# Lean Six Sigma Tools in Behavioral Healthcare



#### 2013 CBHC FALL CONFERENCE

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#### Objectives:

- Learn to apply lean six sigma tools to improve service quality, work flow, and outcomes in behavioral health.
- ➤ Balance better, cheaper, and faster results through effective and collaborative process design.
- ➤ Identify areas to reduce waste or improve processes in your organization
- Turn *ideas* for improvement into *action*





### Today's agenda

- ➤ Part I (Covering now)
  - ➤ What is Lean?
  - ➤ What is Six Sigma?
  - Examples from MHCD continuous improvement projects
  - ➤ How can these process improvement tools be utilized in Your behavioral healthcare settings
  - Engaging staff in quality improvement
- ➤ Part II (Covering in next session)
  - Launching Lean and Six Sigma in your organization
  - ➤ More examples of lean/continuous improvement projects
  - Lessons learned, feedback and improvement for your lean six sigma program



### Session Opener

- ➤ What problems do you need to solve?
  - ➤ Who is the customer?
  - ➤ What is the waste?
  - ➤ How does this affect the customer?
- ➤ Apply "Five Why?"







### First Lean Project at MHCD



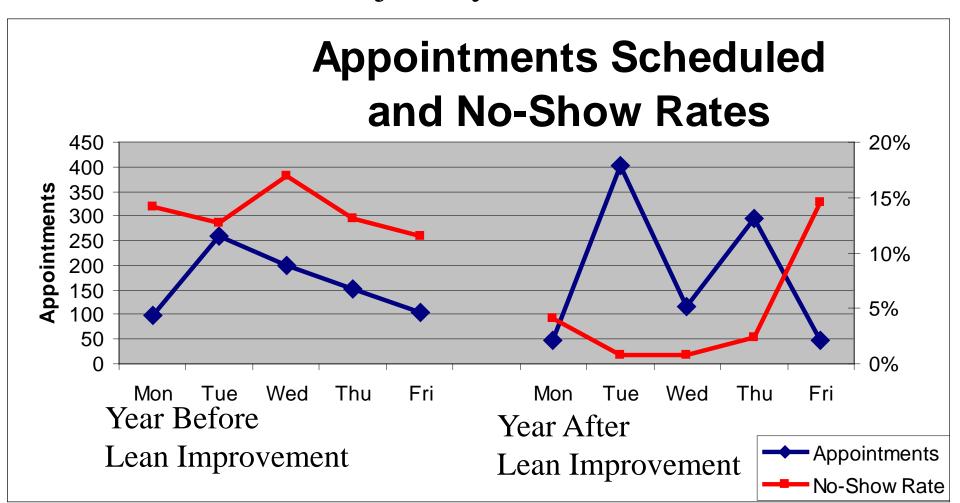
Rapid Improvement Capacity Expansion (*RICE*) Team January, 2008

# Lean Process Improvement: One Year After Rapid Improvement Capacity Expansion RICE Results

- Analysis of the 1,726 intake appointments for the one year before and the full year after the lean project
- > 27% increase in service capacity
  - From 703 to 890 kept appointments to intake new consumers
- ➤ 12% reduction in the no-show rate
  - From 14% to 2% no-show
- ➤ Capacity increase of 187 additional people who were able to access needed services, without increasing staff or other expenses for these services
- ➤ 93 fewer no-shows for intake appointments during the first full year of *RICE* improved operations.
- > Annual cost savings (avoidance):
  - **\$90,000 \$100,000** for staffing and space



#### Lean Process Improvement: *RICE* Project System Transformation





#### How was this shift accomplished?

- ➤ Alignment of supply with demand
- ➤ Day of the week: shifted and added
  - ➤ Tuesdays and Thursdays
- ➤ Welcome call the day before
- > Transportation and other information
- ➤ Consolidated steps
  - ➤ Orientation to Intake Assessment
  - Eliminated an opportunity for no-show
- **Group** intakes

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#### Comparing process steps:

- Before: Before and After
  - Total steps with recurrent steps (worst case with 3 instances of steps 4 and 5) =  $3 \times 3 + 5 = 14$
- >After
  - Total steps with recurrent steps (worst case with 2 instances of steps 4 and 5) =  $2 \times 3 + 6 = 12$
- Eliminates 2 steps



#### Comparing *process time* and *lag time*:

#### > Before:

- Total time (minimum possible) = (30+50+60 minutes) + 2 days = 2 days 2 hours and 20 minutes
- Total time (maximum if consumer is admitted on 4<sup>th</sup> call)
- = 5 weeks 4 hours and 5 minutes

#### > After:

- Total time (minimum possible) = Same as above
- Total time (maximum if consumer is admitted on 3<sup>rd</sup> call)
- = 1 week 3 hours and 10 minutes
- > Process and lag time reduction of worst case:
  - > 4 weeks



- Process Improvement
   Accomplished by involving clinicians and consumers
- > Reconfiguration for timely and consumer-friendly access
- > Measured
  - > Increased intakes
  - Decreased no-show rates
  - > Decreased delays to access
- > Multi-dimensional impacts (projections)
  - > Reduced inpatient expenses
  - > Physical/Behavioral dimensions of healthcare
- > Transition
- > Transformation



#### How does this add value for the customer?

- ➤ Who is the customer?
- ➤ What do they want?
- ➤ What do they get from the improvements?



