

Home-based Acute Care at Home: Getting Started Guide

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Speaker Bio's



Leveraging over 37 years in healthcare and 28 years as a critical care nurse, Amy has spent the past 9 years with West Health working on the disruption of costly and potentially detrimental hospital-based services. In partnership with the IHI, she and her team have been researching and facilitating the development of new home-base acute care options to enable older adults to successfully age in place while working to lower the cost of healthcare, particularly in the context of value-based care models.



Kevin is a statistician specializing in the use of information to study, understand, and improve system performance. He has applied his analytic skills and experience to promote sustainable buildings and communities and has worked to improve performance in health care systems. He currently serves as Improvement Advisor and consultant to a range of IHI projects, including programs with West Health. Kevin also serves as senior Improvement Advisor to National Network of Oral Health Access, which helps federally qualified community health centers improve performance

Our mission is to lower healthcare costs to enable seniors to successfully age in place with access to high-quality, affordable health and support services that preserve and protect their dignity, quality of life and independence.



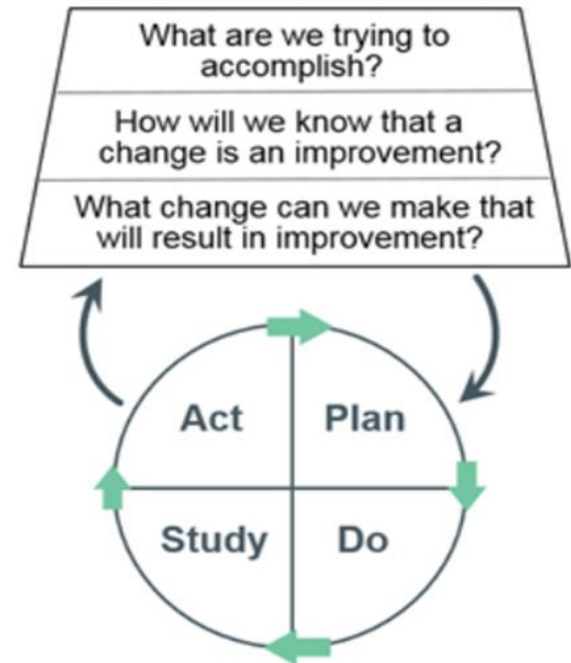
Institute for Healthcare Improvement

Care Delivery Redesign through the Model for Improvement



- Define *Measurable Aims*
- Test Changes
- Iterate, Implement & Scale

Model for Improvement

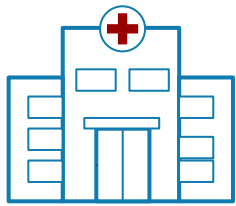


Objectives

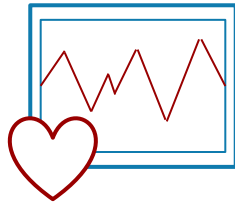
- 1 Understand the driving forces for acute care redesign and home-based care
- 2 Describe methodology behind the home-based acute care learning and action networks
- 3 Identify several process and outcome measures for home-based acute care models
- 4 Articulate how to initiate a home-based acute care program within your organization

Forces Driving Care Redesign

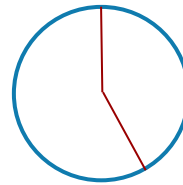
U.S. HEALTHCARE SPENDING



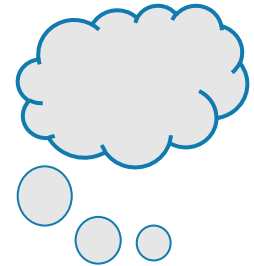
\$4.3 trillion in total healthcare spending



85% goes to treating chronic diseases (\$3.4 trillion)



\$1.4 trillion goes towards hospital-based services



How can we work to lower this cost, while maintaining or improving quality of care?

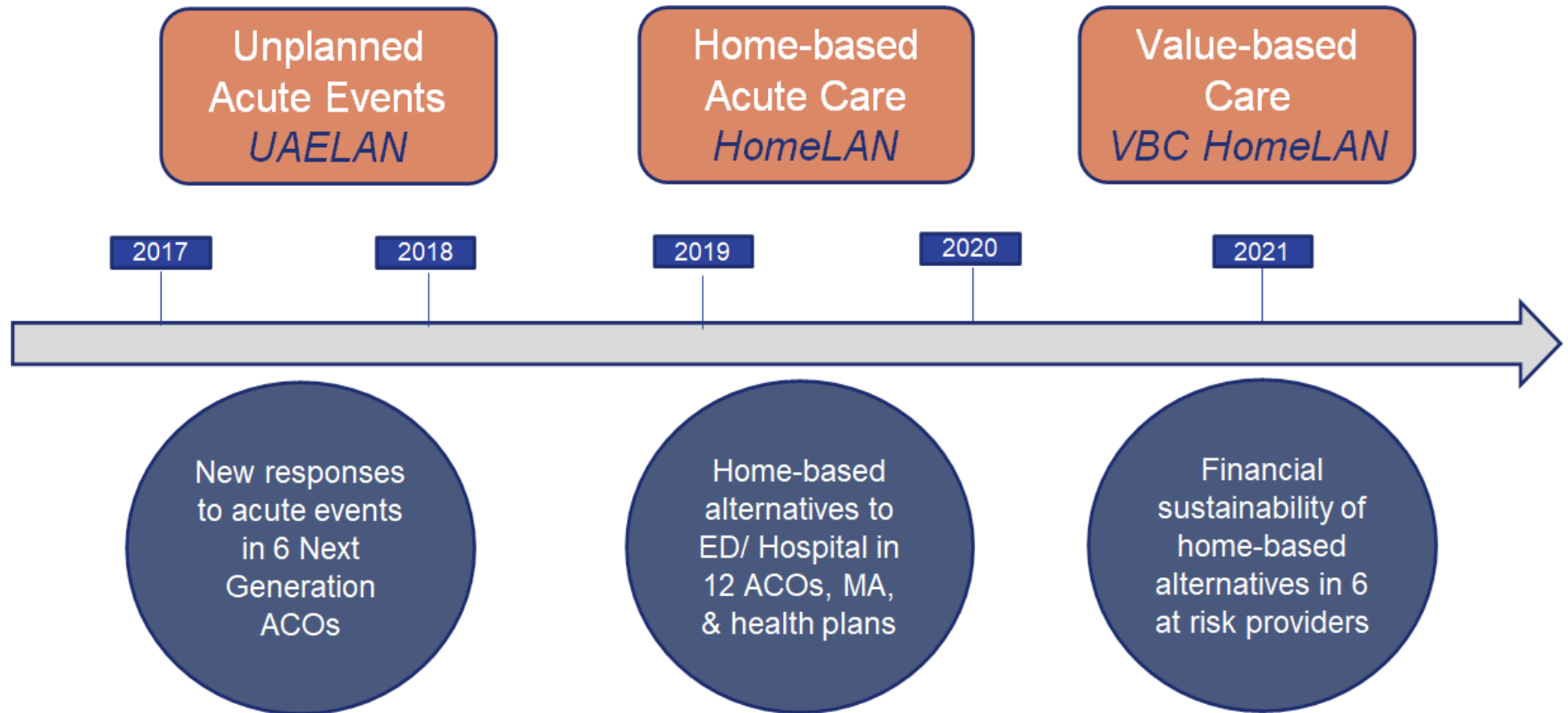
Gaining Momentum: Aligned Incentives in Value-based Care

- Innovation at The Centers For Medicare And Medicaid Services: [A Vision For The Next 10 Years](#)
- Innovation Center (CMMI) [Strategy refresh](#)
 - Beneficiary and Provider goals
- [CMS goal](#) that 100% of people with Original Medicare will be in a care relationship with accountability for quality and total cost of care by 2030
- [Duke Margolis Center for Health Policy webinar series](#)
 - Calling for the scaling of home-based care for complex health and social needs
 - How payment models can better support home-based care

