A practical guide to expanding home-based primary care with telehealth.

Northwell Health®

westhealth

FOREWORD

The current need for comprehensive medical care in the home, allowing frail older adults to age in place, outpaces the supply many times over. This disparity will continue to grow as our population ages. The necessity to increase the number of individuals served through high quality home-based medical care programs that deliver services when and where they are needed led to our collaboration between Northwell Health and the Gary and Mary West Health Institute. This collaboration has allowed us to pursue extensive process improvement work with front line staff and to develop and implement telehealth innovations with the goal of reducing cost of care delivery, all while maintaining best-in-country outcomes.

Proving telehealth interventions at scale to a population who is homebound and of advanced age has been a winding journey. We started with a direct to consumer telehealth pilot to test the feasibility of video conferencing to address the social needs of homebound older adults. It resulted in many lessons learned as our patients and caregivers sought to utilize "out of the box" HIPAA-compliant video conferencing technology. We recognized both the barriers to this approach as well as the potential impact of telehealth on our population. After collecting extensive feedback from patients, caregivers, and our staff we looked to innovate in a manner more likely to drive patient-important outcomes.

Ultimately, this led to the development of a care model utilizing telehealth facilitators, in our case EMTs with additional training, to connect individuals with acute care needs via two-way video conferencing to our program's primary care providers located remotely: The Mobile Telemedicine Technician (MTT) model. MTT visits provide our patients a new way to access their care team in their homes and has allowed our providers to see twice as many patients as their usual daily workload permits. After completing several hundred visits, the overwhelmingly positive response from patients and caregivers encourages our pursuit for expansion into a larger geographic area with additional participating providers.

We sincerely hope that lessons learned through our process improvement and telehealth journeys that are shared in this document will inform the growth of similar models of care in other programs around the country. We are proud of the accomplishments described in this guide and believe it will empower you to develop innovative solutions that address the needs of our nation's senior population. We would like to thank the entire Northwell House Calls team as well as our colleagues from the Northwell Office of Clinical Transformation for their hard work and dedication to our mission of helping our frail elderly community members access top quality care where it is most needed and desired: in the home.

Sincerely,

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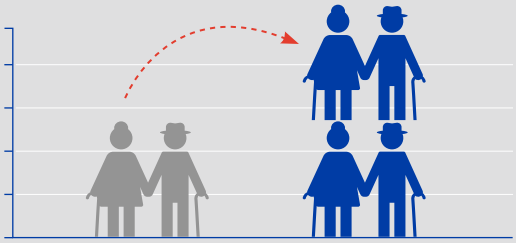
JUST THE FACTS



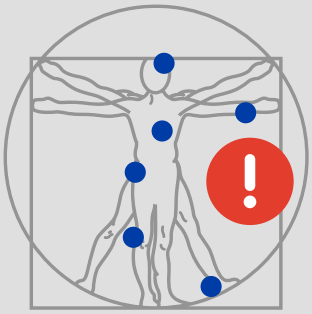
AMERICANS AGED 65 AND OLDER ARE EXPECTED TO GROW TO

MORE THAN 20%

OF THE AMERICAN POPULATION BY 2030.[1]

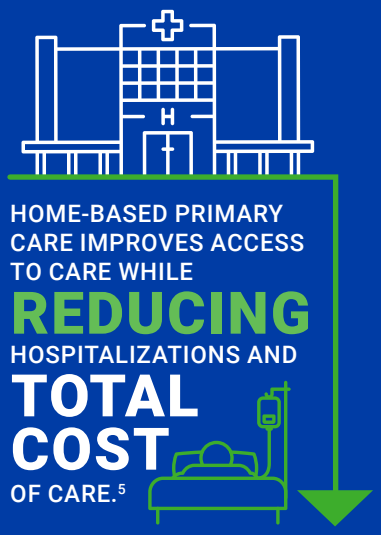
2 MILLION

AMERICANS AGED 65 AND OLDER CONSIDERED HOMEBOUND IN 2011.[2]



HOMEBOUND

ADULTS AGED 65 AND OLDER HAVE **MULTIPLE CHRONIC CONDITIONS**, HIGHER RATES OF PROBABLE DEMENTIA AND GREATER FUNCTIONAL LIMITATIONS.[3]



HOME-BASED PRIMARY CARE IMPROVES ACCESS TO CARE WHILE **REDUCING** HOSPITALIZATIONS AND **TOTAL COST** OF CARE.[5]

[1]Ortman JM, Velkoff VA, Hogan H. An aging nation: the older population in the United States. Current Population Reports. 2014; P25-1140:1-28.

[2]Ornstein KA, Leff B, Covinsky KE, Ritchie, C. S., Federman, A. D., Roberts, L., Kelley, A. S., Siu, A. L. and Szanton, S. L. Epidemiology of the homebound population in the United States. JAMA Intern Med. 2015; 175(7):1180–6.

[3]Soones, T., Federman, A., Leff, B., Siu, A. L. and Ornstein, K. Two-Year Mortality in Homebound Older Adults: An Analysis of the National Health and Aging Trends Study. J Am Geriatr Soc, 2017; 65: 123-129.

[4]Figueroa JF, Joynt Maddox KE, Beaulieu N, Wild RC, Jha AK. Concentration of potentially preventable spending among high-cost Medicare subpopulations: an observational study. Ann Intern Med. 2017; 167:706-713.

[5]Edes T., Kinosian B., Vuckovic N.H., Nichols L.O, Becker M.M. Hossain, M. Better Access, Quality, and Cost for Clinically Complex Veterans with Home-Based Primary Care. J Am Geriatr Soc. 2014 Oct; 6 2(10):1954-61.

[6]Stall N, Nowaczynski M, Sinha SK. Systematic review of outcomes from home-based primary care programs for homebound older adults. J Am Geriatr Soc 2014;62:2243–2251.

Chapter 1: Introduction

What is the Need?

The number of American seniors, defined as persons aged 65 years or older, is expected to grow to more than 20% of the American population by 2030[1]. Although 90% of this group reports that they would prefer to stay in their current residence as they age[2,3], most are living with multiple chronic conditions[4], which can make caring for them challenging. Many of the chronic conditions this population experiences — such as diabetes, heart disease, and chronic obstructive pulmonary disease (COPD) — follow complex disease trajectories, which result in functional impairment and disability[5]. As seniors face advanced illness and impairments, traditional outpatient care facilities can become difficult to access[6], particularly for the growing number of seniors who are homebound[7] (and therefore unable to leave the house to see their medical provider in the office). Consequently, seniors often go without care until their condition(s) requires 911 and subsequent emergency department (ED) transport. Furthermore, delays in treatment frequently lead to hospital admission in this vulnerable population.

Though EDs serve a vital role, more than half of 911 phone calls and ED visits are for non-emergent exacerbations of chronic conditions or psychosocial problems that would be better served in the primary care setting.[8] Particularly in the Medicare population, studies of beneficiaries estimate that up to 34% of patients transported by emergency medical service to an ED could have been safely treated in an alternative setting[8]. This excessive and inappropriate use of emergency services leads to both a poor patient experience and unnecessary costs.[9] In fact, 5% of the population consumes almost 50% of healthcare spending, largely through avoidable ED, hospital, and post-acute care utilization costs.[10] In addition to the costly spending, hospital admissions in seniors are a source of cognitive and physical

34%

OF PATIENTS TRANSPORTED BY EMERGENCY MEDICAL SERVICE TO AN ED COULD HAVE BEEN SAFELY TREATED IN AN ALTERNATIVE SETTING.[8]

decline, increased frailty, and other deteriorative conditions.[11] Finally, hospital admission for acute medical decline is frequently a precursor to long-term institutional care.[12] One way to support aging in place, and to potentially avoid costly and avoidable escalations, is through the use of home-based care delivery. Home-based primary care, for example, is an alternative method of medical care delivery for seniors that supports their growing desire to age in place while helping to control medical costs by reducing delays in care.

What is Home-Based Primary Care?

Given the importance of ongoing care for seniors with chronic conditions that put them at risk for multiple admissions, it is essential to eliminate barriers to appropriate primary care for this population. Perversely, for the frailest/most medically complex individuals, the need for sound primary care management is the greatest, as are the barriers to providing such. Home-based primary care can be part of the solution as it provides appropriate medical care in the home to high-risk, medically complex individuals often suffering from multiple chronic conditions and/or functional limitations or cognitive impairment. As of 2013, more than 5,000 providers made about 1.7 million home visits to American seniors.[13] Home-based primary care programs often use an interdisciplinary team of providers that can include physicians, nurse practitioners, registered nurses, social workers, emergency medical technicians, pharmacists and physician assistants. Home care medicine providers work with large and small health systems, accountable care organizations, managed care organizations, and medical practices.

Current home-based care programs tend to be expensive to run because they are physician-intensive, relying on a lot of high-touch and expensive face-to-face interactions between physicians and patients (in addition to the added cost of physician travel time). One way to overcome this problem is by using a team-based approach whereby care is delivered with the involvement of non-physician providers and other skilled professionals using a mix of high-touch (in-person) and low-touch (telehealth) interactions. Additionally, strategies such as care coordination, caregiver support, 24/7 access to urgent and emergent needs, and operational efficiencies are critical to the success of any home-based delivery model.

Who is the Guide for?

This guide was written to support organizations who want to more efficiently deliver home-based care to seniors. The guide was developed using insights from an ongoing collaboration between the Gary and Mary West Health Institute and Northwell Health's House Calls Program. Although that work is specifically focused on providing home-based care to frail seniors, this guide was written to apply more broadly.

Organization of this Guide

In this guide, we will describe steps to expand patient census within a home-based primary care program utilizing telehealth technology and optimizing workflows in efforts to more efficiently deliver home-based medical care. Although we describe the steps and lessons learned from this work sequentially, many of the efforts overlapped or were completed in parallel. Throughout this document, we highlight our own real-world application of these principles as we experienced them in our collaborative work. We also provide tips from our learnings, in sidebars and callout boxes. At the end, there is a discussion of the successes and pitfalls of two use cases deployed in a home-based primary care program: a direct-to-consumer model and a physician-extender model. The chapters were developed as standalone resources that can be used independently, based upon your needs, and they're divided into five key subject areas:

1. Financial Plan and Projection
2. Plan and Prepare
3. Assess Readiness and Optimize Workflows
4. Pilot Test
5. Implement a Telehealth Facilitated Model

Real-World Application

House Calls is a home-based primary care program in New York State that is dedicated to providing the highest quality of care for homebound, frail seniors. This program serves a cohort of aging individuals who are homebound and/or have limited mobility and therefore cannot easily leave their homes for medical appointments. Most patients cared for in this program live with multiple chronic conditions such as dementia, congestive heart failure and/or diabetes and require assistance to help them manage their decline in functional status. The goals of the House Calls program are to decrease disease burden, disease symptoms, stress on caregivers, and unwanted or potentially avoidable medical care. The Interdisciplinary Team (IDT) considers both the medical and psychosocial burdens of disease and works to align patients' and caregivers' goals with patient-centered care plans. For those at the end of life, House Calls providers strive to enable a dignified death at home when desired by the patient and the family. To provide comprehensive care along the continuum, the House Calls program partners with other Northwell Health programs such as the Clinical Call Center (triage), Community Paramedicine, home care nursing services, infusion therapy, and hospice.

