

Quality Improvement 101

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PCQC

Disclosures

Rachel Thienprayoon, faculty for this educational event, is a board member of the PCQC Board of Directors.

I have no other relevant conflicts of interest to disclose.

All of the relevant financial relationships listed for these individuals have been mitigated.



Learning Outcomes

Upon completing this session, participants will be able to:

- Explain why quality improvement (QI) is important in healthcare
- Describe basic QI methodologies
- Plan and carry out a simple QI project

What is Quality Improvement?

“Systematic, data-guided activities designed to bring about immediate, positive changes to the delivery of healthcare in particular settings.”

--The Hastings Center Bioethics
Research Institute

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Both QI and Research...

- Use scientific reasoning
- Systematically investigate hypotheses
- Employ analytic tools
- Employ both qualitative and quantitative methods



Hastings Center Special Report July-August 2006

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But Research...

Is designed to develop or contribute to the generalizable knowledge.



45 CFR 46, HHS
Hastings Center Special Report

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In Clinical Research:

- Clinicians choose to be investigators
- Patients choose to be participants
- There is **equipoise** about whether an intervention is beneficial
- **Funding** is separate from the institution
- There may be little urgency to **disseminate and implement** results

Therefore, research is a knowledge-seeking enterprise that is independent of routine medical care.



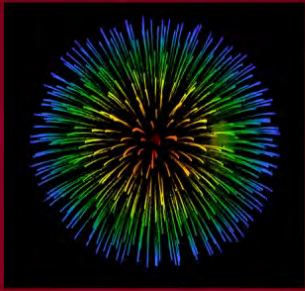
Whereas “QI is a particular form of the clinical and managerial innovation and adaptation that has always been an integral part of health care operations.”

Hastings Center Special Report July-August 2006

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Quality Improvement:

- Looks for **immediate** improvements in care
- Is **local** in setting
 - Incorporates unique features of each setting
 - Led by people who work in that setting
- Incorporates **rapid feedback** of results to bring about positive change



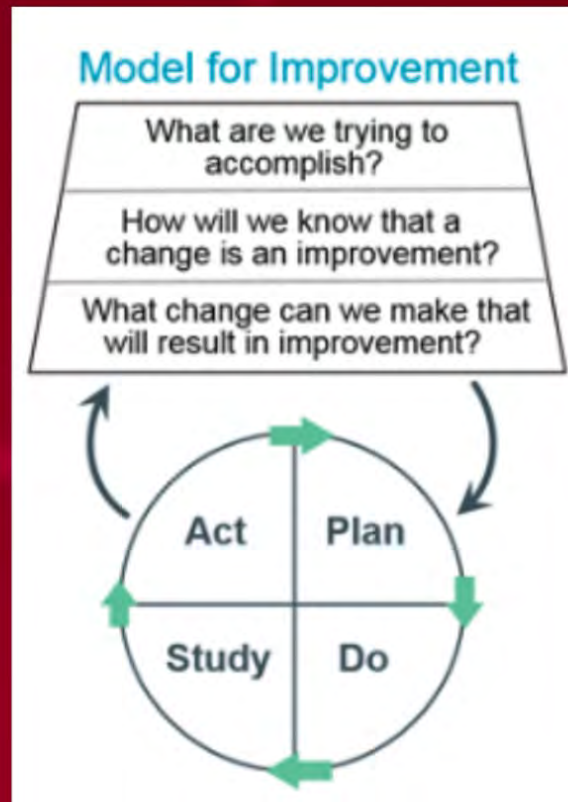
“Ideally, over time, the successful use of QI methods helps to **transform** the culture of an organization into one in which **everyone** is committed to **continuous** quality improvement and has the skills to participate in it.”



Hastings Center Special Report July-August 2006



The Model for Improvement





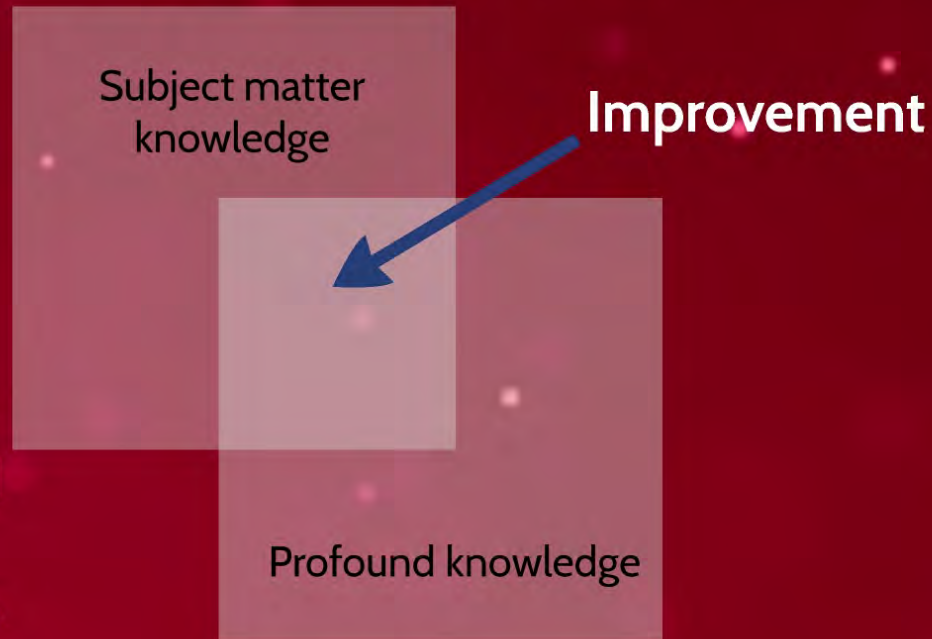
W. Edwards Deming 1900-1993

American engineer, mathematical
physicist, statistician, professor,
author, lecturer

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Knowledge for Improvement

We must learn to combine **subject matter knowledge** and **profound knowledge** in creative ways to develop effective changes for improvement.