Methodology behind Home-based Acute Care Learning and Action Networks

- CREATE SUSTAINABLE MODELS TO IMPROVE QUALITY OF CARE WHILE DECREASING TOTAL COST OF CARE FOR PAYERS
- PARTNER WITH EXPERTS IN PROCESS AND QUALITY IMPROVEMENT
 - DATA DRIVEN CARE REDESIGN RESOURCES
- WORK WITH ORGANIZATIONS TAKING ON FINANCIAL RISK FOR A POPULATION
- IDENTIFY AND TARGET THE POPULATIONS WITH THE HIGHEST NEEDS AND GREATEST UTILIZATION OF HEALTHCARE RESOURCES
 - MEASURES REPORTING AND DASHBOARDING
 - GROUP-LEVEL PROBLEM SOLVING
- HARVEST LEARNINGS TO SHARE FREELY WITH OTHERS

Evolving Collaborations: Prototyping, Testing, and Sustaining Programs



Learning and Action Network: Participating Organizations



Learning and Action Network: Results

- Through April 2022- **COLLECTIVELY TEAMS HAVE AVERTED OVER 2400 EMERGENCY ROOM VISITS AND OVER 1400 HOSPITALIZATIONS**
- **ALL TEAMS ACHIEVED AIM 1. SINCE 2019- TOPLINE REDUCTION IN PAYER SPENDING OF NEARLY \$20 MILLION**
- **MOST TEAMS ACHIEVED AIM OF NET SAVINGS TO THE PAYER**
- **FEW TEAMS ACHIEVED A POSITIVE MARGIN (REVENUE MINUS EXPENSES)**

Home-based Acute Care “Getting Started Guide”

A reference for designing and implementing acute home-based clinical care models for older adults

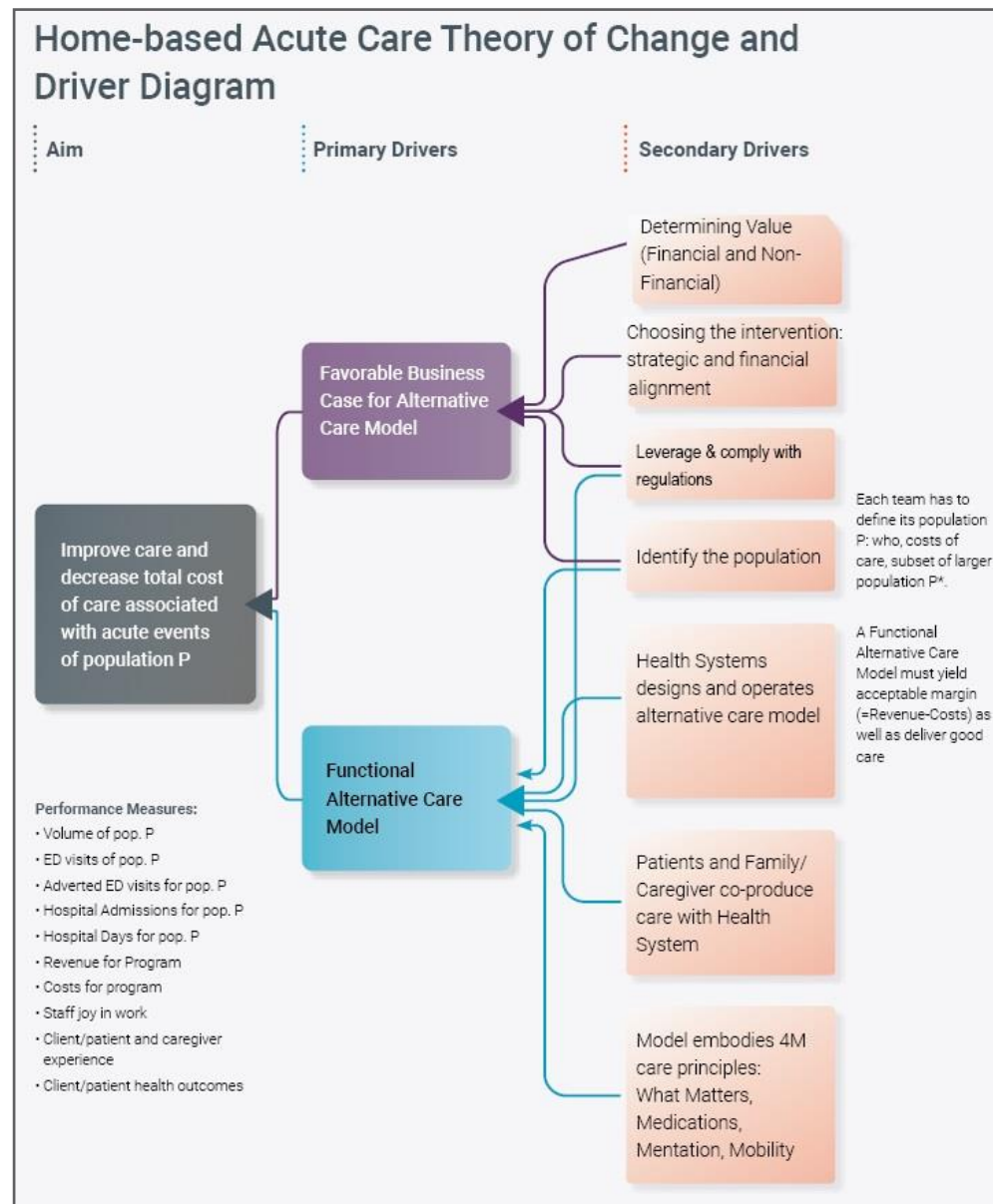
Developed as part of the work of WHI and IHI HomeLAN, this “[Getting Started Guide](#)” shares the knowledge gained by the HomeLAN teams. We hope this document can guide other organizations in building their own models and processes for home-based acute care for older adults



