



Webinar 4:
Implementing a Process of
Improvement to Prevent
Clostridium difficile Infections
June 2012



Telligen, the Medicare Quality Improvement Organization for Illinois

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Implementing a Process of Improvement to Prevent *Clostridium difficile* Infections

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Outline/Agenda

- Forming Multidisciplinary Teams
- Setting SMART Goals and Aims
- Implementing a Model for Rapid Cycle Improvement

Why Form a Team?

Why Collaborate?

Definition from Merriam Webster

- **Main Entry:** col·lab·o·rate
- **Pronunciation:** \kə-? labə-?rāt\
- **Function:** *intransitive verb*
- **Inflected Form(s):** col·lab·o·rat·ed; col·lab·o·rat·ing
- **Etymology:** Late Latin *collaboratus*, past participle of *collaborare* to labor together, from Latin *com-* + *laborare* to labor
- **Date:** 1871
- **1 :** to work jointly with others or together especially in an intellectual endeavor
- **2 :** to cooperate with an agency or instrumentality with which one is not immediately connected

“Collaboration” – What does it mean?

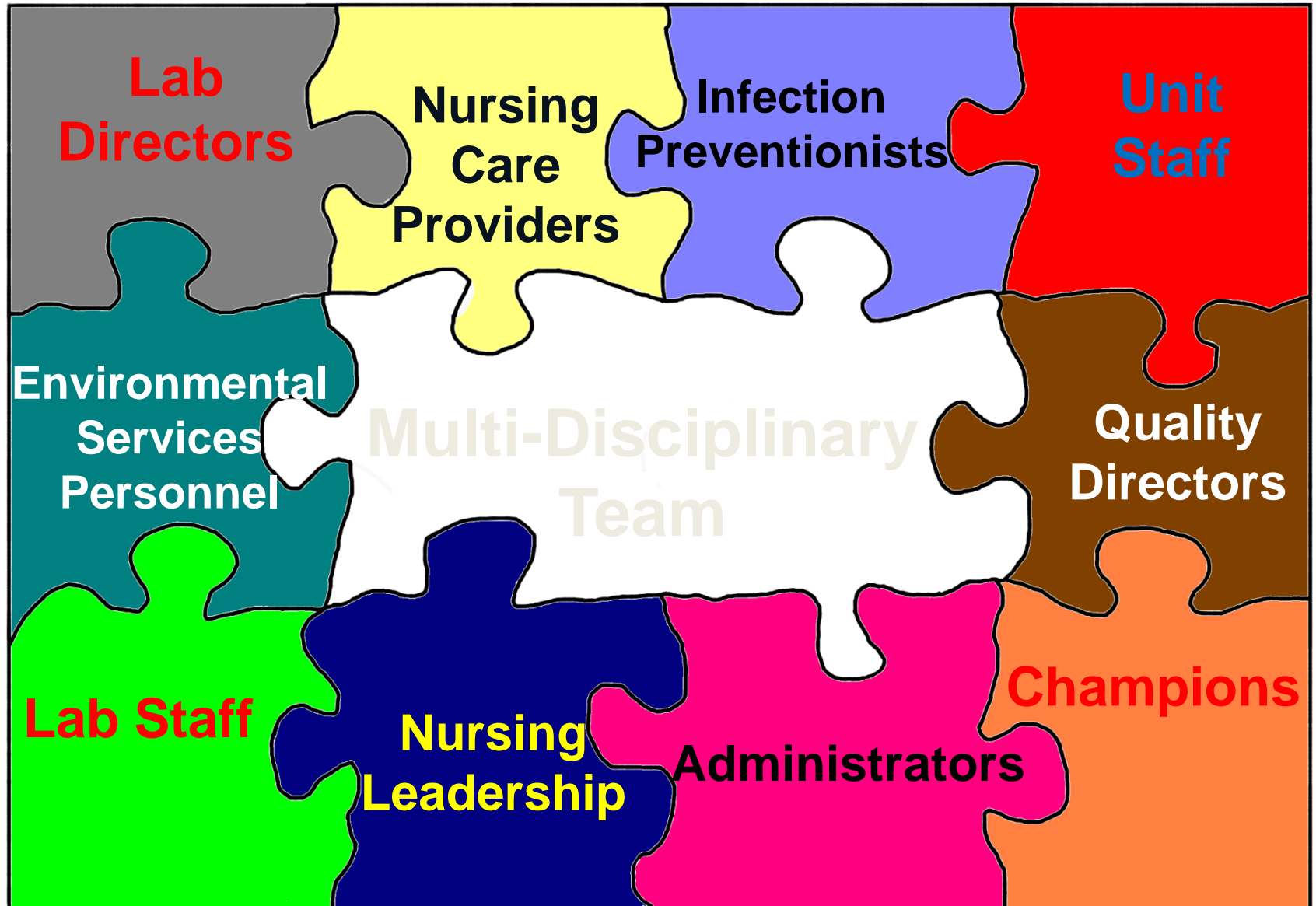
- “Coming together is a beginning. Keeping together is progress. Working together is success.” – Henry Ford.
- “Teamwork divides the task and multiplies the success.” - Author Unknown
- “Individual commitment to a group effort - that is what makes a team work, a company work, a society work, a civilization work.” - Vince Lombardi
- “Alone we can do so little; together we can do so much.” – Helen Keller
- “Teamwork is the ability to work together toward a common vision; the ability to direct individual accomplishment toward organizational objectives. It is the fuel that allows common people to attain uncommon results.” – Andrew Carnegie
- “Strength is derived from unity. The range of our collective vision is far greater when individual insights become one.” – Andrew Carnegie
- “Collaboration equals innovation.” - Michael Dell
- “The most important single ingredient in the formula of success is knowing how to get along with people.” – Theodore Roosevelt
- “In the long history of humankind (and animal kind, too) those who learned to collaborate most effectively have prevailed.” – Charles Darwin

Multidisciplinary Teams

- Patient care is not delivered by an individual, it is delivered by a system
 - Number (2 to >25 members) - the more people involved, the greater the number of communications and coordination needed
- Complementary skills (technical or functional expertise)
- Problem-solving and decision-making skills
- Interpersonal skills

Multidisciplinary Teams

- Team: number of persons associated together in work or activity; a group of people or units organized to do a task together.
- Multidisciplinary Team: A group composed of members with varied but complimentary experience, qualifications, and skills that contribute to the achievement of the organization's specific objectives.
 - a group of healthcare professionals including representatives of different disciplines/diverse fields who work in a coordinated fashion toward a common goal of improving patient care.