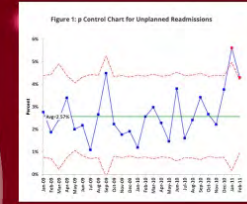


Deming's System of Profound Knowledge



Appreciation
of a system

Knowledge of
variation



Theory of
knowledge

Knowledge of
psychology



Example: Safe Opioid Prescribing



What are you trying to accomplish?
Safer opioid prescribing

How will we know that a change is an improvement?
I'm not sure

What changes will you make that will result in improvement?
Unclear right now

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How do I do QI?

Step 1:
Form a
Team



Step 3:
Make a Key
Driver
Diagram



Step 5:
Study
Failures



Step 6:
Sustainability
and Spread



Step 2:
Create an
Aim
Statement



Step 4:
PDSA
cycles



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Step 1: Form Your Team



Day-to-day Team Leader (Lesley Knope)
Drives the project forward
Gets it done

Clinical leader (Ron Swanson)
Authority to test and implement change on the unit
Understands how project might impact other areas

Technical expertise (Donna, Tom, Jerry, April)
Front line staff who knows the system
People who understand QI methods

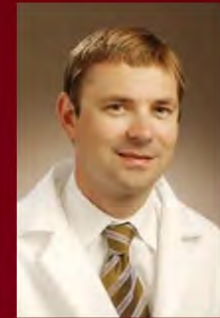
Sponsor (Chris Traeger)
Executive authority, liaison to other areas
Align project with institutional goals

Patients or other stakeholders (Town Halls)

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Safe Opioid Prescribing Project



Team Leader: Me
Clinical Leader: Mark Meyer (Paliative
Care Director)
Technical Expertise: Michelle (RN), Lori
(NP), Geri (SW)
Sponsor: John McAuliffe
(Anesthesiologist in Chief)
Other stakeholders: Oncology NP,
physicians, care managers



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Step 2: Create an Aim Statement



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SMART Aim: How to Tackle the Garage?

S = Specific
M = Measurable
A = Actionable
R = Relevant
T = Time-bound



Decrease garage clutter by x% between January 1 and March 1, 2020

“Clutter” = items not used in the past six months

Baseline data: Clutter occupies 70% of garage floor space

Decrease garage clutter from 70% to 10% between January 1 and March 1, 2020

Opioid Project SMART Aim

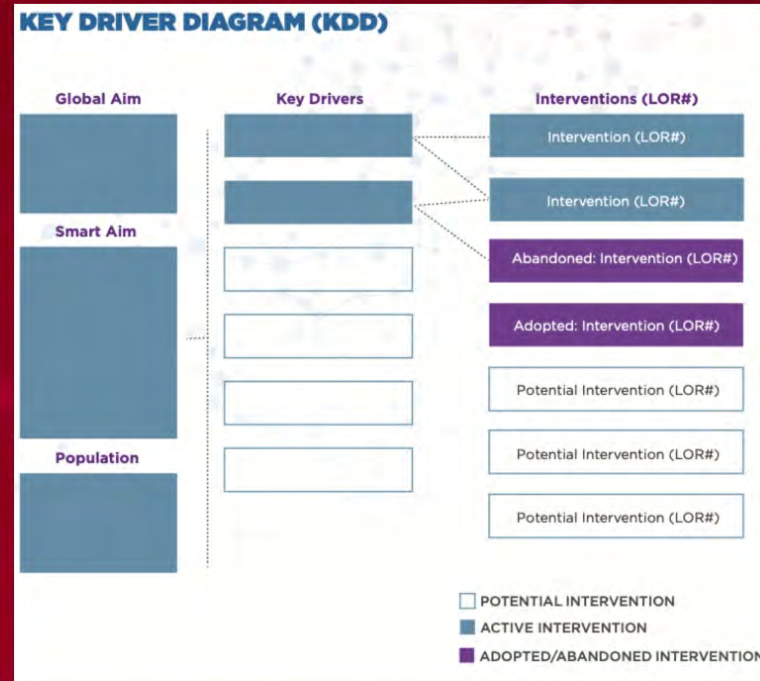
“In patients who present for follow up with PACT, we will use the ‘opioid bundle’ to increase risk stratification for opioid misuse from 0% to 90% over 5 months”

Operational definitions:

Patients- non hospice, ambulatory, who have been prescribed opioids

Opioid bundle- Urine drug screen, Ohio Automated Rx Reporting System report, pill count, and screening history for drug abuse and mental health disorders

Step 3: Make a Key Driver Diagram!



Building a Learning Healthcare System Network. Quality Improvement. Cincinnati, OH:
James M. Anderson Center for Health Systems Excellence, 2020.

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Anatomy of a Key Driver Diagram

Key Driver Diagram (KDD)

Project Leader(s): Rachel Thienprayoon

Revision Date: 09/16/2014 (v1)

SMART Aim

In patients who present for follow up with the palliative pain team, we will increase documentation of the opioid bundle* from 0 to 90% by Jan 21, 2015.

Global Aim

Safe opioid prescribing

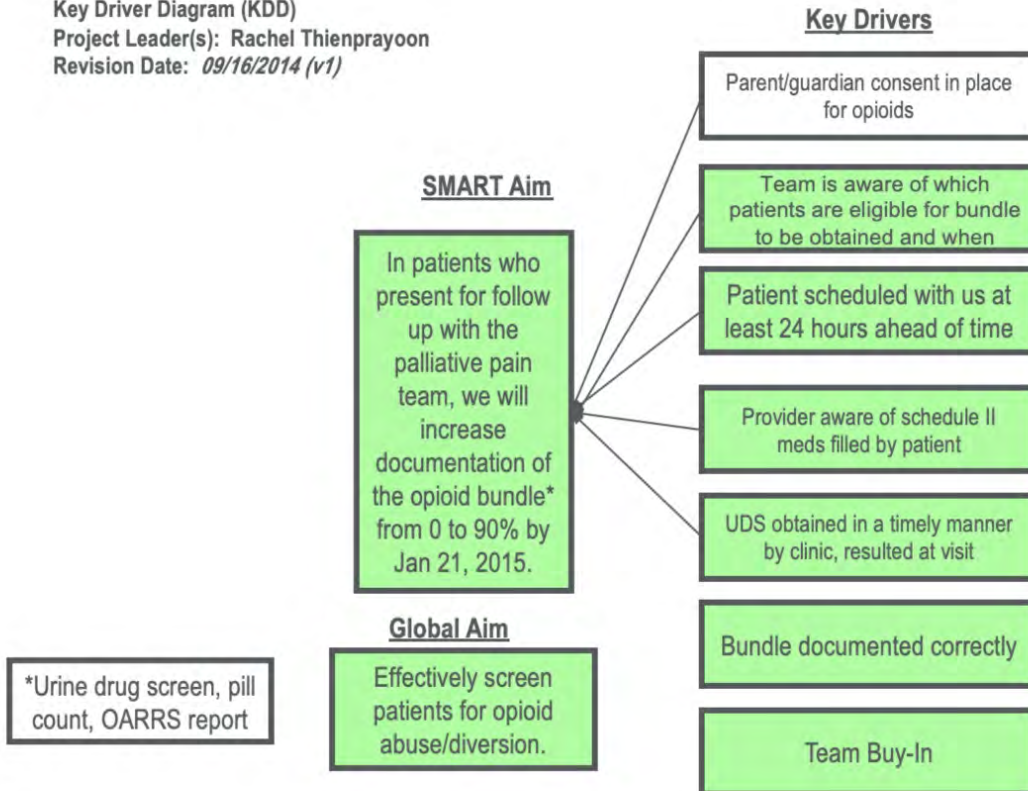
What are you trying to achieve?