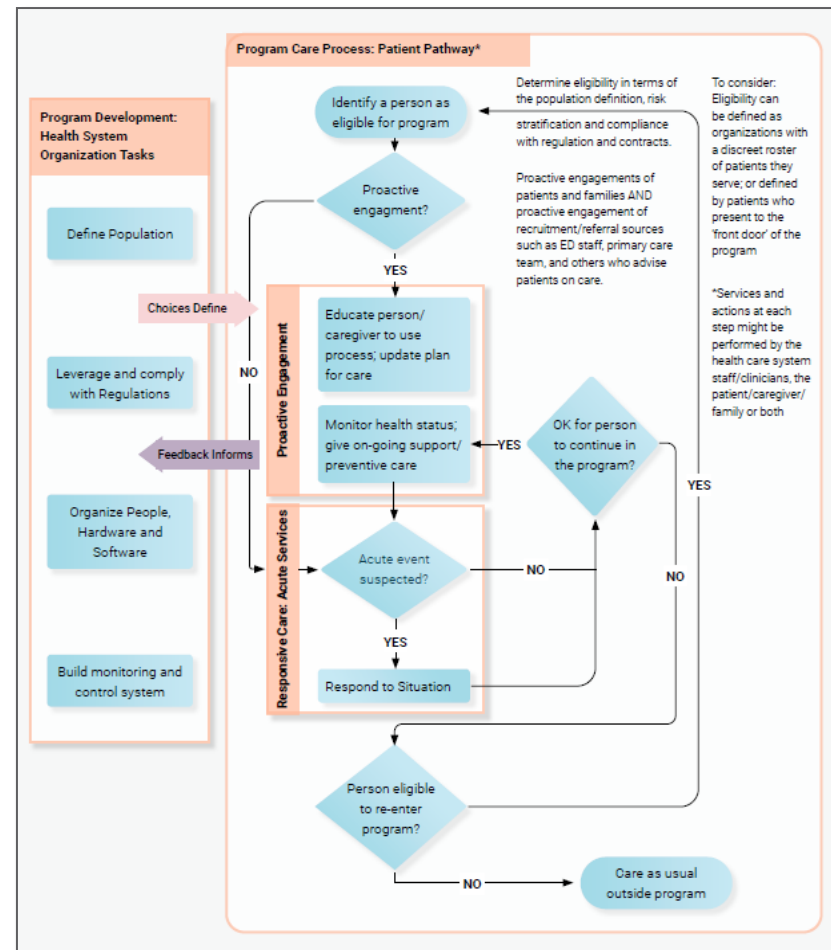
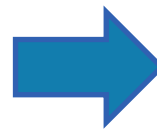
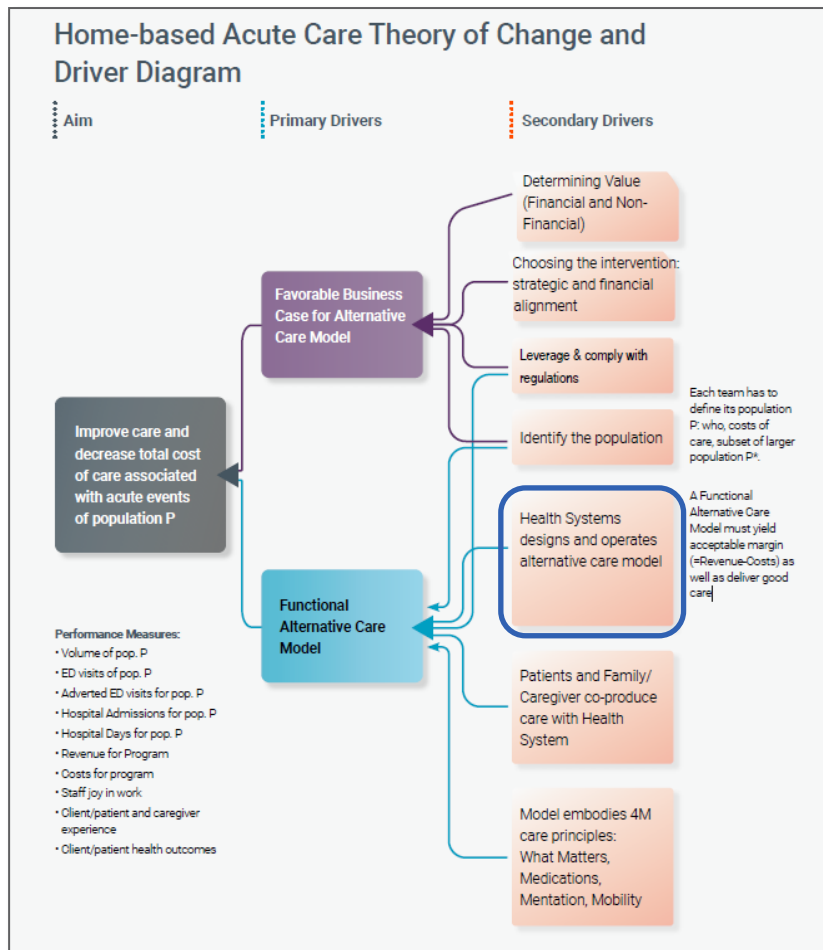
Theory of Change

A key part of the MFI is to develop a set of ideas that result in improvement (also known as “Theory of Change”) and thus outlines changes that will improve systems of care.

- **How to use the driver diagram:**
 - Do you have tools and methods in place to deploy the secondary drivers?
 - If not, what do you need to change--to add, adapt, borrow, innovate?
- **The business case needs to have as much weight as the operations of the care model.**



Design and Operation of the Care Model: Process Flow



Primary Driver 1:

Favorable Business Case for Alternative Care Model

SECONDARY DRIVERS

1. DETERMINE VALUE: FINANCIAL AND NON-FINANCIAL
2. CHOOSE THE INTERVENTION; STRATEGIC AND FINANCIAL ALIGNMENT
3. LEVERAGE AND COMPLY WITH REGULATIONS
4. IDENTIFY THE POPULATION

Primary Driver 2:

Functional Alternative Care Model

SECONDARY DRIVERS

1. DESIGN AND OPERATE THE NEW MODEL
2. PATIENTS AND FAMILY/CAREGIVER CO-PRODUCE CARE WITH THE HEALTH SYSTEM
3. MODEL EMBODIES 4M CARE PRINCIPLES: WHAT MATTERS, MEDICATIONS, MENTATION, MOBILITY

Improvement Methods

PDSA Poll

No Knowledge: “I cannot tell you what PDSA (Plan-Do-Study-Act) is.”

Knowledge: “I can tell you what PDSA is and give you facts about it.”

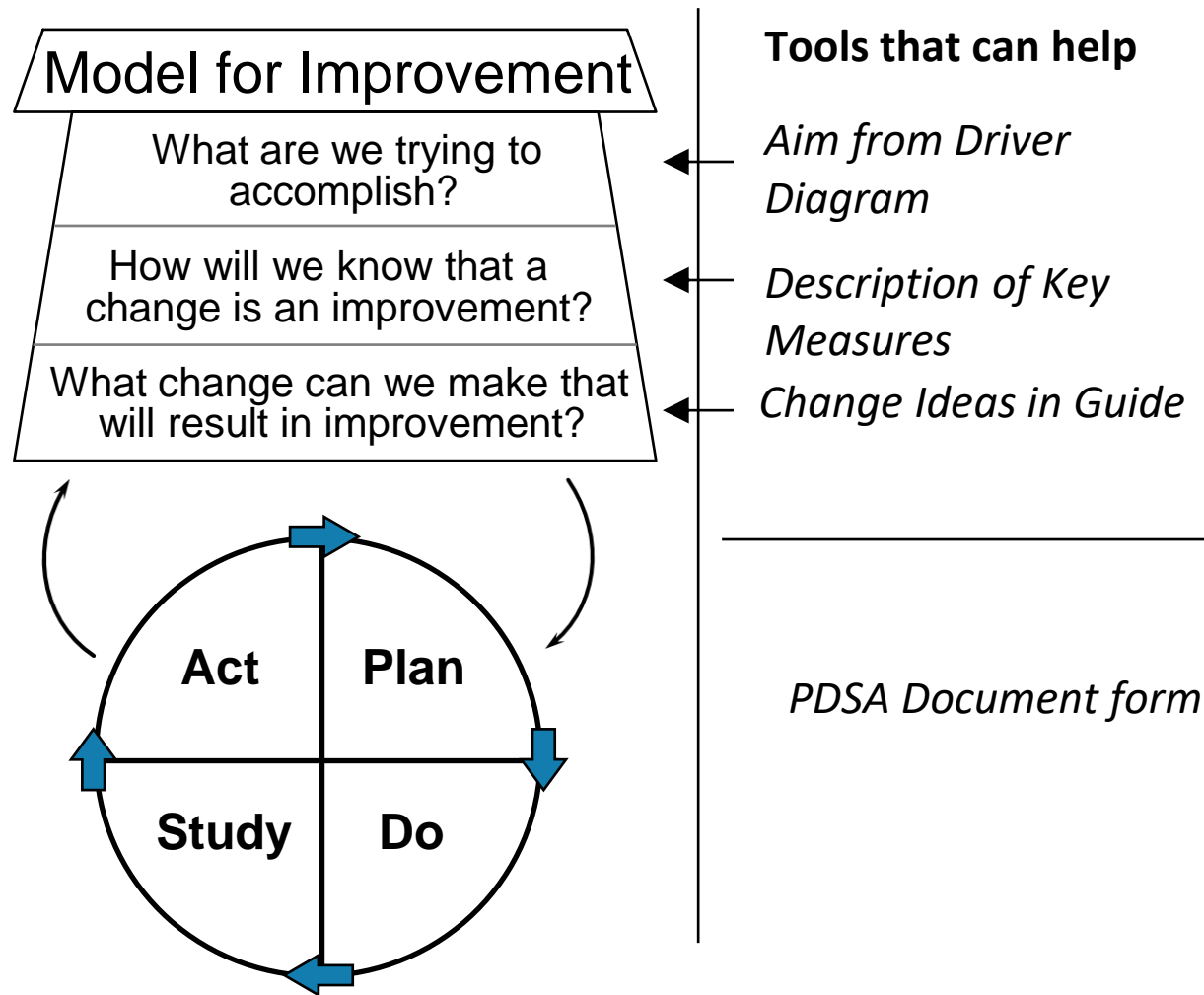
Basic Application: “I can tell you what PDSA is and given a defined situation, I can apply it with assistance.”

