family as a human member. [pewresearch.org](https://www.pewresearch.org/short-reads/2023/07/07/about-half-us-of-pet-owners-say-their-pets-are-as-much-a-part-of-their-family-as-a-human-member/?utm_content=buffer199ef&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer-pew). Available at: https://www.pewresearch.org/short-reads/2023/07/07/about-half-us-of-pet-owners-say-their-pets-are-as-much-a-part-of-their-family-as-a-human-member/?utm_content=buffer199ef&utm_medium=social&utm_source=linkedin.com&utm_campaign=buffer-pew. Published July 7, 2023. Accessed March 25, 2024.
- [12] Blackwell MJ, O'Reilly A. Access to Veterinary Care—A National Family Crisis and Case for One Health. *Advances in Small Animal Care*. 2023;4(1):145-157. Published June 23, 2023. doi:[10.1016/j.yasa.2023.05.003](https://doi.org/10.1016/j.yasa.2023.05.003)
- [13] American Veterinary Medical Association. Principles of veterinary medical ethics of the AVMA. AVMA. Available at: <https://www.avma.org/resources-tools/avma-policies/principles-veterinary-medical-ethics-avma>. Published 2019. Accessed December 14, 2023.
- [14] Barroso CS, Brown KC, Laubach D, Souza M, Daugherty LM, Dixon M. Cat and/or Dog Ownership, Cardiovascular Disease, and Obesity: A Systematic Review. *Vet Sci*. 2021;8(12):333. Published December 17, 2021. doi:[10.3390/vetsci8120333](https://doi.org/10.3390/vetsci8120333)
- [15] Scoresby KJ, Strand EB, Ng Z, et al. Pet Ownership and Quality of Life: A Systematic Review of the Literature. *Vet Sci*. 2021;8(12):332. Published December 16, 2021. doi:[10.3390/vetsci8120332](https://doi.org/10.3390/vetsci8120332)
- [16] Top 10 Reasons Pets Visit Vets. Nationwide Pet Insurance. <https://www.petinsurance.com/healthzone/pet-health/health-conditions/top-10-reasons-pets-visit-vets/>. Published March 9, 2020. Accessed April 1, 2024.
- [17] American Animal Hospital Association. *The veterinary fee reference: Vital statistics for your veterinary practice*. 11th ed. AAHA Press; 2021.
- [18] Stull JW, Shelby JA, Bonnett BN, et al. Barriers and next steps to providing a spectrum of effective health care to companion animals. *Journal of the American Veterinary Medical Association*. Published December 1, 2018. 2018;253(11):1386-1389. doi:[10.2460/javma.253.11.1386](https://doi.org/10.2460/javma.253.11.1386)

APPENDIX 1.

ALIGNCARE INCREMENTAL CARE GUIDE



Incremental Veterinary Care Guide

(version 1.0)

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<https://pphe.utk.edu/aligncare/> ppheweb@utk.edu



**Maddie's
Fund**

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ABOUT THE PROGRAM FOR PET HEALTH EQUITY

The Program for Pet Health Equity (PPHE) exists to improve access to veterinary care for pets and their families not adequately served by the current system. We promote and facilitate collaborations and public policy development, to remove barriers to veterinary care. Our activities include education, community service, and social and public health research. The PPHE developed AlignCare, the first One Health healthcare system to improve access to veterinary care by addressing the needs of people, their pets, and their ecosystem, largely defined by socioeconomics. We connect bonded families with Veterinary Service Providers and help develop human support networks based on principles of Veterinary Social Work, while leveraging community resources and activities.

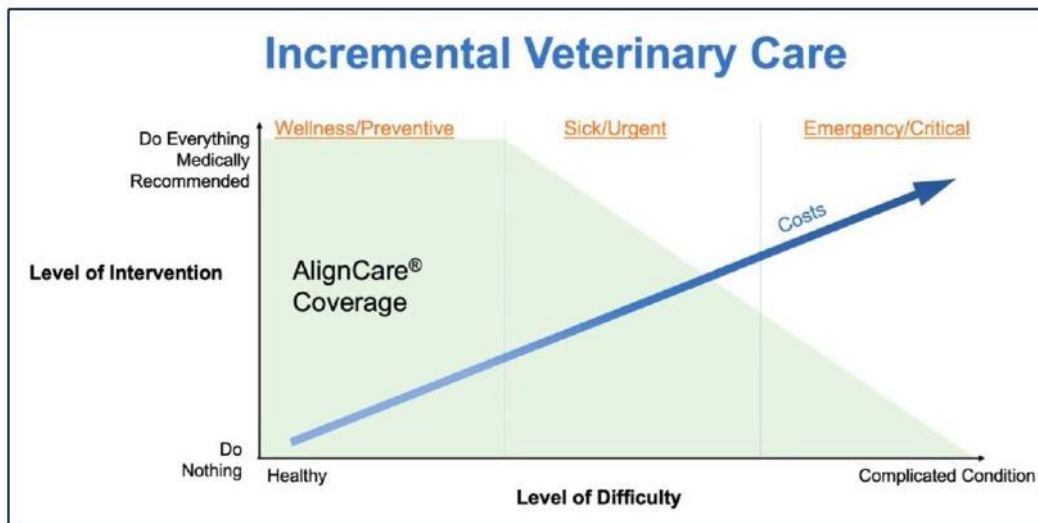


#ThanksToMaddie

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Providing Clinical Care through Incremental Case Management



Introduction

The purpose of this guideline is to assist the veterinary care team in utilizing incremental veterinary care as a case management strategy. While primarily intended for AlignCare Veterinary Service Providers, it is a good strategy for most veterinarians in managing their patients.

Incremental veterinary care controls the cost of care while achieving positive health outcomes for the patient. It facilitates the veterinarian-client-patient relationship and evidence-based veterinary medicine.

The AlignCare project identifies broad parameters for incremental veterinary care. A database of case management decisions and results will help to characterize evidence-based veterinary medicine and establish incremental veterinary care as a legitimate case management strategy. Information to be collected includes signalment, history, physical exam, provisional diagnosis, prognosis, case management decisions, and outcomes.

Definition of Incremental Veterinary Care

Incremental veterinary care is patient-centered, experience-based medicine, focused on a problem-solving approach to achieve the best possible outcomes for the family, safeguarding the human-animal bond in the context of limited resources. Experience-based medicine manages patient needs based on the practitioner's experience and judgment relative to various

clinical presentations. The veterinarian informs the client about the most pressing issues and guides them in allocating their money towards what is most helpful for the pet.

Incremental veterinary care is a patient management strategy that utilizes the intuitive judgment of the veterinarian to develop a tiered therapeutic and dynamic diagnostic approach. Non-critical procedures are avoided to help control costs. It is a combination of the clinical judgment of the veterinarian, active follow-up of case progression, and, when appropriate, in-home care that can be provided by the client. Incremental veterinary care is weighted towards prevention and early diagnosis and intervention.

Incremental veterinary care is a viable alternative to being unable to help the patient. In those situations where gold standard care is not possible because of financial constraints, it provides an option, consequently safeguarding the integrity of the human-animal bond.

In the past, terms commonly used to describe this medical approach have been “empirical medicine” and “intuitive medicine.”

Incremental Veterinary Care Case Management Approach

Although it is difficult to address every type of case seen, the majority of clinical case presentations can benefit from an incremental veterinary care case management approach. Since the veterinary practitioner's clinical judgment is primary to the success of this type of care, clinical experience, and exposure to a broad-ranging caseload is helpful.

Incremental veterinary care maximizes the veterinarian's judgment based on experience. Emphasis is placed on the pet's primary caregiver and veterinary team to closely monitor the clinical response of the patient, requiring a commitment of timely and accurate ongoing communication between the two.

The pet's primary caregiver is the person who actively participates in the medical care of the pet and is committed to collaborating and coordinating with the veterinary team. The capability of the primary caregiver to communicate with the veterinary team, as well as carrying out recommendations, need to be considered when developing a treatment plan. These two factors are prognostic indicators.

Key features of incremental veterinary care include:

- practical-minded approach by the attending veterinarian;
- medical team involvement with clear communications;
- appropriate facilities and available equipment;
- trained and motivated support staff;
- client communication;
- client acceptance and compliance; and
- use of technology options (e.g., telemedicine) to help control costs.

The above features are important for any veterinary practice, but particularly so when diagnostic backup is minimized and veterinary judgement based on experience is maximized, as is the case with incremental veterinary care as an approach to case management.

Although veterinarians may choose different parameters when helping a client with significant financial limitations, the following questions are suggested to be used for objective patient evaluation:

1. Do I have the skills/resources/equipment to adequately and humanely treat and manage the case?
2. Is the diagnostic testing or procedure going to change the prognosis or treatment plan?
3. Is there a good prognosis? Is it treatable? Is it manageable? Are there multiple problems?
4. If it isn't treatable or manageable, is there a simple palliative option that can extend and provide good quality of life?
5. Is the problem an ongoing or chronic condition?
6. Can the owners afford follow-up care or management?
7. Can the owners provide for overnight monitoring at an emergency Veterinary Service Provider, if it is necessary?
8. Is the patient in critical condition?
9. Would significant amounts of money make a difference in a positive outcome?

```
graph TD
    A[Case Presents] --> B{Do I have skills/resources/equipment to adequately and humanly treat and manage this case?}
    B -- YES --> C{Is there a good prognosis? Is the animal treatable/manageable? (with or without multiple problems)}
    B -- NO --> D[Referral Euthanasia]
    C -- YES --> E{Is the problem(s) ongoing/chronic?}
    C -- NO --> F{Is there a simple palliative option that can extend and provide good QOL?}
    E -- YES --> G{Can the owner afford care or follow-up management?}
    E -- NO --> G
    G -- YES --> H[ ]
    G -- NO --> F
    F -- YES --> H
    F -- NO --> I{Can the owner provide overnight monitoring at an emergency clinic?}
    I -- YES --> F
    I -- NO --> D
    H --> D
```

The flowchart outlines the decision-making process for a case presentation. It begins with 'Case Presents', leading to a decision on whether the practitioner has the skills, resources, and equipment to adequately and humanly treat and manage the case. If 'NO', the outcome is 'Referral Euthanasia'. If 'YES', the next step is to assess if there is a good prognosis and if the animal is treatable/manageable. If 'NO', it leads to 'Referral Euthanasia'. If 'YES', the practitioner must decide if the problem(s) is ongoing/chronic. If 'YES', they must assess if the owner can afford care or follow-up management. If 'NO', they must assess if the owner can provide overnight monitoring at an emergency clinic. If 'YES' to either of these, the outcome is 'Referral Euthanasia'. If 'NO' to both, the next step is to assess if there is a simple palliative option that can extend and provide good QOL. If 'YES', the outcome is 'Referral Euthanasia'. If 'NO', the outcome is 'Referral Euthanasia'.

1. Another veterinarian
2. An animal rescue organization
3. Hospice

Example of Incremental Veterinary Care Case Management

Case: Whitey

Signalment: 5 YO MN Samoyed mix

CC: Excessive scratching, squinting of right eye. Client has limited funds.

PE: Flea dirt on integument, squinting and tearing OD with a 1 cm linear corneal erosion.

A: Fleas with pruritis, corneal erosion OD P:

1. Fast-acting flea treatment
2. Photograph corneal lesion OD
3. Rx ophthalmic antibiotic ointment
4. Follow-up with client in 2 days

Discussion:

The veterinarian felt that she needed to first address the fleas with a fast-acting flea treatment to relieve the scratching and prevent further injury to Whitey's eyes. To address the suspected corneal abrasion or ulcer, she felt she could confidently treat this condition with an ophthalmic antibiotic ointment without confirming the diagnosis with a fluorescein stain test (which would add to the costs).

The veterinarian stressed to the client that the condition of Whitey's right eye can sometimes continue or worsen. She also let the client know that if this were to happen it could result in permanent loss of vision, therefore follow up was critical. The client committed to taking a picture of Whitey's right eye in two days with his cell phone and send it to the veterinary clinic, along with written report on Whitey's progress. This picture will be compared to the one taken when Whitey was first presented. If healing was not progressing normally, or if a complication develops, the client would bring Whitey back to the clinic for additional diagnostics and treatment.

AlignCare Patient Medical Record: Components and Considerations

A medical record containing the AlignCare client's personal identifier information (e.g., name, address, telephone, etc.) and the patient's medical history and clinical findings is required. The medical record should include:

1. History and signalment
 - a. A thorough history is especially critical when using an incremental veterinary care case management strategy.
 - b. Refer to Appendix 2 for an example of history questions to be asked.
2. Physical exam
 - a. Note all abnormalities.