Discussion: Where is your waste or process to improve?



## What impact could we have with lean process improvement in behavioral healthcare?



- ➤ Neuropsychiatric conditions account for 1/3 of years lost to disability (World Health Organization, 2004)
- ➤ In 2008, 13.4% of adults in the US received treatment for a mental health problem (National Institute of Mental Health, 2012)
- ➤ In 2006, 6.7% of adults in US received outpatient treatment for mental health problems (Substance Abuse and Mental Health Services Administration)
- Adults in US with a mental disorder in any year: 26.2% of population (Mental Health First Aid USA, 2009)





- 1. Lean has been popular in healthcare since the 1980: True or false?
- 2. Where did lean start in healthcare in the U.S:
  - >A. Outpatient primary care clinics
  - ➤D. Outpatient behavioral healthcare
  - **≻**C. Hospitals
  - ➤ B. Psychiatric inpatient units



#### Status of Lean in Healthcare

- ➤ Used in Hospitals since 1990s (Graban, 2008)
- Lean citations on Medline and Health Management Information Consortium databases, 1998 -2007: close to 0 relative to other common QI terms,
- ➤ Sharp increase starting in 2003 (Walshe, 2009)
- Lean included in QI approaches for public health (Riley et al., 2010)



#### Status of Lean in Healthcare

- ➤ Many documented cases of lean success in US hospitals
  - **≻**ThedaCare
  - ➤ University of Pittsburgh Medical Center
  - ➤ Prairie Lakes Healthcare
  - ➤St. Luke's

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- ➤ Denver Health Medical Center
- ➤ Denver Health started with Toyota and TPS (Nuzum et al., 2007)
- ➤ In 2006, Denver Health saved \$2.8M without reducing staff or patient care (Shanley, 2007)

#### Evolution of Lean in Healthcare: Lean Transition to Outpatient Settings

- Few cases of Lean in outpatient, especially in mental health
- ➤ Hospitals to Outpatient
  - > Clinics run by hospitals
  - > Collaborating outpatient systems
- ➤ Outpatient Community Men
  - > Expand Access
  - ➤ Reduce Process times
  - > Streamline documentation
  - ➤ Coordinate care
  - > Improve treatment planning
  - Enhance funding

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#### Lean thinking

- Lean is a broad catchphrase that describes a holistic and sustainable approach to using less of everything to give you more.
- Lean maintains a relentless focus on providing customer value.
- Lean promotes the respect of people.
- Lean is a philosophy of continuous learning and everyday improvement.



#### Lean basic principles

- > Customer value-only the customer defines value.
- ➤ Value stream analysis-used to describe all activities that are preformed in a process.
- > Everyday improvement-Kaizen activities.
- Flow-deliver smooth continuous flow of a product or service.
- ➤ Pull-services are pulled as a result of customer demand.
- > Perfection-make perfection your goal.



#### Lean principles: Eliminate Waste

- Transport-any movement of a product or material that is not otherwise required to preform value added processing is waste.
- ➤ Waiting- Waiting in all forms is waste.
- ➤ Overproduction-Producing more than your customer requires is a waste.
- ➤ Defect-Any process product or service that fails to meet specifications is waste.



### Lean principles: Eliminate Waste

- Inventory- inventory anywhere in the value stream is not adding value.
- ➤ Motion- Any movement of a person's body that does not add value to the process is waste.
- Extra processing-Any process that does not add value to the product is waste.
- ➤ Waste identification process



#### Lean Deployment

- ➤ Obtain top management support and active involvement.
- ➤ Provide training to understand lean tools, the role that culture and people play in sustainability and the philosophy of Kaizen.
- >Start small to build success and support.
- Utilize assistance from a mentor or Lean professional to ensure successfulimplementation.