Analysis and Application: “I have knowledge of PDSA and I can analyze a situation and determine if it is needed, and then independently and accurately apply it.”

Highly Experienced: “I have knowledge of PDSA, I have a high degree of experience correctly applying and adapting it in various situations, and I can explain my decisions for doing so.”

Expert: “I have knowledge of PDSA, I have a high degree of experience correctly applying and adapting it, and I can teach others the theory behind it and coach them in its use.”

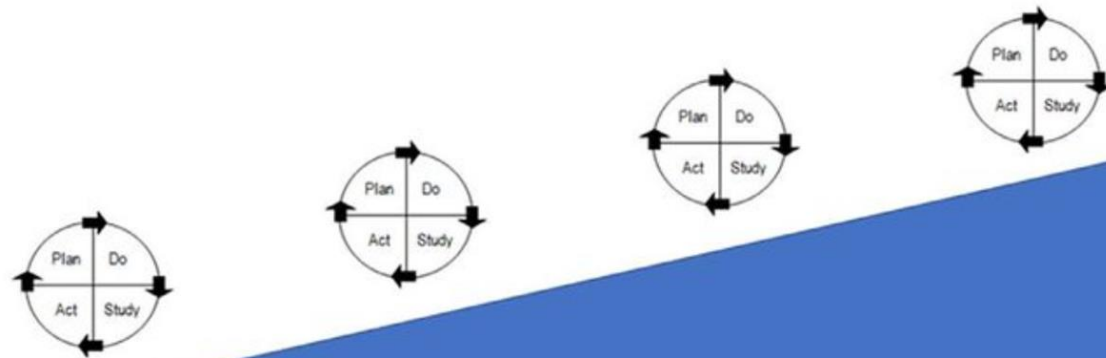
Using the Model for Improvement



Developed by Associates in Process Improvement

PDSA Ramp

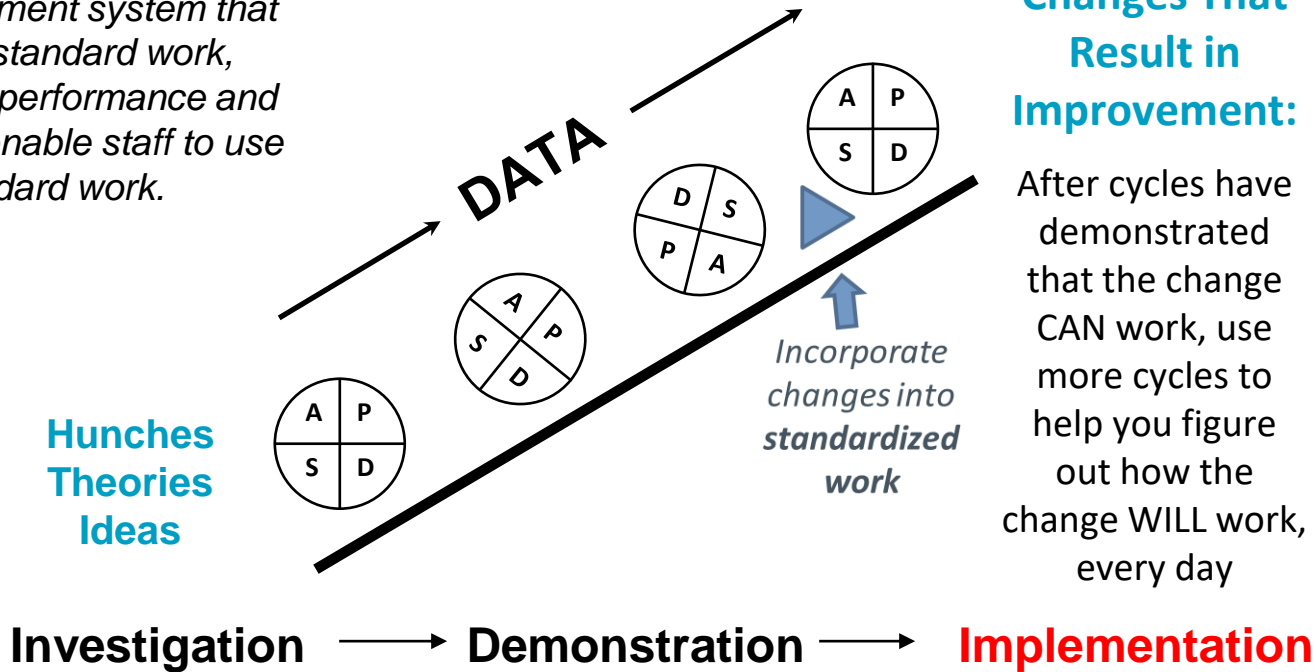
Process to administer COVID-19 immunizations at home



Date	5/30/2021	6/15/2021	7/15/2021	8/31/2021
Test of Change	Test converting existing at-home flu vaccination process for COVID-19 vaccine with one patient	Test ramping up COVID-19 vaccination at home process for up to five patients	Test ramping up COVID-19 vaccination at home process for up to twenty patients (or one practice)	Test full-scale rollout of COVID-19 vaccination at home process.
Description	Adapt existing process for at-home flu vaccinations to provide COVID-19 vaccinations in the home. Focus test on ensuring timely delivery of COVID-19 vaccine at proper temperature (clinic partner providing refrigeration services).	Once process established for one: adapt existing process to provide COVID-19 vaccinations in the home to up to five patients in one week. Focus test on ensuring timely delivery of COVID-19 vaccine at proper temperature (clinic partner providing refrigeration services).	Once process established for five: adapt existing process to provide COVID-19 vaccinations in the home to up to twenty patients in one week. Focus test on ensuring timely delivery of COVID-19 vaccine at proper temperature (clinic partner providing refrigeration services).	Once process established for twenty: adapt existing process to provide COVID-19 vaccinations in the home at full scale. Focus test on ensuring timely delivery of COVID-19 vaccine at proper temperature (clinic partner providing refrigeration services).

Repeated Use of the PDSA Cycle

To hold the gain, you need a process management system that defines standard work, reviews performance and acts to enable staff to use the standard work.



Steve Spear's Insight*

THE LESSON: Give Up Depending on Designing Perfect Processes and Commit to Discovering Them Instead.

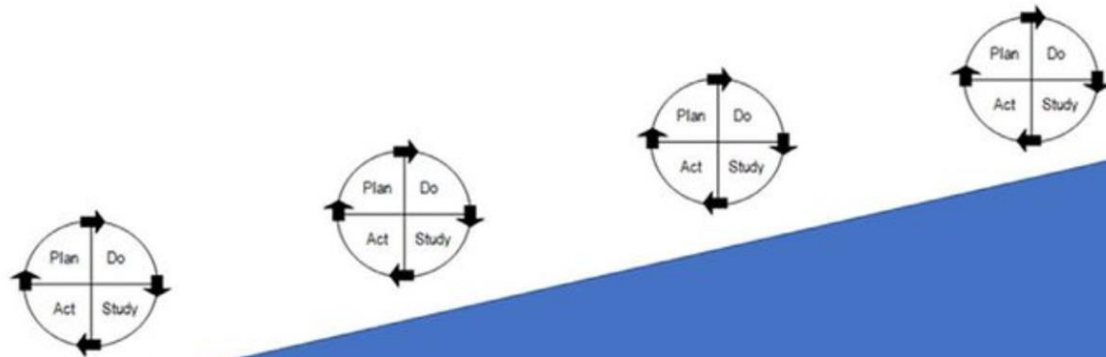
"No one team can design a perfect system in advance, planning for every contingency and nuance. ...People can discover great systems and keep discovering how to make them better."