The Northwell House Calls program employs an interdisciplinary team-based model that includes providers (a medical doctor and nurse practitioner), a nurse care manager, a social work care manager and a medical coordinator (who is responsible for administrative tasks such as scheduling, routing, insurance, orders, etc.). House Calls has earned an outstanding reputation for its high-quality, high-touch compassionate care, that includes a 24/7 Clinical Call Center, and the innovative use of community paramedics with online medical control to diagnose and treat acute illness and exacerbations of chronic diseases. These elements have enabled the program to avoid up to 80% of transports to the emergency department that otherwise often result in hospital admissions.[14]

Chapter 2: Financial Plan and Projection

As you consider expanding your program with telehealth, it is important to assess the financial implications of your options. One way to do this is by creating a financial model. In general, financial models are powerful planning tools that help leaders make informed business decisions in multiple sectors of the economy. These models should be developed using existing data to build and compare multiple scenarios, predict short and long-term outcomes and select the best path forward. In health care systems, financial modeling allows leaders to gain objective insights into areas of their practices and strategically plan in ways that they may not have previously considered.

Real-World Application

Our strategic planning began with an evaluation of the market opportunity for House Calls services, which included analyses of the current market and future market trajectory. This information provided a basis for estimating both current need and growth of the patient population and allowed the team to evaluate the program census growth target.

Practical Tip

Current market opportunity and projections of future opportunity can be defined using publicly available data and system-specific information to create a foundation for strategic planning. System-specific information can be obtained from your Business Development or Strategic Planning departments within a larger health system.

By applying the organizational mission and strategy to the catchment area of the House Calls program, the team was able to develop a long-term plan and define the work required to serve more homebound, frail seniors in their community.

Financial Modeling: Getting Started

The ideal place to begin financial modeling is by defining the goals of the model. Clearly articulating these goals will help you define both the data that you need in the model and the parameters to include when building the model. Goal setting will also help you determine the set of interested stakeholders who could be impacted by your decisions and who should be engaged with the work as early as possible.

Building a successful financial model is an iterative process that requires close communication between all stakeholders, including program leaders and the finance team. Determining a cadence for discussion and reviews will be helpful in building the model.

Close communication can take many forms:

- Strategy meetings to establish goals, assumptions, and other details
- Regular check-ins to identify data needs
- Frequent calls to discuss scenarios and how they relate to overall goals

Real-World Application

The goal of the House Calls financial model was to create a detailed, dynamic model that could be manipulated to (1) understand how expanding the program would influence the program's finances, (2) gain insights about the impact of diversifying revenue streams with program growth, and (3) enable decision-making to make House Calls financially successful.

We identified multiple House Calls team members who helped set goals, populate the model, develop scenarios and identify the path forward. These team members included the Program Director, Medical Director, Process Improvement Manager, Business Operations Manager, Strategic Planning and Business Development Manager and Strategy Analyst. By engaging team members from a variety of units within the program, we were able to benefit from incorporating multiple perspectives into the work. Although your organization may not have these exact titles, you can identify people whose input you will need to develop your model and achieve broad support for the work.

The next step is to establish the types and amount of data that your model will require. These will likely include (but should not necessarily be limited to):

- Expenses, both fixed and variable (see page 10)
  - *Staff salary, including fringe benefits*
  - *Utilities*
  - *Medical supplies*
  - *Mileage reimbursement*
  - *Office supplies*
  - *Property rentals*
  - *Training*
  - *Software licensing*
  - *Travel*
  - *Clinical call center*
  - *Community paramedic deployment expense*
  - *Billing and collection fees*
  - *Telehealth service fees or software fees*
- Revenue streams, including actual reimbursement from billing (see page 11)
  - *Fee-for-service billing*
  - *Per member per month for managed care contracts*
  - *Chronic care management coding*
  - *Advanced care planning codes*

Practical Tip

Define a baseline timeframe to assess costs such as a calendar year or span of years. For better predictive modeling, use at least one full year of actual costs, whenever possible. Take into account any program initiatives that might skew your data for the time period chosen — and choose time periods for which the likelihood of skewing is low. For example, if your program moved into a new building or made a one-time large investment in infrastructure within your timeframe, that may reduce the predictive power of your model. If that is the case, determine whether your program can amortize the costs of this one-time large investment over several years.

Example Financial Model: Expense Categories

Annual Costs of Fixed Expenses

	2019	2020	2021
Rent	$100,000	$103,000	$106,000
Telephone	$15,000	$15,500	$16,000
Printing	$9,000	$9,300	$9,600
Utilities	$15,000	$15,000	$15,000
Services	$2,200	$2,300	$2,400
Dues	$5,000	$5,150	$5,300
Training	$500	$500	$600

Annual Costs of Variable Expenses

	2019	2020	2021
Medical Supplies	$50,000	$51,500	$53,000
Billing & Collection Fees	$45,000	$45,000	$45,000
Mileage	$25,000	$25,750	$26,500
Office Supplies	$10,000	$10,300	$10,600
Software	$80,000	$80,000	$80,000
Travel	$2,000	$2,000	$2,000
Telehealth Service Fees	$10,000	$10,000	$10,000

Annual Salary Expenses

	2019	2020	2021
Office Managers	$50,000	$51,500	$53,000
Social Worker	$65,000	$67,000	$69,000
Nurses	$70,000	$72,000	$74,000
Physicians	$170,000	$175,000	$180,000
Nurse Practitioner	$120,000	$124,000	$128,000

Example Financial Model: Revenue Categories

Visit Types	Rate	Current & Projected Monthly Volume		
		2019	2020	2021
FFS Eval & Mgmt Level 2	$X			
FFS Eval & Mgmt Level 3	$XX	50	50	50
FFS Eval & Mgmt Level 4	$XXX	50	70	80
FFS Advanced Care Planning	$XXX	150	175	200
FFS Chronic Care Management	$XX	200	225	250
Managed Care Contract 1	$XXX	60	150	200
Managed Care Contract 2	$XX	80	100	125
Managed Care Contract 3	$XX	100	125	150

Practical Tip

Consider the per-patient cost of adding telehealth when balancing the per-patient revenue.

Developing Constraints and Assumptions

The next step in building your model is to define its constraints and assumptions. Constraints are factors that are limited due to other factors such as operational capacities, leadership and strategic decisions, clinical judgment or other key stakeholder decisions. A discussion with key decision makers and stakeholders in your organization will help to identify the variables that must be limited. An assumption can be used instead when you are unable to identify and predict costs for a factor, or when it is unnecessary and difficult to obtain an exact value for a factor.

Real-World Application

The House Calls program decided that the ratio of patients per House Calls provider would be limited to a maximum of 200 patients per provider. This constraint was included in all three scenarios and meant that as projected patient volume increased, new provider full-time equivalents (FTEs) had to be added to the costs of running the program to keep patient volume per provider capped.

The House Calls model used an assumption of a steady rate of annual expenditure growth of 3% because it was not possible to get an exact number for this projection. It is important to track all assumptions in the model as assumptions, and constraints can change in the iterative process of model building. Careful documentation of decisions and decision processes will be helpful for the future presentation of the model to others including leadership.

Assumptions and constraints for the House Calls program's financial model:

Financial Model Assumptions

- 3% annual growth rate in all expenses
- Fee-For-Service reimbursement will be constant (i.e. at 2017 reimbursement levels) over the 3-year period (Evaluation and Management codes)
- Decrease in census size due to patients lost to death is made up for in enrollment practices

Financial Model Constraints

- Patient to staff member ratio cannot increase above the following levels:
    - Patients per provider = 200
    - Patients per care manager = 200
    - Patients per Medical Coordinator = 400
- No additional administrative, billing, or intake FTEs will be added
- Daily patient census growth steady at 10% per year over the 3-year period
- No FTEs could be removed

Creating Levers

The next step in building your financial model involves creating levers. In this context, levers are components that can be "pulled" or adjusted to change financial outcomes with the goal of increasing revenue and/or decreasing cost. The levers in your financial model should be structured so that they can be manipulated to demonstrate how incremental changes will influence your program's future financial performance. Additionally, levers should be adjustable from year to year.

Practical Tip

The financial model is meant to be dynamic. Levers can be scaled up and down based on conversations with your team and leadership.

Real-World Application

Levers for the House Calls program financial model:

Revenue Levers

- Number of Fee-For-Service patient visits
- Number of Chronic Care Management visits receiving reimbursement
- Number of managed care contracts
- Independence at Home (A Medicare-sponsored innovation model designed to provide home-based primary care to chronically ill seniors) reimbursement
- Managed care patient enrollment

Expense Levers

- Clinical team composition
- Clinical Call Center allocation
- House Calls fixed and variable expenses
- Volume of community paramedics deployed

Developing Scenarios

Once you have identified your goals, assumptions, constraints and levers, you can begin to populate your model with real-world data for three scenarios. The three scenarios are designed to forecast financial outcomes over a period of a few years based on projections of changing key revenue sources and costs. Define scenarios that range from "Baseline" to "Moderate" to "Aggressive" for each of the levers and adjust these levers accordingly. Make sure the scenarios are still feasible to implement and execute. "Baseline" or "Moderate" or "Aggressive" will differ for every organization based on your comfort, readiness and what your team decides is attainable. A "Baseline" scenario is often built with little to no change in your revenues or costs. It serves as a baseline to predict how the current practice financials will look in the next few years. A "Moderate" scenario is a projection built with changes in revenue and cost that require additional work, such as larger increases in patient census, contracting with managed care

organizations or reducing a large cost. Finally, an "Aggressive" scenario is built with large targets for revenue and large reductions in cost that would require significant changes in program structure. For example, let's consider the scenarios in the table below:

Each of these scenarios allows for revenue forecasting based on changing the organizational structure of your program. The information in these scenarios will allow for revenue projections that can be compared over three years (figure next page) and provide you with information to make decisions. The financial model is an important tool to help assess the growth and sustainability of your program.

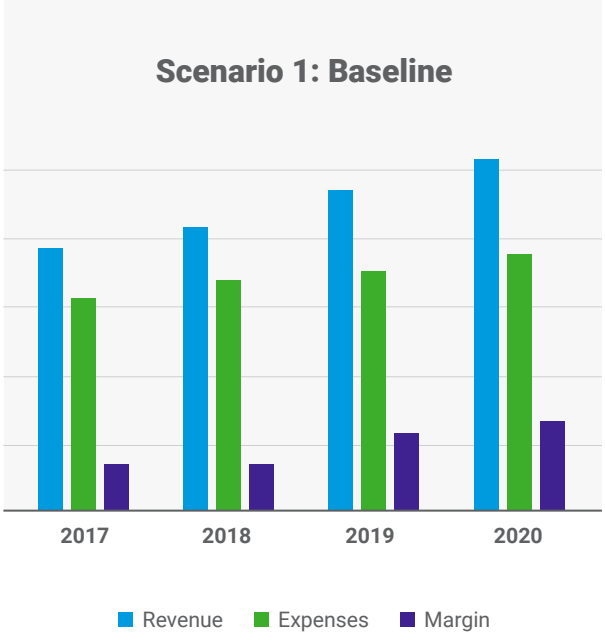
Practical Tip

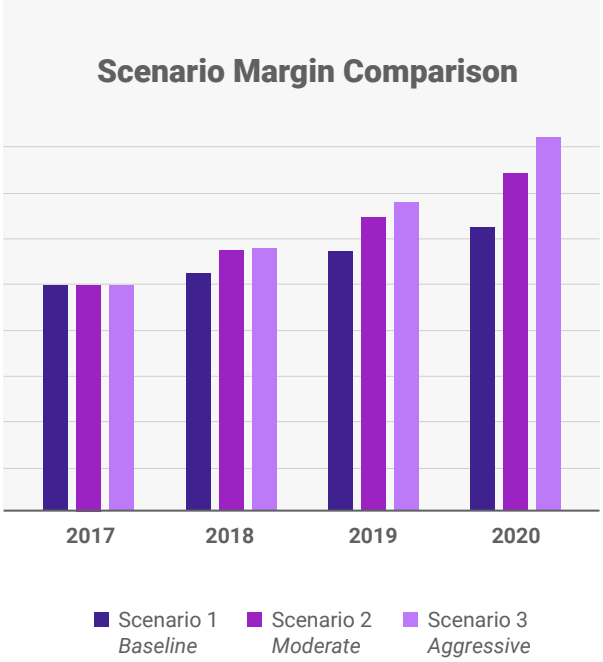
These financial models will not be perfect. Even simple best-guess models are great ways to engage with the financial leadership of your organization. Don't be afraid of being corrected by leadership – just having the conversation is a step to victory.