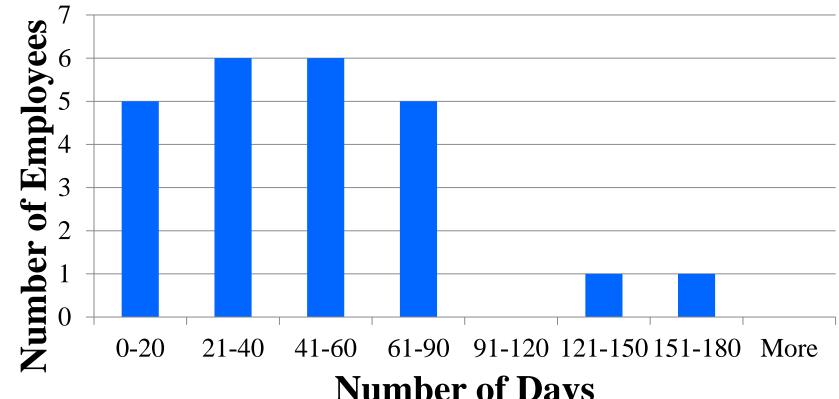
### Recent Lean Project at MHCD

- > Hiring new staff
- Reduced from 89 to 51 days (average), median 46.5)
- $\triangleright$  Reduction of mean = 43% = 38 days faster!
- > Estimated savings for one Case Management position:
- ➤ Vacant position cost: CM 1 salary \$30,888.x3(average cost of position to company)= \$92,664 divide by 52 weeks= \$1,782.00 cost per week.
- Above data suggests a 5.5 week decrease in hiring time.
- > 5.5x \$1,782.00 = \$9,801.00 savings in one CM position by hiring faster. Source: LasoCareers.com



### Hiring Histogram after improvement









# Six Sigma: Where and How did it start?

- A. With six data analysts working on an NIH grant
- B. A committee that required a quorem of six members to approve process improvement projects
- C. Members of a fraternity for cynical med students who labeled healthcare in the US as dysfunctional and were initially called the "Sick Sigma Section."
- D. An engineer at Motorola who was dissatisfied with the quality of manufactured telecommunication products.



### Six Sigma

- ➤ Six Sigma is a problem solving methodology
- Six Sigma performance is the statistical term for a process that produces fewer than 3.4 defects per million opportunities.
- ➤ Six Sigma improvement is when the key outcomes of a business or work process are improved dramatically.
- Six Sigma deployment is the prescriptive rollout of the Six Sigma methodology across an organization with assigned practices, roles and procedures.



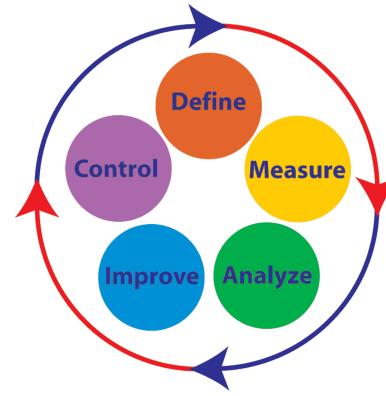
The Six Sigma Framework

- > Steps
  - > Define
  - > Measure
  - > Analyze
  - > Improve
  - > Control
- ➤ Motorola, General Electric
- ➤ What was its initial focus?
  - > Industry

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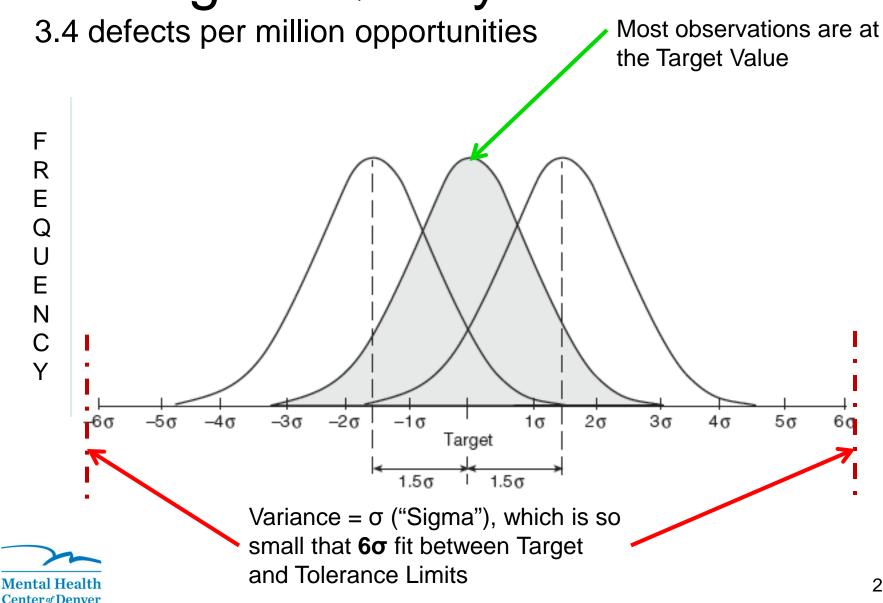
- $\triangleright$  Meaning of Six Sigma =  $6\sigma$
- ➤ Healthcare adoption
  - Now in Mayo Clinic in every function
  - Finance group used determine staffing level required to meet compliance tracking requirements





### Six-Sigma Quality

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#### Six Sigma

A Six Sigma organization uses Six Sigma methods and tools to improve performance such as improving customer satisfaction, increase capacity and capability, reduce complexity and minimize defects and errors.