- i. What abnormalities are related to one another?
 - ii. What requires the most immediate attention?
 - b. A thorough physical exam is especially critical when using an incremental veterinary care case management strategy. This includes using all of the veterinary practitioner's senses.
- 3. Differential diagnosis
- 4. Provisional diagnosis
 - a. This is the working diagnosis established after initially seeing and evaluating a patient.
 - i. The veterinarian may not be completely sure of what's going on but has a reasonably solid idea.
 - ii. The diagnosis may be revised with time and more information.
 - b. Consider if a diagnostic test or procedure being considered will change the planned course of action and/or treatment strategy.
 - c. Consider whether or not a planned course of action could be harmful without a further diagnostic testing.
- 5. Treatment
 - a. Considerations
 - i. Comfort for the pet (primary), like pain control
 - ii. Skill level of the attending veterinarian
 - iii. Owner's desires
 - iv. Prognosis
 - v. Resources of the owner:
 - 1. Cost considerations
 - a. Include recommended rechecks, ongoing medication needs, etc.
 - b. Financial contribution on behalf of the veterinary practice.
 - 2. Capability
 - 3. Time
 - 4. Transportation
- 6. Follow up and client communication.
 - a. Managing the case incrementally requires frequent communication with the client and reevaluations, either through telemedicine or clinical exam, ideally by the original attending veterinarian.
 - b. Client communication is key.
 - c. Setting realistic expectations.
 - d. Client support to promote compliance, even for basic recommendations.
 - e. Language/Cultural barriers may need to be addressed.
 - i. This may be a prognostic indicator.

Information about AlignCare families, pets, case assessment and management (e.g., diagnostics, treatments, prices, etc.), and outcomes will be collected electronically by the AlignCare Information System through integration with the practice management information system of enrolled Veterinary Service Providers. Until the information system is operational, the use of email and other forms of communicating is necessary. The compilation of case data will inform and broaden the understanding of and validate the efficacy/appropriateness of incremental veterinary care as an approach to veterinary medical case management.

Potential Liabilities

There are potential liabilities when practicing incremental veterinary care as a case management strategy. State licensing boards and professional liability insurance companies may not accept incremental veterinary care as appropriate medical care. However, when there are financial constraints, a veterinarian is expected to take reasonable steps to help the patient, given the financial limitations of the client. In addition, as with any case management strategy, there is always the possibility of client dissatisfaction with outcomes. Mitigating client dissatisfaction can occur by creating and guiding reasonable client expectations, including the use of signed informed consent forms to document the communication, and including the Human Support Coordinator to help resolve conflicts.

Informed Consent

Informed consent helps to protect the public and Veterinary Service Providers by ensuring that sufficient information is communicated, enabling families to reach appropriate decisions regarding the care of their animals. The American Veterinary Medical Association (AVMA) recommends that veterinarians, to the best of their ability, inform the client or authorized agent, in a manner that would be understood by a reasonable person, of the diagnostic and treatment options, risk assessment, and prognosis. The client or authorized agent should receive an estimate of the charges before providing veterinary services, and the client or authorized agent should indicate that the information is understood and consent to the recommended treatment or procedure. In addition, the AVMA recommends that there is documentation of verbal or written informed consent and the client's understanding.

There are two types of consent forms that are recommended to be used with AlignCare families, when appropriate:

- AlignCare Surgery-Procedure Consent Form
- AlignCare Euthanasia Consent Form

Animal Cruelty, Abuse, and Neglect

Suspected animal cruelty, abuse, or neglect should be reported to appropriate state agencies. Many states have mandatory reporting of animal cruelty, abuse, and neglect by the veterinarian.

Examples of Incremental Veterinary Care Case Management

In this section, five (5) case examples of Incremental Veterinary Care Case Management are presented.

Case 1: Pappy

Signalment: 6-week-old MI Labrador retriever mix

CC: Lethargic, bloody diarrhea. Adopted from an animal welfare organization 2 days ago. Client has limited funds.

PE: T = 102.5F, pink but pasty gums, mild cough, flea dirt, no palpable obstructions, normal sclera.

A: Differential diagnosis:

1. Fleas
2. Intestinal parasitism
3. Canine parvovirus
4. Dietary indiscretion
5. Canine coronavirus
6. Canine distemper virus
7. Kennel cough

P: 1. Fecal = Hookworms

2. Subcutaneous fluids
3. Dewormer that treats hookworms
4. Bland diet
5. Antibiotics
6. Flea treatment
7. Follow-up with client the next day

Discussion:

The veterinarian recommended a Parvo test in addition to the fecal exam, but the client was unable to afford this test in addition to treatment. This case represents a common postadoption situation in small animal practice. Management of both the animal and the anxious/about to be angry at the animal welfare organization pet owner takes some skill and confidence on many levels by the practitioner.

Pappy can have a number of conditions contributing to the presentation described above. Canine parvovirus has to be high on one's differential list due to the severity of the disease, zero preventive care, and diminished immune status given the circumstances. Definitive diagnosis of parvovirus via in-house testing has been ruled out by the economics of the owner. Parvo tests are certainly not infallible but add a nice collaborative piece of data.

Armed with an understanding of the big picture of what this puppy has been through in the last 72 + hours can provide the caregiver with an immediate action plan therapeutically, as outlined in the "Plan" section above. Of these, the most important is a recheck within 24 hours.

Rechecks are key to incremental care case management scenarios. The treatment plan is dynamic, changing with response to therapy.

Communications with the client should/must include: discussion of response to therapy as a key to potential prognosis, the absolute necessity of recheck exam, and some attempt to explain the difficult job of animal welfare organizations.

Many clinicians routinely begin the classic CSU outpatient parvo protocol to such cases. This case requires additional therapy such as flea control and the concern for respiratory issues as likely co-contributors to the animal's malaise.

After 24 hours, Pappy's response to therapy will go a long way at helping the clinician make a more focused diagnosis as to primary and secondary etiologies, as well as (of course) prognosis and the next steps in case management. This case is a perfect example of "increments" in clinical case management.

By managing the client's angst, fear, and emotions, the clinician truly provides care in a three-dimensional manner. The animal is put on a therapeutic regimen, the client is informed and brought into a state of realism, and the animal welfare organization is not vilified as the cause of the problem. These are all positive outcomes of the skill in such a caregiver.

Case 2: Fisher

Signalment: 2 YO FS coonhound/boxer mix

CC: Fisher is clinically normal but the client reports that she swallowed a fishhook 2 hours ago. Owner reports the dog is very fond of sardines. Owner was baiting the hook with minnows when Fisher grabbed the bait. Client has limited funds. Note: It is eleven thirty in the morning and the client has alcohol on his breath.

PE: No abnormalities

A: Dietary indiscretion (fishhook) leading to gastric foreign body

P: 1. Abdominal radiographs = Radiopaque fishhook located in the caudal stomach

2. Feed small pieces of white bread mixed with rice and ground beef

3. Monitor feces for the fishhook

4. If fish hook not passed in 2-3 days, radiographic follow-up could be helpful

Discussion:

The veterinarian reviewed the following options for gastric foreign bodies with the client:

1. Referral for endoscopy and foreign body retrieval
2. Immediate gastrotomy/abdominal exploratory
3. Apomorphine to induce vomiting
4. Facilitated foreign body passage with indigestible material that coats the foreign body, allowing it to be passed.

Due to financial limitations of the owner, endoscopy is out of the question financially. An exploratory is an option if the veterinary clinic offers a payment plan to the owner. Locating a small hook within a stomach full of ingesta can be a challenge.

Induced vomiting was not recommended because of the danger of imbedding the hook or perforating the esophagus from the sharp object (fishhook). The esophagus is not to be fooled with. Surgical approach is a bit complex and the esophagus's capacity to heal is always a

nightmare. Removing a fishhook that has imbedded and perforated an intestinal loop is dream compared to esophageal puncture. Choose the lesser of two potential evils.

Therefore, the facilitated passage technique was chosen. By doing this, the clinician can take advantage of the animal's normal biological mechanics to pass the foreign body. The danger with this technique is that the time dynamic requires a clinical availability component. The owner must seek immediate clinical reevaluation if the dog starts showing any symptoms relative to blockage or GI distress signaling potential perforation (i.e., vomiting, anorexia abdominal distress, rectal straining).

Most foreign bodies are passed within 72 hours by this technique. Serial radiographs can be done to observe the passage of the foreign body, which can be helpful for the peace of mind of both clinician and owner. On occasion, the foreign body can get hung up in the rectal area and be removed safely by dilation and extraction under anesthesia. This is a lot cheaper and safer than an exploratory.

Again, this case exemplifies the dynamic and efficiency of incremental care case management, stressing the time dynamic and clinician's skillset in managing a fluid set of potentially pathological scenarios over time.

Case 3: Nelly

Signalment: 14 YO FS Pit Bull

CC: Nelly was brought in because the client (a mother and son) was concerned about nine dermal masses, one was ulcerated. Client had been saving their money to have them removed. They were very attached to Nelly because she was the dog of her other son who had passed away.

PE: Nelly is an elderly dog but robust for her age. 8 of the 9 masses were fatty in consistency. The ulcerated mass was 2 cm in diameter. Grade IV/VI heart murmur but no signs of heart failure. Odor from the dog's mouth. Upon inspection of the mouth, there was purulent material along the gum line, root exposure, gingival recession, and broken teeth.

A: Primary problem was dental disease

Ulcerated mass

Suspect multiple lipomas

P: 1. Dental with multiple teeth extractions

2. Mass removal of ulcerated mass with histopathology

3. Antibiotics.

4. Pain medication

Discussion: Veterinarian explained that the smell from Nelly's mouth was due to the dental disease and consequential infection, is a very painful condition, and could contribute to heart disease. A discussion ensued that the money allocated towards Nelly's care would be more beneficial to

use to address her dental disease rather than address some masses that frightened the owner but were actually not detrimental to Nelly (other than the ulcerated mass, which was suspected

to be a mast cell tumor). Due to a lack of finances, no preanesthetic bloodwork was done because it would not likely change the course of action. After the procedure, the families were really pleased and reported that Nelly was happier, her eating was improved, and she had a better quality of life. They explicitly said that they felt that the veterinarian had really helped Nelly and were so thankful.

Case 4: Alexa

Signalment: 1 YO FI Pit Bull

CC: Vomiting one week ago but has not vomited for 3 days. previously diagnosed with a foreign body at another clinic 5 days ago. Surgery was recommended but not performed due to client's inability to pay projected estimate upfront. Currently experiencing anorexia and lethargy. Client has limited funds and also does not speak English.

PE: T = 102.5F, moderately dehydrated, slight discomfort upon abdominal palpation, muddied, reddened mucous membranes, normal to slightly increased heart rate, growling, owner reported lethargy at home, but dog is BAR in the room.

A: Previously diagnosed foreign body (evident on radiographs taken at other clinic and emailed with patient), anorexia

P:

1. Discussed with the owner (through an interpreter) the possibility/likelihood of a poor prognosis due to length of time of foreign body presence.
2. Offered an exploratory surgery with the agreement of euthanasia under anesthesia if perforations or other extensive or non-repairable damage to GI tract.
3. Helped owner obtain voucher from Humane Society and worked through other financial agreements/options.

Discussion:

While diagnostics are important and helpful for gaining a complete picture of a patient, there are times in limited funds situations where available money needs to be prioritized towards treatment. In this situation, the owner had spent a significant amount at another hospital on bloodwork, radiographs, and rechecks without gaining surgery to fix the problem. She had then been referred to go to the local emergency hospital at the start of the weekend where she then incurred high costs for an additional exam and bloodwork. She was declined for needed surgery again for lack of available funds. The dog and owner continued to wait. She then came to this veterinarian's clinic for examination. While it was discussed that the duration made for a poor prognosis, the dog was reasonably bright and young and the owner had strong feelings of wanting to make the attempt to save her, therefore the ensuing agreement of euthanasia if poor prognosis. Upon entering the abdomen, the dog had eaten some type of stringy, fibrous material, caught in her stomach and extending to the large intestine. There were multiple perforations present and prognosis was poor. The patient was euthanized.