*STEVE SPEAR (2009) THE HIGH-VELOCITY EDGE, MCGRAW-HILL:
NEW YORK, P. 92-93

PDSA Ramp

Process to activate CP referrals via email/EPIC referral instead of call to Transfer Center Mount Sinai



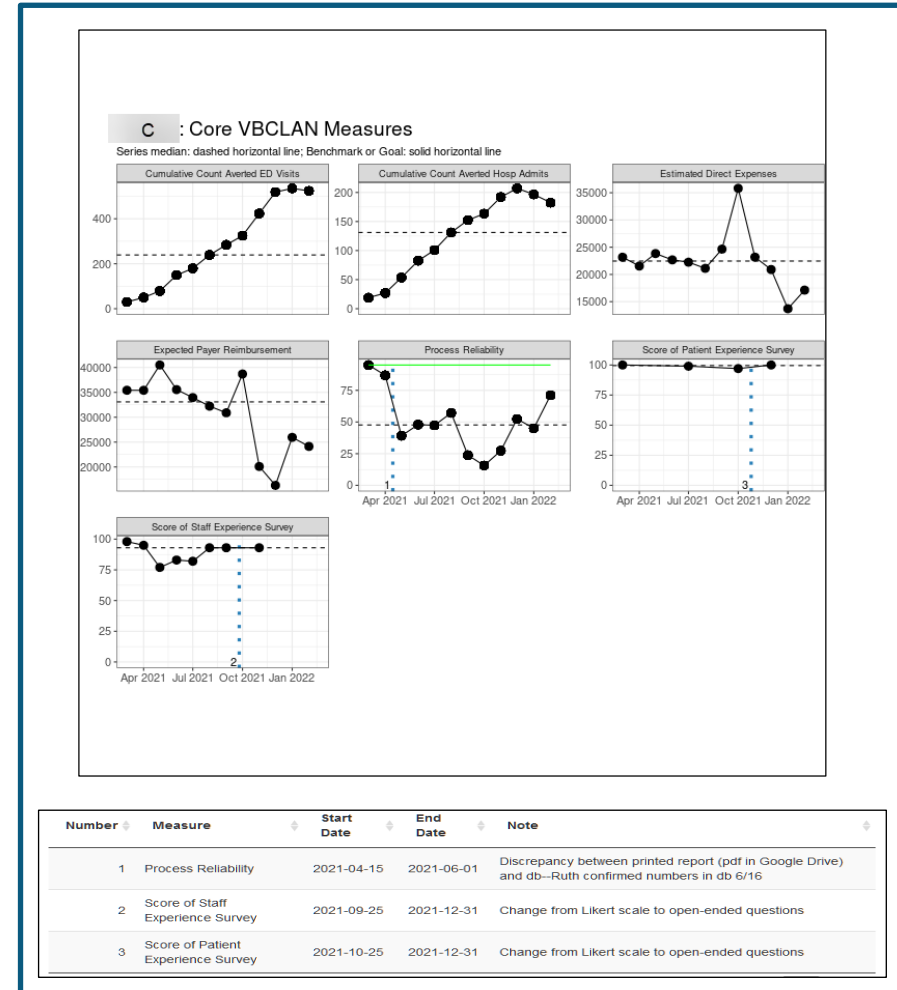
Date	7/15/2021	8/15/2021	9/15/2021	9/30/2021*
Test of Change	Test – can TOCC activate regular CP by email vs. call to Transfer Center?	Test- can all practices activate regular CP by email vs. call to Transfer Center?	Test- can internal practices activate CP by Epic referral vs. email to Transfer Center?	Test- can all practices (internal and external) activate CP by some form other than call to Transfer Center ?
Description	After a successful go-live with cp+ referrals via email, we will discuss with Transfer Center and TOCC leadership to see if would be feasible to active regular CP via email as well. Focus test on ensuring a timely response/dispatch time.	Once regular CP activation process established for TOCC, we will adapt the process to test on other internal practices. Focus test on ensuring all referring practices trained and aware of process change.	Once regular CP activation process established for all internal practices, modify email activation process to an epic referral process (which triggers an email). Focus test on ensuring all providers are trained and aware of the change.	Once regular CP activation process established for all internal practices via epic referral, modify process for external partners, possibly leveraging MS Forms, or RedCap. Focus test on identifying most appropriate intake process for regular CP.

* Should previous PDSA cycle not achieve the predicted result, adapt the process of the previous PDSA and run it again.

Measures to Guide Progress

Performance Indicators: VBC LAN 2021

- Averted ED visits and averted hospitalizations (weekly)
- Process reliability (weekly)
- Patient experience (monthly)
- Staff experience (monthly)
- Payer reimbursements (monthly)
- Direct expenses



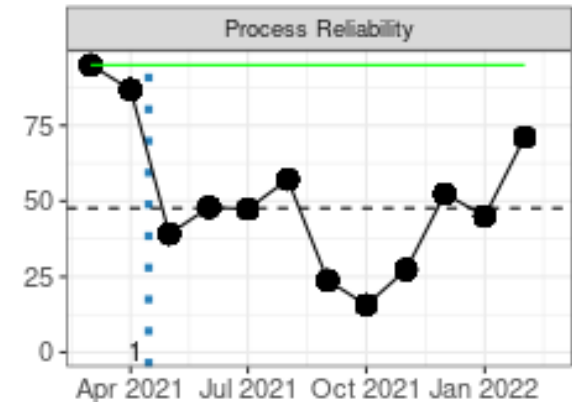
Process Reliability, with a goal 95%

We ask teams to identify one aspect of their care process to report weekly

Process reliability is defined as:

$100 \times (\text{number of cycles in the week that went as planned}) / \text{number of cycles in the week}$

Process example: Triage calls for community paramedic service with community paramedic response within 30 minutes



Number	Measure	Start Date	End Date	Note
1	Process Reliability	2021-04-15	2021-06-01	Discrepancy between printed report (pdf in Google Drive) and db--Ruth confirmed numbers in db 6/16

Staff and Patient Experience Measures

- Default method among our teams has been formal surveys
- Ideally, surveys provide insight into multiple dimensions of experience
- In practice, surveys suffer from low response rates and response bias
- We have encouraged teams to test regular "plus delta" questions with patients and staff

Financial Aims: 2021

- **AIM 1--PAYER PERSPECTIVE:**
REDUCE GROSS SERVICE EXPENSE BY 9%
- **AIM 2--PAYER PERSPECTIVE:**
REDUCE NET SERVICE EXPENSE BY 4%
- **AIM 3--PROVIDER PERSPECTIVE:**
HAVE POSITIVE MARGIN (REVENUE - EXPENSES > 0)

Aim 1 Table, March 2021-February 2022

	A	B	C	D	E	F
Averted EDs	9	385	141	376	31	61
Averted Hosps	42	183	48	160	27	130
E0	49	262	349	4568	58	600
H0	30	263	350	1260	47	850
K	\$1,096	\$2,000	\$288	\$1,096	\$579	\$1,096
L	\$5,356	\$20,000	\$5,063	\$10,723	\$7,561	\$13,655
PGMS ED/Hosp	\$214,370	\$5,784,000	\$1,872,562	\$18,517,193	\$388,949	\$12,264,350
Service Savings	\$234,796	\$4,430,000	\$283,632	\$2,127,736	\$222,096	\$1,842,006
Service Savings Goal	\$19,188	\$517,708	\$167,607	\$1,657,416	\$34,814	\$1,097,743
Aim 1 Status	OK	OK	OK	OK	OK	OK

E0 = predicted number of ED visits for population in absence of program; H0 = predicted number of hospitalizations for population in absence of program.

K = average cost to payer for ED visit; L = average cost to payer for hospitalization;

$E0 \times K + H0 \times L$ = Predicted Gross Medicare Spend associated with ED visits and hospitalization, PGMS ED/Hosp.

Aim 1 expressed in dollars: Averted ED visits \times K + Averted Hospitalizations \times L \geq .09 \times PGMS ED/Hosp.