### Six Sigma: The project strategy

- Six Sigma projects follow the standardized and systematic method known as DMAIC. (Define-Measure-Analyze-Improve-Control)
- ➤ Define: Set the context and objectives for the project.
- ➤ Measure: Get the baseline performance and capability of the process or system being improved.
- Analyze: Use the data and tools to understand Mental Health Center of Denver the cause and effect relationships in the Where Recovery Happens the cause and effect relationships in the

### Six Sigma: The project strategy

- ➤ Improve: Develop the modifications that lead to a validated improvement in the process.
- Control: Establish plans and procedures to ensure the improvements are sustained.



### Six Sigma: The project deployment

- Establish Executive support and leadership.
- ➤ Identify the project leader or Champion.
- ➤ Identify process owner.
- Assemble core project team with membership from cross functional departments.



#### Selected Lean and Six Sigma tools

> FLOWCHARTS AND PROCESS MAPS

➤ ROOT CAUSE ANALYSIS AND FISHBONE DIAGRAMS

> AFFINITY DIAGRAMS AND BRAINSTORMING

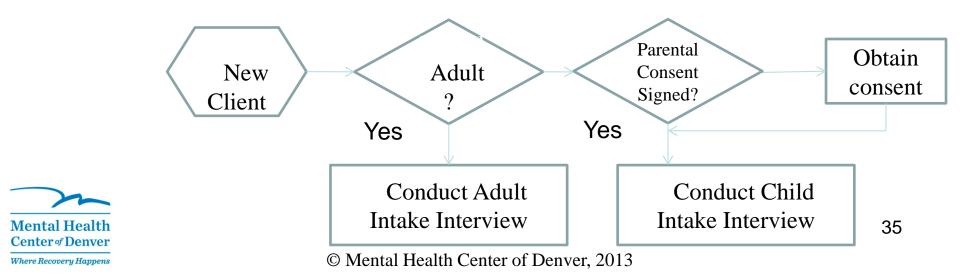


#### **FLOWCHARTS**

- ➤ Why use it? To allow a team to identify the actual flow or sequence of events in a process that any product or service follows.
- ➤ What does it do? Shows unexpected complexity, problem areas, redundancy and where simplification and standardization may be possible.
- Allows a team to come to agreement on the steps of the process and to examine which Center of Denva Ctivities may affect the process performance. 34
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#### **Flow Charts**

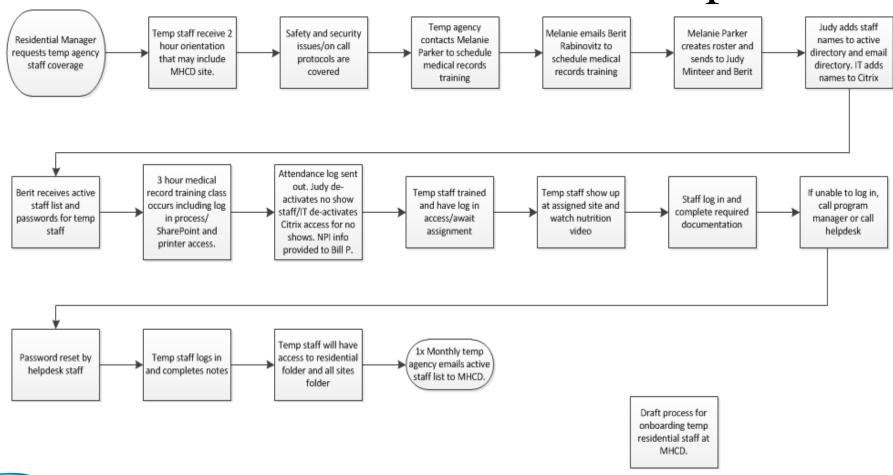
- ➤ Why? Identify flow or sequence
- ➤ What is it? A picture of a process with standard symbols for steps and decisions
- > Helpful to
  - Understand how process actually works
  - ➤ Identify problems or complexity that could be simplified
  - > Train to understand a complete process