Case 5: Stitch

Signalment: 12 YO MN DSH cat

CC: Increased drinking, urination, and unchanged or increased appetite for about the last month. Weight loss noticed but has become more apparent recently. Owner reports he used to be very overweight and weighed approximately 16 lbs. (he now weighs 9 lbs.). Client is distressed and reported she has difficulty paying the exam fee.

PE: Dehydrated, very thin with severe muscle wasting, slightly to moderately depressed in demeanor, fleas present, significant dental disease, auscults normally and no masses palpated in abdomen.

A: Suspect diabetes mellitus and/or cancer

P: 1. Discussed with owner the top suspicion of diabetes mellitus.

2. Offered to screen for glucose in the urine as an inexpensive test. Owner unable to afford urine testing.

3. Discussion ensued over cost of treatment for a diabetic cat and also the possibility of another disease process causing significant wasting/weight loss.

4. Owner opted for euthanasia due to complete lack of funds and also poor prognosis if not diabetes.

Discussion:

The cat's significant and severe weight loss, muscle wasting, and demeanor indicated advanced disease. While diabetes mellitus was the primary rule-out, the treatment is considered expensive by many people, especially initially, and requires regular and/or frequent follow-up appointments with recommended lab work. This level of financial commitment was insurmountable for this owner. Additionally, if Stitch were not diabetic, the chronic nature and progression of whatever disease process would likely indicate a poor prognosis with few, if any, treatment options. The decision to euthanize helped the owner feel her cat would not continue to decline or suffer and empowered her to take care of him in the best way she could.



APPENDIX 2. FAMILY BONDNESS SCALE

1. I love [PET NAME].
 1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
2. I feel [PET NAME] is a member of my family.
 1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
3. I feel [PET NAME] is like a child of mine.
 1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
4. I sometimes hesitate to move when sitting by [PET NAME] because I do not want to disturb her/him.
 1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
5. I would feel lost without [PET NAME].
 1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused

6. [PET NAME] brings happiness to my life.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
7. I dread [PET NAME] dying.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
8. I talk to [PET NAME] as if she/he is a person.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
9. I think [PET NAME] knows what I am feeling.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
10. [PET NAME] being in my family makes me happier.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused

11. [PET NAME] makes my family feel more complete.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
12. Having [PET NAME] in my life makes me feel less lonely.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
13. I call [PET NAME] by affectionate nicknames.
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
14. I love to pet [PET NAME].
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused
15. When I am away from home I worry about [PET NAME].
1. Strongly disagree
 2. Disagree
 3. Neither agree nor disagree
 4. Agree
 5. Strongly agree
 6. Not sure
 7. Refused

16. [PET NAME] comforts me when I have bad feelings.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

17. I tell others that [PET NAME] is a member of my family.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

18. Being with [PET NAME] makes me happier.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

19. [PET NAME] means as much to me as others in my family.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

20. I feel emotionally close to [PET NAME].

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

21. I feel [PET NAME] loves me.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

22. I am more likely to get needed medication for [PET NAME] than for myself.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

23. I feel having [PET NAME] around makes me healthier.

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree
6. Not sure
7. Refused

APPENDIX 3.

THE INFLUENCE OF BUSINESS PRACTICES AND PUBLIC ASSISTANCE ON VETERINARY CARE

**The Influence of Business Practices and Public Assistance
On Veterinary Care**
A Literature Review to Support the Development of AlignCare™

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the gap in business education, veterinarians can more successfully establish and manage an independent practice that satisfies their quality of life, while also helping to pay off the rising cost of student debt.⁸

How will AlignCare fit into the veterinary care business model?

Taking into consideration the history of the veterinary care business model, as well as the influential trends shaping its future, the development of AlignCare™ will need to delicately balance the needs of the industry and private practitioners with those of the targeted clients. AlignCare™ will be a blended business model with a multifaceted goal of satisfying the veterinarian, the client and animal patient, the local community, and the program funders. Based on characteristics of the current industry business model, the veterinarian will desire some autonomy in practicing care within the program guidelines, ease of understanding of the program model both for themselves and the client, simplicity in processing and receiving payment, and potentially financial incentive for growing program participation.^{8, 11, 17} The clients of AlignCare will desire similar ease of understanding and use of the program within their local vicinity, affordable fee structures and methods of payment realistic to their circumstances, and quality medical care for their pet.^{3, 7, 14} The local community and program funders may be more removed from the level of immediate satisfaction held by the veterinarian and client. However, it is presumed they will share in the desire for affordable, accessible, and quality veterinary care that can support the sustainability of their local practitioners, the industry, and improved animal welfare.

AlignCare™ has the potential to influence the veterinary care business model through defining a benefit plan fee structure around a standardized sequence of effective care. Learning

from features of established models of public health insurance programs, such as Medicaid and Medicare, AlignCare™ can develop eligibility and benefit configurations that maximize satisfaction of the veterinarian and the client. The first option of prospective payment would follow the Medicare model, reimbursing the veterinarian a specified amount for a given diagnosis, and could possibly account for fluctuations such as practice locations and complexity of services.³² As a hypothetical example, under prospective payment, a veterinarian would receive \$75 for treatment of a diagnosed eye infection. This type of fee structure would need to be re-evaluated annually to adjust for inflation or other variable changes.³² One challenge of this type of model would be the consistent use of standard diagnostic codes as a billing mechanism, which is atypical for the veterinary industry. While there are standard diagnostic codes established by the American Animal Hospital Association (AAHA) for recording and analyzing clinical metrics of small companion animal practices, the AAHA is still promoting the industry benefits.^{33, 34} The second option of capitation, or fee per program participant per month, would follow one form of the Medicaid model, reimbursing the veterinarian a specified amount per AlignCare™ client served each month, regardless of the procedure or treatment.³⁵ A hypothetical example under this model would be a veterinarian receiving \$500 per month for providing services for five AlignCare™ clients at \$100 each. The simplicity of this model could be a major advantage, as payment would not be reliant on administered diagnoses. A disadvantage of both prospective payment and capitation is the burden of responsibility on the veterinarian to manage the services provided within the funded amount of the established fees.³⁵ However, both structures also provide freedom for the veterinarian to choose the most effective and cost efficient treatment based on their preferences of practice, which encourages incremental care.

Other variations of payment structures could also be incorporated into the AlignCare™ business model to further incentivize veterinarians, such as pay-for-performance or episode of care payments. Under pay-for-performance, AlignCare™ would establish service and/or quality benchmarks that are evaluated for additional payments based on level of accomplishment.³⁵ For example, a practicing veterinarian may have a goal to grow their enrollment of AlignCare™ clients by five members in a six-month period. If the goal is fully accomplished, the veterinarian would earn an additional \$500. If the goal was 80 percent accomplished (i.e. enrollment grew by four members), the veterinarian would earn 80 percent of the additional payment, or \$400. This performance pay would be on top of the prospective payments or capitation fees earned through the defined AlignCare™ business model. Episode of care payments would bundle a set of AlignCare™ services into a single payment for the entirety of the patient's event, such as a dog's knee replacement.³⁵ Through this type of structure, AlignCare™ could offer a wider range of services, including those of a larger scale like surgeries, for a single fee. This type of structure may also broaden the target participation of the program to middle-class families, who may not qualify for low-income eligibility but could still use financial assistance for costly veterinary care.

Research into the concerns of human health physicians who participate or opt-out of public insurance programs will be informative when analyzing the most effective business model for AlignCare™. Results from a study in the state of Washington conclude physicians are less willing to accept Medicaid patients due to low reimbursement rates, time consuming administrative responsibilities, limited referral access to specialists, and the difficulty of satisfying the full breadth of needs of patients.³⁶ Similar concerns are cited for Medicare, as physicians have decreased interest in the program after increasing regulations and administrative

burden, coupled with reimbursement rates that are not rising equivalent to the cost of care.³⁷

AlignCare™ can learn from these concerns and prioritize the modeling of a program that appeals to veterinarians while trying to resolve or minimize similar issues.

III. Public Assistance for Pets and their Owners: What is Being Done, and What More Could Be Done through AlignCare™?

In the United States, there are nearly 15 million household recipients of financial public assistance or food stamps.³⁸ When that number is compared to an estimated total of 84.6 million households with pets in the United States² out of approximately 119 million total households across the country³⁹, the probability that a significant portion of pet owners are recipients of public assistance is relatively high.

Public Assistance: Possible Indirect Benefits to Pets

Regulations within existing federal public assistance programs, such as the Supplemental Nutrition Assistance Program (SNAP) and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), do not allow for the purchase of pet food or other pet associated items.^{15, 16} Based on data from the American Pet Products Association, the average annual expense of pet food for dogs and cats is \$235.^{2, 40} For families on a low income, pet food can become a foregone expense, causing the pet to likely partake in human food. This can spiral into the pet compromising the amount of human food available, which can lead to inadequate nutrition of family members.⁴⁰ Another option families may consider is surrendering their pet to a local shelter, which transfers the cost burden onto local organizations.^{40, 41}

In 2018, there was a notable yet unsuccessful petition to the Department of Agriculture by an individual in Mississippi who participates in SNAP to change the regulations to allow for

References

1. Girgenti, A. North American pet ownership demographics shifting. *Pet Food Industry Magazine*. 2018;60(3):28-36.
2. Springer, J; American Pet Products Association, Inc. The 2017-2018 APPA national pet owners survey debut. https://americanpetproducts.org/Uploads/MemServices/GPE2017_NPOS_Seminar.pdf. Accessed February 26, 2019.
3. Brockman, B. Taylor, V. Brockman, C. The price of unconditional love: Consumer decision making for high-dollar veterinary care. *Journal of Business Research*. 2008;61:397-405.
4. McNicholas, J. Gilbey, A. Rennie, A. Ahmedzai, S. Dono, J. Ormerod, E. Pet ownership and human health: a brief review of evidence and issues. *BMJ*. 2005;331:1252-1254.
5. Lue, TW. Pantenburg, DP. Crawford, PM. Impact of the owner-pet and client-veterinarian bond on the care that pets receive. *JAVMA*. 2008;232(4):531-540.
6. Volk, JO. Felsted, KE. Thomas, JG. Siren, CW. Executive summary of the Bayer veterinary care usage study. *JAVMA*. 2011;238(10):1275-1282.
7. Coe, JB. Adams, CL. Bonnett, BN. A focus group study of veterinarians' and pet owners' perceptions of the monetary aspects of veterinary care. *JAVMA*. 2007;231(10):1510-1518.
8. Draper, D. Uhlenhopp, E. A veterinary business curriculum model. *JVME*. 2002;29(2):73-80. doi:10.3138/jvme.29.2.73.
9. Kieves, N. Roark, A. Sparks, T. Business education in veterinary schools: the potential role of the veterinary business management association. *JVME*. 2007;34(5):678-682. doi:10.3138/jvme.34.5.678.
10. Nielsen, N. Will the veterinary profession flourish in the future. *JVME*. 2003;30(4):301-307. doi:10.3138/jvme.30.4.301.
11. Theis, J.H. Veterinary medicine: a profession or a business. *JVME*. 2003;30(3):207-210. doi:10.3138/jvme.30.3.207.
12. Access to Veterinary Care Coalition. Access to veterinary care: barriers, current practices, and public policy. 2018. <http://avcc.utk.edu/avcc-report.pdf>. Accessed February 25, 2019.
13. DVM360.com Staff. Three-year study at University of Tennessee aims to increase access to veterinary care. 2018. <http://veterinarynews.dvm360.com/three-year-study-university-tennessee-aims-increase-access-veterinary-care>. Accessed February 19, 2019.
14. Coe, JB. Adams, CL. Bonnett, BN. (2008, October 1). A focus group study of veterinarians' and pet owners' perceptions of veterinarian-client communication in companion animal practice. *JAVMA*. 2008;233(7):1072-1080.
15. United States Department of Agriculture Food and Nutrition Service. Supplemental nutrition assistance program (SNAP): what can SNAP buy. <https://www.fns.usda.gov/snap/eligible-food-items>. Published November 17, 2017. Accessed January 31, 2019.