Aim 2 Table, March 2021-February 2022

	A	B	C	D	E	F
Gross Reduction	\$234,796	\$4,430,000	\$283,632	\$2,127,736	\$222,096	\$1,842,006
Reimbursement to date	\$145,723	\$1,250,000	\$369,121	\$165,610	\$23,703	\$750,000
Payer Margin	\$89,073	\$3,180,000	(\$85,489)	\$1,962,126	\$198,393	\$1,092,006
Aim 2 Goal to date	\$8,646	\$233,288	\$75,527	\$746,860	\$15,688	\$494,662
Aim 2 status	OK	OK	not OK	OK	OK	OK

Aim 2: Averted ED visits x K + Averted Hospitalizations x L - Reimbursements \geq .04 x PGMS ED/Hosp.

Aim 3 Table, March 2021-February 2022

	A	B	C	D	E	F
Expense	\$338,392	\$1,000,000	\$269,933	\$295,200	\$79,938	\$850,000
Reimbursement	\$145,723	\$1,250,000	\$369,121	\$165,610	\$23,703	\$750,000
Provider Margin	(\$192,668)	\$250,000	\$99,188	(\$129,590)	(\$56,236)	(\$100,000)
Aim 3 Status	not OK	OK	OK	not OK	not OK	not OK

Aim 3: Reimbursements for your program services - Expenses for your program services ≥ 0 .

Key Takeaways

Driver diagram and care pathway hold up over multiple cycles.

- Organizations can figure out ways to deliver savings for payers
- Organizations are challenged to figure out how to sustain their own finances

Development and operation of care at home services is an example of a complex system, characterized by interactions and relationships that are *a priori* difficult or impossible to anticipate. Spear's insight applies.

Refinements 2021-2022

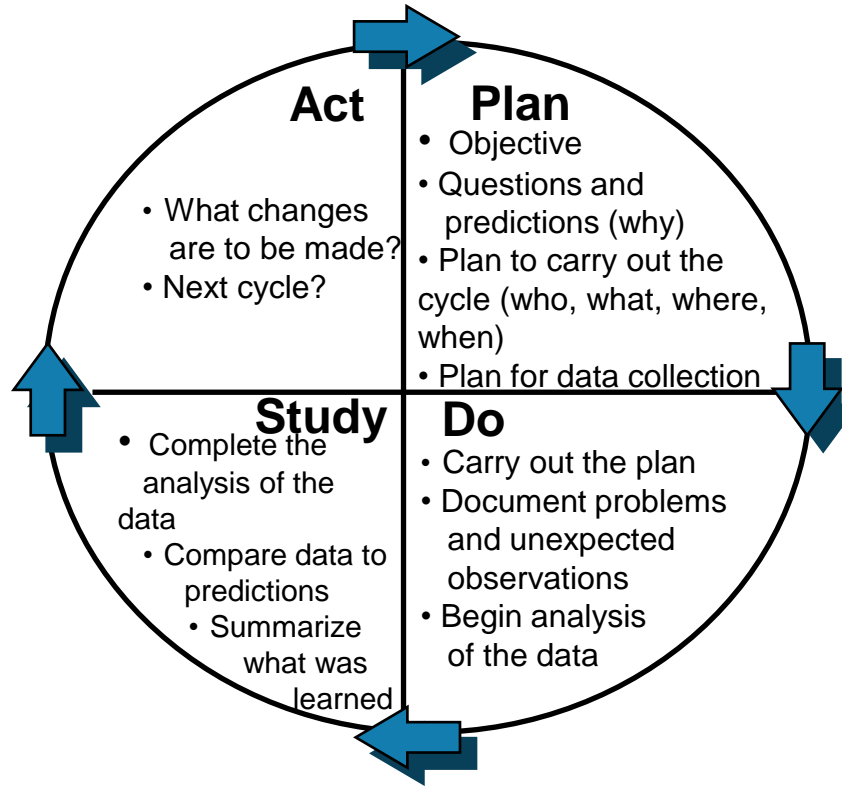
- FINANCIAL SUSTAINABILITY IS MORE THAN SIMPLE OPERATING MARGIN DEFINED BY REVENUE - EXPENSES
- EQUITY OF ACCESS AND EXPERIENCE IN CARE IS CRITICAL TO QUALITY OF CARE
- THE PATIENT-CARE FLOW CHART ALLOWS FOR PROGRAMS THAT ONLY REACT TO ACUTE EVENTS; THIS IS NO LONGER OUR FOCUS.
- IN 2022, WE ASK EACH ORGANIZATION TO TELL US HOW THEIR FINANCIAL TEAM DEFINES PROGRAM SUSTAINABILITY
- IN 2022, WE ASK EACH ORGANIZATION TO REPORT ON SOME DIMENSION OF EQUITY IN THEIR PROGRAMMING
- IN TERMS OF THE 2019 FLOW CHART, 2022 PROGRAMS HAVE PROACTIVE AND RESPONSIVE CARE COMPONENTS

Q & A and Discussion



Appendix: PDSA Basics

Basic components of each step



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...To Be Considered a PDSA Cycle

- The test or observation was **planned** including questions to be answered, a **plan for collecting data** and a **prediction** about results.
- The plan was attempted (**do** the plan).
Observations made and recorded, including those things that were not part of the plan.
- Time was set aside to compare the data with the predictions and **study** the results.
- **Action** was rationally based on what was learned.

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Why Predict?

- Enhances learning
- Dopamine circuits fire
- Fights hindsight bias
- Forces use of test cycle measures
- Adds fun to your improvement work

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3 Principles for Testing a Change

1. Test on a small scale
2. Collect data over time
3. Build knowledge sequentially

What's small?

- **IN TERMS OF YOUR WORK: TEST YOUR CHANGE ON ONE UNIT (ONE PATIENT EXAM OR TREATMENT BY ONE PROVIDER, ONE CONSULTATION WITH NUTRITIONIST, ONE CONVERSATION ON PATIENT'S SELF-MANAGEMENT)**
- **IN TERMS OF TIME: WHAT CAN YOU LEARN IN ONE DAY, ONE MORNING, ONE HOUR, ONE QUARTER HOUR? (SHORTER THE BETTER)**

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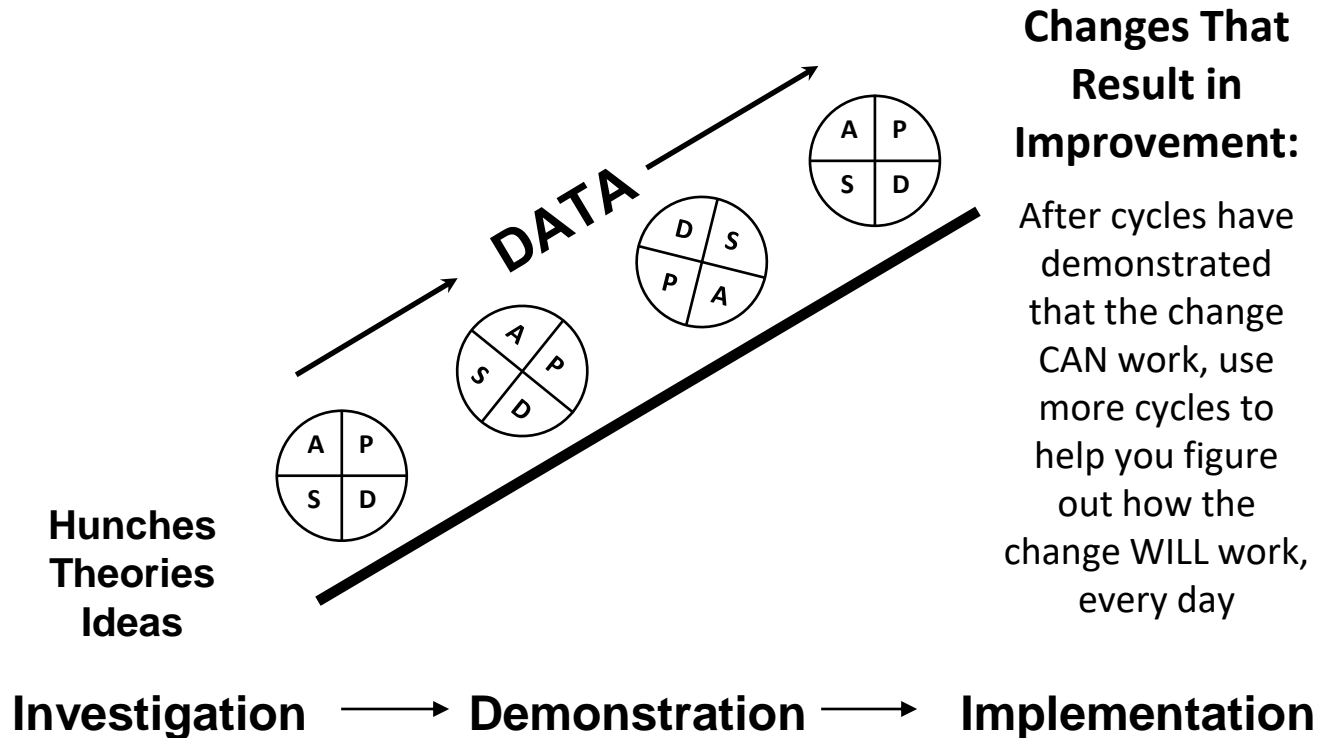
Collect Data Over Time

The 'Plan' step includes plan to collect data for each PDSA Cycle.