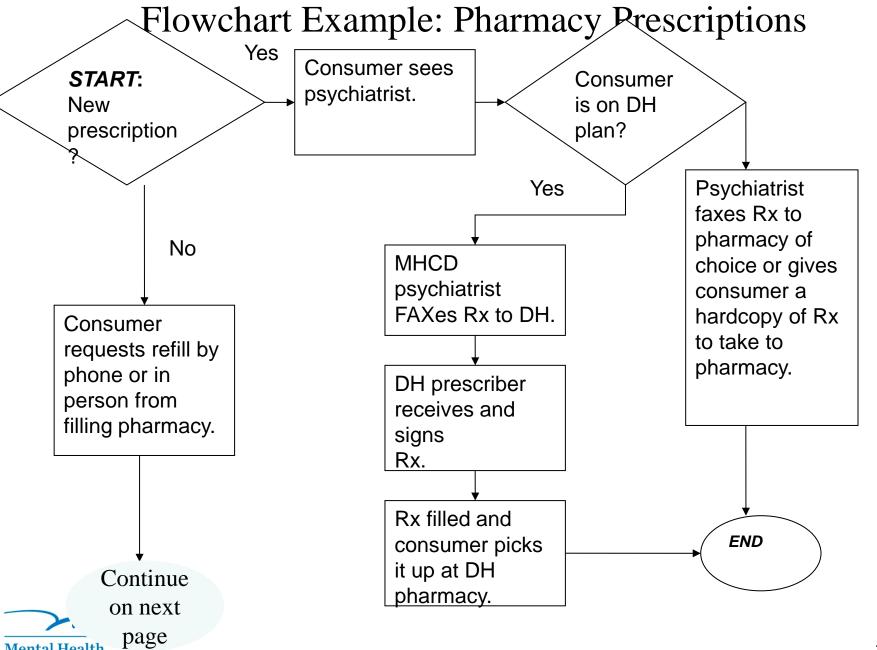
#### **FLOWCHARTS**

- Serves as a training aid to understand the complete process.
- ➤ Identifies locations where additional data can be collected and investigated.
- How do I do it? Clearly define where the process starts and ends. Determine and document the steps in the process in sequence as they occur by putting them on a whiteboard or easel paper. Review it for completeness and

## FLOWCHARTS: an example

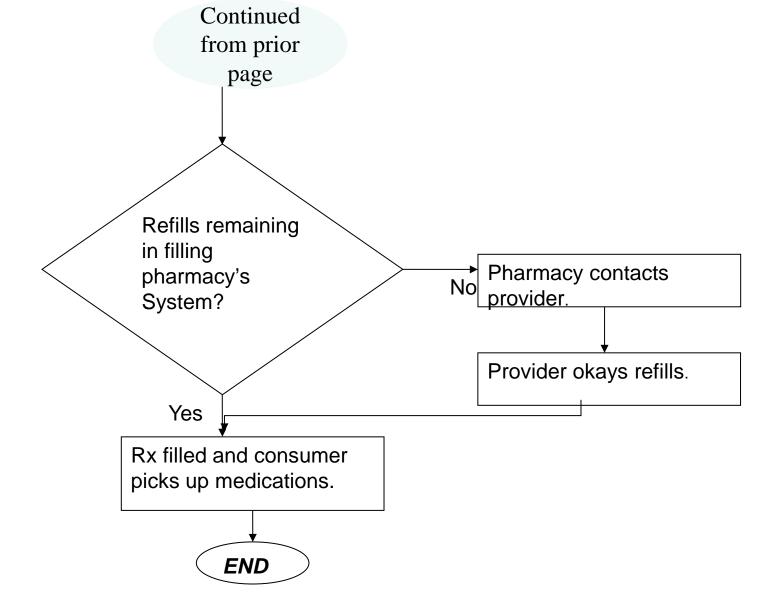






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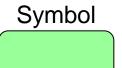
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### Basic symbols in a process flowchart

**Definition** 



#### Start-and-stop

The start or end of a process



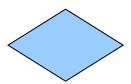
Patient arrives at registration desk



#### **Activity**

A single step in the process

Collect patient insurance information



#### Decision

A decision making opportunity in the process





Delay in the process

#### Arrow

Points out the direction of flow from one activity or decision to the next









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# Activity: Create a Flow Chart of a process that has at least two decision points (branches in the flow)

- > Suggestions
  - New people calling your center to receive services. Differences by types of consumers or payer type or other factors?
  - New employee training or onboarding according to position (clinical or non-clinical, medical or other factors?)
  - ➤ Your own processes

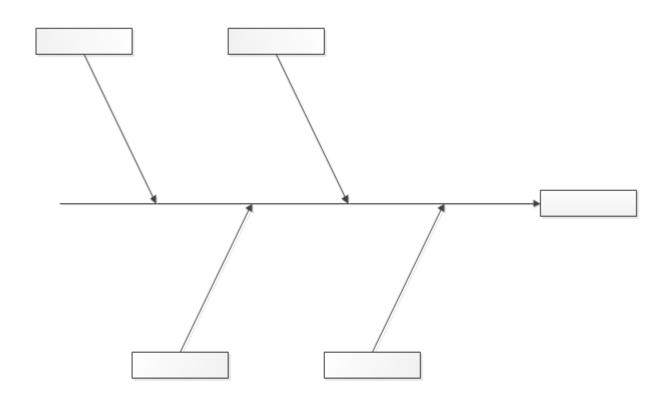


#### FISHBONE DIAGRAM

- ➤ Why use it? To allow a team to identify, explore and graphically display in increasing detail all of the possible causes related to a problem or condition to discover its root cause.
- ➤ What does it do? Enables a team to focus on the content of the problem, not on the history of the problem or differing personal interests of team members.
- > Focuses the team on causes not symptoms.
- ➤ When to use: When the exact cause of an effect is not known.