16. United States Department of Agriculture Food and Nutrition Service. Women, infants, and children (WIC): WIC food packages – regulatory requirements for WIC-eligible foods. <https://www.fns.usda.gov/wic/wic-food-packages-regulatory-requirements-wic-eligible-foods>. Published April 6, 2018. Accessed February 27, 2019.
17. Fraker, G. Lending to veterinary practices. *The RMA Journal*. 2012;94(4):20-26.
18. American Veterinary Medical Association. Principles of veterinary medical ethics of the AVMA. <https://www.avma.org/KB/Policies/Pages/Principles-of-Veterinary-Medical-Ethics-of-the-AVMA.aspx>. Published April 2016. Accessed February 27, 2019.
19. Dunn, L. Small animal practice: billing, third-party payment options, and pet health insurance. *Veterinary Clinics Small Animal Practice*. 2006;36:411-418.
20. Lee, JG. Dissecting the discount. *Veterinary Economics*. 2015:10-13.
21. DVM360.com Staff. Step up your software. *Firstline*. 2012:24.
22. Felsted, K. This dog needs your help. *Firstline*. 2011:20-23.
23. United States Government Accountability Office. Consumer finance - credit cards designed for medical services not covered by insurance. https://financialservices.house.gov/uploadedfiles/report_on_medical_service_credit_cards.pdf. Published June 2014. Accessed March 25, 2019.
24. Halow, B; Halow Tassava Veterinary Business Consultants. Payment solutions for veterinary clients. <http://www.halowtassava.com/payment-solutions-veterinary-clients/>. Published February 16, 2015. Accessed March 25, 2019.
25. Walker, M; Consumer Reports. Is pet insurance worth the cost; like medical coverage for people, pet policies are complicated. Here's what we found when we analyzed the coverage from three health insurers. <https://advance.lexis.com/document?crd=8fd7f367-0cd4-4463-a51e-73b171d9b687&pddocfullpath=%2Fshared%2Fdocument%2Fnews%2Furn%3AcontentItem%3A5M31-4XM1-JC07-2017-00000-00&pdcontentcomponentid=7944&pdmfid=1516831&pdisurlapi=true>. Published May 2016. Accessed February 4, 2019.
26. DVM360.com Staff. The power of pet insurance. *Veterinary Economics*. 2015:8.
27. Insurance Information Institute. Facts + statistics: pet statistics. <https://www.iii.org/fact-statistic/facts-statistics-pet-statistics>. Accessed February 25, 2019.
28. Bernhart, M. Trends in veterinary care secure the staying power of pet insurance. *Employee Benefit Adviser*. 2008:24-26.
29. Otto, N. Pet insurance benefits market small but growing. *Employee Benefit News*. 2016.
30. Compensation and Benefits News. Employees would like more pet benefits options. *HR Focus*. 2008:12.
31. DVM360.com Staff. Help clients plan for pet care. *Firstline*. 2012:22.

32. Cubanski, J. et. al; Henry J Kaiser Family Foundation. A primer on Medicare: key facts about the Medicare program and the people it covers. <https://www.kff.org/report-section/a-primer-on-medicare-how-does-medicare-pay-providers-in-traditional-medicare/>. Published March 20, 2015. Accessed February 26, 2019.
33. Schultz, K.; DVM360.com. (2007, November 1). AAHA developing unified diagnostic code to improve care. <http://veterinarynews.dvm360.com/aaaha-developing-unified-diagnostic-code-improve-care>. Published November 1, 2007. Accessed February 28, 2019.
34. Veterinary Medical Informatics Laboratory. (2019, March). Veterinary terminology services laboratory – AAHA clinical terms. <https://vtsl.vetmed.vt.edu/aaaha/default.htm>. Published March 2019. Accessed February 28, 2019.
35. Henry J Kaiser Family Foundation. Medicaid delivery system and payment reform: a guide to key terms and concepts. <https://www.kff.org/medicaid/fact-sheet/medicaid-delivery-system-and-payment-reform-a-guide-to-key-terms-and-concepts/>. Published June 22, 2015. Accessed February 26, 2019.
36. Long, S. Physicians may need more than higher reimbursements to expand medicaid participation: findings from Washington state. *Health Affairs*. 2013;32(9):1560-1567. doi:10.1377/hlthaff.2012.1010.
37. Dickson, V; Modern Healthcare. Few doctors are opting out of Medicare. <https://www.modernhealthcare.com/article/20180130/NEWS/180139995/fewer-doctors-are-opting-out-of-medicare>. Published January 30, 2018. Accessed February 26, 2019.
38. United States Census Bureau. American fact finder - public assistance income or food stamps/SNAP in the past 12 months for households. American community survey 1-year estimates. <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>. Published 2017. Accessed February 27, 2019.
39. United States Census Bureau. Quick facts dashboard – United States. <https://www.census.gov/quickfacts/fact/dashboard/US/PST045217>. Published July 1, 2017. Accessed March 25, 2019.
40. Dewey, C; The Washington Post. The surprising argument for extending food stamps to pets. https://www.washingtonpost.com/news/wonk/wp/2018/01/23/the-surprising-argument-for-extending-food-stamps-to-pets/?noredirect=on&utm_term=.c5f4c8f864f3. Published January 23, 2018. Accessed January 31, 2019.
41. Pacelle, W; The Humane Society of the United States. Federal food stamp program should, in a SNAP, allow pet food purchases. <https://blog.humanesociety.org/2018/01/federal-food-stamp-program-snap-allow-pet-food-purchases.html>. Published January 24, 2018. Accessed January 31, 2019.
42. CBS Dallas / Fort Worth. Pet food stamp program started for low-income families. <https://dfw.cbslocal.com/2013/05/06/pet-food-stamp-program-started-for-low-income-families/>. Published May 6, 2013. Accessed January 31, 2019.
43. Humane Society of Washington County. Public assistance. <http://hswcmd.org/pet-owners/public-assistance>. Accessed January 31, 2019.

44. Carlson, S. Neuberger, Z; Center on Budget and Policy Priorities. WIC works: addressing the nutrition and health needs of low-income families for 40 years. <https://www.cbpp.org/research/food-assistance/wic-works-addressing-the-nutrition-and-health-needs-of-low-income-families>. Updated March 29, 2017. Accessed February 27, 2019.
45. Center on Budget and Policy Priorities. Chart book: SNAP helps struggling families put food on the table. <https://www.cbpp.org/sites/default/files/atoms/files/3-13-12fa-chartbook.pdf>. Updated February 14, 2018. Accessed February 27, 2019.
46. Centers for Disease Control and Prevention. Healthy pets, healthy people. <https://www.cdc.gov/healthypets/health-benefits/index.html>. Updated April 30, 2014. Accessed January 29, 2019.
47. Sard, B; Center on Budget and Policy Priorities. Housing vouchers work: helping vulnerable people afford decent, stable housing. <https://www.cbpp.org/blog/housing-vouchers-work-helping-vulnerable-people-afford-decent-stable-housing>. Published March 28, 2017. Accessed February 27, 2019.
48. Christian, HE. Villanueva, K. Klinker, CD. Knuiman, MW. Divitini, M. Giles-Corti, B. The effect of siblings and family dog ownership on children's independent mobility to neighbourhood destinations. *Aust NZ J Public Health*. 2016;40:316-8. doi:10.1111/1753-6405.12528.
49. American Veterinary Medical Association. Financial assistance for veterinary care costs. <https://www.avma.org/public/YourVet/Pages/Financial-assistance-for-veterinary-care-costs.aspx>. Accessed January 31, 2019.
50. Best Friends Animal Society. Financial aid for pets. <https://resources.bestfriends.org/article/financial-aid-pets>. Accessed January 31, 2019.
51. Red Rover. Financial assistance programs by state/province. <https://redrover.org/resource/financial-assistance-programs-by-stateprovince/>. Accessed January 31, 2019.
52. Dolan, ED. Weiss, E. Slater, MR. Welfare impacts of spay/neuter-focused outreach on companion animals in New York City public housing. *Journal of Applied Animal Welfare Science*. 2017;20(3):257-272. doi:10.1080/10888705.2017.1305904.
53. Frank, J. Carlisle-Frank, P. Analysis of programs to reduce overpopulation of companion animals: do adoption and low-cost spay/neuter programs merely cause substitution of sources. *Ecological Economics*. 2007;62:740-746. doi:10.1016/j.ecolecon.2006.09.011.
54. United States Department of Agriculture Food and Nutrition Service. Supplemental nutrition assistance program (SNAP): am I eligible for SNAP. <https://www.fns.usda.gov/snap/eligibility>. Updated November 16, 2018. Accessed February 27, 2019.
55. United States Department of Agriculture Food and Nutrition Service. (2018, May 11). Women, infants and children (WIC): WIC eligibility requirements. <https://www.fns.usda.gov/wic/wic-eligibility-requirements>. Updated May 11, 2018. Accessed February 27, 2019.
56. Klingborg, D. Klingborg, J. Talking with veterinary clients about money. *Veterinary Clinics Small Animal Practice*. 2007;37:79-93.

57. Larkin, M. JAVMANews. For human needs, some veterinary clinics are turning to a professional.
<https://www.avma.org/News/JAVMANews/Pages/160101a.aspx?PF=1>. Published December 16, 2015.
Accessed January 10, 2019.

58. Veterinary Practice News. How veterinary social workers help clients, staff.
<https://www.veterinarypracticenews.com/veterinary-social-workers-can-help/print/>. Published December 14, 2017. Accessed January 10, 2019.

APPENDIX 4.

BLAIR BUISNESS MODEL REPORT

Program Financial Models and Data Analysis

Various options of payment models for AlignCare were investigated and evaluated over the course of my field placement, most specifically two proposed subsidy models to compensate participating veterinarians. [Development of reference materials to detail the two proposed models are discussed later within this appendix.] Further analysis of veterinary care practice data would have been necessary to truly understand possible implications of the models and/or to forecast potential costs or savings. However, obtaining the specific veterinary patient data for our identified analyses was not found to be feasible from most practice management systems. This made financial planning and budgeting of AlignCare very challenging.

In order to gain insight into consumer spending on pet-related expenditures and guide development of client co-payment models, microdata was analyzed from the Bureau of Labor Statistics Consumer Expenditure Survey. The sample included households with pet-related expenditures from 2007 through 2017. It also included demographic and geographic characteristics to analyze spending habits specific to target families of AlignCare. The data showed that consumer spending on pets is concentrated in smaller households, and that spending on pets and general supplies is higher than spending on pet services or veterinary care. Households who reported receipt of funds from public assistance and food stamps spent less on average on all pet-related expenditures as compared to the general sample. Average spending on veterinarian expenses was nearly the same across all households at or below 200 percent of the federal poverty level.

Summary of General Findings on Pet Related Expenditures

Based on Microdata from the Bureau of Labor Statistics Consumer Expenditure Survey, 2007 – 2017

Total Average Pet/Veterinary Expenses by Category

Variable	Obs	Mean	Std. Dev.	Min	Max
Pets/Supplies	39,269	797.97	1825.61	0	141600
Pet Services	39,269	172.13	1044.77	0	76375
Veterinarian Exps	39,269	286.45	1082.77	0	96000

Total Average Pet/Veterinary Expenses by Category, with maximum expenditure of \$5,000

Variable	Obs	Mean	Std. Dev.	Min	Max
Pets/Supplies	38,289	636.36	866.05	0	5000
Pet Services	38,289	115.85	391.86	0	4996
Veterinarian Exps	38,289	222.99	508.46	0	5000

Total Average Pet/Veterinary Expenses by Year, Category

	Mean Pets/Supplies	Mean Pet Services	Mean Veterinarian Exps	Obs
2007	566.59	89.43	166.67	3,442
2008	862.97	116.13	230.69	3,664
2009	1007.55	180.82	276.41	3,790
2010	1004.26	157.31	260.03	3,811
2011	657.20	119.01	227.04	3,555
2012	678.35	139.42	286.92	3,449
2013	789.03	196.44	287.78	3,217
2014	854.39	186.90	301.74	3,547
2015	698.04	210.37	287.81	2,794
2016	756.97	243.21	380.02	3,087
2017	823.46	245.05	411.39	4,913

Total average pet related expenditures from 2007 to 2017 show the average spent on pets and general supplies is much greater than the average spent on veterinarian expenses, with the lowest amount being spent on pet services.

Year over year from 2007 through 2017, pet related expenditures have tended to increase, with exception to a few years of decline following the great recession and another decrease in 2015 of pets/supplies and veterinarian expenses. From 2015 to 2017, veterinarian expenses saw the highest percentage increase of 43%, followed by pets/supplies at an increase of 18% and pet services at 16%.