	Scenario #1: Baseline	Scenario #2: Moderate	Scenario #3: Aggressive
	Description	Description	Description
Evaluation and Management Volume	• Maintain volume in all three years	• Increase by X% in year 1 • Maintain volume in year 2 and year 3	• Maintain volume in year 1 then decrease by X% in year 2 and decrease volume X% in year 3
Chronic Care Management Billing Code	• Maintain current volume in all three years	• Increase volume by X% per year	• Increase volume by X% per year
Managed Care Contract	• Add X new patients each month across all three years	• Add X new patients each month across all three years • Add another managed care contract in year 3	• Add X new patients each month across all three years • Add another managed care contract in year 2 and add X new patients in year 3
Staff	• Add one physician and one nurse in year 1 • Add one administrative staff in year 2 • Add one physician in year 3	• Add one nurse practitioner and one nurse in year 1 • Add one administrative staff in year 2 • Add one physician in year 3	• Add one nurse practitioner and one nurse in year 1 • Add one administrative staff in year 2 • Add one nurse practitioner in year 3

Financial Models

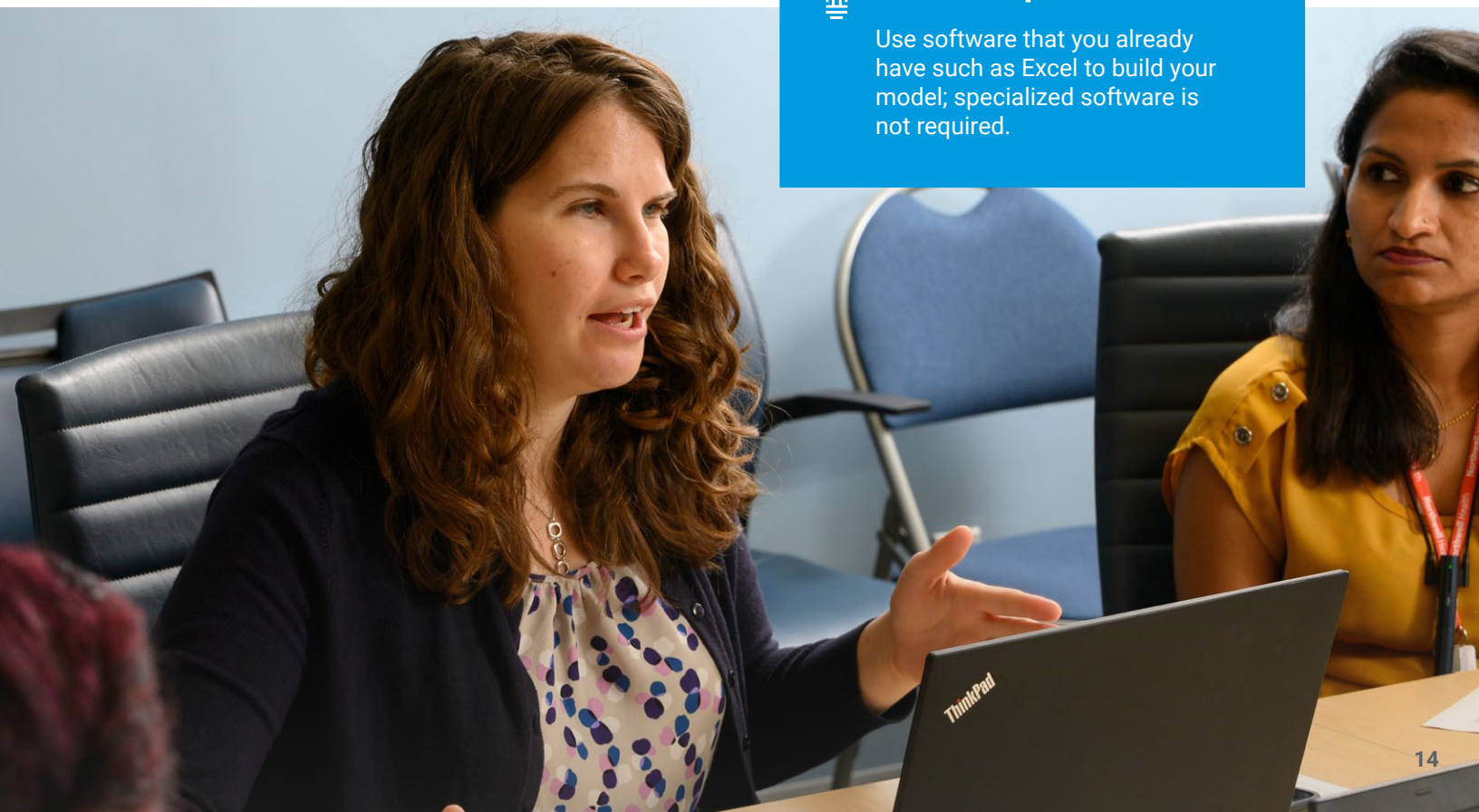
These graphs demonstrate the type of information that the financial model can provide. The model allows you to easily visualize and compare the differences between the proposed approaches, and understand the impact of levers built into each scenario.





Practical Tip

Use software that you already have such as Excel to build your model; specialized software is not required.



Chapter 3: Plan and Prepare

When embarking on a journey to implement telehealth in efforts to expand a home-based practice, a critical initial step is to clearly define and understand the problem that you are trying to solve. Although it may be tempting to develop a telehealth program simply because there are so many new and exciting telehealth tools, if you fail to clearly articulate both the problem you are trying to solve and your goals, you will never be able to assess how well telehealth is performing towards your goals. By clearly defining your problem, you can then start setting goals. You will also be better equipped to communicate the objectives of the work to stakeholders. To define your problem, ask yourself and your team what you are trying to accomplish and why. There are many methods to understand a problem. One easy method is to ask staff through interviews and/or focus groups. Document and discuss the responses and then develop a set of SMART (specific, measurable, achievable, realistic/relevant and timely) goals.

DEFINE YOUR PROBLEM

IDENTIFY SMART GOALS

ENGAGE STAKEHOLDERS

OUTLINE YOUR APPROACH

Interviews

Interviews are a powerful method to gain critical insights into your employees' perspectives, workflow and innovative ideas. It is vital to foster an environment of openness to ensure that your staff feel free and comfortable to provide their honest feedback. As such, whenever possible, use an independent interviewer – or at least avoid having supervisors interview the staff that they supervise. Prior to the interview, develop a few key questions that you would like to ask everyone. The interviewer should take notes or record the interview to help identify key themes or problems mentioned by staff.

Real-World Application

At House Calls, we conducted 16 interviews aimed at obtaining staff feedback on scaling the program and gaining their perspectives on the use of telehealth in the program. The researchers conducted the interviews with a sample of staff from each of the three roles: Medical Coordinator, Provider and Care Manager.

Questions asked of House Calls staff included:

- Please tell me about your experience caring for patients in the House Calls program.
- If you could have anything you needed, how would you design House Calls to make it more efficient?
- What are the strengths and weaknesses of House Calls?
- What would you change to make House Calls better?
- How do you feel about adding more patients to the practice? Why?
- How would you feel if we added telehealth technology to patients' homes as part of their care in the House Calls program?
- Would adding this technology make you feel comfortable/uncomfortable? Why?

Additionally, we asked follow-up questions to encourage staff to elaborate on their initial ideas. Interviews took an average of 30 minutes each and were recorded and transcribed. Afterwards, responses were compiled and analyzed for themes such as common challenges, concerns, and ideas.

Focus Groups

Another way to obtain staff perspective and input on telehealth use is through focus groups. Focus groups are facilitated discussions that encourage open conversation and sharing of opinions. Facilitation of the discussion by a neutral third party may help participants engage more openly. Participants need to be comfortable sharing their opinions and exchanging and building ideas with other group members. To foster an open and non-threatening atmosphere, avoid grouping supervisors with those they supervise. In general, it can be helpful to simply be mindful of all reporting relationships and roles when forming groups.

Hold the focus group in a comfortable location, have a designated person take notes of key themes or record the focus group if the group is comfortable with recording.

Consider providing food or snacks. Avoid holding the focus group at the end of the work day when staff are tired.

The focus group facilitator's job is to:

- Set a clear agenda and have a list of prepared questions to start the conversation and keep it going.
- Explain the reason for the focus group, and what will happen with concerns or ideas that are generated.
- Establish rules for respectful, productive discussion, emphasizing that all opinions are valued.
- Make sure all participants have a chance to speak and enough time to express their ideas.

Practical Tip

Recording an interview or focus group can be valuable as it is often the best way to capture information discussed and is more reliable than note-taking. Additionally, the facilitator or interviewer can be more engaged in the topic instead of worrying about taking notes while speaking. However, there is a trade-off. Recording sessions can make staff fearful of expressing their opinions. If recording feels too overwhelming for the group, assigning an independent note-taker or two could be a viable way to capture the information while providing a safe environment for feedback.

Real-World Application

At House Calls, three separate focus groups were conducted for each role (Medical Coordinators, Providers and Care Managers). In conducting three separate focus groups, we were able to discuss barriers and facilitators to program expansions and telehealth implementation that were specific to the staff role. Innovative ideas and areas of concern mentioned in the interviews were discussed in the focus groups to review and revisit common issues that arose during the individual interviews. Staff assembled for one-hour group conversations that were moderated by an outside facilitator. The facilitator explained the importance of every focus group participant's perspective and emphasized that respect for all opinions was required. Conversation starters and questions included:

- Just imagine you're doing your job every day. What would make it easier for you?
- What would make you more efficient?
- If you could do anything, what would you do to scale the House Calls program?
- In your opinion, can we handle an increase in patient calls with our current infrastructure?
- In general, what kinds of approaches would be helpful from the health IT perspective to make it easier to help your patients?
- What are your thoughts about how we could use health IT to make your job easier?
- What type of telehealth technology would be useful in treating your patients? What type of information would you need?
- What workflows would need to be changed if we integrated health IT?

Analyzing the Interviews and Focus Groups

Synthesizing the information from your interviews and focus groups can be as simple as comparing notes between different interviewers. As each interviewer reviews their notes, have discussions within the team of interviewers and with the facilitator to come to consensus on key themes, barriers, and innovative ideas. In-depth analysis of interview data can be performed using qualitative methods. If you prefer a more in-depth, time-intensive analysis of your interview and focus group data, consider partnering with an academic institution that may have students interested in a research project.