### FISHBONE DIAGRAM

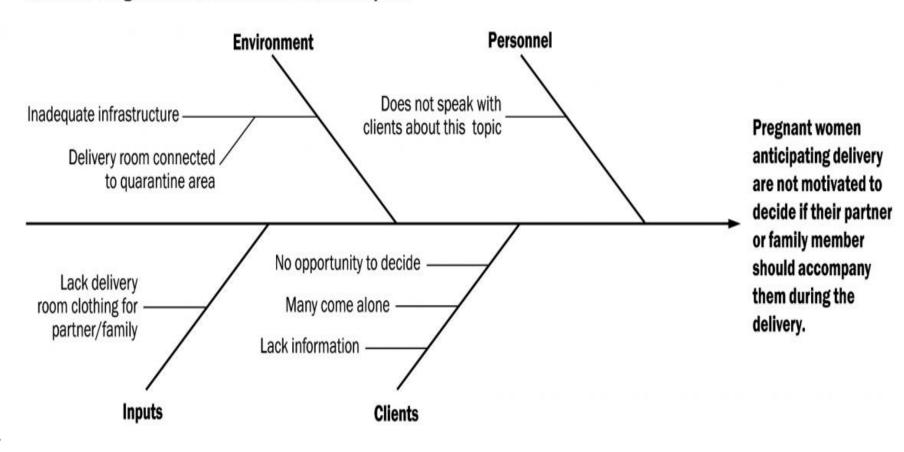




#### Fishbone Example



#### Fishbone Diagram Used at the San Carlos Hospital



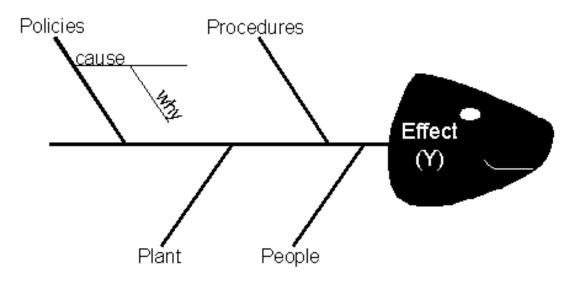
#### Fishbone Diagram Example

Ever had a problem with clinical documentation?

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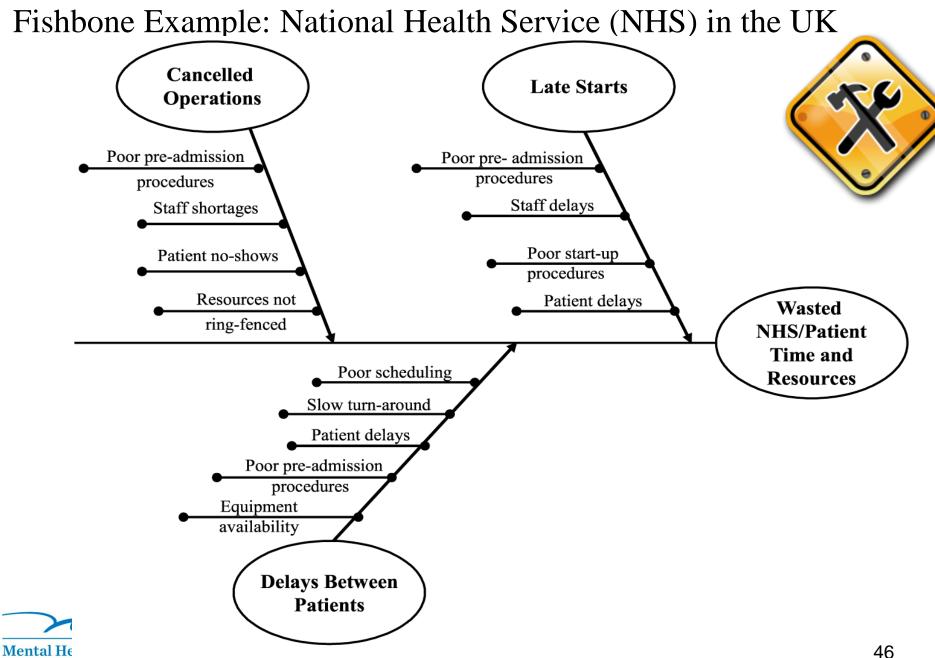
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What can we discover through a framework of Peop Plant(Technology)?



- > Opportunities for improvement?
- ➤ Activity: Fill in the Fishbone Diagram
  - ➤ What is the Problem Statement (Head of the fish, "Effect")
  - ➤ What framework categories would you use?
  - > What are causes and sub-causes within these?





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## Activity: Create a Fishbone Diagram for a problem in your organization

- > Suggestions
  - Consumer no-shows
  - >Staff turnover
  - ➤ Computer / administrative issues
  - > Your own situations





### AFFINITY DIAGRAM

- ➤ Why use it? To allow a team to creatively generate a large number of ideas and then organize and summarize natural groupings among them to understand the essence of a problem and breakthrough solutions.
- ➤ What does it do? Encourages creativity by everyone on the team. Encourages ownership of results that emerge because the team creates them. Overcomes paralysis which is brought on by overwhelming options and lack of consensus.