Households Who Reported Public Assistance/Welfare Income

Variable	Obs	Mean	Std. Dev.	Min	Max
Pets/Supplies	460	623.91	1232.51	0	18600
Pet Services	460	50.74	250.89	0	3000
Veterinarian Exps	460	102.04	371.84	0	4004

Households Who Did Not Report Public Assistance/Welfare Income

Variable	Obs	Mean	Std. Dev.	Min	Max
Pets/Supplies	38,809	800.03	1831.40	0	141600
Pet Services	38,809	173.57	1050.50	0	76375
Veterinarian Exps	38,809	288.64	1088.22	0	96000

Of households who reported income from public assistance/welfare, the highest average pet-related expenditure was pets/supplies, similar to the general sample. However, these households spent less on average in each category compared to households who did not report income from public assistance/welfare. Specifically, households reporting income from public assistance/welfare spent an average of \$176 less on pets/supplies, \$123 less on pet services, and \$187 less on veterinarian expenses.

Households Who Reported Receipt of Food Stamps

Variable	Obs	Mean	Std. Dev.	Min	Max
Pets/Supplies	1,352	555.14	1172.37	0	24000
Pet Services	1,352	56.41	271.42	0	5520
Veterinarian Exps	1,352	116.20	424.94	0	7500

Households Who Did Not Report Receipt of Food Stamps

Variable	Obs	Mean	Std. Dev.	Min	Max
Pets/Supplies	37,917	806.63	1844.06	0	141600
Pet Services	37,917	176.26	1061.76	0	76375
Veterinarian Exps	37,917	292.52	1098.49	0	96000

Of households who reported receipt of food stamps, the highest average pet-related expenditure continued to be pets/supplies, similar to the general sample. However, these households spent less on average in each category compared to households who did not report receipt of food stamps. Specifically, households reporting receipt of food stamps spent an average of \$251 less on pets/supplies, \$120 less on pet services, and \$176 less on veterinarian expenses.

Average Expenses based on 2019 Poverty Guidelines

(Reported After-Tax Income <= poverty guideline; Reported family size equal to 1-8)

2019 Poverty Guideline	fam_size	Mean Pets/Supplies	Mean Pet Services	Mean Veterinarian Exps
\$12,490	1	515.90	88.37	114.79
\$16,910	2	648.31	70.39	126.17
\$21,330	3	534.24	27.65	73.59
\$25,750	4	567.78	81.07	71.58
\$30,170	5	591.14	11.63	62.42
\$34,590	6	629.20	20.55	71.92
\$39,010	7	1456.31	31.74	13.57
\$43,430	8	647.00	34.68	26.18

When comparing reported after-tax income and family size to 2019 poverty guidelines, the data reveal that the smallest households in the lowest income brackets of the poverty guidelines average higher spending on veterinarian expenses than larger households in the higher income brackets. A similar trend is evident with pet services, as average spending declines with increasing household size and income. Spending on pets/supplies is similar across the range of household sizes and income levels, ranging between \$500 and \$700. (Data analyzed at the household size of 7 with income less than or equal to \$39,010 included several outliers of households who spent higher than average amounts on pet/supplies.)

Average Expenses by FPL Ratio

Calculated based on year of interview and reported after-tax income

FPL Ratio	Count of Households	Mean Pets/Supplies	Mean Pet Services	Mean Veterinarian Exps
<=50%	792	474.91	63.71	103.97
51% - 100%	1,553	540.54	32.41	80.83
101% - 150%	2,291	579.67	50.76	102.36
151% - 200%	2,522	546.18	49.79	121.21
>200%	21,237	698.12	122.10	244.99

*based on maximum expense in any category of \$5,000

Using federal poverty guidelines from 2007 to 2017 under the assumption all households are located within the 48 contiguous states, a federal poverty level ratio (FPLR) was calculated for each household in the sample. Data were analyzed for those with pet-related expenditures in any of the three categories up to a maximum of \$5,000, to control for extreme values in the data. Results show households at or below 200% FPLR spend less on average for all pet-related expenditures than households above 200% FPLR. When comparing households at or below 100% of FPLR to those between 101% and 150% FPLR, households on the lowest end of the ratio spend nearly the same on average for veterinarian expenses, and spend more on average for pet services.

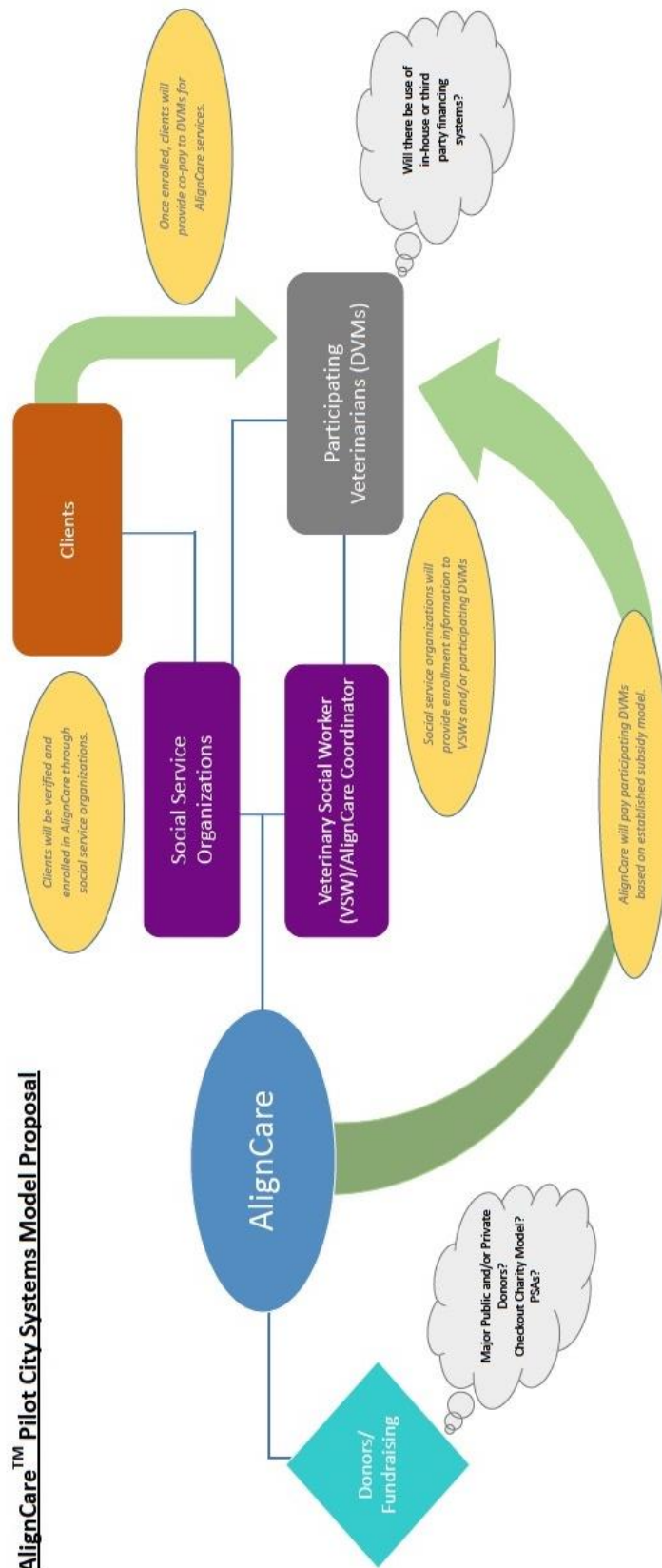
Appendix F: AlignCare™ Systems Model

AlignCare Systems Model

In order to demonstrate how existing services and systems would work together to effectively implement AlignCare, a systems model was developed. Phase one of the model was a general representation of the organizations and/or community members that form an AlignCare partnership within each pilot city – a social service organization, a participating veterinarian, a veterinary social worker, and clients. The model visualized how each entity would interact with one another and with AlignCare headquarters, using program planning and systems thinking. This model was presented to attendees of the 2019 Access to Veterinary Care Symposium.

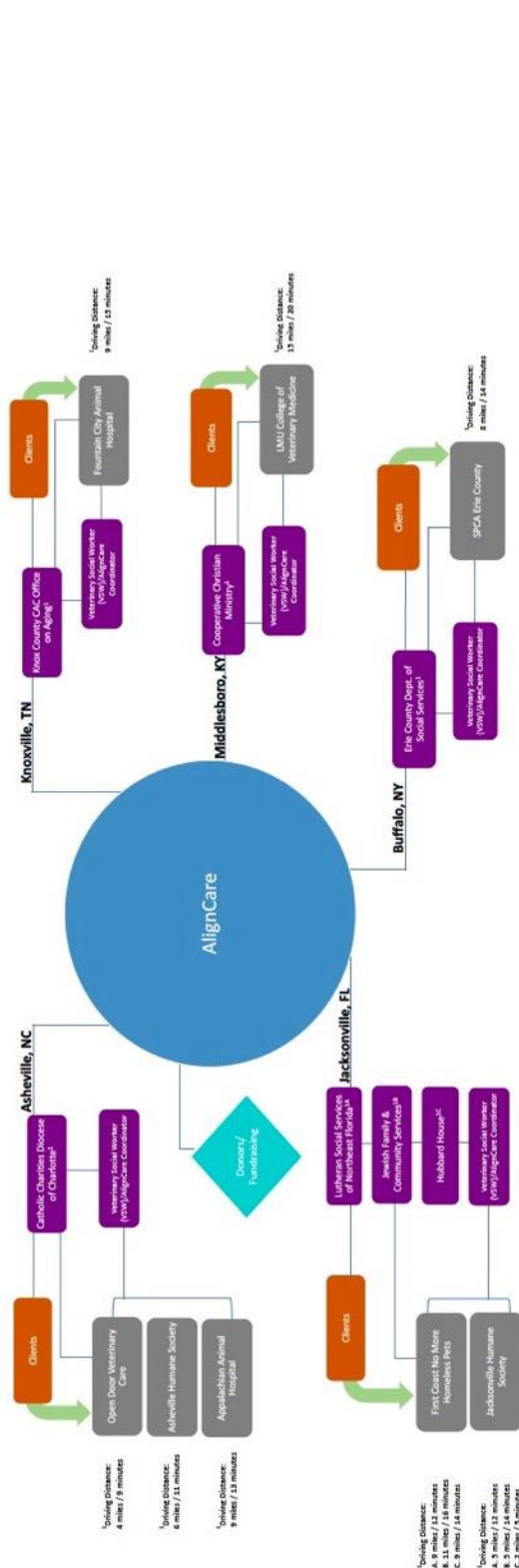
Phase two of the model added specific detail for four pilot cities slated for implementation by the end of the calendar year. Partner organizations were identified for each city, and the model integrated AlignCare headquarters support of operations across multiple locations. Internal and external considerations were also identified to highlight areas of clarity to ensure successful implementation. The detailed model incorporated systems thinking for organizational structuring and practice, as well as identifying components and issues that could impact the financing and delivery of AlignCare.

AlignCare™ Pilot City Systems Model Proposal



AlignCare™ Pilot City Systems Model Proposal: Stage 1 (Jul.-Dec. 2019)

Developed by Atlanta-based and the AlignCare™ Business Team



Internal Business Considerations

1. Finalize structure of subsidy model(s)
2. Finalize copy manual(s)
 - Advice to DVWs for handling clients who co-pay
3. Establishment of EFT for subsidy payments to DVW
 - Frequency of payments
 - Will this be set up on individual basis or released consistently across group of participating DVWs?
 - How should DVW update payment information (if needed)?
4. Temporary management system for enabling/reporting client information
 - Will this be established on individual, per site basis, or will it be established on a group basis?
 - Will partner agencies/DVWs be provided instructions for use, data entry, etc.?
 - (i.e. naming conventions, minimum required information, etc.)
 - How will temporary management system ensure secure sharing of data?
6. Retrospective review of subsidy payments/clients served
 - Will this be performed? If so, how often?
 - How will DVWs be made aware of process and purpose for review?
 - (i.e. what information must be recorded in management system, etc.)
7. Owner relationships/reporting
 - Financial management of donations, fundraising, grants, etc.
 - Reporting requirements
 - Owner recognition

External Business Considerations

1. How can the program continue to learn about complementary initiatives and/or potential partners within the pilot cities to remain collaborative rather than competitive?
2. Impact of economic conditions on operations, clients, etc.
3. Variation of legal requirements/implications by pilot city/state regarding operations, data, etc.
 - How will this be managed? By whom?