Team Development

- Committed to a common purpose and performance goals
- Committed to a common approach
- Hold each other accountable – determine work to be done, define (and agree on) purpose and tasks (“Why are we here?”)

Multidisciplinary Teams: Size Matters

Larger size*

More resources

More knowledge

More connections

More ideas

Smaller size*

Easier to manage

Easier to reach consensus

Less conflict

*Size varies by function and opinions about best size diverge. It is recommended that the size should be large enough to provide sufficiently broad views but small enough to be manageable depending on the structure and resources available.

Multidisciplinary Teams

- Clearly defined purpose – i.e., decide on which change strategies to target
 - Determine the needs of your facility
 - Create a shared vision
 - Focus, focus, focus
- Important to define (in writing) what is expected from members & degree of commitment
 - Lay out the mission and purpose of collaboration/team
 - Discuss milestones and appropriate timelines
 - Review members' roles and contributions
 - Set norms for participation, communication, decision making, and meetings

Why Set SMART Goals and Aims?

THE FAR SIDE

GARY LARSON



Lessons Learned:

Behavior Change Mistakes*

- Believing that information alone leads to action (we humans are not so rational)
- Focusing on abstract goals more than concrete behaviors (abstract: improve disinfection hospital-wide; concrete: improve compliance with daily and terminal cleaning in rooms occupied by a CDI patient/resident)
- Seeking to change a behavior forever, not for a short time (a fixed period works better than “forever” – pilot – goals should be SMART [specific, measurable, attainable, realistic and timely])

*c/o Stanford University - <http://captology.stanford.edu/>

Measurement: Goals, Objectives, and Action Steps

- *“The goal is where you want to be. The objectives are the steps needed to get there.”*
- Be **“SMART”**: **Specific**
– **M**easurable – **A**ttainable –
Relevant – **T**imely

“SMART”: Specific

- A specific goal has a much greater chance of being accomplished than a general goal. To set a specific goal, answer the five “W” questions:
 - Who: Who is involved?
 - What: What do we want to accomplish?
 - Where: Where will this happen (location)?
 - When: When (establish a time frame)?
 - Why: Why is this important (specific reasons, purpose or benefits of accomplishing the goal)?

“SMART”: Measurable

- Establish concrete criteria for measuring progress toward the attainment of each goal you set. A goal is measurable if it is quantifiable.
- To determine if your goal is measurable, ask questions such as:
 - How much?
 - How many?
 - How will we know when it is accomplished?
 - First obtain/establish baseline data
 - Track progress as appropriate

“SMART”: Attainable and Relevant

- To attain a goal, plan steps wisely and establish a realistic time frame that allows for implementation of each step noting that an attainable goal should also allow for flexibility.
- Draft goals that are relevant (consistent) with broader facility priorities and plans:
 - Goals should be consistent with the mission and vision of the organization. Relevant goals will not conflict with other organizational goals.
 - To be relevant and realistic, a goal must represent an objective toward which you are both *willing* and *able* to work (where organization leadership agree that the goal is important and that appropriate time and resources will be focused on its accomplishment).

“SMART”: Timely

- A goal should be grounded within a time frame.
- Time bound goals should be measurable, attainable, and realistic: Goals must have a starting and ending point (with some intermediate points at which progress can be assessed).
- Limiting the time in which a goal must be accomplished helps to focus effort toward its achievement (“target date”).

“SMART” Measurement

- Identify goals and targets
- Define the “who”, “what”, “where”, “when”, “why”, and “how”
- Evaluate both process and outcome measures
 - Process: how have specific prevention measures been implemented (i.e., compliance with contact precautions, environmental cleaning)
 - Outcome: what was the impact of the program and what were the program effects (i.e., a reduction in infection rates)
- Communicate and Feedback Results (Shared Learnings)

Question:

What is the shortest word in the English language that contains the letters:
abcdef?

Question: What is the shortest word in the English language that contains the letters: abcdef?

Answer: FEEDBACK

**How do you Implement a Model
for Rapid Cycle Improvement?**

Fundamental Questions for Improvement

- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in an improvement?



What Are We Trying to Accomplish?

- Aim:
 - A written statement of the accomplishments expected from each team's improvement effort
 - Should be consistent (“in sync”) with Campaign mission, goals, and protocol (does not need to be identical)
 - Important to note local context/environment and adapt as appropriate

What Are We Trying to Accomplish?

- A team's aim statement should include:
 - **What is expected to happen**
 - Reduce errors, save \$, etc.
 - **Timeframe**
 - Match timeframe of Collaborative
 - The **system to be improved**
 - Medication distribution, pt assessment, chronic care system
 - The **setting or sub-population** of patients
 - Pilot populations

What Are We Trying to Accomplish?

- A team's aim statement should include:
 - What is expected to happen
 - Timeframe
 - The system to be improved
 - The setting or sub-population of patients
 - Goals
 - For some teams:
 - Guidance for the activities such as strategies for the effort and limitations

Example Aim: Improve Severe Sepsis Care and Decrease Severe Sepsis Mortality

Between Oct 2011 and Aug 2012, we will improve the care of patients in the City South ED with severe sepsis/septic shock through early recognition and delivery of evidence-based best practices thereby decreasing sepsis mortality.

- Goals:
 - 10% relative reduction in severe sepsis mortality rate at NSUH
 - 90% of patients with severe sepsis coming through ED will be identified within 60 minutes of seeing a provider
 - 100% of ED patients diagnosed with severe sepsis will receive evidence-based treatments
- Guidance: Best practices are defined as the bundle elements critical to early recognition and treatment of severe sepsis including:
 - lactate levels,
 - blood cultures,
 - antibiotic administration within 180 minutes,
 - and fluid resuscitation.