This is your **SMART Aim**.



Anatomy of a Key Driver Diagram

Key Driver Diagram (KDD)
Project Leader(s): Rachel Thienprayoon
Revision Date: 09/16/2014 (v1)



What are the key elements to achieving that SMART Aim?

Those are your **Key Drivers**, often referred to as the “what”

- System components or factors that contribute directly to achieving the aim

Effective screening for opioid abuse/diversion through use of the "opioid bundle"

Project Leader(s): Rachel Thienprayoon MD

Revision Date: 09/16/2014 (v#1)

Key Drivers

Interventions (LOR #)

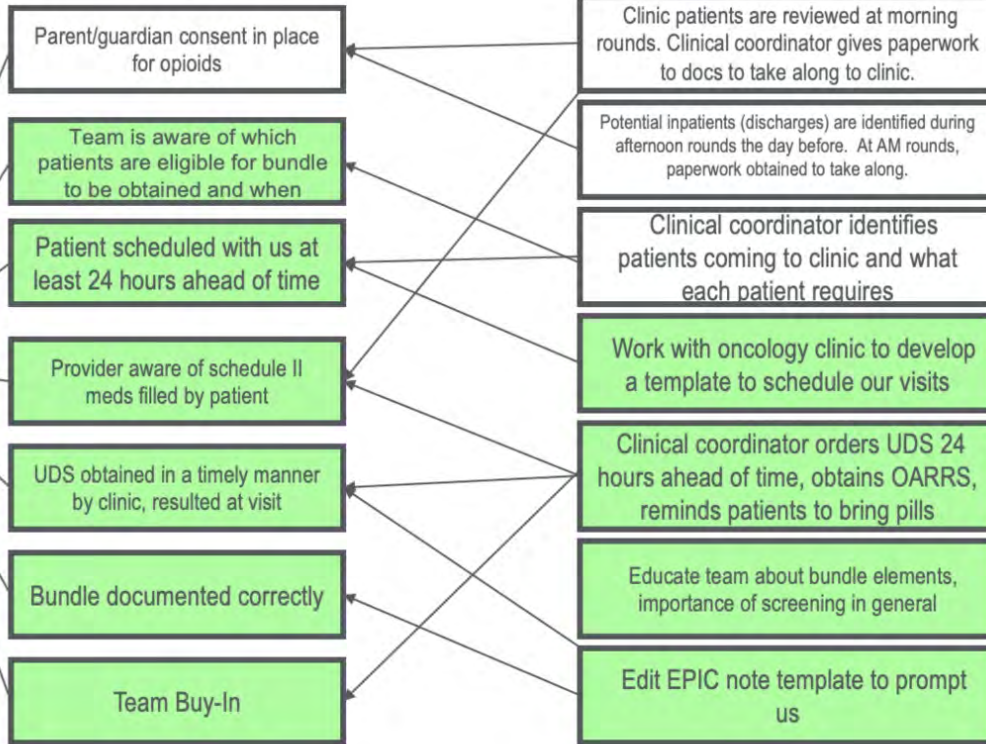
SMART Aim

In patients who present for follow up with the palliative pain team, we will increase documentation of the opioid bundle* from 0 to 90% by Jan 21, 2015.

Global Aim

Effectively screen patients for opioid abuse/diversion.

*Urine drug screen, pill count, OARRS report



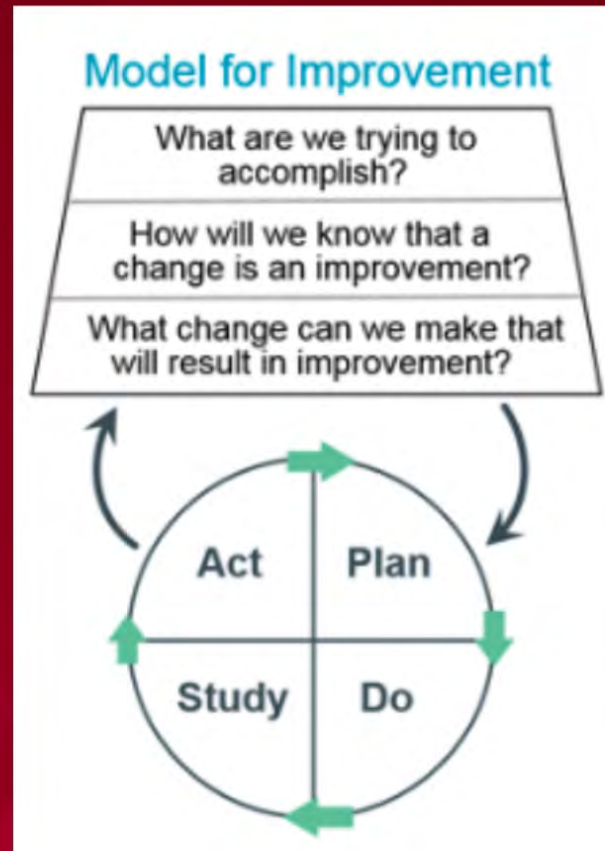
What potential actions do you want to test to achieve those Key Drivers?