- Useful data beat perfect data
 - Whiteboard/Pencil and paper system is OK!
 - Qualitative or estimated data *now* beats precise quantitative data *later*
- Record what went wrong during the data collection
- Sampling can reduce data burden

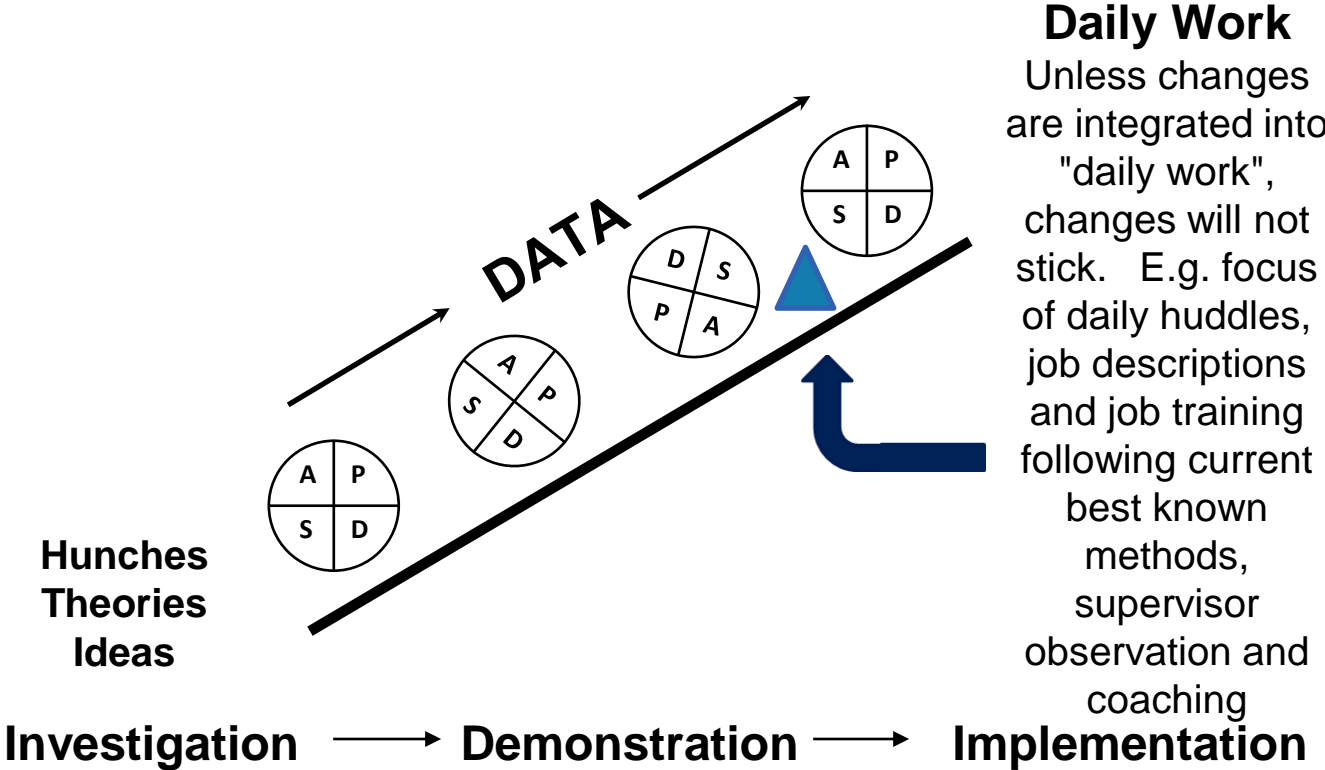
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Repeated Use of the Cycle



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Repeated Use of the Cycle



Scaling up small tests: Growing Fast

- **RULE OF 5:**

- Test with one provider, one patient, one encounter
- If "success" (WHAT and HOW both go as intended), increase by factor of 5, e.g. 1 provider next 5 patients.
- If "success" (WHAT and HOW both go as intended), increase by factor of 5, e.g. 1 provider, 25 patients OR 5 providers 5 patients
- If "success" (WHAT and HOW both go as intended), increase by a factor of 5, e.g. 1 site then to 5 sites.

This pattern is "exponential" LIMITATIONS are MANAGEMENT CAPACITY TO MANAGE CHANGE (see e.g. [Kotter framework](#), Rogers work on [diffusion of innovations](#) and more!)

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Three factors shape scale for initial tests of a change

- **ORGANIZATIONAL COMMITMENT**
- **BELIEF IN THE EFFECTIVENESS OF THE CHANGE**
- **RISK OF FAILURE**

A TEST OF "SIZE 1" IS ALMOST ALWAYS APPROPRIATE BUT THERE ARE OPPORTUNITY COSTS SOMETIMES...

Guidance on Scale of a Test

Deciding on the Scale of a Test		<i>Current Commitment within Your Organization</i>		
<i>Belief in effectiveness</i>	<i>Failure Cost</i>	No Commitment	Some Commitment	Strong Commitment
Low degree of belief that change idea will lead to improvement	Cost of failure large	Very small-scale test	Very small-scale test	Very small-scale test
	Cost of failure small	Very small-scale test	Very small-scale test	Small-scale test
High degree of belief that change idea will lead to improvement	Cost of failure large	Very small-scale test	Small-scale test	Large-scale test
	Cost of failure small	Small-scale test	Large-scale test	Implement

source: Table 7.1 G. Langley et al. (2009), *The Improvement Guide*, 2nd edition, Jossey-Bass, San Francisco © Associates in Process Improvement, used with permission.

Resources for Self-study

- D. M. BERWICK (1996), “A PRIMER ON LEADING THE IMPROVEMENT OF SYSTEMS,” *BMJ*, 312: PP. 619-622.
- G. LANGLEY ET AL. (2009), *THE IMPROVEMENT GUIDE*, 2ND EDITION, JOSSEY-BASS, SAN FRANCISCO.
- T. W. NOLAN AND L. P. PROVOST (1990), “UNDERSTANDING VARIATION”, *QUALITY PROGRESS*, 13, NO. 5.
- “ACCELERATING THE PACE OF IMPROVEMENT - AN INTERVIEW WITH THOMAS NOLAN,” *JOURNAL OF QUALITY IMPROVEMENT*, 23, NO. 4, THE JOINT COMMISSION, APRIL, 1997.
- RESOURCES ON THE WWW.IHI.ORG SITE: SEARCH FOR PDSA

ADDITIONAL REFERENCES

1. [Hospital at Home is not just for Hospitals](#)
2. [ACO REACH Model](#)
3. [ACO REACH And Advancing Equity Through Value-Based Payment, Part 2](#)