Fundamental Questions for Improvement

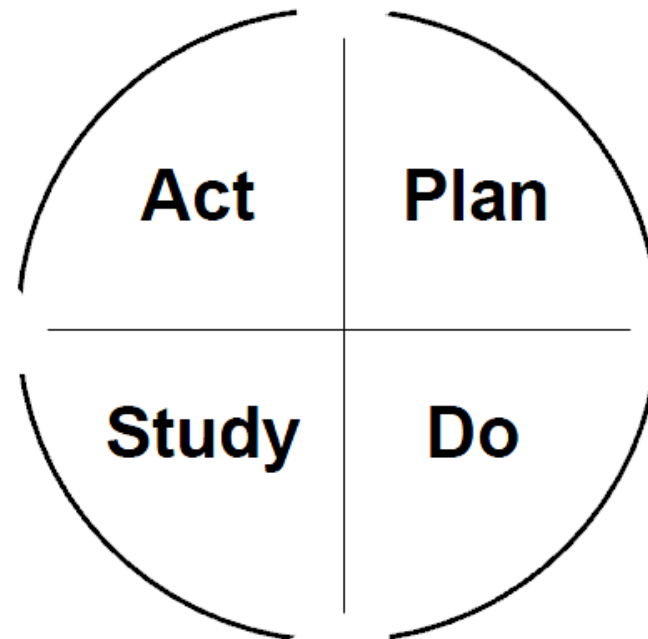
- What are we trying to accomplish?
- How will we know that a change is an improvement?
- What changes can we make that will result in an improvement?



The PDSA Cycle: *Plan, Act, Study, Do*

Also known as:

- Shewhart Cycle
- Deming Cycle
- Learning and Improvement Cycle

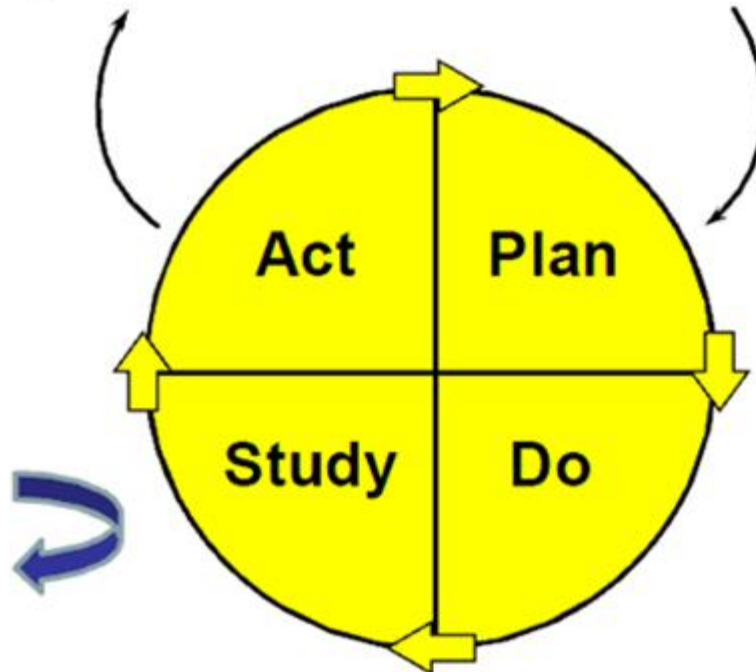


Model for Improvement

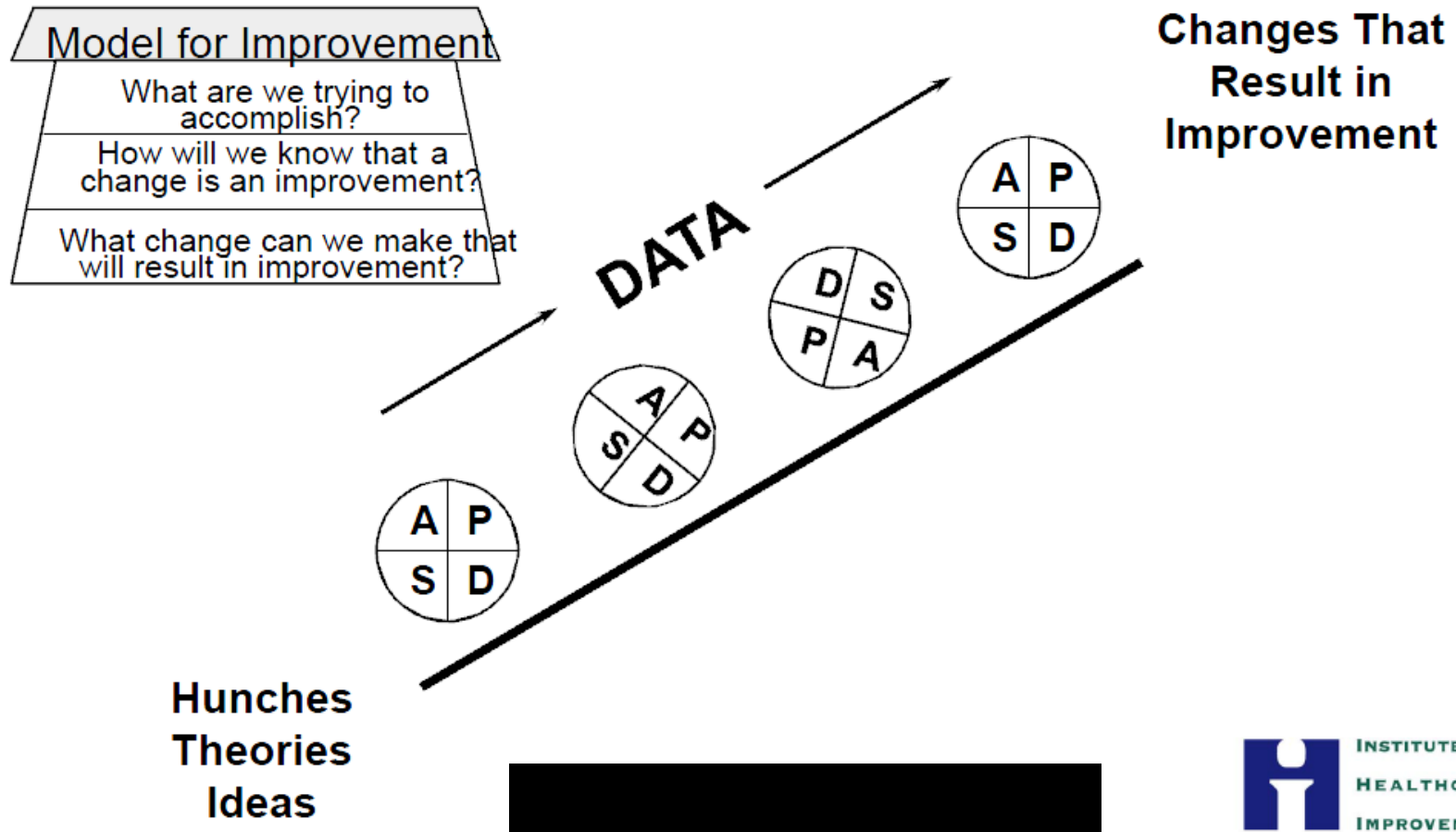
What are we trying to accomplish?