These are the **Interventions**, often referred to as the "How"

Key Driver Diagram Tips

- Drivers are NOUNs and interventions are VERBS
- KDDs are living documents; update it as your theory and understanding evolve
- Version number should be included
- Can be used as a communication tool outside your team

Step 5: PDSA Cycles



Key Driver Diagram (KDD)

Risk stratification for opioid abuse/diversion through use of the "opioid bundle*" **Interventions**

Project Leader(s): Rachel Thienprayoon MD

Revision Date: 10/15/14 (v#7)

Key Drivers

SMART Aim

In patients who present for follow up with the palliative pain team, we will use the opioid bundle* to increase risk stratification of opioid abuse/diversion from 0 to 90% by Jan 21, 2015.

Global Aim

Safe prescribing of opioids to palliative care patients

*Urine drug screen, pill count, OARRS report, screening history

Parent/guardian consent in place for opioids

Care team can easily access updated patient information

Team is aware of which bundle elements are required for each patient, and when

Provider aware of schedule II meds recently filled by patient

Provider aware of schedule II meds and/or illegal drugs in patient biosystem

Team members aware of risk stratification algorithm and able to easily apply it

Team Buy-In

Patient ID Cards are developed and maintained in a central area of the office (LOR 2)

Clinic Huddle (LOR 2)
 1) Incorporated into rounds
 2) That day's outpatients are reviewed. Cards are updated, team notified of completed bundle elements, and next date we would like to see them communicated.
 3) The next day's outpatients cards are reviewed, labs ordered, and necessary paperwork prepared for these patients.

Develop risk stratification algorithm and protocol after risk assigned (LOR 2)

EPIC note template is updated to prompt us to document bundle elements and risk stratification (LOR 2)

Educate team about bundle elements, importance of screening, patient cards, how to complete, clinic huddle (LOR 1)

- Key
- Gray shaded box = completed intervention
 - Green shaded box = what we're working on right now
 - LOR # = Level of Reliability Number, e.g., LOR 1

P: Plan a test!

Using Clinic Huddle to Risk Stratify Patients				
Objective for this series of tests	Use a paper screening tool to improve obtaining family/personal history of drug use or mental health issues			
Overall Population	Non-hospice outpatients receiving opioids			
TEST CYCLE 1	Start Date: 12.11.14		End Date: 12.11.14	
Test Population	Two patients eligible for opioid screening			
Plan	Met with entire team, explained screening tool.			
Prediction	100% of eligible patients will have screening obtained using paper tool			

D: Do the Test!

Using Clinic Huddle to Risk Stratify Patients				
Objective for this series of tests	Use a paper screening tool to improve obtaining family/personal history of drug use or mental health issues			
Overall Population	Non-hospice outpatients receiving opioids			
TEST CYCLE 1	Start Date: 12.11.14		End Date: 12.11.14	
Test Population	Two patients eligible for opioid screening			
Plan	Met with entire team, explained screening tool.			
Prediction	100% of eligible patients will have screening obtained using paper tool			
Do	Used with eligible patients to screen for family or personal history of drug abuse or mental health issues.			

S: Study what happened!

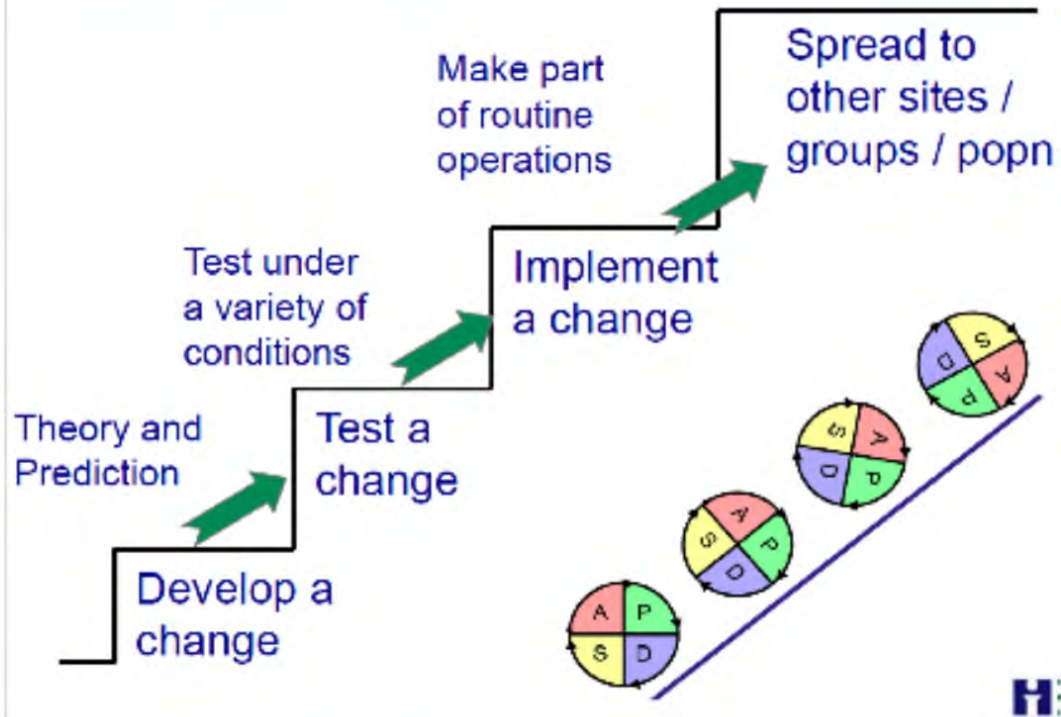
Using Clinic Huddle to Risk Stratify Patients				
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Plan	Met with entire team, explained screening tool.			
Prediction	100% of eligible patients will have screening obtained using paper tool			
Do	Used with eligible patients to screen for family or personal history of drug abuse or mental health issues.			
Study	One patient completed correctly, the other was confused by wording.			