Real-World Application

After the focus groups and interviews, the research team discussed their notes and the themes that emerged from the interviews and focus groups. Two levels of review were conducted, informal and formal. The team informally discussed the key themes that emerged. For example, we discovered that staff felt ready and excited to use the secure video technology to conduct virtual visits with patients because the technology would allow them to see the patient without the burden of data management. The research staff conducted a further in-depth review of the interview and focus data via qualitative analysis of transcript data.

Top staff concerns included:

- their capacity to respond to an increased number of alerts
- their capacity to interpret and act upon incoming data
- increasing provider burden, and
- potential negative impact on the patient-caregiver-provider relationship with remote patient monitoring.[15]

Staff identified two problems telehealth technology could solve. These problems helped the team form the initial two use cases for telehealth implementation in the House Calls program:

- Reduce travel-related time waste and expenses for care managers in conducting routine check-in visits via telehealth.
- Triaging "change in condition" calls via telehealth to increase the number of calls that could be resolved without the need for the in-person visit from a House Calls provider.

Engage Stakeholders

Once you have defined your problem and goals, you should map out the stakeholders with whom you need to engage so you can ensure that incentives and priorities are aligned and that there is adequate support to initiate a new telehealth program. The level of engagement may be informal or formal depending on individuals' roles.

You should work to secure early buy-in from within your organization, including leadership, team members (e.g., physicians, nurses, medical assistants, social workers, pharmacists), and former patients, their families and caregivers.

When securing buy-in, work with a coherent vision and draft plan, rather than a completed plan, for what you want to accomplish. Instead of "selling" your idea – or describing and then defending your approach to your stakeholders – approach it as a chance for co-creation and collaboration. An approach that is developed with stakeholder input will likely lead to your stakeholders feeling more invested in the work.

It is also important to understand your stakeholders' missions and priorities. Tailor your message so that they will understand how the program you are proposing will provide value and is aligned with their needs. This messaging will likely differ depending on which stakeholder group you are engaging. While engaging with stakeholders, try to understand how *they* define success, because that will inform the success metrics you establish together. For example, patients and caregivers are likely incentivized to try telehealth visits to reduce the wait time and receive an in-home provider visit. Providers, on the other hand, may be incentivized by reductions in travel-related time resulting from the introduction of telehealth. No matter what type of stakeholder you are talking with, make sure you are prepared and have the necessary information and data to back up your value proposition.

Outline your Telehealth-Enabled Approach

The past decade has seen enormous growth in telehealth technology. This proliferation can make the task of choosing an application seem daunting. One way to start developing your new approach is by getting familiar with some telehealth basics described by the Office of the National Coordinator for Health Information Technology (HealthIT.gov), such as these four main applications:

1

LIVE VIDEO CONFERENCING:
two-way, real-time video and audio between a patient and a provider

2

STORE-AND-FORWARD:
information transmission of recorded health history that is saved for review by a provider at a later time

3

REMOTE PATIENT MONITORING:
personal health and medical information gathered at the patient's home and passed to a provider for review at a different location and, potentially, at a different time

4

MOBILE HEALTH:
information passed through mobile devices (typically from provider to patients) such as education, targeted reminders for medication and targeted text messages

Every telehealth application has a unique software interface and, in many cases, was designed to fit a specific need. Taking time to determine the requirements of the telehealth application that will accommodate your use case as well as the needs of the patient population in your program will be valuable prior to speaking with vendors. For instance, if it's necessary to have the technology integrate with your electronic health record (EHR), then identifying vendors who can meet this need is essential. Create a list of must-haves and nice-to-haves with staff. This list can help sort through the various telehealth applications and identify appropriate vendors for your program.

Real-World Application

The House Calls staff interviews and focus groups also uncovered telehealth must-haves and nice-to-haves. Staff felt that if any of the requirements in the must-have category were not present in the telehealth solution/plan, the program would ultimately not work. For example, one must-have was that the solution must be designed to work for people with low literacy (digital and otherwise) and little experience with technology. This requirement was necessary because staff understood that the population they serve (homebound, frail seniors often with low literacy and very little experience with technology) would not be willing or able to use telehealth technology that was complicated. In other words, any solution that could not be used by the to-be-served population was not worth investing in. In contrast, one nice-to-have element was that the telehealth solution could allow for the creation of alerts that would be sent to the care team. House Calls staff determined that this type of feature would be useful, but the program could be successful without it.

House Calls Program Needs

MUST-HAVES:

- Design accommodates those with low literacy and little experience with technology
- Includes the ability to perform HIPAA-compliant, two-way synchronous video on portable devices such as smartphones and simple touchscreen tablets
- Is adaptable for integration with AllScripts EHR system (in the future)
- Requires minimal training
- Is scalable to many diverse patients
- Is low cost for broad dissemination

NICE-TO-HAVES:

- Allows for building and setting alerts to care team through the electronic system
- Uses a lightweight platform that is simple to access from multiple technologies (e.g. phone, computer, tablet)
- Uses broadband technology since many patients with advanced illness will not have access to, or familiarity with, internet and Wi-Fi
- Is available in multiple languages

Technology Landscape: Identifying Telehealth Vendors

Once you have a list of requirements (must-haves and nice-to-haves) and the use cases defined, you should begin identifying telehealth vendors. If available to you, you can elicit the help of your Telehealth department. The Telehealth department will know the readiness of your organization including operational capacity, technical infrastructure and leadership support. Additionally, if needed, there are several free telehealth readiness assessment tools available online.

Practical Tip

If your organization does not have a Telehealth department, engage with the Information Technology (IT) department, which often co-leads these efforts in health systems with a clinical or administrative lead.

Implementation of telehealth tools within your organization can be time-consuming and require many levels of approvals including contracting with the vendor, vetting software and IT security, establishing business associate agreements (BAA), purchasing and installation. Due to the large number of resources required for new technology, many healthcare provider organizations such as hospitals and health systems prefer that their departments utilize tools already in use within their systems before adding new ones. Contacting these departments will enable you to determine if your organization already has a preferred vendor under contract or is in the contracting phase. The benefits of leveraging an already existing tool or platform within the organization include:

- IT and information security have already vetted the product
- Legal and contracting language has been developed and executed
- Required HIPAA documentation, such as a BAA, has been signed

- The support model is also likely to have been developed
- Consent forms have been developed
- The tool is already incorporated into other parts of the system, so there is familiarity and training resources
- Cost for the tool may already be accounted for, and if not, there may be clear expenses that require little or no negotiation.

If your organization does not have preferred telehealth vendors or if the preferred vendors do not meet your needs, you should identify outside vendors. Prior to engaging with telehealth vendors, however, teams should clearly define their use case(s), needs, tools, and any in-house technology considerations. Vendors will often have additional ideas and solutions to consider. The number of options and opportunities vendors present can add complexity and extend the decision-making process, so it is important to have well-defined needs and a clear budget prior to engagement. Searching for appropriate vendors can be done through internet searches, conference exhibit halls, discussions with other programs or colleagues and telehealth conferences.

SAMPLE QUESTIONS WHEN INTERVIEWING OUTSIDE TELEHEALTH VENDOR

Functions of Device Questions

- Are your applications customizable? If so, can you explain how you work with our team to customize the application?
- Do you have the capability to build in alerts for response by the care team?
- Is information pushed to the provider? Are reminders pushed to the patient and caregiver?
- Does your system allow for picture upload?
- Does the system have a dashboard for tracking of patients by the care team?
- Is your system available in multiple languages?
- Does your system integrate with any EHR?
- Does your system allow for communication between provider and patient/caregiver?

Expertise and Implementation Questions

- What is your level of experience with advanced illness and patients with limited cognition?
- How many health systems have used your system?
- Can you provide references for your system?
- What is the complete process for implementation?
- How much time should we expect our working team to allocate for implementation?

Expertise and Implementation Questions

- What is the cost structure? Is it a membership model (per patient per month) or do you offer a flat fee?
- Are there setup fees?
- Are device fees and software fees separate? What is ongoing maintenance fee?
- What is the process for training staff and providers?
- What is the level of training and after-install support you provide? And what is the cost?
- Do you provide any assistance with responding to alerts, i.e. suggested workflows?

Implementation of a new telehealth technology within your organization will involve the coordination of several departments such as legal, IT, telehealth, program management and others. For more information or resources about the process of telehealth implementation, consult the California Telehealth Resource Center and the implementation guide for telehealth in a long-term care facility.

Real-World Application

The Northwell Health System already had a contracted telehealth vendor that fit the use case of the House Calls team. The House Calls team thus worked with the Telehealth department to understand the current deployment of the technology in the health system and the workflow to use the technology within the health system.

Practical Tip

Identifying vendors, working with existing or new platforms and getting buy-in with IT departments can be some of the biggest risks to the success of your timeline and project plan. Planning ahead, identifying champions in IT and talking with others who have implemented telehealth can help you plan accordingly and know what to expect.

Chapter 4: Assess Readiness and Optimize Workflows

"After our process improvement work, the staff is more confident in their roles and trusts that they are being assisted and responded to. The program has become more efficient plus systematic and standardized."

– Staff member

It is important to spend time understanding your organization's and staff's readiness to change whenever you are considering making a large change such as increasing the patient census or implementing a new workstream. Simply adding new technology or a new process without understanding how it will impact workflow and staff duties can be problematic. In contrast, including your staff in the decision making and defining of technology workflows will be beneficial to morale and productivity. As the experts in their work, staff can provide innovative ideas for using technology and set realistic expectations for the work.

In our process improvement work, we had the opportunity to work with experts within the Northwell Health System (Clinical Transformation Office) and an outside Lean Six Sigma consultant. If connected with a larger system, a process improvement team could be helpful to provide guidance in applying the methods.

We utilized several process improvement templates and techniques based on the Lean methods. There are several ways to implement these tools and our guide highlights one way. In some places, we adapted the methods in efforts to fit within the clinic workflow and not be a large disruption to operations of the clinic. We utilize the following process improvement steps to evaluate staff's workflows:

- Process Walk
- Value Add/Non-Value Add Analysis
- Root Cause Analysis
- Fast Track Decision Making Session
- Longitudinal Monitoring

Practical Tip

Identify key individuals from your team who can serve as champions of the process improvement. These individuals should help remind staff of the goals of the work and coach others through the change process.

Process Walk

A process walk is a procedure for observing and recording workplace activities to facilitate assessment of the complexities of work and burdens on staff. Through employee observation, you will be able to document how jobs are being performed (as opposed to how those jobs are described in a workflow document) and track the amount of time spent on critical activities. This should lead to insights into bottlenecks and challenges that you can then mitigate.

The benefits of a process walk include:

- Understanding how work is carried out in real time instead of looking at a written process or workflow. Processes may be more convoluted than you expect.
- Getting feedback directly from employees about their challenges and barriers.
- Empowering employees to define their ideal process.