How will we know that a change is an improvement?

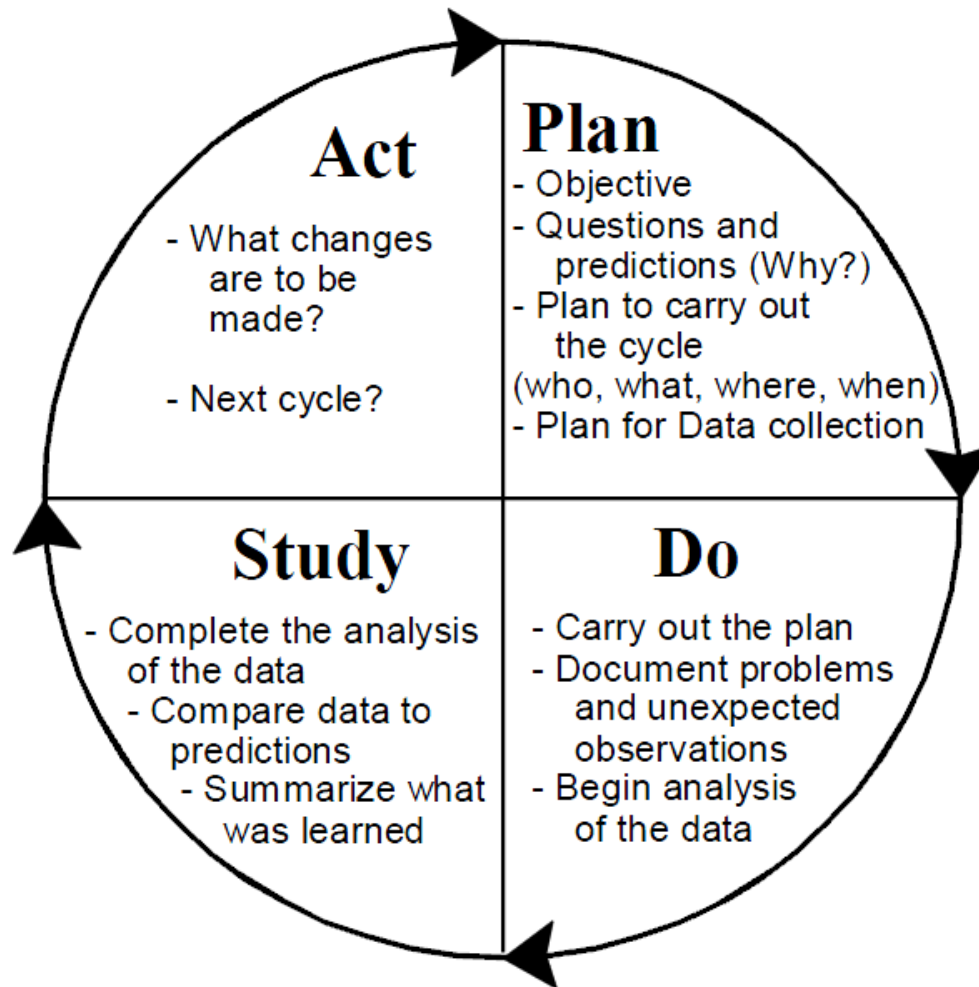
What change can we make that will result in improvement?



Repeated Use of the Cycle



The PDSA Cycle for Learning and Improvement



Example PDSA: Removing Razors

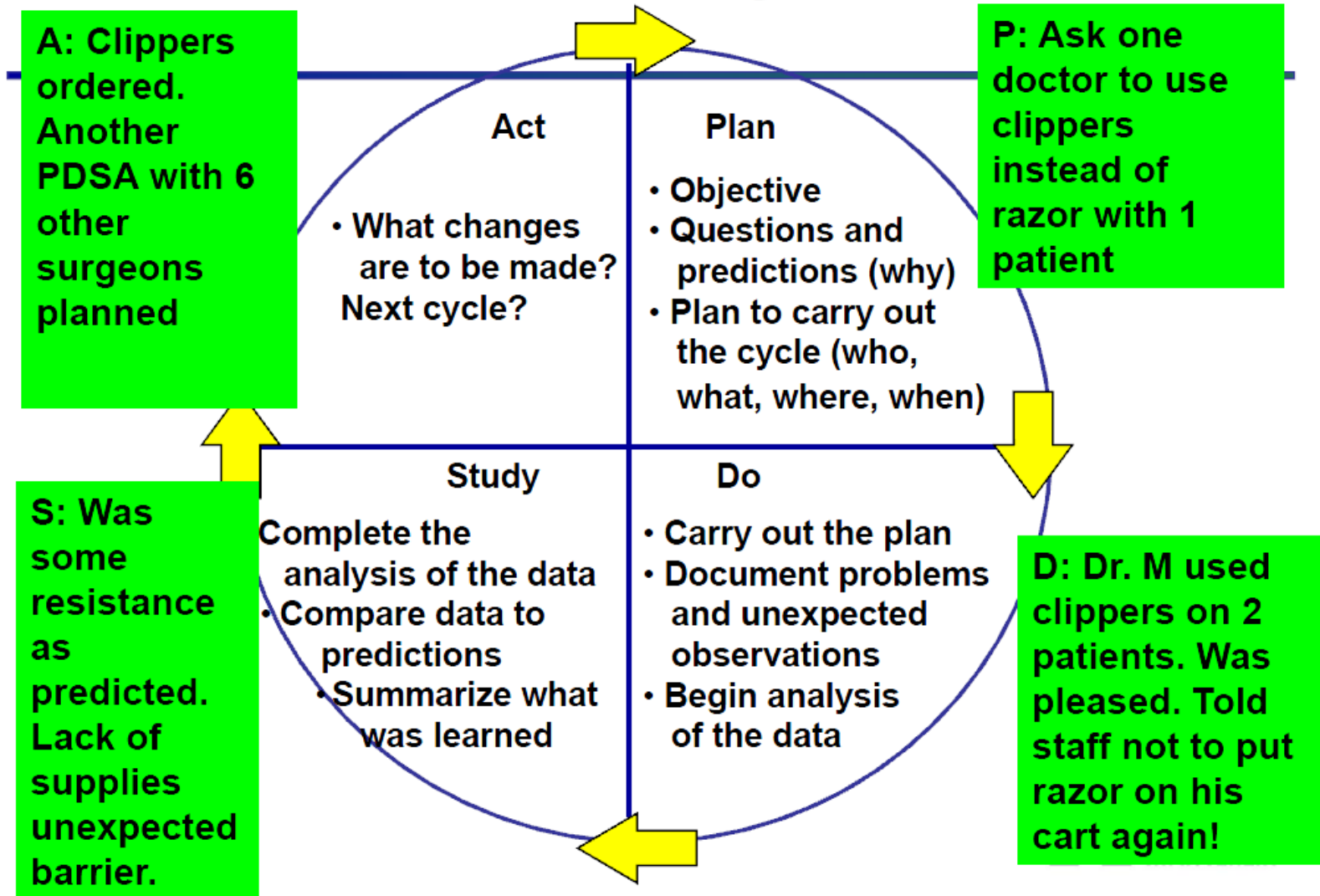
- Objective: Replace the practice of pre-op shaving with the use of clippers (*test with one patient*)
- Questions: Can we get cooperation from surgeon and O.R. staff? Are there any barriers? What are staff/physician perceptions about hair on incision site?
- Predictions: There will be a learning curve. There will be mixed acceptance and resistance.
- PLAN: On October 27 one surgeon will be asked by a team member who is a clinical nurse manager in surgical service to use clippers on one surgery patient instead of having that patient shaved. Collection of data will be via direct observation by that team member.