A: Act based on what you learn

A can be **Adapt**, **Adopt** or **Abandon**

Using Clinic Huddle to Risk Stratify Patients				
Objective for this series of tests	Use a paper screening tool to improve obtaining family/personal history of drug use or mental health issues			
Overall Population	Non-hospice outpatients receiving opioids			
TEST CYCLE 1	Start Date: 12.11.14		End Date: 12.11.14	
Test Population	Two patients eligible for opioid screening			
Plan	Met with entire team, explained screening tool.			
Prediction	100% of eligible patients will have screening obtained using paper tool			
Do	Used with eligible patients to screen for family or personal history of drug abuse or mental health issues.			
Study	One patient completed correctly, the other was confused by wording.			
Act	Adapt. Edit the form to make the wording more clear.			

The Steps To Change



**PDSA Cycles
Lead to Ramps**

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Step 6: Study Failures

- In QI, "failure" means "goal not met"
- By identifying and ordering frequency of failures, we can:
 - Better understand our current state.
 - Recognize where to focus our interventions for highest impact.

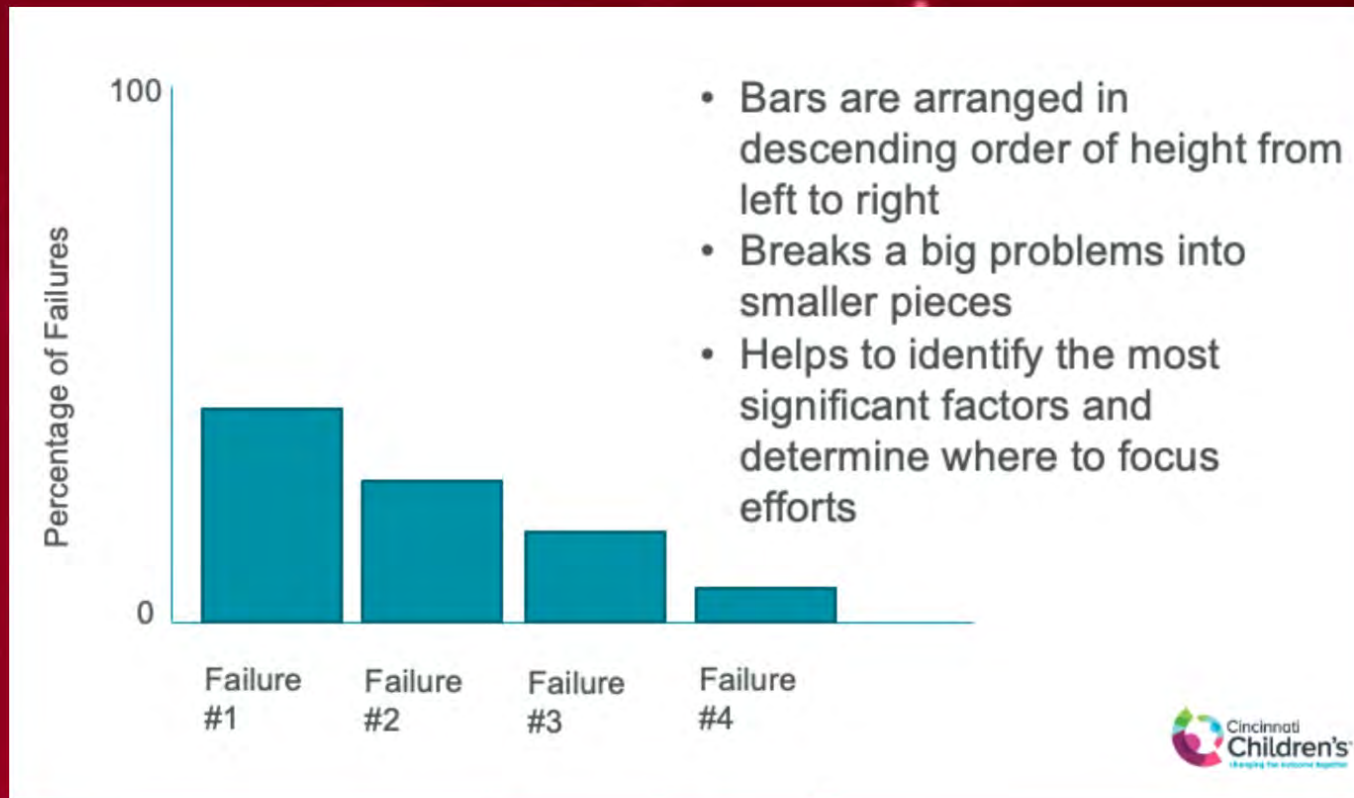
**I have not failed,
I've just found
10,000 ways
that won't work.**