#### AFFINITY DIAGRAM

➤ How to do it? Phrase the issue under discussion in a full sentence. Brainstorm at least 20 ideas or issues by recording them on paper or post it notes. Sort ideas or issues into related groupings. For each grouping create a summary or header card and move ideas or issues under the appropriate header card.



### AFFINITY DIAGRAM: example

#### **DFSS** integrated care billing Affinity Diagram

#### Ensures confidentiality compliance

The integrated billing and Will promote reimbursement design will protect patient privacy

The integrated billing and reimbursement design will provide HIPAA training

It will ensure that all necessary legal matters are addressed

The process will provide medical record management security

The process will provide for tracking of completed documentation.

#### **Promotes** information sharing

communication between partners

The integrated care billing and reimbursement design will encourage departments to work together.

The new process will identify key people to report progress on the project.

The integrated care billing and reimbursement design will ensure that all critical parties are involved

The process will involve pro-active communication.

#### **Promotes** sustainability

The integrated billing and reimbursement design will be able to assess the cost effectiveness of the program

The new design will support receiving revenue.

The new design will ensure correct documentation and payment

The new design will support future growth

The new process will ensure accurate billing to maximize revenue

#### **Facilitates** internal billing system

The new design will create a process that allows for billing for integrated services

The design will create a new billing process at MHCD.

The new design will support a process for gathering data

> The new design will establish new billing processes.

The new process will

support and ensure accurate billing

#### Supports integrated documentation.

The new design will support shared data between partners

The new design will clearly state required documentation needs.

The new design will establish a process to allow for billing of services.

The new design should accommodate the partners medical record

The new design will allow us to capture and bill our services

The new design must

Supports standardization

> Creates roles and responsibilities

Will ensure a detailed process

Must aid in creating a standard process

New process will promote consistent reporting and encourage standardization

The new process will

support standardized

protocols

provide access to the service data



## Affinity Chart Example:

Poisoning

Slips and falls

Loose railing

Falling

Snow

Fire

Shooter

Infant

Violent

People

Abduction

Drug Seekers

Illegal Drugs

Safety Problems in a Hospital Setting											
Security Issues	Safety Issues	Disaster Planning	Negligence	Facilities	Personnel						
Weapons	Hot Food	Power Outage	Misdiagnosis	Old	Residents						
IDs	Smoking	Hurricanes	Confusion	Broken	Interns						

Infection

Lack of

Standardization

Equipment

Wait times

Transportation

Overworked

Unqualified

51

## Activity: Create an affinity diagram

- > Choose an issue, problem, or objective
- > Examples:

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- ➤ How to ensure reimbursement in collaborative integrated care systems
- ➤ Objectives and areas of focus in a strategic plan
- ➤ How knowledge is developed in Design for Six Sigma projects
- ➤ Group discussion of Affinity Diagrams, where to go next?

#### Resources for Continuous Improvement

- ➤ Books and Printed Materials
  - The Memory Jogger 2: Tools for Continuous Improvement and Effective Planning, ISBN 978-1-57681-113-9 or see <a href="https://www.MemoryJogger.org">www.MemoryJogger.org</a>
  - Lean for Dummies, Second Edition, by Natalie J. Sayer and Bruce Williams
    - Chapter 15, Real-Life Lean, Getting New Consumers to Show-up to Scheduled Appointments, pages 327-331
- > Web sites

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- The American Society for Quality: <a href="www.asq.or">www.asq.or</a>
- Tools of Quality: <a href="http://asq.org/learn-about-quality/seven-basic-quality-tools/overview/overview.html">http://asq.org/learn-about-quality/seven-basic-quality-tools/overview/overview.html</a>
- <u>www.isixsigma.com</u> Tools and Templates
- Mental Health Center of Denver: Our publications and examples



Making Everything Easier

## **PART TWO:** LAUNCHING Lean and Six Sigma at your organization

- > Part I (Covered earlier today)
  - ➤ What is Lean?
  - ➤ What is Six Sigma?
  - > Examples from MHCD continuous improvement projects
  - ➤ How can these process improvement tools be utilized in Your behavioral healthcare settings
  - Engaging staff in quality improvement
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## Launching Lean and Six Sigma in Your Organization

- ➤ What have you got? (Group discussion)
  - ➤ Process problems
  - ➤ Opportunities for improvement
  - ➤ Organizational commitment
- ➤ Who can do it?
  - > Facilitator
  - > Tools
  - > Participants
    - ➤ Allocated time
    - > Process knowledge
    - ➤ Management support



## Lean Project Selection Criteria and Guidelines

- ➤ What is Lean? (Adapted from the book, *Lean for Dummies*)
- > Lean is *less*:
  - > Waste
  - > Time to achieve a desired outcome
  - Cost, resources, space, facilities, supplies
  - ➤ Bureaucracy
  - > Mistakes, errors
- **Lean is more:** 
  - > Satisfied customers
  - > Employee empowerment and knowledge
  - Organizational capability and agility
  - > Productivity



## Projects that are suitable for Lean process improvement events meet these criteria:

(Note: There are many other valuable projects and activities that aren't suited to Lean but are worth pursuing as innovation, service/product development, marketing, etc.)