Example PDSA:

Removing Razors (continued)

- DO: Dr. M. was asked to use clippers on his patient instead of shaving by Linda H. At first he said no, but after being told that it was a Class 1A recommendation, he agreed to try it. Not only did he comply, but he used clippers on two of his cases and instructed staff to never place another blade on his case cart.
- STUDY: There was full cooperation in this first test of change after some initial resistance. One barrier noted for spreading change was a lack of supplies. In this test, there were no negative perceptions related to using clippers noted.
- ACT: Additional clippers are being ordered and are expected to arrive in about a week. Six other clinical nurse managers were in serviced in anticipation of conducting another PDSA that includes six other surgeons after the clippers arrive. A learning board is also being constructed.

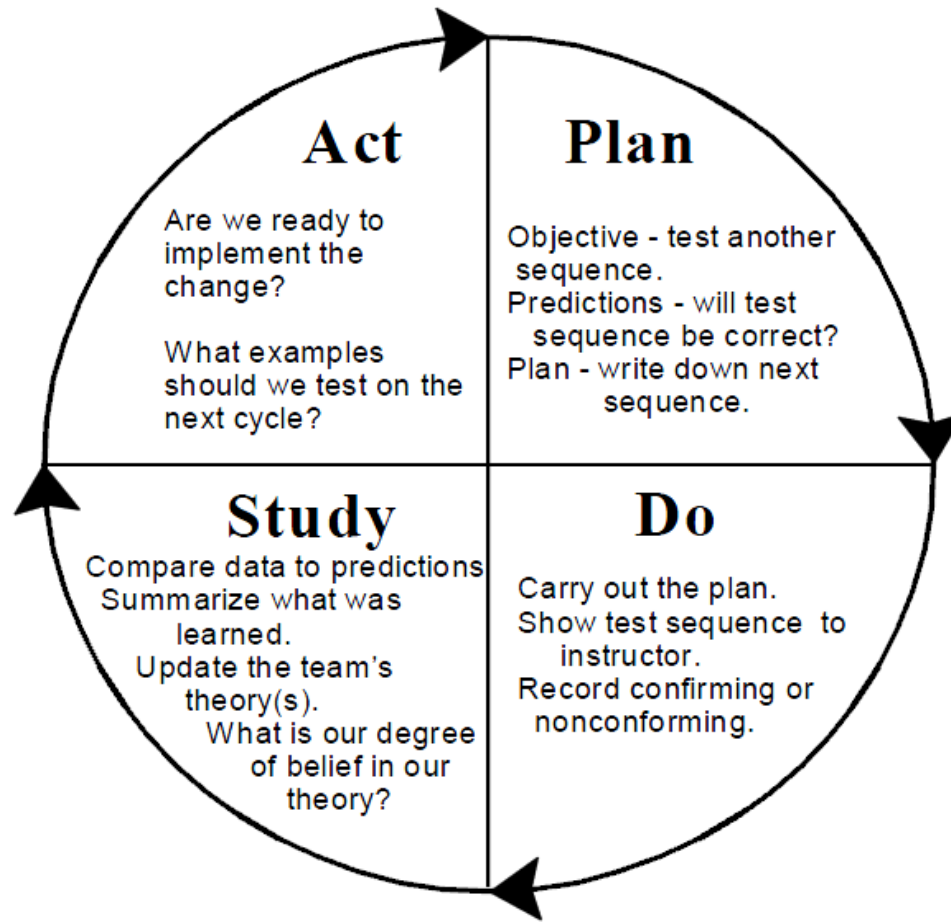
Example: PDSA Cycle



PDSA Cycle

for

Learning the Sequence



Successful Cycles to Test Change

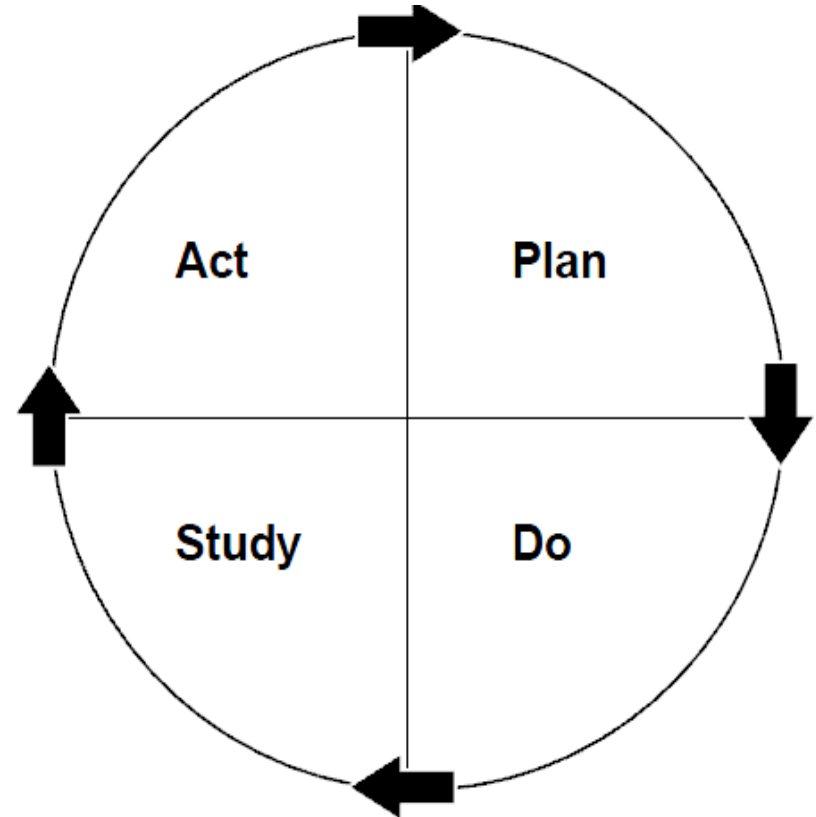
- Plan multiple cycles for a test of a change
- Think a couple of cycles ahead
- Initially, scale down size of test (# of patients, clinicians, locations)
- Test with volunteers
- Do not try to get buy-in or consensus for test cycles
- Be innovative to make test feasible
- Collect useful data during each test
- In latter cycles, test over a wide range of conditions

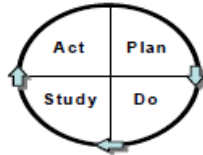
Points Regarding the Model for Improvement

- Small scale \neq small change
- Success (or failure) in one PDSA cycle \neq success or failure of the project
- We also use measures/feedback at the PDSA level

Accelerating Improvement Using the Model for Improvement

- *What cycle can we complete by next Tuesday?*
- Willing to compromise on scope, size, rigor, and sophistication, but the cycle must be completed by Tuesday.





MODEL FOR IMPROVEMENT

DATE _____

Objective for this PDSA Cycle:

Is this cycle used to develop, test, or implement a change?

What question(s) do we want to answer on this PDSA cycle?

Plan:

Plan to answer questions: Who, What, When, Where

Plan for collection of data: Who, What, When, Where