- Thomas Alva Edison

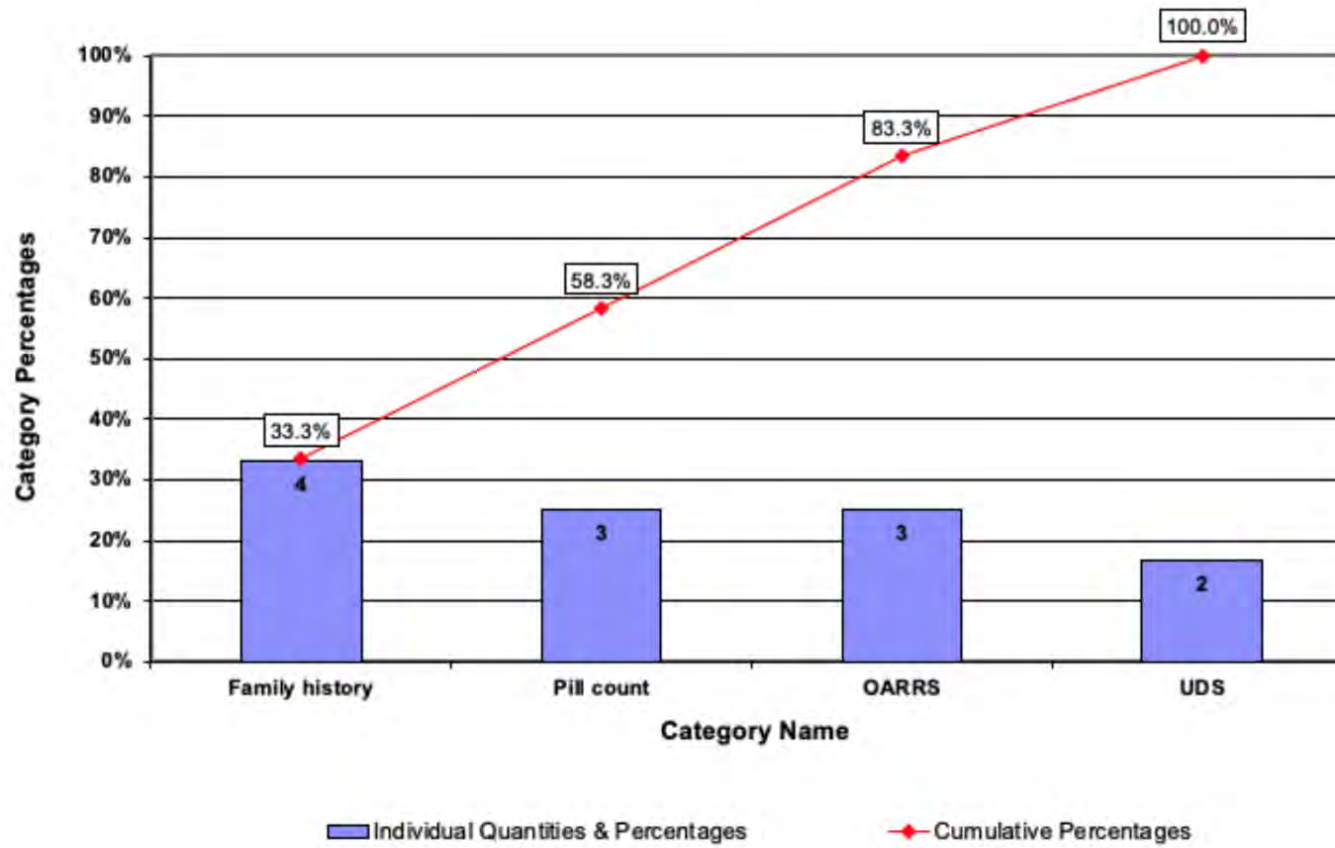


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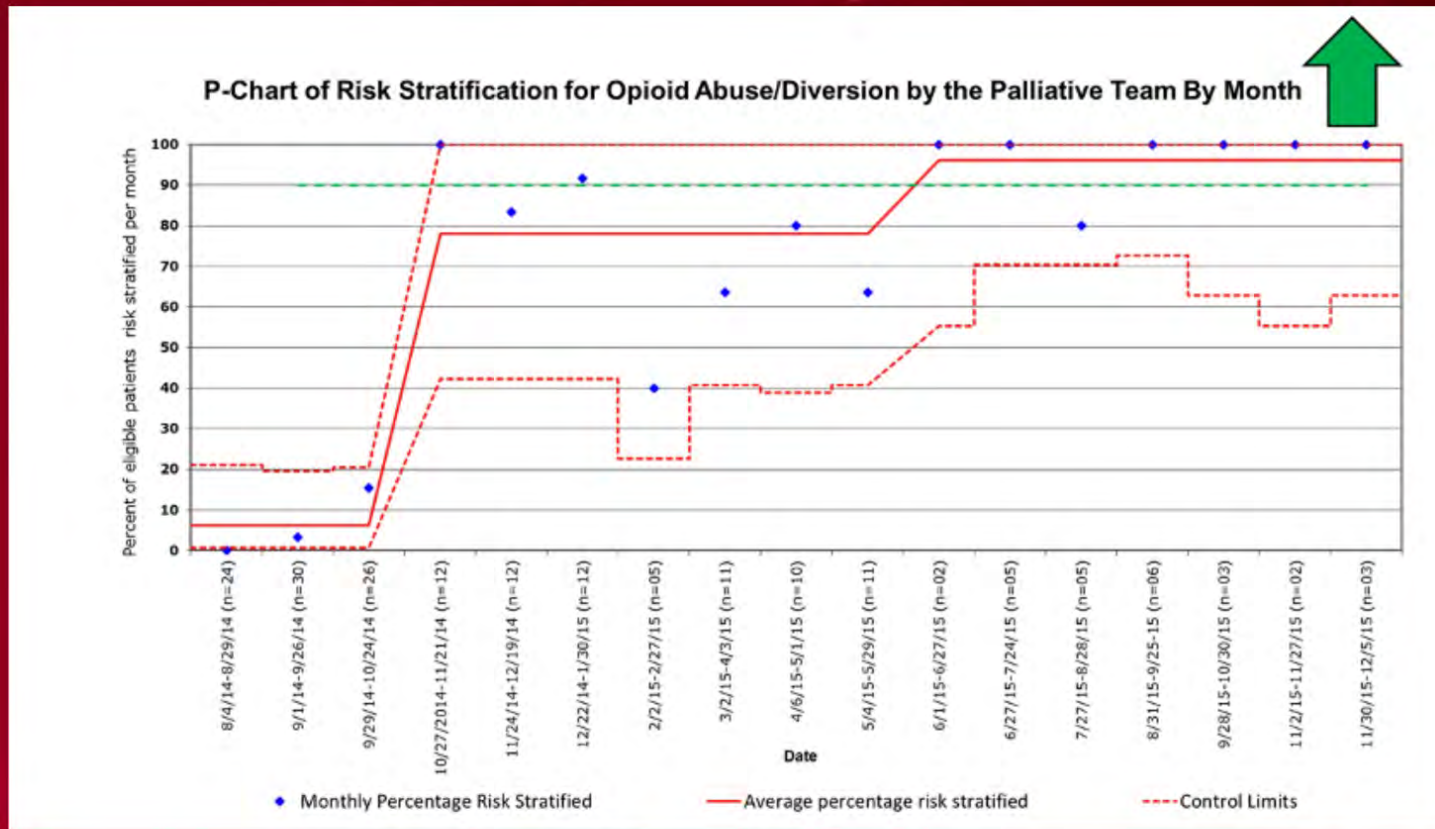
Pareto Chart



I2S2 Example Pareto Chart



Step 7: Sustainability and Spread



What if I want to publish?