"The process improvement work that was done allowed staff to communicate freely"

– Staff member

Real-World Application

Three members of the research team performed the process walk of Medical Coordinators, Care Managers and Providers. Staff were observed over a three to four hour period to capture their tasks over the workday. A data collection tool was used to track details of their day and how much time was spent on each task. As the staff were completing tasks, researchers would ask follow-up questions to understand the process better as well as the staff perspective. These questions included:

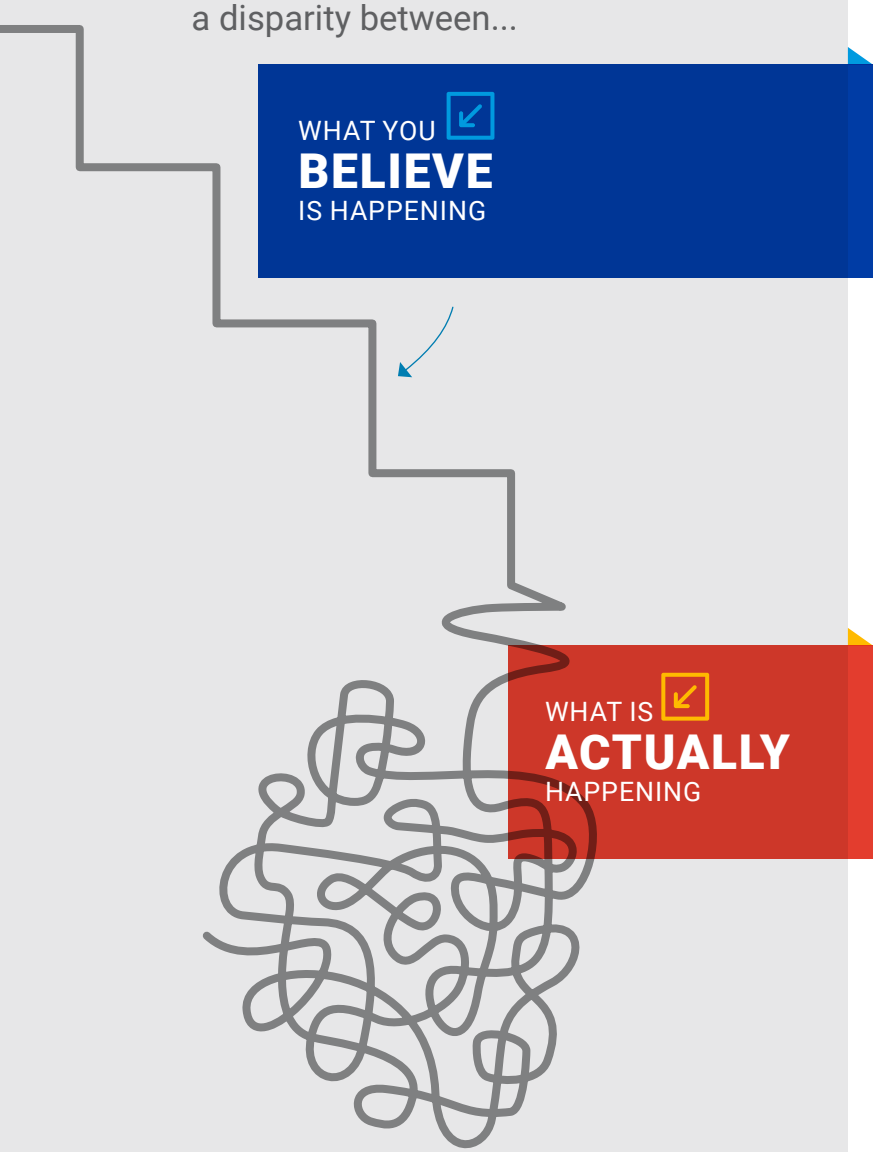
- Why are you doing the task this particular way?
- Who else is involved in this process?
- What barriers do you encounter?
- Do you feel that this task is important or valuable?
- Is there another way you would prefer to accomplish this task?

The data collection tool used for the process walk with Medical Coordinators is below:

Start Time	End Time	Time Elapsed (min)	Activity

What Can a Process Walk Tell You?

A process walk can reveal a disparity between...



Practical Tip

Process walk observations can be uncomfortable for employees as they may feel their work performance is being judged. Prior to a process walk, explain that observations are necessary to identify the bottlenecks in their workflow and emphasize that it's an opportunity for employees to fix processes that are frustrating or wasteful. Avoid having supervisors perform the process walk.

Understanding Value and Waste in Your Organization

Once workflow tasks are identified through a process walk, you should analyze them to identify opportunities for improvement and streamlining. One method for conducting an analysis of this type is to categorize the identified tasks as either Value-Add, Necessary Non-Value-Add or Unnecessary Non-Value Add. Your definition of "value" will depend on your organization and should be defined in collaboration with leadership.

However, in general, tasks that are deemed Value-Add tasks are those that provide direct value to the customer, i.e. patients and/or caregivers. Necessary Non-Value-Add tasks are those that do not provide direct value to patients and/or caregivers but are necessary tasks to enable Value-Add tasks. Examples of these include scheduling provider appointments and billing. Lastly, Unnecessary Non-Value Add tasks are those that neither provide direct value to patients and/or caregivers nor are they needed to facilitate Value-Add tasks. In essence, these tasks represent Waste in the system and opportunities to improve and streamline workflows. Waste in this context is often split into seven categories.

VALUE ADD

Tasks *directly serving* the patient or caregiver

Examples:

- Patient visit scheduling
- Medication reconciliation
- In-person or telehealth patient visit

NECESSARY NON-VALUE ADD

Steps that *do not directly provide value*, but are required to provide value

Examples:

- Filing paperwork
- Processing new patient paperwork
- Driving to patient appointments

WHAT IS "WASTE" IN A PROCESS?

Waste or ***Non-Value Add Tasks*** are tasks that *provide no value and waste time and/or resources*. We used the forms of waste commonly used in Lean methods and adapted definitions, when necessary, for the Medical Coordinators specific workflow.

COMMON EXAMPLES INCLUDE:

MOTION
Physical movement adding no value but required for a task

INSPECTION
Inaccurate or incomplete information

INTERRUPTION
Event that breaks current task / concentration

LOCATING
Physically searching for necessary information

EXTRA PROCESSING
Tasks that are unnecessarily repetitive

CLARIFICATION
Additional information needed to complete task

WAIT/DELAY
Time lag waiting for response or clarification

Real-World Application

Data from the process walk observations were analyzed and each activity in the process was designated as Value Add, Necessary Non-Value Add, or a Waste category. Some definitions of Waste seemed to overlap, so the team discussed how to apply each Waste category and came to consensus prior to analysis of the data. Then, two people applied the categories to a sample of the observation data and then compared their categorization of observations. Discrepancies in categories were discussed and consensus was reached. The remaining data were analyzed.

Examples of House Calls Value-Add Tasks:

- Patient visit scheduling
- Medication reconciliation with the patient
- In-person or telehealth patient visit

Examples of House Calls Necessary Non-Value Add Tasks:

- Filing paperwork for durable medical equipment or referrals
- Processing new patient enrollment paperwork
- Driving to patient appointments

Once the categories had been applied for all activities from each observation (i.e. each person observed), we added up the number of tasks that were Value Add, Necessary Non-Value Add and Waste to obtain an overall summary of how much work was Value Add and how much work was wasteful.

Practical Tip

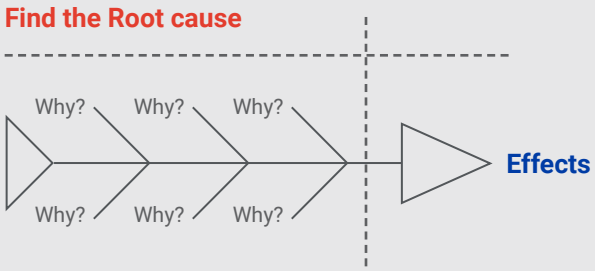
It's important to remember that Waste tasks will likely be part of any workflow —it's impossible to eliminate all Waste in a process. The goal is to minimize the Waste within the system that is within your control.

Real-World Application

Activity Examples of Waste at House Calls	Waste Category
Taking incoming call while on another line scheduling a patient visit	Interruption
Calling to check status of prior authorization, which should already have been sent	Clarification
Leaving work station to retrieve paperwork from scanner	Motion
Searching for paperwork or form	Locating
Reviewing patient insurance info to identify mistake	Inspection
Leaving voicemail message attempting to confirm appointment	Waiting
Canceling/rescheduling list of appointments	Extra Processing

Root Cause Analysis

Once you have determined the tasks that are contributing to the highest amounts of Waste, the next step is to understand why this Waste is occurring in the system. Root cause analysis is a systematic approach to identifying the origins of Waste or problems and responding to them. By getting to the root of problems, as opposed to "putting out fires" as they occur, you can more effectively manage your operations. There are many books and free websites available to assist you in conducting root cause analyses. For example, the Joint Commission published a guide called "Root Cause Analysis in Health Care: Tools and Techniques" that we recommend. The Centers for Medicare and Medicaid also published a tutorial on root cause that uses the 5 Whys with a fishbone diagram.



Real-World Application

At House Calls, we used the "5 Whys" technique. It is a simple technique that starts with asking staff why the original problem is occurring. For each answer, continue to ask why until an underlying reason emerges, which typically occurs in 5 whys. It is helpful to interview staff individually to get honest feedback, but small-group conversations could also work. The following table provides an example from House Calls.

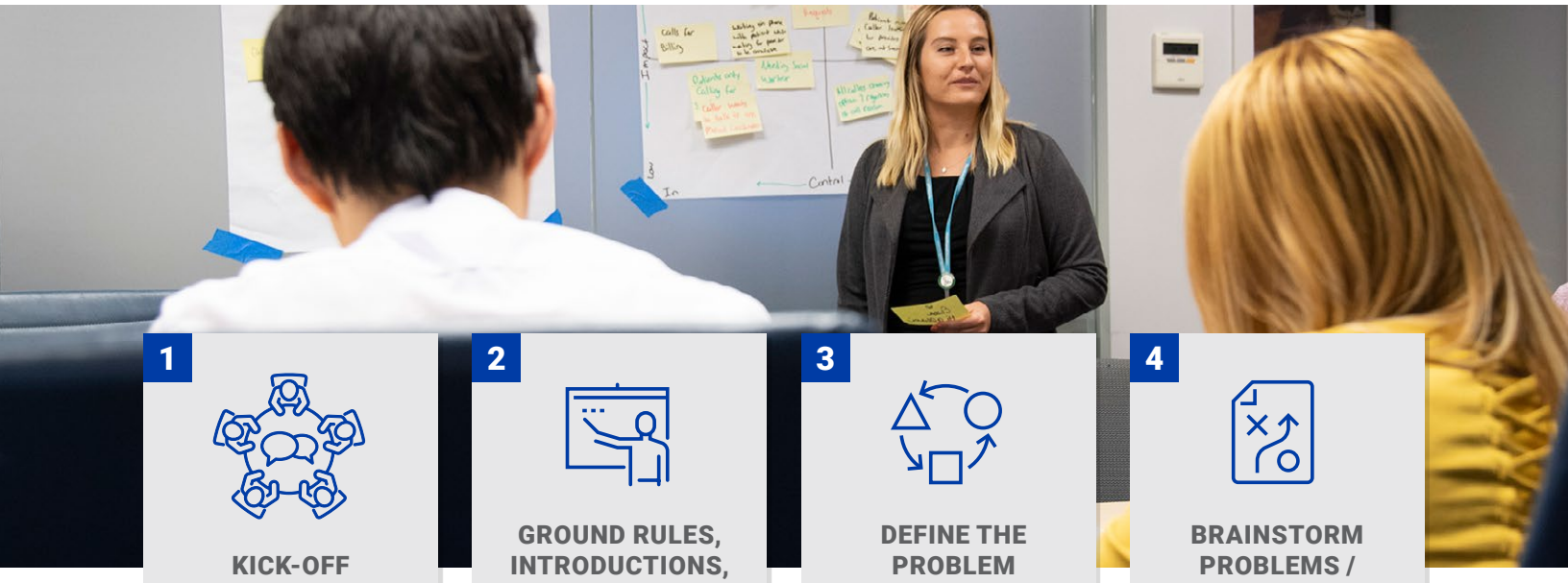
Practical Tip

Remember that root causes never include labeling the motivations of others, emotional reasoning, or passing blame. It's possible that the people in the process have developed workarounds or may be trying to adjust to a task in a way that makes sense to them.