Other Internal Considerations

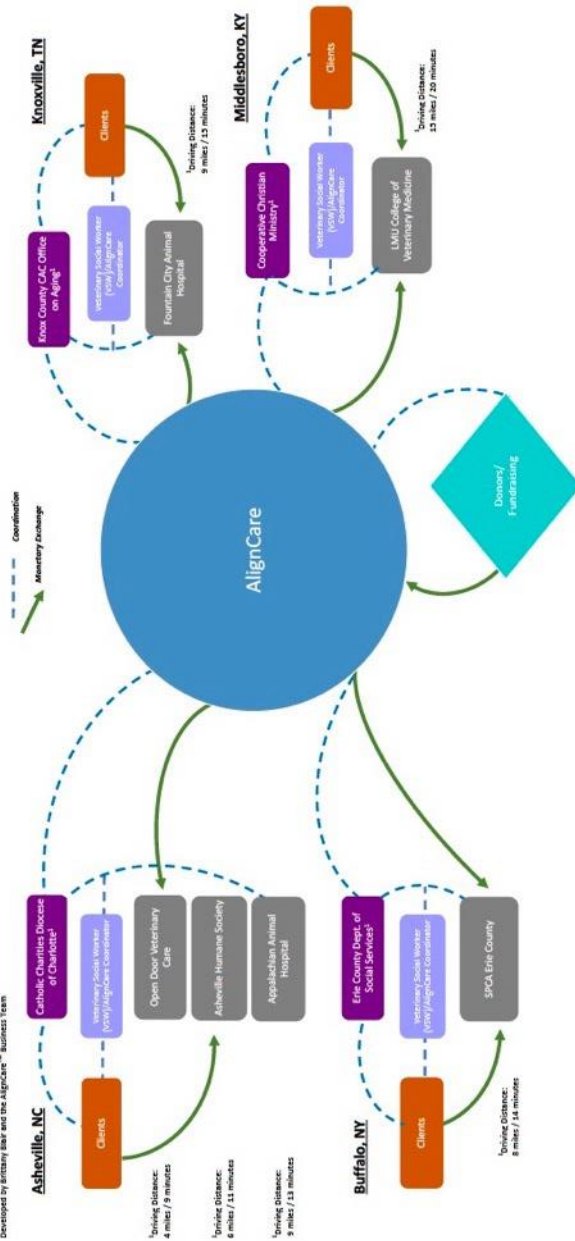
1. Process flow of communication, assistance, and responsibilities
 - Who is main POC at AlignCare for SS agencies? For DVWs?
 - How can resources be made accessible to SS agencies?
 - Coordination of VSW between multiple SS agencies and DVW
 - Coordination by DVW - when to go through VSW vs SS agency vs AlignCare
2. Ratio of SS agencies to VSWs to DVWs
 - How to balance number of organizations partnering/coordinating

Other External Considerations

1. How does a DVW, VSW, and/or SS agency handle external attention regarding the program?
 - (i.e. community wants to learn more, high level of interest from potential clients, etc.)
 - Guidance on interacting with media about AlignCare
 - Guidance on how to communicate future opportunity for more clients
2. Are there opportunities to assist clients with transportation?

AlignCare™ Pilot City Systems Model Proposal: Stage 1 (Jul - Dec 2019)

Developed by AlignCare and the AlignCare™ Business Team



Internal Business Considerations

1. Finalize structure of subsidy model(s)

External Business Considerations

1. How can the program continue to learn about complementary initiatives and/or potential partners within the pilot cities to remain collaborative rather than competitive?

2. Impact of economic conditions on operations, clients, etc.

3. Variation of legal requirements/implications by pilot city/state regarding operations, data, etc.

How will this be managed? By whom?

4. Temporary management system for enrolling/reporting client information

Will this be established on individual per pilot site basis, or will there be consistency of setup across all pilot sites?

Will partner agencies/DVMs be provided instructions for use, data entry, etc.?

(i.e. naming conventions, minimum required information, etc.)

How will temporary management system ensure secure sharing of data?

6. Retrospective review of subsidy payments/clients served

Will this be performed? If so, how often?

How will DVMs be made aware of process and prepare for review?

(i.e. what information must be recorded in management system, etc.)

7. Donor relationship/reporting

Financial management of donations, fundraising, grants, etc.

Reporting requirements

Donor recognition

Other Internal Considerations

1. Process flow of communication, assistance, and responsiveness

Who is main POC at AlignCare for SS agencies? For VSWs? For DVMs?

How can resources be made accessible for such assistance?

Coordination of VSW between multiple SS agencies and DVM

Coordination by DVM - when to go through VSW vs SS agency vs AlignCare

2. Ratio of SS agencies to VSWs to DVMs

How to balance number of organizations partnering/coordinating

Other External Considerations

1. How does a DVM, VSW, and/or SS agency handle external attention regarding the program?

(i.e. community wants to learn more, high level of interest from potential clients, etc.)

Guidance on interacting with media about AlignCare

Guidance on how to communicate future opportunity for more clients

2. Are there opportunities to assist clients with transportation?

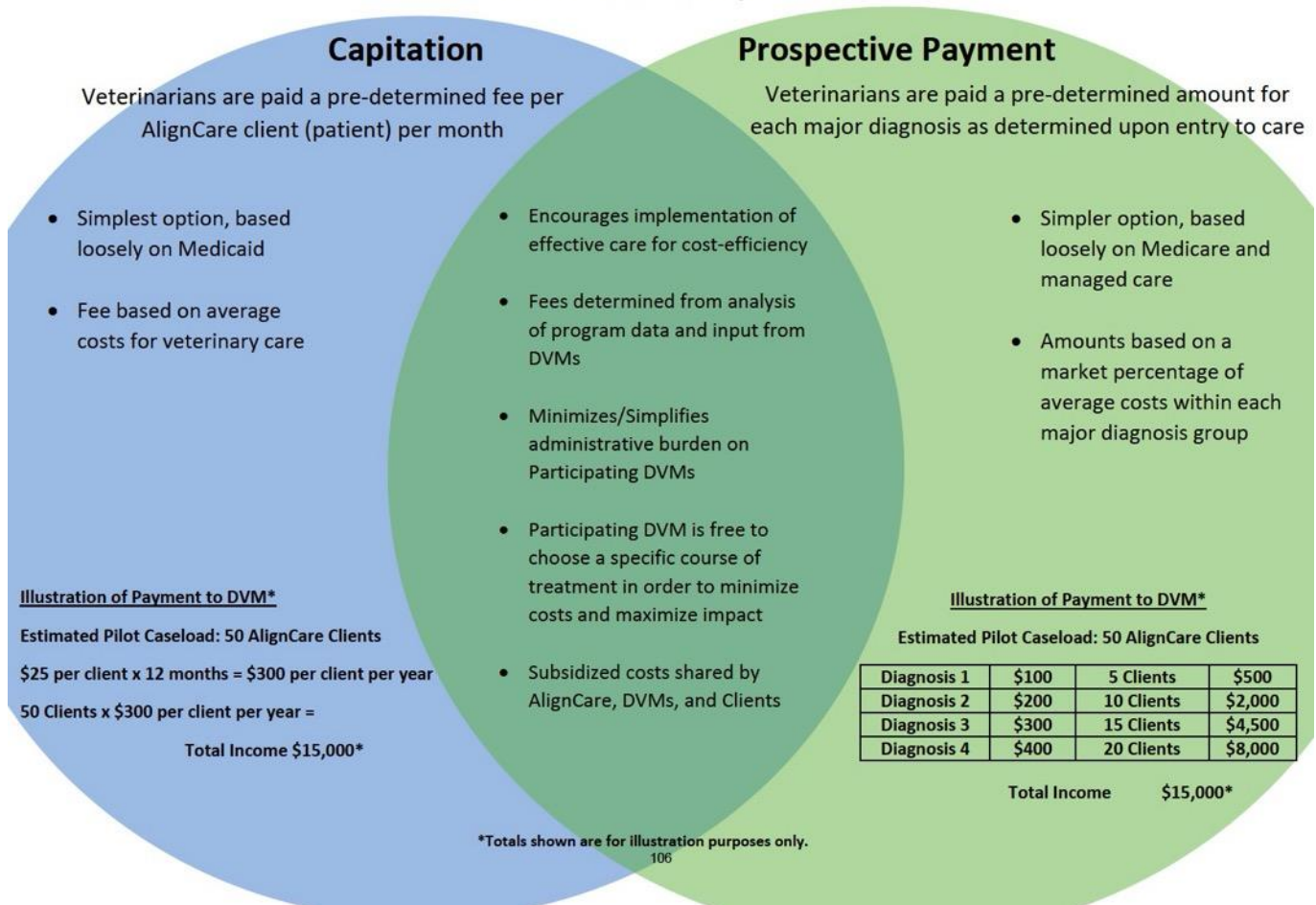
Appendix G: Business Model Reference Materials

Business Model Reference Materials

A reference handout was developed to communicate proposed subsidy models for AlignCare to program stakeholders and potential partners. The handout used a Venn diagram to provide comparison of two subsidy models as alternatives to conventional fee for service – one option taking influence from capitation and the second taking influence from prospective payment. The handout was presented at the 2019 Access to Veterinary Care Symposium and several program planning meetings, which highlighted challenges to the general understanding of how human healthcare models could be adapted to veterinary care. It became important to not use the terms capitation or prospective payment, as program stakeholders held too many pre-conceived notions of these models that were not relevant to the proposed applications for AlignCare. The challenges influenced the business team's approach to further program and policy planning by reinforcing that documentation needed to better reflect perspectives from the veterinary care industry.

Proposed AlignCare™ Subsidy Models

Alternatives to Conventional Fee for Service Models



APPENDIX 5.

ALIGNCARE PILOT SITE RUBRIC

AlignCare Pilot Site Rubric

	Exceptionally Well Qualified (3 Points)	Well Qualified (2 Points)	Qualified (1 Point)	Not Qualified (0 Points)
Interest: Level of interest in being an AlignCare pilot site.				
Support of AlignCare: Willingness to facilitate aligning community resources, providing data and feedback on operations.				
Services: Types of veterinary services that would be offered to AlignCare clients.				
Practice Management Information System: Type of software being used for the PMIS.				
Demographics: Located close to AlignCare clients.				
Social Work Connection: Type(s) of social work connection that currently exists.				
Community Organizer Connection: Type(s) of community organizer connection that currently exists.				
Funding: Funding that is currently available and/or willingness to assist with fundraising.				
Methods of Service Delivery: Onsite, mobile, telehealth, educational tools, volunteer efforts.				
Provider Category: Veterinary school, nonprofit, or for-profit				

APPENDIX 6.

ANALYSIS OF VETERINARY SERVICE VISITS

Discussion

Two data sets were used to examine common complaints and reasons families brought their pets to the veterinarian. The more inclusive data set comprised nearly two years of visits for numerous families and sites throughout the US. This data was evaluated to discover the most common reasons that pets were seen by their veterinarian.

Reasons for Visit in Cats and Dogs Across AlignCare Sites and Families ¹						
Reason for Visit	All Visits		Cat Visits		Dog Visits	
	Total	% ²	Total	% ³	Total	% ³
Wellness	801	13.97%	155	19.35%	646	80.65%
Dental	500	8.72%	109	21.8%	391	78.2%
Spay/Neuter	140	2.44%	27	19.29%	113	80.71%
Tech Visits	99	1.72%	12	12.12%	87	87.88%
Skin	716	12.49%	85	11.87%	629	87.85%
Musculoskeletal	601	10.47%	66	10.98%	534	88.85%
Injury/Illness	580	10.12%	133	22.93%	446	76.9%
GI	576	10.05%	141	24.48%	435	75.52%
Cardiorespiratory	352	6.14%	80	22.72%	272	77.27%
Internal Medicine	268	4.68%	49	18.28%	219	81.72%
Ears	261	4.55%	50	19.16%	206	78.93%
Urogenital	228	3.98%	70	30.7%	158	69.3%
Eyes	186	3.24%	44	23.66%	142	76.34%
Repro	178	3.11%	32	17.98%	146	82.02%
Neurology	99	1.73%	7	7.07%	92	92.93%
Referrals	38	0.66%	4	10.53%	34	89.47%
Behavior	21	0.37%	3	14.29%	18	85.71%
Euthanasia/DOA	89	1.55%	22	24.72%	67	75.28%
Total⁴	5,732		1,089	19%	4,640	80.95%
¹ Categories greater than 5% above the mean are highlighted. Color intensifies as deviance increases. ² Percentage of total visits. ³ Percentage of the category by species. ⁴ Other species, such as poultry and rabbits, account for visits that do not appear in the table.						