- What about the IRB?
- SQUIRE 2.0 Guidelines



ARTICLE IN PRESS
Journal of Pain and Symptom Management |

Original Article
The Pediatric Palliative Improvement Network:
A national Healthcare Learning Collaborative

Rachel Thienprayoon, MD, MSCS, Emma Jones, MD, Lisa Humphrey, MD, Lindsay Ragsdale, MD, Conrad Williams, MD, and Jeffrey C Klick, MD

Division of Palliative Care, Department of Anesthesia, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; Department of Psychosocial Oncology and Palliative Care, Dana Farber Cancer Institute, Department of Pediatrics, Boston Children's Hospital, Boston, Massachusetts; Division of Palliative Care, Department of Pediatrics, Nationwide Children's Hospital, Columbus, Ohio; Division of Palliative Care, Department of Pediatrics, Kentucky Children's Hospital, University of Kentucky, Lexington, Kentucky; Palliative Care Program, Department of Pediatrics, Medical University of South Carolina Children's Health System, Charleston, South Carolina; Department of Palliative Care, Children's Healthcare of Atlanta, Atlanta Georgia, USA; Division of Palliative Care, Department of Pediatrics, Emory University School of Medicine, Atlanta, Georgia, USA

Improving Early Palliative Care Consultation in Solid Tumor Patients

Brittney Whitford, MD
Division of Pediatric Hospice and Palliative Care



Background

- Early integration of palliative care (PC) is known to improve symptomatology and quality of life for pediatric oncology patients, and is therefore becoming more standard of care
- No guidelines on best approach, and timing of consultation highly variable at our institution
 - Only 46% of solid tumor patients had PC consult
 - Only 20% of solid tumor patients had PC consult within 6 weeks of diagnosis
- Designed quality improvement project aimed to develop a reliable process to establish early PC consultation in pediatric solid tumor patients

Aims

- **Global Aim:**
Improve symptom management and quality of life for pediatric solid tumor patients
- **SMART Aim:**
Increase the percentage of eligible solid tumor patients having palliative care consultation within 6 weeks of diagnosis or initial visit to CCHMC from 20% to 80% by February 1st 2021
- **Population:**
All solid tumor patients (excluding retinoblastoma and NF1) receiving either chemotherapy or BMT at CCHMC

Design/Methods

• **High Level Process Map:** Developed a high-level process map to work through proposed process



• **Key Driver Diagram:** Used key driver diagram to help develop interventions to test



• **PDSA "Identification" Ramp:** Used PDSA ramps to test small change and develop reliable processes to identify new eligible patients and schedule early PC consultation

Identification Ramp	Test Cycle 1	Test Cycle 2	Test Cycle 3	Test Cycle 4
Test Description:	Review chart for PC consult	Review chart for PC consult	Review chart for PC consult	Review chart for PC consult
Test Population:	Identify eligible patients	Identify eligible patients	Identify eligible patients	Identify eligible patients
Location of Test:	CCHMC	CCHMC	CCHMC	CCHMC
Test Results:	20% of eligible patients had PC consult	40% of eligible patients had PC consult	60% of eligible patients had PC consult	80% of eligible patients had PC consult
Notes:	20%	40%	60%	80%

Results

- Increased early palliative care consultations in pediatric solid tumor patients from 20% to 80%
- New solid tumor patients were reliably identified using report of newly generated oncology treatment plans
- Most failures due to scheduling rather than identification

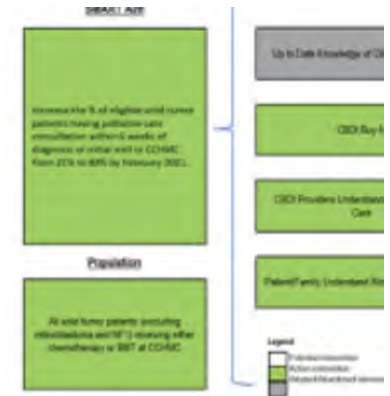


Conclusion/Discussion

- This quality improvement project demonstrates a reliable process for which to establish early palliative care consultations in solid tumor patients at a children's hospital
- Most efforts focused on identification and consultation scheduling
- **Psychology of change was an unanticipated barrier**
- Eligibility and definition of "early" consultation evolving as we gather data
- Next steps:
 - Extending patient population to include other oncologic diagnoses
 - Focus on patient outcome measures

Aims

- **Global Aim:**
Improve symptom management and quality of life for pediatric solid tumor patients
- **SMART Aim:**
Increase the percentage of eligible solid tumor patients having palliative care consultation within 6 weeks of diagnosis or initial visit to CCHMC from 20% to 80% by February 1st 2021
- **Population:**
All solid tumor patients (excluding retinoblastoma and NF1) receiving either chemotherapy or BMT at CCHMC



- **PDSA "Identification" Ramp:** Used P reliable processes to identify new eligi

Identification Ramp	Test Cycle 1	
Test Description:	Review CPTP emails to identify new solid tumor patients	R 3 pt
Test Population:	Oncology patients with new treatment protocols (n is variable)	O n s
Location of test:	CCHMC	
Duration (if hours/days/shifts):	3 days	
Test Results	Didn't identify any solid tumor patients, decided to try again with longer duration	1 2 Oct
Action	Adapt	

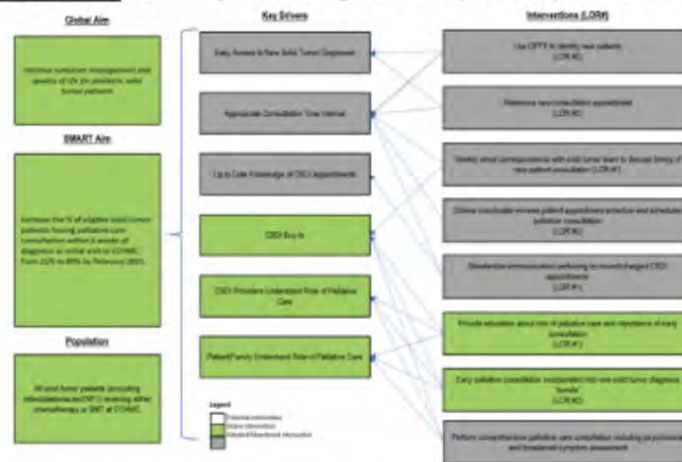
Establish early PC consultation in pediatric solid tumor patients

Aim:
Improve symptom management and quality of life for pediatric solid tumor patients

SMART Aim:
Increase the % of eligible solid tumor patients having palliative care consultation within 6 weeks of diagnosis or initial visit to CCHMC. From 22% to 80% by February 2021.