	Why do interruptions occur?	Why?	Why?	Why?	Why?
House Calls Example	Coordinators receive a high volume of clinically-related phone calls that are not appropriate for them to handle	Patients want to speak to a person, even if that person then transfers them	Patients do not want to navigate through pre-recorded prompts and be transferred multiple times	Phone tree is too complex for the patients to use; they bypass it and call coordinators directly	Patients may not be adequately educated on navigating the phone tree, and tree is too complicated and time-consuming

Fast Track Decision Sessions

Once root causes are identified, you should begin to develop solutions with your employees. Make sure you empower them to devise, implement, and test solutions within their group. One way to do this is to conduct Fast Track Decision (FTD) sessions, which are facilitated meetings that break down steps in processes to help you identify and prioritize challenges and solutions for implementation. FTDs are typically four hours long, which allows time for your team to complete the discrete tasks and define implementation plans with solutions. Focus on a single process element so that you can achieve timely, actionable solutions. FTD sessions should begin with a review of the to-be-solved problem and any data that has been collected. You should then identify and describe the current process(es) and facilitate brainstorming activities to identify challenges and solutions. A facilitator should be present to lead, moderate, and focus discussions. In contrast, participants act as the content experts. At the end of these sessions, employees will have defined plans for improving processes with both metrics and achievable timelines for implementing new workflows.



1 **KICK-OFF**
Define mission

2 **GROUND RULES, INTRODUCTIONS, ROLES**

3 **DEFINE THE PROBLEM**
Process map, if needed

4 **BRAINSTORM PROBLEMS / BARRIERS**

5 **CATEGORIZE PROBLEMS / BARRIERS**

6 **DEFINE "HEADERS" FOR CATEGORIES**

7 **PRIORITIZE CATEGORIES**

8 **BRAINSTORM SOLUTIONS**

9 **ASSESS POTENTIAL SOLUTIONS**

10 **DEVELOP AND SHARE REPORT OUT**

11 **ASSIGN CHAMPIONS**

12 **TAKE ACTION!**

Real-World Application

In the Value Analysis, we identified that phone calls were a major interruption to the workflow of Medical Coordinators.

- Several root causes, such as a confusing phone tree system for patients and inappropriate calls (i.e. clinical advice) to Medical Coordinators, were identified.
- The FTD was used to brainstorm how to achieve first-call resolution by limiting interruptions and rework.

Problem Statement: House Calls receives many calls every day. A majority of these calls are directed to Medical Coordinators. In fact, Medical Coordinators receive approximately **158 calls per day** and spend an average of **1.7 minutes per call**. These calls are interruptions in the Medical Coordinator's workflow, which reduces their job satisfaction, and calls that are not appropriate for Medical Coordinators result in transfers.

Goal: House Calls would like for callers to experience first-call resolution when calling the office to reduce the interruptions to Medical Coordinators and number of patients receiving a transfer. As such, their stated goal is to increase the number of **first-call resolutions** by 30%. It is important to increase first-call resolution to improve the flow of calls for patients. This will also result in a more efficient workflow for staff, which should improve Medical Coordinator satisfaction.

Solution Generation: To understand the challenges, Medical Coordinators were asked several of the following questions during brainstorming activity.

- What are the causes of transferred calls?
- What are the causes when you need to task a call?
- When calls are appropriate, what are the challenges to resolving the issue?
- What are the challenges to funnel the patient to the right Medical Coordinator?

Answers to the questions were written on Post-It notes and then separated into four categories. The challenges identified during brainstorming were then put into a Challenges Priority/Payoff Matrix. This activity engages the group to focus on issues within their control and use their resources to have the greatest impact on improving their daily workflow.

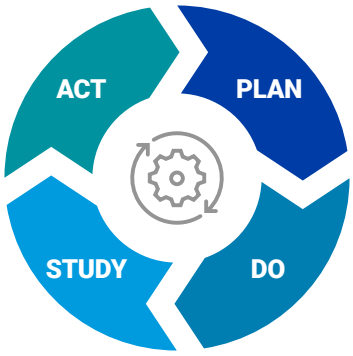
Solutions to the challenges were brainstormed among the Medical Coordinators. The solutions were placed in the Solution Priority/Payoff Matrix. This brainstorming activity resulted in several creative solutions and helped Medical Coordinators agree on solutions to the barriers to their workflow. Medical Coordinators were able to choose the solution they wanted to implement and were encouraged to begin with the high impact/easy-to-implement solutions. Each solution was broken into actionable steps with defined metrics to identify success. At the end of the session, each Medical Coordinator took ownership of an improvement project and implementation plan.

"We've been able to grow because of the changes in the process."

– Staff member

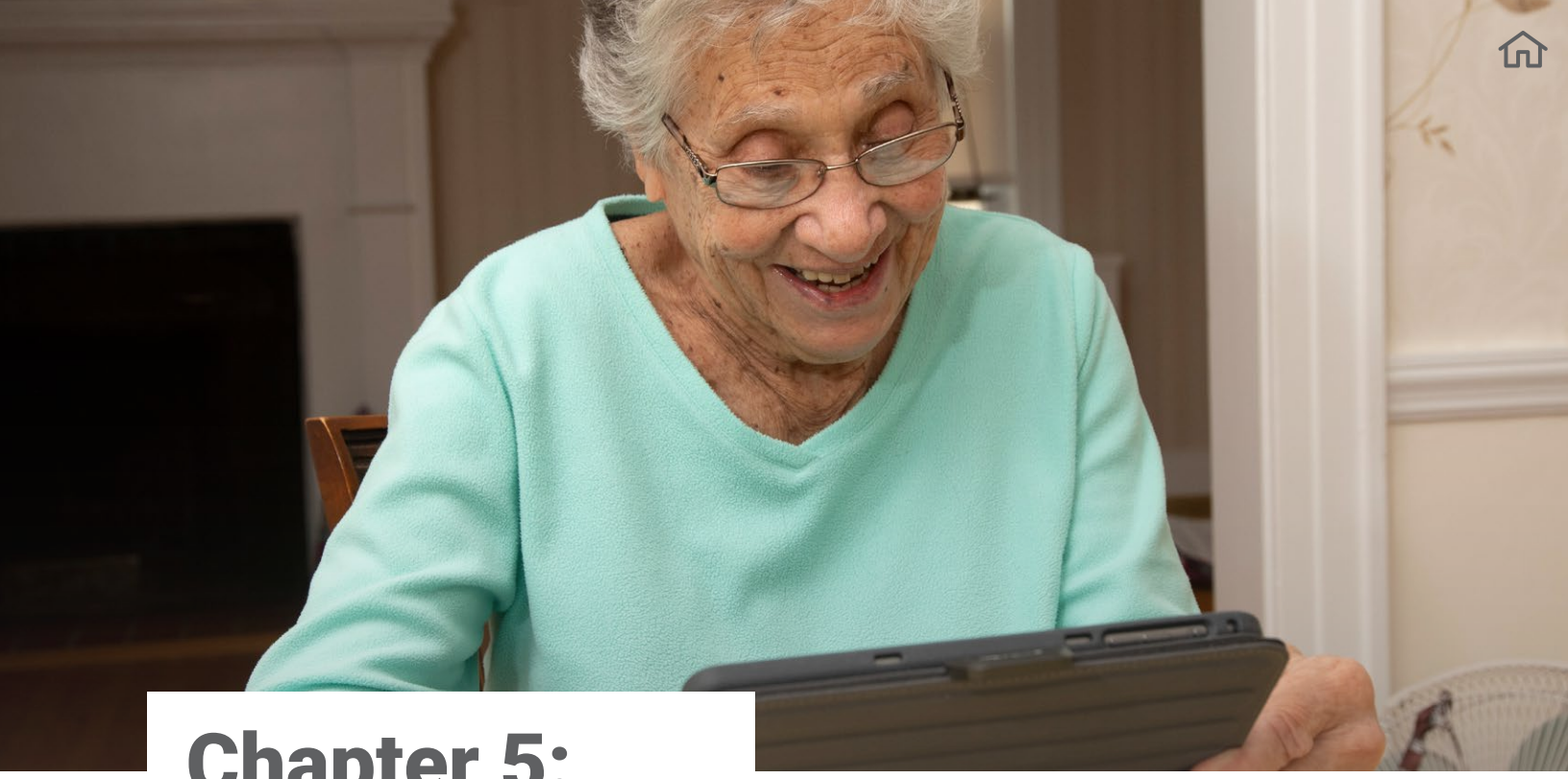
The Monitoring Phase

In the monitoring phase, you will actively monitor the implementation of the new workflows to ensure that the processes are efficient. Metrics or process measures, such as the number of missed phone calls or number of completed forms, that were defined in the FTD should be tracked routinely (i.e. monthly or quarterly). If these measures begin to fall outside normal range (trend up or down over an extended period of time), then a Plan, Do, Study, Act Cycle is usually recommended to understand how the process has broken down and where to implement new solutions or education.



Real-World Application

At House Calls, the solutions that improved workflow were included in a new handbook and became part of the new standard of practice and new employee onboarding. On a regular basis, House Calls leadership tracks process measures and addresses concerns with staff as they arise.



Chapter 5: Pilot Test

"Social isolation and depression and anxiety are prevalent in this population. Telehealth will be a way to reach more people."

– Staff member

Decide Which Use Case to Test

Once you have developed your use cases and workflows, and you have contracted with a telehealth vendor, you should engage in pilot testing to uncover any logistical or technology-related issues that might occur when video visits are conducted in patients' homes. If you are deciding between more than one use case for deployment of telehealth, we suggest choosing the use case that minimizes disruptions, is simplest, and/or that is reimbursable for your initial test case. In other words, choose the use case that will provide the most benefit with the least cost for your initial pilot testing. You can perform a simple analysis such as a SWOT (strengths, weaknesses, opportunities and threats) analysis to help determine which use case to test first. Additionally, choose a subset of patients with whom you can perform your pilot testing. Talk with staff and providers to identify patients who are lower-acuity, who have access to the technology needed and, preferably, who have caregivers on hand to assist with any needs that arise.

Provider Training

Addressing patient concerns via telehealth technology is a new way of practicing medicine for a majority of clinicians. Proper training on assessing patients over video and video etiquette to engage patients and make them feel comfortable with their provider is recommended. When training health professionals to use telehealth technology, there are important etiquette tips to consider. Remember to:

- Identify a quiet space with minimal interruptions for your video visits.
- Have a solid and stationary background when taking the video call. Avoid background movement that can be distracting to the patient.
- Speak clearly and with enough volume that an older person will be able to hear.
- Maintain eye contact with the patient.
- Practice where to look on the screen with other friends or relatives prior to going live with video visits.

Several online programs are available to help clinicians learn how to assess patient symptoms over a video conferencing system and how to engage with patients through technology. The American Telehealth Association (ATA) and California Telehealth Resource Center Certificate have certificate programs available and links to ATA-accredited training programs.