There are certain difficulties presented when collecting and analyzing this data. All veterinary hospitals involved in this study were in operation before becoming AlignCare sites. This means that many patients were already under care at the time of their enrollment in AlignCare, so we

may need more complete data on the condition under care. The cutoff for data collection presents the same difficulty in that we may need more information on the resolution of many cases. We may also have patients enrolled shortly before the study period ends for whom we do not have a definitive diagnosis but only a presumptive diagnosis for categorization.

In addition to the limitations on the data based on the enrollment and study period, we depend on invoices and medical records from many veterinarians and hospitals throughout the US. While enrollment in the study necessitates specific data be collected, one of AlignCare's primary goals is to not interfere with the medical care enrolled families receive. This commitment to non-interference means there were no specific requirements for what a medical record needed to contain to be included in the study. This lack of requirements resulted in enormous variation in the data that could be obtained from records review.

Another challenge in analyzing this data is the variety of hospitals involved in this study. There are AlignCare sites in both high- and low-cost-of-living areas of the US, and the cost of veterinary care naturally fluctuates with this. In addition to the local economy's effect on pricing, AlignCare's focus on incremental veterinary care means that clinics at a wide variety of price points are enrolled. Some clinics subsidized referrals to other local clinics to provide specialized care (e.g., specialized surgery or oncology), while others would help their clients order through sites like Chewy to help keep costs down. Again, these are not required nor frowned upon by AlignCare but contribute significantly to the variation when evaluating costs.

Due to these limitations, as well as the need for a review of the medical records and the time that would be consumed reviewing the medical records of the entire data set, it was decided to focus analysis on a smaller set of the original data.

The second data set included only patients with at least four veterinary visits over the two years examined. This cutoff was selected to allow for annual wellness visits and to account for the fact that minor injuries and illnesses, such as a broken toenail, occur routinely and should not significantly change the data. This data was evaluated to determine if subcategories required more visits than average and to explore the costs associated with these conditions. The data was also examined to determine if these conditions could have been prevented or treated earlier in the disease process. The goal of this deeper look at patients who require more visits is to begin to determine how we can decrease the number of visits and cost of care for these patients while still maintaining good quality medicine.

Reasons for Visit in Cats and Dogs with More Than Four Visits ¹									
Reason for Visit			Subcategory	All Visits		Cat Visits		Dog Visits	
	Total ⁵	% ⁶		Total	% ⁶	Total	% ⁷	Total	% ⁷
Musculoskeletal	581	15.3	Arthritis	272	7.2	8	2.9	264	97.1
			Injury	153	4.0	11	7.2	142	92.8
			Masses	87	2.3	14	16.1	73	83.9
GI	556	14.6	Liver	114	3.0	12	10.5	102	89.5
			Food	95	2.5	43	45.3	52	54.7
			Vomiting	79	2.1	20	25.3	59	74.7
			Diarrhea	79	2.1	9	11.4	70	88.6
			Decreased Appetite	62	1.6	11	17.7	51	82.3
Wellness	555	14.6	Vaccines	186	4.9	28	15.1	158	84.9
			Flea & Tick Prevention	145	3.8	46	31.7	99	68.3
			General Checkup	105	2.8	21	20.0	84	80.0
			Heartworm Prevention	81	2.1	0	0	81	100
Skin	527	13.9	Allergies	234	6.2	7	3.0	227	97.0
			Masses	124	3.3	10	8.1	114	91.9
			Infection	108	2.8	14	13.0	94	87.0
Internal Medicine	424	11.2	Thyroid Disease	127	3.3	19	15.0	108	85.0
			Diabetes Mellitus	120	3.1	10	8.3	110	91.7
			Cushing's Disease	66	1.7	0	0	66	100
Cardiorespiratory	393	10.4	Heart	194	5.1	3	1.5	191	98.5
			Heartworm	49	1.3	0	0	49	100
Injury/Illness	210	5.5	Open Wound	66	1.7	24	36.4	42	63.6
Urogenital	202	5.3	UTI	87	2.3	2	2.3	85	97.7
			Urinary Stones	67	1.8	0	0	67	100
Dental	198	5.2	Periodontal Disease & Stomatitis	152	4.0	25	16.4	127	83.6
Ears	151	4.0	Infection	88	2.3	13	14.8	75	85.2
Total	3,797			2,940	77.4	350	11.9	2,590	88.1

¹ Categories greater than 5% above the mean are highlighted. Color intensifies as deviance increases.

⁵ Total number of visits includes subcategories with too few visits for further analysis.

⁶ Percent of total visits by category or subcategory.

⁷ Percent of subcategory visits by species.

Because of the limitations on data analysis created by some of these variations, it was decided only to analyze the costs of subcategories with 50 or more visits. We felt that fewer than 50 visits in a particular subcategory would create skewed data, should that category include even a single patient who was offered care outside the assigned site. Therefore, we only analyzed specific categories for cost despite certain other categories being common presenting complaints.

Costs in Cats and Dogs with More Than Four Visits ¹									
Reason for Visit			Subcategory	All Visits		Cat Visits		Dog Visits	
	Total Cost ⁸	% ⁹		Total	% ⁹	Total	% ¹⁰	Total	% ¹⁰
Musculo-skeletal	\$146,695.35	19.9	Injury	\$56,676.48	7.7	\$3,307.07	5.8	\$53,369.41	94.2
			Arthritis	\$54,336.01	7.4	\$1,130.55	2.1	\$53,205.46	97.9
			Masses	\$35,682.86	4.8	\$4,185.07	11.7	\$31,497.79	88.3
Skin	\$123,098.25	16.7	Allergies	\$49,749.50	6.8	\$861.86	1.7	\$48,887.64	98.3
			Masses	\$49,030.86	6.7	\$5,088.61	10.4	\$43,942.25	89.6
			Infection	\$24,317.89	3.3	\$1,887.44	7.7	\$22,430.45	92.2
GI	\$116,203.59	15.8	Vomiting	\$29,456.35	4.0	\$9,586.93	32.5	\$19,869.42	67.5
			Liver	\$27,007.35	3.7	\$2,564.10	9.5	\$24,443.25	90.5
			Diarrhea	\$25,010.05	3.4	\$3,913.62	15.6	\$21,096.43	84.4
			Decreased Appetite	\$22,688.27	3.1	\$3,866.10	17.0	\$18,822.17	83.0
			Food	\$12,041.57	1.6	\$3,425.86	28.5	\$8,615.71	71.5
Wellness	\$77,174.81	10.5	Vaccines	\$28,948.86	3.9	\$3,078.44	10.6	\$25,870.42	89.4
			General Checkup	\$23,665.57	3.2	\$3,428.70	14.5	\$20,236.87	85.5
			Flea & Tick Prevention	\$13,874.78	1.9	\$2,020.75	14.6	\$11,854.03	85.4
			Heartworm Prevention	\$10,685.60	1.5	\$0	0	\$10,685.60	100
Dental	\$74,155.30	10.1	Periodontal Disease & Stomatitis	\$74,155.30	10.1	\$13,363.74	18.0	\$60,791.56	82.0
Internal Medicine	\$60,996.22	8.3	Diabetes Mellitus	\$27,554.08	3.7	\$1,989.52	7.2	\$25,564.56	92.8
			Thyroid Disease	\$17,255.98	2.3	\$700.64	4.1	\$16,555.34	95.9
			Cushing's Disease	\$16,186.16	2.2	\$0	0	\$16,186.16	100
Cardio-respiratory	\$49,376.66	6.7	Heart	\$37,733.78	5.1	\$1,390.94	3.7	\$36,342.84	96.3
			Heartworm	\$11,642.88	1.6	\$0	0	\$11,642.88	100

Analysis of Veterinary Service Visits

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Urogenital	\$39,042.73	5.3	UTI	\$22,332.86	3.0	\$496.17	2.2	\$21,836.69	97.8
			Urinary Stones	\$16,709.87	2.3	\$0	0	\$16,709.87	100
Injury/Illness	\$26,607.33	3.6	Open Wound	\$26,607.33	3.6	\$2,566.19	9.6	\$24,041.14	90.4
Ears	\$23,437.55	3.2	Infection	\$23,437.55	3.2	\$2,278.75	9.7	\$21,158.80	90.3
Total	\$736,787.79					\$71,131.05	9.7	\$665,656.74	90.3

¹ Categories greater than 5% above the mean are highlighted. Color intensifies as deviance increases.

⁸ Total costs only include costs for the listed subcategories.

⁹ Percent of total cost per category or subcategory.

¹⁰ Percent of subcategory cost by species.

Cost Per Visit in Cats and Dogs with More Than Four Visits ¹¹									
Reason for Visit			Subcategory	All Pets		Cats		Dogs	
	Mean Cost	% ¹²		Cost	% ¹²	Cost	% ¹³	Cost	% ¹³
Dental	\$487.86	251.4	Periodontal Disease & Stomatitis	\$487.86	251.4	\$534.55	109.6	\$478.67	98.1
Injury/Illness	\$403.14	207.8	Open Wound	\$403.14	207.8	\$106.92	26.5	\$572.41	142.0
Musculo-skeletal	\$286.51	147.7	Masses	\$410.15	211.4	\$298.93	72.9	\$431.48	105.2
			Injury	\$370.43	190.9	\$300.64	81.2	\$375.84	101.5
			Arthritis	\$199.76	102.9	\$141.32	70.7	\$201.54	100.9
GI	\$270.87	139.6	Vomiting	\$372.87	192.2	\$479.35	128.6	\$336.77	90.3
			Decreased Appetite	\$365.94	188.6	\$351.46	96.0	\$369.06	100.9
			Diarrhea	\$316.58	163.2	\$434.85	137.4	\$301.38	95.2
			Liver	\$236.91	122.1	\$213.68	90.2	\$239.64	101.2
			Food	\$126.75	65.3	\$79.67	62.9	\$165.69	130.7
Ears	\$266.34	137.3	Infection	\$266.34	137.3	\$175.29	65.8	\$282.12	105.9
Skin	\$264.16	136.1	Masses	\$395.41	203.8	\$508.86	128.7	\$385.46	97.5
			Infection	\$225.17	116.0	\$134.82	59.9	\$238.62	106.0
			Allergies	\$212.60	109.6	\$123.12	57.9	\$215.36	101.3
Urogenital	\$253.52	130.7	UTI	\$256.70	132.3	\$248.09	96.6	\$256.90	100.1
			Urinary Stones	\$249.40	128.5	\$0	0	\$249.40	100
Cardio-respiratory	\$203.20	104.7	Heartworm	\$237.61	122.5	\$0	0	\$237.61	100
			Heart	\$194.50	100.2	\$463.65	238.4	\$190.28	97.38
Internal Medicine	\$194.88	102.0	Cushing's Disease	\$245.24	126.4	\$0	0	\$245.24	100
			Diabetes Mellitus	\$229.62	118.3	\$198.95	86.6	\$232.41	101.2

Analysis of Veterinary Service Visits

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Urogenital	\$39,042.73	5.3	UTI	\$22,332.86	3.0	\$496.17	2.2	\$21,836.69	97.8
			Urinary Stones	\$16,709.87	2.3	\$0	0	\$16,709.87	100
Injury/Illness	\$26,607.33	3.6	Open Wound	\$26,607.33	3.6	\$2,566.19	9.6	\$24,041.14	90.4
Ears	\$23,437.55	3.2	Infection	\$23,437.55	3.2	\$2,278.75	9.7	\$21,158.80	90.3
Total	\$736,787.79					\$71,131.05	9.7	\$665,656.74	90.3

¹ Categories greater than 5% above the mean are highlighted. Color intensifies as deviance increases.

⁸ Total costs only include costs for the listed subcategories.

⁹ Percent of total cost per category or subcategory.

¹⁰ Percent of subcategory cost by species.