Predictions (for questions above based on plan):

Do:

Carry out the change or test; Collect data and begin analysis.

Study:

Complete analysis of data;

Compare the data to your predictions and summarize the learning

Act:

Are we ready to make a change? Plan for the next cycle

Another Example PDSA

Project: Reducing SSI	Cycle #: A1	Date: 28 Oct 2005
Objective: <i>Objective(s) for this PDSA Cycle:</i> Test new procedure for administering prophylactic antibiotics: Pre-op nurse will hang pre-op antibiotic; Circulator will start infusion after “checking in” patient.		
PLAN		
Questions	Predictions	
1. Will pre-op nurse remember to hang antibiotic without turning it on	1. Yes, but circulators will resent the new process because they don't think it's 'their job.'	
2. Will antibiotic be started within 60-minute window prior to incision?	2. Antibiotic will be started with 60 minutes of incision	
3. Will circulator remember to start infusion and document antibiotic?	3. Yes, but Anesthesiologist may interfere with new process.	
<p>What data will be collected during this time? (Forms to be used): Staff feedback will be collected by the OR Manager and/or Supervisor. Chart will be reviewed immediately to find timing and documentation of antibiotic and to determine whether it was started within 60 minutes of incision.</p> <p>What: Educate rationale and new process, obtain staff feedback</p> <p>When: October 28</p> <p>Where: One to three patients prior to joint replacement surgery</p>		

Another Example PDSA (continued)

DO the Action Plan

What went wrong? What happened that was not part of the plan?

We planned to test the new procedure in three cases; however, two patients had vancomycin so we were unable to test the change. We did test the new procedure in one patient prior to TKR.

STUDY

Complete analysis of data. Summarize what was learned include results of predictions.

1. The pre-op nurse remembered to hang the antibiotic and the circulator voiced no complaints.
2. Ancef was started at 1143 and incision time was 1227 so antibiotic was initiated within the 60-minute window.
3. The circulator remembered to start and document the infusion and the anesthesiologist did not interfere..
- 4.