Train Staff

Prior to field testing telehealth in patients' homes, engage your frontline staff in exercises that will help them become comfortable with the new technology. Run a few hands-on training sessions during which staff practice logging in and out of the telehealth system. Have staff initiate calls with each other to learn how to use the new technology and experience it from the perspective of staff and from the perspective of the patient/caregiver. Encourage staff to engage in practice calls with their friends and family. The more experiences they get with the technology, the more comfortable they will feel when they use the technology in patients' homes. Approximately one week after the training, have staff meet to discuss their successes and challenges with the technology. You should document any technical difficulties experienced and work closely with your telehealth vendor and your internal IT or Telehealth department to find solutions.

Create an Analytics and Assessment Plan

At the conclusion of each of your pilot visits, you should gather user experience from patients and/or caregivers and staff (such as via surveys) to understand what worked well and what might need refinement. However, before you can do that, you will need to determine what information will be needed to make those determinations. For example, you will likely need to know how often video visits were disrupted by technology issues. You will also likely want to know whether conducting video visits took more or less time than a typical in-home visit by a provider. Once you have defined the elements that you will need to know, you can create a list of questions for the different types of stakeholders. Identifying and tracking process measures will help you understand the successes and areas for improvement.

After completion of several telehealth visits, conducting a Plan, Do, Study, Act cycle is recommended to improve workflows and user experience.

40%

OF HOMEBOUND ADULTS OVER THE AGE OF 65 REPORTED HAVING ACCESS TO A COMPUTER AND/OR THE INTERNET.[14]

Real-World Application

Prior to finalizing its use case, the teams pilot tested a use case that was not ultimately adopted with the video visit technology. However, the exercise of testing this use case informed the final use case. Specifically, video visits were used for Social Work Care Manager check-ins with patients. This use case was chosen because it minimized disruptions to clinical practice and reimbursement revenue as the feasibility of utilizing direct-to-consumer video visit technology with the advanced illness senior population was identified. Additionally, the use case provided the opportunity to troubleshoot the technology prior to implementing telehealth in patients' homes.

The telehealth pilot study was conducted with Social Work Care Managers. Inclusion criteria included:

- Patients who are either cognitively able to engage with the technology (scoring 3 or higher on the Mini-Cog evaluation), or who have an available, family caregiver
- Patients who have a smartphone and/or an internet-enabled device
- Patients with self-reported reliable home internet access

After each visit we surveyed staff and patients to assess satisfaction with video visit and telehealth technology. Specific process measures that were identified to evaluate telehealth implementation that included the number of successful connections, number of failed connections, number of attempts to connect and total number of scheduled video visits. This information helped us determine how well the technology was connecting for both patients and staff.

When deploying the direct-to-consumer telehealth program (meaning video visits that would take place in patients' homes), the House Calls and research teams performed initial testing in patients' homes prior to full deployment. When testing, a hard copy print-out of all technology qualifications that were essential was brought to the home visit. This list helped avoid wasting time trying to make incompatible or old devices work. In fact, it is a good idea to carry a cheat sheet of resources, including a sheet of compatibility guidelines, a number for technical support, and links for testing internet speed, webcams, and cameras. This quick resource guide saved a lot of time, particularly in distracting home environments.

"Patients and caregivers were not always clear on how to use devices. Some patients had limited access, no access or an unreliable [internet] connection."

– Staff member

SURVEY TO ASSESS SATISFACTION WITH VIDEO VISITS

Patient/Caregiver Telehealth Survey

1 I could see [care provider] clearly during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

2 I could hear [care provider] clearly during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

3 I did not have technical problems that I needed help with during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

4 [Care provider] was able to address my needs during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

5 I was comfortable using a video visit to speak with [care provider].

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

6 I enjoyed the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

7 I would have preferred to see my care provider, even if I had to wait.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

8 Overall, I was satisfied with the care received during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

Care Team Telehealth Survey

1 The quality of the image was acceptable.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

2 The quality of the audio was acceptable.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

3 I did not have technical problems during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

4 I was able to address [patient/caregiver]'s needs through the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

5 I was able to establish the same rapport with [patient/caregiver] using video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

6 The [patient/caregiver] seemed to enjoy the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

7 I would have preferred to wait until my schedule allowed me to see this patient in person.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

8 Overall, I was satisfied with the care I was able to provide during the video visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

9 The inability to touch the patient impaired my assessment.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

10 The video visit lengthened the overall time spent on the visit compared to how I usually evaluate the patient.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

11 The video visit was effective for this type of visit.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

Practical Tip

Do not assume that homebound older individuals have working internet or the equipment they need, even if they tell you they do. A home visit is the only way you can see the router, test the internet speed on their device, and test equipment such as the web camera to make sure everything is operational.

Before going live with full deployment of your program, thoroughly test out the technology in as many configurations as possible, including devices, bandwidths, carriers, and browsers.

The Northwell and research team members performed the following tasks during home testing sessions:

- Downloaded and tested the software application on patients' electronic devices
- Tested the application by making a test video visit call to the office where another member of the team was ready to receive it
- Taught patients how to use the software

The House Calls team encountered several technology challenges when deploying video visits to this older adult population. For example, many patients had devices that were older than anticipated, which meant that their operating systems were often out of date and therefore incompatible with the video visit software. Email and text message links to initiate calls also challenged efforts since the patients often didn't have an email address (or the email address was their caregiver or emergency contact's email whom was not with the patient during the virtual visit) or did not know how to connect via text message. Finally, the team learned that most older patients did not purchase internet speeds/broadband strong enough for video because faster and stronger Internet connections are expensive and normally not needed to accommodate the ways these seniors typically use technology.

"It was a positive experience being able to provide feedback to the team after I completed a call with a patient who may not have otherwise felt connected enough to share via phone call."

– Social Work Care Manager

Patient Vignette

Mrs. Blue is a 97-year-old woman who lives alone. Her Social Work Care Manager was concerned about her as she had expressed sadness for activities she could no longer do as a result of her frailty. At one point during their phone conversations, Mrs. Blue expressed wanting to die, as a result of missing her grandkids who live far away and most of her peers passing away. The Care Manager recommended this patient for video visits. Mrs. Blue was interested in this new telehealth model and had the ability to purchase an electronic device and internet access.

After the research team taught Mrs. Blue and her caregiver how to use the video software, and with the assistance of her caregiver, she was able to connect with a Social Work Care Manager for more frequent and higher quality contact. Mrs. Blue was also able to connect with her family and grandchildren via another video application. The video connections with her Social Work Care Manager and her family improved the mental health of this socially isolated senior.

Pilot Outcomes: Overall, 56 patients and/or their caregivers agreed to participate in the pilot study. In the end, although 70% of those patients had at least one successful video visit, almost half of all attempted video visits were unsuccessful due to technical or equipment incompatibility issues.[16] These experiences led to the team's decision to ultimately deploy a different use case. To address "change in condition" calls, House Calls utilized an EMT facilitator for the telehealth encounter. The model was coined the Mobile Telemedicine Technician (MTT) model, which is described in the following chapter.

"It was nice to replace telephone contact with video chat. When it was successful, the patient really seemed to benefit. It was helpful in reading patient expression rather than relying on sound only."

– Social Work Care Manager

Chapter 6: Implement a Telehealth Facilitated Model

Once you have pilot tested your use case and are sure that the program is safe and reliable, it is time to implement the program. We suggest assigning a team leader who will continue to track the program through the adoption phase. Develop a regular system and cadence for measuring key performance indicators, which may simply be a subset of the measures tracked during the pilot phase. Work with stakeholders to determine which measures are important to continue monitoring over time and discuss timing for internal discussions and/or reporting of these measures to ensure that everyone's needs are being met. You will also need to fully embed the new process into your job descriptions, training programs and standard operating guidelines. The rest of this chapter describes the real-world implementation of House Calls' facilitated telehealth model called the Mobile Telemedicine Technician (MTT) program.

Real-World Application

Following the direct-to-consumer pilot, the team took the lessons learned and went back to the drawing board. They decided to use telehealth in a more patient-accessible way to help evaluate low acuity clinical symptoms that required evaluation (a common reason for patient/caregiver calls to the program) and to reach more patients (not only those who already owned or could purchase devices and connectivity). Perhaps by using facilitated telehealth on the same platform that was tested in the direct-to-consumer model visits, a provider could see more patients on any given day when compared to usual House Calls. By answering several key questions, they landed on a new model.

Questions

- What clinical information does a provider need to make a clinical decision?
- Currently, what core activities are completed when home visits are made for a change in condition?
- What level and scope of clinical practice are needed to perform these core activities?

Answers

- Technicians must be able to perform a physical exam of the patient, perform vital signs monitoring and relay clinical information to the physician.
- Technicians must be comfortable connecting to physicians via video and possess the ability to troubleshoot equipment.

Telehealth facilitators who were considered included Medical Assistants, Certified Registered Nurse Assistants, Licensed Practical Nurses, and Emergency Medicine Technicians. The House Calls team had a unique advantage in that they were already partnering with an EMS agency through a longstanding Community Paramedicine program. Their Community Paramedicine program successfully connected House Calls physicians with Community Paramedics when they were in the home with patients experiencing acute exacerbations of symptoms. Based on this experience, the House Calls team determined that Emergency Medical Technicians (EMTs) would fill the MTT position since the EMTs had the required experience and scope of practice. To design the new telehealth program, the House Calls team worked with the Center for Emergency Medical Services to develop workflows and scope of practice and ensure all rules and regulations for the state of New York were followed.

However, prior to fully deploying this new model, House Calls needed to update workflows and identify and train EMTs.

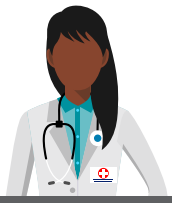
Personnel Selection and Training

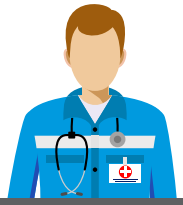
Personnel selection was made by leadership from the House Calls program as well as the EMS agency. Necessary job requirements included 3+ years' experience as an EMT, and the desire to innovate in care delivery, amongst other things. Training occurred over a two-day period, with the first day focused on the House Calls model, information about the patient population served by House Calls, clinical assessments and workflows. House Calls and EMS leadership all participated in the first training day. On the second training day, MTTs had the opportunity to observe a House Calls physician in the field.

Visit Logistics

- Each MTT is scheduled for one patient visit that starts on the hour (every business hour) and another that starts on the half hour. This staggering allows the physician to see two patients every hour (and double the number of visits compared to a traditional day).
- Visits are scheduled by House Calls staff in the MTT's Outlook calendar, which is visible on the provided telemedicine device.
- MTTs respond in private (non-EMS) vehicles and are responsible for upkeep and maintenance of the vehicle.
- MTTs dress in standard EMT uniforms but with a specially provided MTT shirt, and report to the visit with the equipment necessary to complete a physical exam and vital signs monitoring, equipment for facilitating the telemedicine visit and equipment necessary for proper documentation of the encounter.
- The MTT performs a clinical assessment of the patient, which may be expanded or contracted as determined by the patient's chief complaint, findings on the scene by the MTT, or direction from the House Calls provider.
- The assessment at minimum includes vitals and a general physical exam.
- Additional assessments may include a wound care evaluation, a home safety evaluation, or looking at social determinants of health (i.e. whether there is sufficient food in the fridge).
- The MTT documents findings and the visit outcome in a secure document (for the pilot, RedCap was used) and the House Calls physician documents in the medical record in real time.
- After performing an assessment, the MTT contacts the House Calls physician by phone to indicate readiness to proceed to launch the two-way video visit.
- After the House Calls physician and MTT have both joined the video conference, the MTT provides a brief report and facilitates a two-way video conference visit, ensuring the patient is able to see and hear the House Calls physician and that the physician can see and hear the patient.