Cost Per Visit in Cats and Dogs with More Than Four Visits ¹¹									
Reason for Visit			Subcategory	All Pets		Cats		Dogs	
	Mean Cost	% ¹²		Cost	% ¹²	Cost	% ¹³	Cost	% ¹³
Dental	\$487.86	251.4	Periodontal Disease & Stomatitis	\$487.86	251.4	\$534.55	109.6	\$478.67	98.1
Injury/Illness	\$403.14	207.8	Open Wound	\$403.14	207.8	\$106.92	26.5	\$572.41	142.0
Musculo-skeletal	\$286.51	147.7	Masses	\$410.15	211.4	\$298.93	72.9	\$431.48	105.2
			Injury	\$370.43	190.9	\$300.64	81.2	\$375.84	101.5
			Arthritis	\$199.76	102.9	\$141.32	70.7	\$201.54	100.9
GI	\$270.87	139.6	Vomiting	\$372.87	192.2	\$479.35	128.6	\$336.77	90.3
			Decreased Appetite	\$365.94	188.6	\$351.46	96.0	\$369.06	100.9
			Diarrhea	\$316.58	163.2	\$434.85	137.4	\$301.38	95.2
			Liver	\$236.91	122.1	\$213.68	90.2	\$239.64	101.2
			Food	\$126.75	65.3	\$79.67	62.9	\$165.69	130.7
Ears	\$266.34	137.3	Infection	\$266.34	137.3	\$175.29	65.8	\$282.12	105.9
Skin	\$264.16	136.1	Masses	\$395.41	203.8	\$508.86	128.7	\$385.46	97.5
			Infection	\$225.17	116.0	\$134.82	59.9	\$238.62	106.0
			Allergies	\$212.60	109.6	\$123.12	57.9	\$215.36	101.3
Urogenital	\$253.52	130.7	UTI	\$256.70	132.3	\$248.09	96.6	\$256.90	100.1
			Urinary Stones	\$249.40	128.5	\$0	0	\$249.40	100
Cardio-respiratory	\$203.20	104.7	Heartworm	\$237.61	122.5	\$0	0	\$237.61	100
			Heart	\$194.50	100.2	\$463.65	238.4	\$190.28	97.38
Internal Medicine	\$194.88	102.0	Cushing's Disease	\$245.24	126.4	\$0	0	\$245.24	100
			Diabetes Mellitus	\$229.62	118.3	\$198.95	86.6	\$232.41	101.2

Analysis of Veterinary Service Visits

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It comes as no surprise that arthritis is the single most common subcategory in patients with multiple visits, with 46.8% of the visits in the musculoskeletal category. Many of these visits were simply to pick up medication rather than examination or consultation, so this percentage may not accurately indicate how much time veterinary staff devote to these patients. This tendency towards medication pick-up is also reflected in the cost per visit of the arthritis subcategory, which was only 69.7% of the mean cost for the musculoskeletal category. Interestingly, but unsurprisingly, dogs made up 97% of the visits for arthritis and had a cost per visit 42.6% higher than that of cats. Veterinarians are very familiar with the fact that families do not commonly recognize arthritis in their cats. The difference in cost is likely due to more thorough workup on the dogs diagnosed with arthritis. Whether this is due to owners being more willing to spend money on their dogs, veterinarians being more likely to recommend further workup, or the fact that dogs have more disease processes that present similarly to arthritis is outside the scope of this study.

A few other items of note become apparent when comparing the number of visits based on species, though most have ready explanations. On average, cats made up 11.9% of visits with dogs making up the other 88.1%. But cats accounted for over 45% of visits for GI food (e.g., picking up non-specific GI diets such as Purina EN or Hill's i/d), over 35% of visits for open wounds, over 30% of visits for flea and tick prevention, and over 25% of visits for vomiting.

In the case of food visits, this could be due to the fact that there are fewer over-the-counter diet options for cats than dogs, so families are more likely to continue to purchase from their veterinarian. Or it could be that cats are more likely to have GI disease controlled solely by diet change.

The increased number of visits for open wounds is very likely due to the frequency of abscess development in cats. This study did not examine the effects of indoor vs. outdoor lifestyles or multi-cat households on the number of visits, but it is likely that many of these cats either live with others or have a partially outdoor lifestyle that accounts for increased risk of injuries.

The increased number of visits for flea and tick control in cats is a bit surprising, since cats groom so consistently that many families do not realize their cats have a flea problem at all. On the other hand, when a cat has a flea allergy, the disease tends to be worse than it is in dogs. So it is possible that families are more likely to continue to purchase flea control for their cats, or are simply more likely to purchase the medication in bulk for their dogs. This second possibility is supported by the fact that the cost per visit for flea and tick prevention for dogs is 172.6% higher than that for cats.

The increased visits for vomiting in cats is also unsurprising. The frequency of diseases that can cause primary vomiting such as pancreatitis, food allergy, inflammatory bowel disease, and gastrointestinal neoplasia likely accounts for this increased percentage of visits. All of these categories, with the exception of neoplasia, would likely remain in the gastrointestinal category even if fully worked up. The difficulty of obtaining a definitive diagnosis for gastrointestinal neoplasia likely accounts for the rest remaining in the gastrointestinal category instead of neoplasia.

The subcategories where dogs had greater than 95% of visits include skin allergies, urinary tract infections, and heart disease. Dogs also made up 100% of visits for heartworm prevention, Cushing's disease, heartworms, and urinary stones.

The fact that skin allergies are more common in dogs is not entirely surprising. Cats may have more severe signs when it does occur, but this category of disease is certainly more common in dogs. Similarly, we now know that urinary tract infections are quite unusual in cats, so this is unsurprising as well. Heart disease is more common in cats than most families are aware of, but because the signs tend to be silent, the increased numbers of visits in dogs is unsurprising.

The diseases where dogs accounted for 100% of visits are, for the most part, expected. Families are much more familiar with heartworms in dogs. While many veterinarians still encourage heartworm prevention in cats, most products are combination products that are counted in the flea and tick category instead. Heartworms are also rarely tested for in cats, and treatment is only palliative care, so both the numbers of prevention purchases and heartworm diagnoses is zero in this set. Cushing's disease has been recognized in cats, but is rarely diagnosed, so it comes as no surprise that no feline patients with Cushing's disease were part of this data set.

The only surprising subcategory with 100% canine involvement is urinary stones. These are well recognized in cats, so it is a bit surprising that none were included in this data set. Strangely, there were also fewer than 50 cases of feline idiopathic cystitis included in this data set despite it being a common disease in general practice. There is no obvious explanation for why so few feline urinary issues were included in this study, and it bears further investigation.

In some cases, specific subcategories were further divided for better analysis. There was no need to break areas like arthritis down further, but the subcategory of endocrine disease was quickly broken down to evaluate the costs of treating Cushing's disease, diabetes mellitus, and

thyroid disease. Thyroid disease was not broken down into hypothyroidism and hyperthyroidism because the prices of medication and monitoring of these diseases are similar despite the different presentations and physiology. Addison's disease was not included in this analysis due to the low number of visits, though there was at least one patient in the data set with Addison's.

If we consider this more general subcategory, endocrine disease is the only category that surpasses arthritis when looking at the number of visits. There were 313 visits for endocrine disease, compared to 272 for arthritis. The endocrine visits broke down into 127 for thyroid disease, 120 for diabetes mellitus, and 66 for Cushing's disease. No single disease process had more than 40% as many visits as there were for arthritis, and this is why arthritis was considered the most common complaint despite endocrine disease having more visits in total.

Cost of care was examined as the total amount invoiced for a category, subcategory, and per visit. As mentioned above, some categories have only a slightly higher number of visits and a somewhat higher cost per visit, but this results in a significant difference in the total amount invoiced over the two years of the study. In general, cats only accounted for 9.7% of total spending. The most notable exception to this is the subcategory of vomiting, where over 32% of spending was on cats. The per-visit spending in this category was 42.3% higher for cats than for dogs. This indicates that not only were there an increased number of visits, but veterinarians seemed likely to do a more thorough workup on vomiting cats than dogs. Whether this is due to the well-recognized large number of causes or because initial empirical treatments were unsuccessful is unclear.

As discussed above, the most expensive category was the same as the most common category, but the subcategory analysis revealed different information. The most costly subcategory was periodontal disease and stomatitis, with \$74,155.30 invoiced. This total is 30.8% higher than the second most expensive category, musculoskeletal injuries. The most costly subcategory per visit was also periodontal disease and stomatitis, costing \$487.86 per visit. This cost is surprisingly low, considering that most cases of periodontal disease are addressed surgically. Pre-anesthetic evaluations and post-operative progress exams are likely pulling the per-visit price down. There were not enough visits for other dental conditions to be analyzed for cost, so the cost per visit for dental disease is the same as that for periodontal disease and stomatitis, making it the highest cost-per-visit general category.

Timely Treatment and Long-Term Management

One question that came up repeatedly during data analysis was how many of these visits could have been avoided. Are there preventable categories? Areas where treatment sooner would have been less costly? The data was examined to determine how many conditions treated were medically preventable, preventable with husbandry, or would have been simpler and less expensive to treat if they had been addressed earlier.

It goes without saying that earlier treatment is better than waiting for treatment, no matter the condition, and results in better outcomes. But is this something that can be accurately analyzed from a cost perspective? Dental disease is the classic example, and we had 26 cases where the medical records indicated that the disease was advanced before treatment commenced. Studies (Hoffman *et al.* 1996) show that most dogs have early periodontal disease by age 4, so it stands to reason that dental care should be started in early adulthood to avoid severe periodontal disease and the necessity of numerous extractions. Early dental care will undoubtedly result in better health for pets, as dental disease is believed to contribute to conditions such as heart, kidney, and liver disease (dos Santos *et al.* 2019). The pets would certainly be more comfortable without loose, infected, and painful teeth throughout their lifetimes. But is it less expensive to prevent dental disease than to treat it?

To answer that question, we would need data on the frequency of routine dental cleanings, the age at which they should be started, the cost of a prophylactic dental procedure, and the average age at which the disease would be considered advanced. We would also need information on the costs of advanced dental procedures, extractions, and number of extractions performed. This question is outside this project's scope but is interesting, nonetheless.

In other conditions, improved care likely decreases cost, but societal factors complicate the question. There were 21 cases identified with chronic, recurrent, or severe skin or ear infections associated with allergies. If we could control the underlying allergies in these patients, the visits for infections and other complications would almost certainly be reduced. The difficulty in this case is that many of these patients are not receiving care between these flare-ups. Medications or diets are discontinued due to the ongoing cost and the fact that the problem appears to be resolved. It is difficult to convince these families that routine treatment to control the allergies is less expensive than the occasional more involved treatment. Again, we would need solid data on the frequency of these flares and the costs of treatment, both acute and chronic, to be sure that prevention is less costly than periodic care.

Decreasing Costs and Improving Care

We are all aware that the cost of veterinary medicine is increasing quickly. According to an article from the Associated Press, the cost of veterinary care increased approximately 10% from 2021 to 2022. Compared to the Consumer Price Index increase of 6.5%, it is clear that veterinary medicine is being hit harder than many other industries. With 17 of the 25 subcategories examined for cost having a per-visit invoice of more than \$200, it is understandable that many families cannot afford the ongoing cost of maintaining their pet's health. The question is whether there is a way to decrease expenses without sacrificing the quality of medicine, pay for staff, or the ability of hospitals to continue to operate. This latter item includes factors that affect staff retention as well as facility maintenance, machines, and general overhead costs, all of which are non-negotiable. How can we do better for our patients without sacrificing ourselves?

There are innumerable problems in the veterinary industry right now, and probably even more ideas on how to fix them. Two ideas in particular would help address the issues identified above, both of which are actively being discussed in the veterinary industry at this time. These are better leveraging our technicians and using incremental veterinary care for our patients. In addition to these two possibilities, educating the pet families in our communities is critical. Agencies such as AlignCare are also working to help families in need through financial and social support and can further support this effort.

Many of the examples discussed above depend upon educating families with pets to increase compliance, encouraging them to seek care sooner, and improving the prevention of conditions through medicine and husbandry. Client education is one place where our veterinary technicians can be better leveraged. Allowing the technicians to educate our clients could increase the number of patients seen per day. It may also reduce the number of visits needed to treat certain conditions. In the same way, education on the necessity of preventive care and household dangers can easily be done by technicians. Improved education can only enhance the quality of life for the pets and their families.

The most obvious way to decrease the cost of care to families is to reduce prices. Unfortunately, this approach is simply not feasible for numerous reasons. Instead, we can focus on practicing incremental veterinary care. Incremental veterinary care is a topic that is controversial in the veterinary industry at this time. Many veterinarians already practice this way and do not understand why it is necessary to put a name to the way they practice. However, as veterinary medicine has advanced, many veterinary schools have begun teaching such specialized medicine that teaching the art of practicing incremental veterinary care needs to be conducted outside school. Without good mentorship and support for recent