ACT

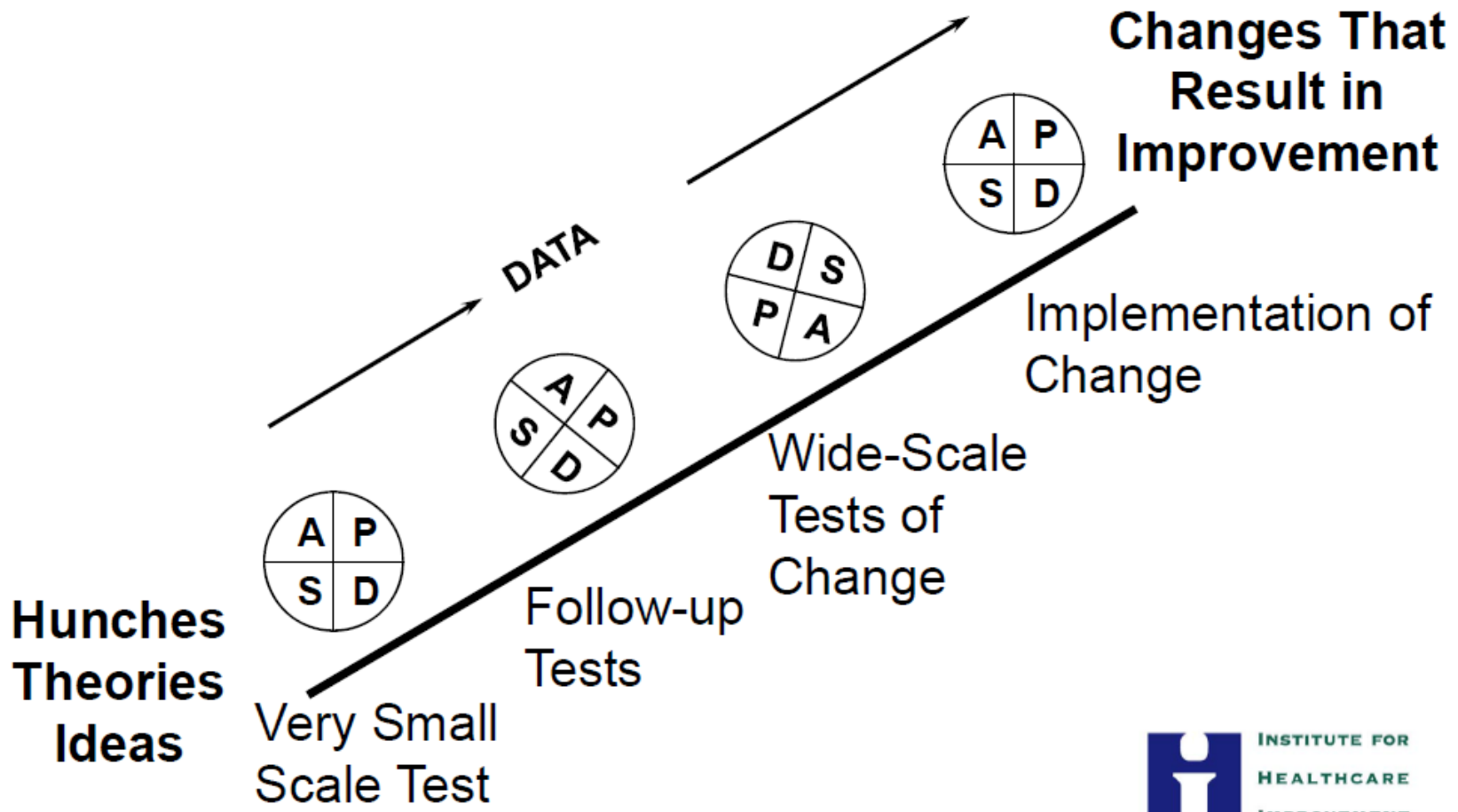
What decisions were made from what was learned?

Based on the initial test, the new procedure is working well.

What will be the next cycle?

We plan to test again tomorrow on two TJR patients of a different orthopedic surgeon

Repeated Use of the PDSA Cycle



To Be Considered a PDSA Cycle:

- The test or observation was **planned** (including a plan for collecting data).
- The plan was attempted (**do** the plan).
- Time was set aside to analyze the data and **study** the results.
- **Action** was rationally based on what was learned.

*Testing is like dating

*Implementation is like marriage

“Playing the Field”

- Testing is like dating
- Implementation is like marriage
- Date first – get experience



Key Elements in Quality and Process Improvement*

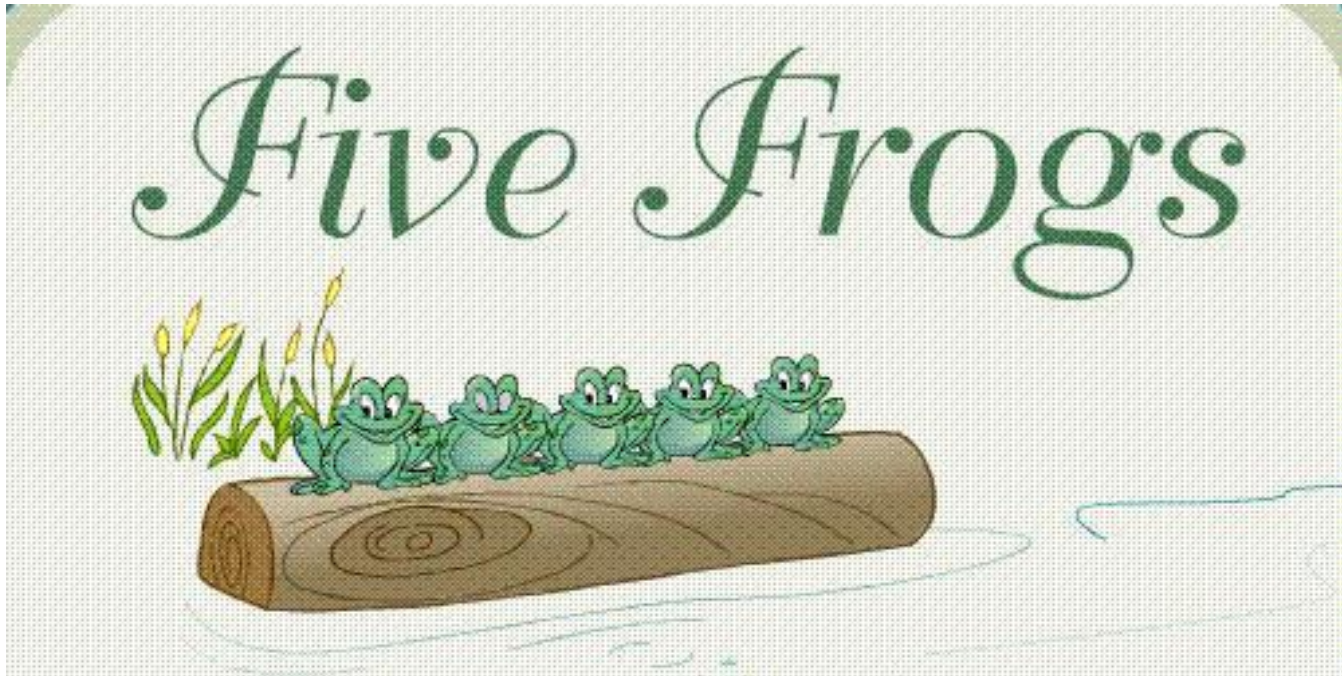
- Don't recreate the wheel!
- Measure, measure, measure and provide feedback
- Measure over time
- Test on a small scale, multiple times, multiple ways before implementing
- Transparency
- Keep it simple and sensible
- Aim high