Mobile Telehealth Workflow





	PRIMARY CARE PROVIDER	MOBILE TELEHEALTH TECHNICIAN 1	MOBILE TELEHEALTH TECHNICIAN 2
9:30	Meets with MTTs 1 & 2 to discuss upcoming visits.	Checks out equipment from House Calls office. Checks calendar. Discusses upcoming visits with PCP.	
10:00		Arrives at patient's home. Performs assessments.	
10:30	Joins video visit with MTT1	Calls PCP's cell phone. Launches video visit.	Arrives at patient's home. Performs assessments.
11:00	Joins video visit with MTT2	Arrives at patient's home. Performs assessments.	Calls PCP's cell phone. Launches video visit.
11:30	Joins video visit with MTT1	Calls PCP's cell phone. Launches video visit.	Arrives at patient's home. Performs assessments.
12:00	Joins video visit with MTT2	Arrives at patient's home. Performs assessments.	Calls PCP's cell phone. Launches video visit.
12:30	Joins video visit with MTT1	Calls PCP's cell phone. Launches video visit.	Arrives at patient's home. Performs assessments.

Providers using this model can fulfill up to **10 VISITS PER DAY** given the efficiencies built into the repeating nature of the process. In comparison, traveling providers can only accommodate 5 visits per day.

Financial implications

The lack of reimbursement for telehealth can be a challenge for the MTT model when operating in a non-rural, Medicare fee-for-service environment. The Medicare telehealth billing codes are typically only available to providers in rural areas or areas outside a Metropolitan Statistical Area as defined by the Census Bureau. If these telehealth codes are unavailable to you, consider the Chronic Care Management billing codes. Commercial and managed care contracts will likely be a better fit for the MTT model because the telehealth service can be included in your contracts as a service available to your patients (for example, as part of a per member per month arrangement). Starting in 2020, Medicare Advantage plans can offer telehealth as a basic benefit without the restrictions (i.e. geographic location) currently imposed by Medicare. Depending upon your state, Medicaid may allow for payment of telehealth visits. Careful consideration of reimbursements per visit and costs to your program to deploy visits are essential to sustainability. Depending upon your situation, being "cost neutral" may still be acceptable. For instance, if the MTT program decreases the usage of an expensive clinical call center, then the program could be successful even if the margin between cost to deploy and reimbursement is small (or at zero) on a per visit basis.

Patient Vignette

House Calls received a call from the caregiver of a House Calls patient who is nearly 100 years old and bedbound due to advanced dementia. The caregiver noted a new wound to the right knee that had been worsening over the week as well as a sacral rash that had been present for several days. Getting the physician's "eyes" on the areas of concern was important diagnostically, so the MTT was sent to assist in evaluation. The MTT checked vitals and performed an exam, then conferenced the physician in using two-way secure video conferencing.

The patient's vitals were stable. Utilizing the video visit, the patient was diagnosed with a skin ulcer with surrounding cellulitis on the knee and was started on a course of topical and oral antibiotics. The patient was also diagnosed with a fungal rash in the sacral area that was treated with antifungal powder. The MTT returned the next week for a follow-up visit and both conditions were, fortunately, found to be improving.

Some reasons for the deployment of the MTTs at House Calls include:

- Patient has new skin condition that requires visualization for diagnosis
- Patient had change in medication and follow-up is needed to make sure patient is improving (i.e. antibiotics started, or blood pressure medication changed)
- Patient is experiencing an altered mental status such as sleepiness and provider needs to check vitals to discuss workup or treatment course with family or caregiver
- Treatment was started over the weekend due to change in condition call from patient or caregiver. On Monday, an exam is needed to confirm diagnosis and treatment plan.

Evaluation of the Program

Metrics for evaluation were selected across multiple domains. For example, process metrics for the MTTs included:

- Time on scene
- Duration of video visit
- Travel time
- Number of physical exams performed
- Number of visits in which video could not be established and number of attempts
- Number of successful video connections

And physicians included:

- Number of visits overseen per hour and per day
- Visit outcomes, including care plan changes, patient/caregiver education provided, etc.
- Number of visits per patient
- Amount of time on video call
- Number of visits in which video could not be established and number of attempts
- Number of successful video connections

Patient/caregiver surveys were left in the home at the conclusion of each visit with an envelope for return. Physician and MTT satisfaction with the program were also tracked using RedCap surveys sent on pre-defined intervals. Additionally, 100% of visits were reviewed by the House Calls medical director initially, and after a certain period a random sample was reviewed on a continuous basis. Any concerns were escalated to the EMS medical director for quality review by both physicians.

Program Evaluation: MTT Survey of Experience

1 On most occasions I was able to get to a patient's home and complete an assessment in time for the planned video visit with the House Calls Provider.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

2 The scheduling of home visits for the MTT program worked well.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

3 Overall, the telemedicine video platform was easy to use.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

4 Overall, the telemedicine video platform was reliable without technical problems.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

5 I am learning a lot through the MTT experience.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

6 The MTT model has the potential to be an alternate career path for EMTs.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

7 Overall, I am satisfied with the Mobile Telemedicine Technician experience.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

8 What could be done to improve the Mobile Telemedicine Technician program – or your experience with the program? Please share any comments and suggestions.

Program Evaluation: Provider Survey of Experience

1 On most occasions the Mobile Telemedicine Technician (MTT) was at the patient's home and prepared for the video visit at the expected time.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

2 Overall, the telemedicine platform was easy to use.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

3 Overall, the telemedicine platform was reliable.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

4 Overall, the Mobile Telemedicine Technician experience provided an effective way to deliver care to the patient.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

5 The Mobile Telemedicine Technician model's scheduling was efficient.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

6 I would prefer usual care to the Mobile Telemedicine Technician model.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

7 I was able to take care of my other responsibilities while participating in the Mobile Telemedicine Technician model (i.e. Tasks, returning patient calls, etc.).

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

8 Overall, I was satisfied with the Mobile Telemedicine Technician experience.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

9 What could we have done to improve your experience with the Mobile Telemedicine Technician model? Please feel free to share any comments.

Patient/Caregiver Satisfaction Survey

1 Who is filling out this survey? Check one.

- ☐ PATIENT
- ☐ CAREGIVER
- ☐ FORMAL (PAID) CAREGIVER
- ☐ OTHER (PLEASE SPECIFY) _____

2 The Mobile Telemedicine Technician arrived at my home at the expected time.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

3 I could see the House Calls provider through the video visit.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

4 I could hear the House Calls provider through the video visit.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

5 The Mobile Telemedicine Technician was courteous and cared for me as a person.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

6 I was satisfied with how the House Calls provider and Mobile Telemedicine Technician managed my medical issues.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

7 I would have preferred to wait to see a House Calls provider in person instead of my visit with the Mobile Telemedicine Technician, even if it meant waiting until a later appointment date.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

8 The Mobile Telemedicine Technician experience provided an effective way to get care from a House Calls provider.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

9 I would be happy to use the Mobile Telemedicine Technician and video visit in the future.

- ☐ STRONGLY DISAGREE
- ☐ DISAGREE
- ☐ AGREE
- ☐ STRONGLY AGREE

Patient/Caregiver Satisfaction Survey continued on following page

10 The Mobile Telemedicine Technician delivered high-quality services and care.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

11 Overall, I was satisfied with my Mobile Telemedicine Technician experience.

☐ STRONGLY DISAGREE ☐ DISAGREE ☐ AGREE ☐ STRONGLY AGREE

12 What could we have done to improve your experience with the Mobile Telemedicine Technician video visit? Please feel free to share any comments.

Closing

As the population ages, the demand for home care medicine will continue to grow. Identifying innovative ways to deliver care to the senior population with multiple chronic conditions will be essential to meet this demand. Telehealth is one option that can expand access, however, to be successful, providers and practices must invest time and effort in implementation. Our goal with this guide was to provide direction and real-world examples of implementation of telehealth in home-based primary care practices. As the landscape shifts to value-based care, there is a real opportunity to deliver high-quality care in the home with telehealth.

Resources

Home-Based Primary Care and Financial Information

American Academy of Home Care Medicine (AAHCM)
www.aapcm.org

Center for Medicare and Medicaid Serivces Independence at Home Demonstration (IAH)
https://innovation.cms.gov/initiatives/independence-at-home/

Home Centered Care Institute
https://www.hccinstitute.org/

Agency for Healthcare Research and Quality- TeamSTEPPS
https://www.ahrq.gov/teamstepps/index.html

Center for Medicare and Medicaid Services Evaluation and Management Codes
https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/MLN-Publications-Items/CMS1243514.html

Center for Medicare and Medicaid Services Chronic Care Management Codes
https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/ChronicCareManagement.pdf

Interviewing Methods and Process Improvement Techniques

Conducting Semi-Structured Interviews (In book: Handbook of Practical Program Evaluation, 2015)
https://www.researchgate.net/publication/301738442_Conducting_Semi-Structured_Interviews

Informal Interviewing: Qualitative Research Guidelines Project (Robert Wood Johnson Foundation)
http://www.qualres.org/HomeInfo-3631.html

Focus Groups Qualitative Research Guidelines Project (Robert Wood Johnson Foundation)
http://www.qualres.org/HomeFocu-3647.html

A Guide to Using Qualitative Research Methodology (Michael Quinn Patton and Michael Cochran)
https://evaluation.msf.org/sites/evaluation/files/a_guide_to_using_qualitative_research_methodology.pdf

Model for Improvement: Plan-Do-Study-Act (PDSA) Cycles (Institute for Healthcare Improvement)
http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Process Improvement Tools (Go Lean Six Sigma)
https://goleansixsigma.com/

A Guide to Lean Healthcare Workflows (Jerry Green and Amy Valentini; IBM Redbooks)
http://www.redbooks.ibm.com/redpapers/pdfs/redp5240.pdf

Root Cause Analysis in Health Care: Tools and Techniques. (The Joint Commission Resource)
https://www.jcrinc.com/assets/1/14/EBRCA15Sample.pdf

Center for Medicare and Medicaid Services QAPI
https://www.cms.gov/Medicare/Provider-Enrollment-and-Certification/QAPI/downloads/FishboneRevised.pdf

SMART Goals (Mindtools)
https://www.mindtools.com/pages/article/smart-goals.htm

SWOT Analysis (Mindtools)
https://www.mindtools.com/pages/article/newTMC_05.htm

Telehealth Resources

Center for Connected Health Policy
https://www.cchpca.org

American Telehealth Association
https://www.americantelemed.org/

California Telehealth Resource Center
https://www.caltrc.org/knowledge-center/training/

Office of the National Coordinator for Health Information Technology
https://www.healthit.gov/

Telehealth Post-Acute and Long-term Care Guide
https://www.westhealth.org/resource/telehealth-paltc-guide/

National Consortium of Telehealth Resource Centers
https://www.telehealthresourcecenter.org/

Center to Advance Palliative Care
https://www.capc.org/blog/telemedicine-30-how-video-technology-can-support-people-serious-illness/

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Acknowledgments

This guide was the output from a collaboration research project with the Gary and Mary West Health Institute and Northwell Health System, House Calls Program, funded and supported by the Gary and Mary West Health Institute.

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Suggested Citation
Slaboda JC, Wardlow L, Wade AM, Abrashkin K, A practical guide to expanding home-based primary care with telehealth. Prepared by West Health Institute, La Jolla, CA. 2019

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