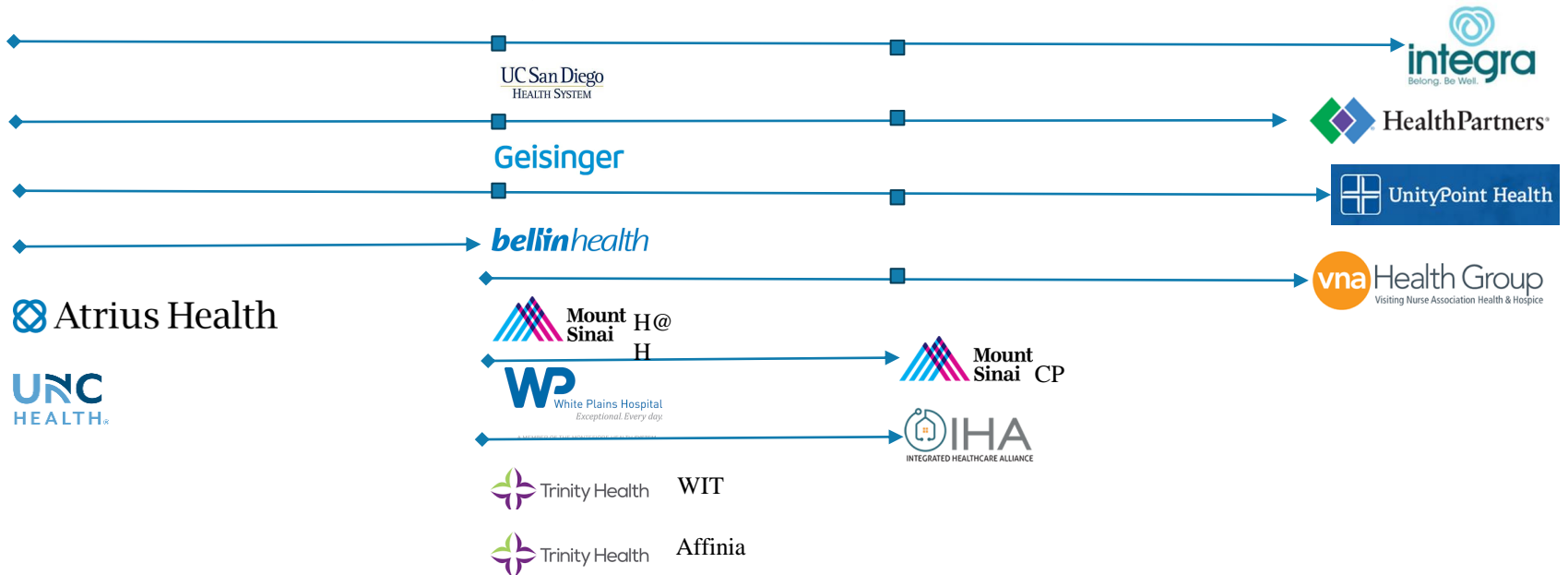
Learning and Action Network: Participation History

Unplanned Acute Event
Learning and Action
Network
(**UAELAN**)
2017-2019

Home Learning
and Action
Network
(**HomeLAN**)
2019-2020

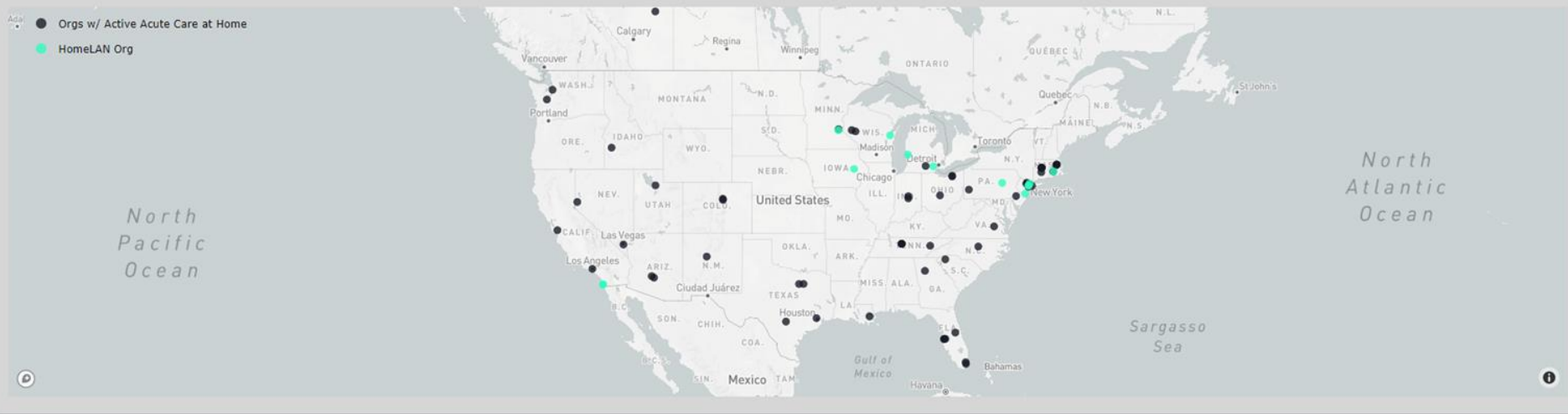
Value-based Care
Home Learning and
Action Network
(**VBC HomeLAN**)
2020-2021

Value-based Acute
Care at Home
(**VBACH**)
2021-2022



State of Home-based Acute Care- September 2019

Drag the slider below to see how averted costs have grown during the lifespan the of HomeLAN. Hover over each dot in the map to see the organization name and the amount of money saved for the specified time frame. Use your mouse scroll wheel to zoom into the map for further detail. Only organizations in the HomeLAN will have growing averted costs.



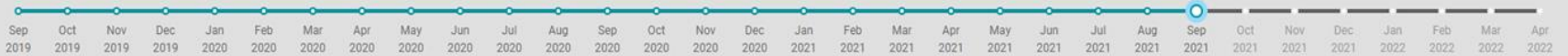
As of September 2020

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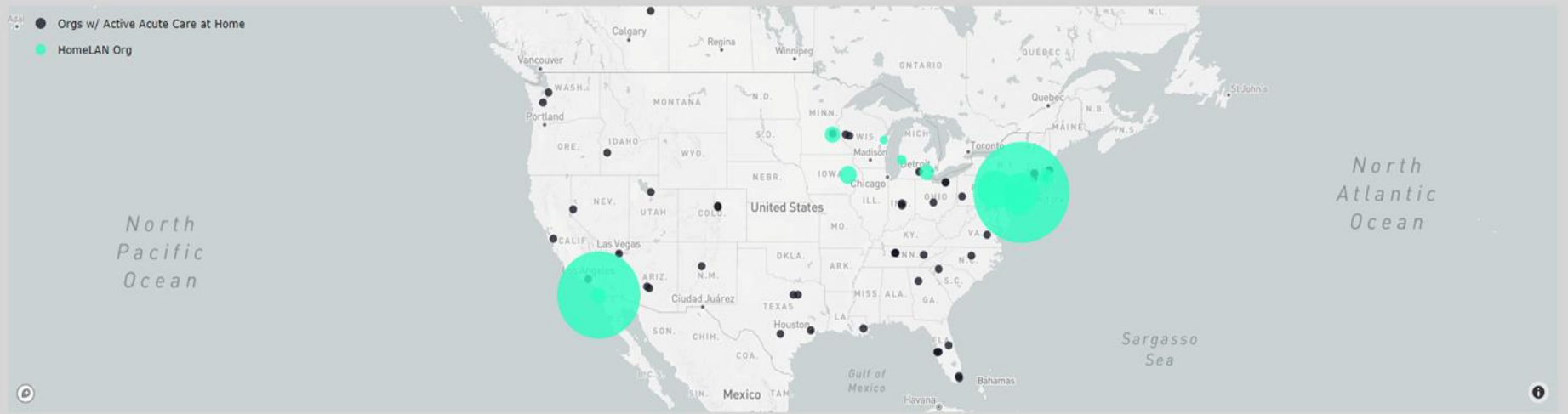


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- Orgs w/ Active Acute Care at Home
- HomeLAN Org



Tracking Progress Via Data Dashboard