*From IHI - <http://www.ihl.org/IHI/>

Donald Berwick: A primer on leading the improvement of systems (BMJ 1996;312:619-22)

- Not all change is improvement, but all improvement is change
- To make improvements we must be clear about what we are trying to accomplish, how we will know that a change has led to improvement, and what change we can make that will result in an improvement
- The more specific the aim, the more likely the improvement; armies do not take all hills at once
- Measurement helps to know whether innovations should be kept, changed, or rejected; to understand causes; and to clarify aims
- You win the Tour de France not by planning for years for the perfect first bicycle ride but by constantly making small improvements

Five Frogs on a Log



A Menu of Goals to Prevent *Clostridium difficile* Infections (CDI)



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A Menu of Goals for CDI Prevention

Prevention Domains:

1. Early and reliable **detection** of *Clostridium difficile* infection
2. Early and appropriate **containment** of *Clostridium difficile* infection
3. **Cleaning and disinfection** of environment and equipment
4. **Inter-facility patient transfer**

*Not an exhaustive or mutually exclusive list

A Menu of Goals for CDI Prevention

- Before you “place your order”
 - Assess current practices
 - Identify areas for improvement
 - Set Aims and Goals (what you want to achieve)
 - Consider resources: what is realistically feasible?
 - What can we do that will have the greatest impact?



1. Early and reliable detection of CDI

Lab testing & diagnosis

Questions to Address:

- How are patients with CDI identified?
- When should a *C. diff* test be ordered, and which staff can initiate this?
- How should a stool sample be sent, and how many stools should be sent?
- How and to whom is the test result communicated?
- Do staff know how to interpret the test result?
 - Do they know what type of test was used and the sensitivity of that test?



1. Early and reliable detection of CDI

Change Strategies (examples):

- Educate staff, patients and families about symptoms of CDI
- Educate staff on testing for CDI
- Improve quality of documentation of diarrheal stools
- Empower nurses to test for CDI when criteria are met
- Establish lab policies to reject formed stool samples and lock out repeat testing for 7 days
- **Implement a lab-based alert system to ensure immediate communication of test results**
- Provide staff with regular feedback on CDI incidence and prevalence rates and the timeliness of diagnosis

1. Early and reliable detection of CDI

Measurement (examples):

- Time from documentation of third diarrheal stool to initiation of Contact Precautions
- Time from documentation of third diarrheal stool to time test result is communicated
- Facility/unit CDI incidence and prevalence
- Quality of documentation of stools (character & frequency)
- Staff knowledge of
 - CDI symptoms
 - When and how to test for CDI
 - Interpretation of test results

2. Early and appropriate containment of CDI

Safe & Non-Restrictive Implementation of Contact Precautions

Questions to address:

- When and how should Contact Precautions be initiated?
- How do we address cohorting situations?
 - If patient with (suspected) CDI has a roommate, how does this affect toileting? (e.g., Who should use the bedside commode?)
- When and how should Contact Precautions be discontinued?

2. Early and appropriate containment of CDI

Change strategies (examples):

- Implement a process to presumptively isolate patients while awaiting test results
- Ensure adequate supplies of PPE are readily accessible to staff at all times
- Use visual cues to notify all staff & visitors to use Contact Precautions and provide education on use of PPE & HH
- Engage a unit champion to support consistent application of Contact Precautions
- Continue Contact Precautions
 - For duration of diarrhea (at minimum)
 - Beyond duration of diarrhea (3 days)
- Monitor compliance with Contact Precautions & provide one-on-one and unit/facility feedback

2. Early and appropriate containment of CDI

Change strategies (examples):

- Implement a gradient of preferences for cohorting
 - 1. private room
 - 2. cohort with another CDI patient
 - 3. cohort with someone at low-risk for acquisition of CDI
 - (e.g., no recent antibiotic exposure, non-immunocompromised, no open wounds or invasive lines)
 - Non-CDI patient to use commode
- Establish criteria for discontinuation of Contact Precautions
 - Based on symptoms more than test results
 - Individual care planning to promote social interaction
 - **Isolate the organism, not the patient/resident**



2. Early and appropriate containment of CDI

Measurement (examples):

- Compliance with Contact Precautions
 - Gowning
 - Gloving
 - Hand hygiene
- Time from documentation of third diarrheal stool to initiation of Contact Precautions
- Time from documentation of last diarrheal stool to discontinuation of Contact Precautions

3. Cleaning and disinfection of environment and equipment

Questions to address:

- How are daily and terminal cleaning performed for patients/residents with CDI?
- Who cleans what? What do they clean it with? How do they clean it?
 - e.g., Who cleans the cardiac monitor and how do they disinfect it?
- How are **shared spaces** cleaned?
 - e.g., physical therapy room, beauty parlor, dining room
- How is **shared equipment** cleaned?
 - e.g., lifts, BP cuff, thermometer

3. Cleaning and disinfection of environment and equipment

Change strategies (examples):

- Develop policies for daily and terminal disinfection of rooms occupied by patients/residents with CDI
 - Educate staff on high touch surfaces, materials and methods for cleaning and disinfection, and clearly designate responsibilities of “who cleans what”
- Use dedicated equipment for CDI patients/residents when possible
- Monitor adherence to and adequacy of cleaning
 - Use daily and terminal room checklists
- Provide regular, non-punitive feedback to staff on adherence to and adequacy of cleaning/disinfection

3. Cleaning and disinfection of environment and equipment

Measurement (examples):

- Adherence to cleaning procedures
- Adequacy of cleaning



4. Inter-facility patient transfer

Questions to address:

- What critical pieces of information need to be communicated during patient transfer?
- What process do you use to notify the receiving healthcare facility before patient transfer?
- When should Contact Precautions be initiated?
- Do you require a negative stool test before accepting a patient with CDI?



4. Inter-facility patient transfer

Change strategies (examples):

- Initiate a conversation (collaborative project) with facilities that you frequently share patients/residents with to address:
 - Ways to improve communication
 - Care coordination
- Implement use of a tool (e.g., transfer form) to ensure critical information about CDI status/treatment (and other infections) is communicated at time of transfer

4. Inter-facility patient transfer

Measurement (example):

- Hospital readmissions

Questions?



FreeTime

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