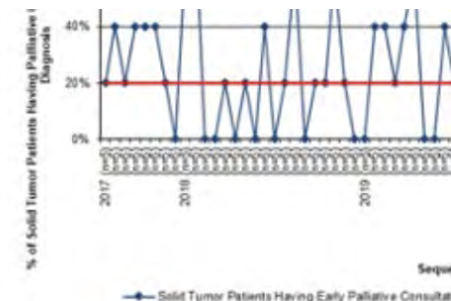
Population:
All solid tumor patients (excluding melanoma and NF1) receiving chemotherapy or BMT at CCHMC

Key Driver Diagram: Used key driver diagram to help develop interventions to test



PDSA "Identification" Ramp: Used PDSA ramps to test small change and develop reliable processes to identify new eligible patients and schedule early PC consultation

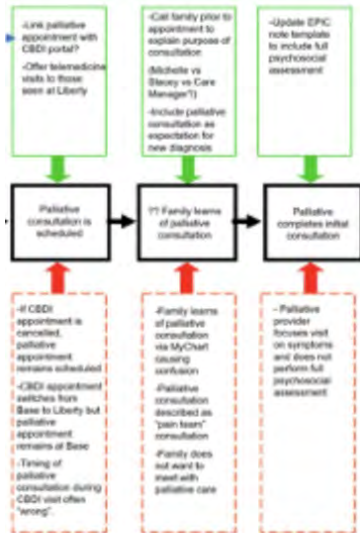
Identification Ramp	Test Cycle 1	Test Cycle 2	Test Cycle 3	Test Cycle 4
Test Description:	Review CPTP emails to identify new solid tumor patients	Review CPTP emails to identify new solid tumor patients, but not just longer	Same as Test Cycle 1, but compare against potential new consult list to see if we are missing any patients	Same as Test Cycle 1, but add in patient eligibility evaluation in CPTP
Test Population:	Oncology patients with new treatment protocols (if is variable)	Oncology patients with new treatment protocols (if is variable)	Oncology patients with new treatment protocols (if is variable)	Solid tumor patient with new CPTP (n=1)
Location of test:	CCHMC	CCHMC	CCHMC	CCHMC
Duration (P hours/days/shifts):	3 days	1 week	1 week	1 day
Test Results:	Didn't identify any solid tumor patients, decided to try again with longer duration	Did identify solid tumor patients, soon realized it determined if we were testing any	Didn't miss any new solid tumor patients, but discovered some new CPTPs were for ineligible patients	With addition of eligibility evaluation in CPTP, process is complete and quick
Action:	Adapt	Adapt	Adapt	Adapt



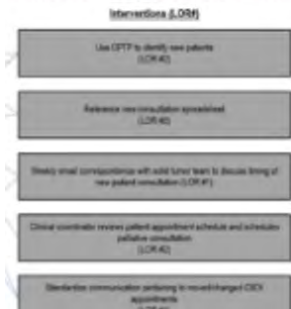
Conclusion/Discussion

- This quality improvement project process for which to establish consultations in solid tumor patients at hospital
- Most efforts focused on identification and scheduling
- Psychology of change was an important factor
- Eligibility and definition of "early" palliative care
- Next steps:
 - Extending patient population to include other diagnoses
 - Focus on patient outcome measurement

process map to work through



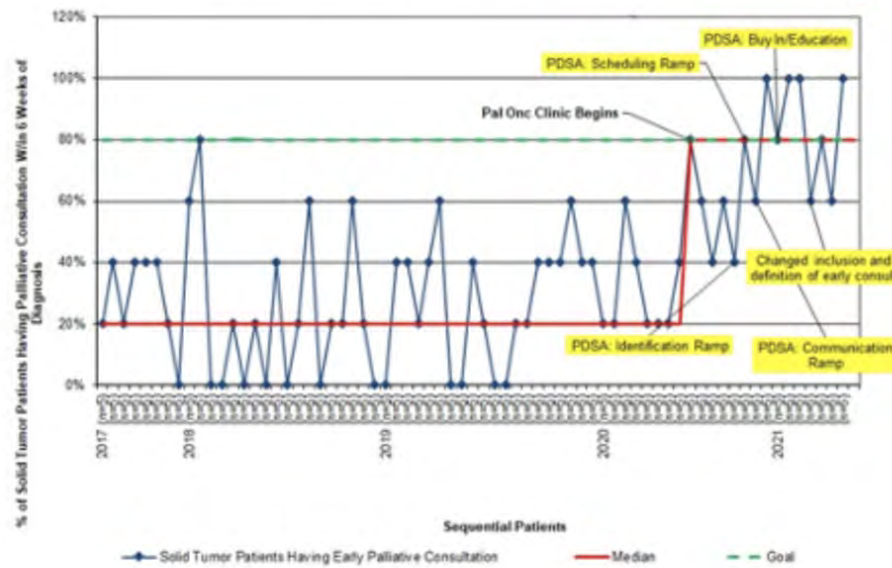
help develop interventions to test



Results

- **Increased early palliative care consultations in pediatric solid tumor patients from 20% to 80%**
- New solid tumor patients were reliably identified using report of newly generated oncology treatment plans
- Most failures due to scheduling rather than identification

Solid Tumor Patients Having Early Palliative Consultation



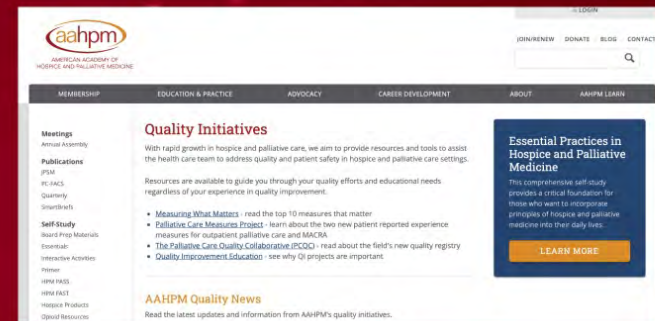


Resources

www.ihl.org



www.aahpm.org/education/quality



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