- ➤ Increase service capacity or revenue, or decrease costs or expenses
- ➤ Add value for identifiable customers
- Reduce waste
- Improve an existing process or activity rather than create a whole new activity
- There are benefits in involving a cross-functional team
- > Solutions and plans can be identified by the end of week
- There is a current state of the process and a desired future state can be identified
- > Something that is repeated with some frequency (not a one-time event)
- There are benefits in process standardization



## Value and Impact considerations for rioritizing and selecting Lean projects

- prioritizing and selecting Lean projects:

  In other words, assuming structural suitability, why would we choose this project: how is it useful, what do we expect to gain?)
- ➤ Relevant to Strategic Plan
- > Impacts bottom line
- Contributes to annual growth target
- > Expands capacity
- Customer impact, especially *external*
- > Other identifiable value



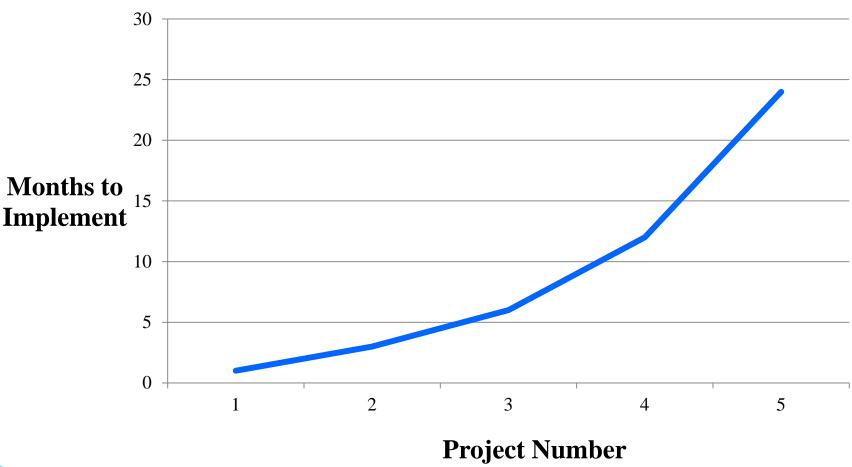
## What is the *Lean Paradox*?

- ➤ Just-in-time?
  - > NO!
- ➤ New Bottlenecks?
  - > YES!
- Rapid Improvement?
  - > NOT!
- > Solutions
  - > Clear out project clutter
  - ➤ Prioritize
  - > Realign project scheduling
- > Sustainability and human behavior



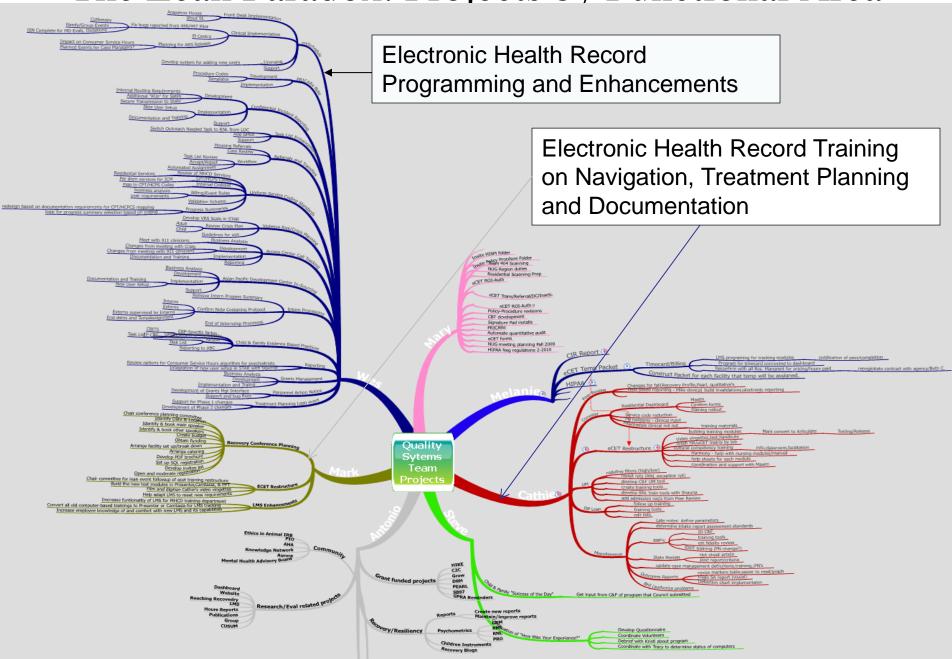


### Lean Project Completion Time: The Lean Paradox





#### The Lean Paradox: Projects by Functional Area



## Candidate Processes for Lean Improvement: Example selection and ranking

Process/	Staff	Relevant	Impact	Contribute	Value	Target	Level of
Objective		to	Bottom	to Growth	added?	date	Interest or
Jojecuve		Strategic	Line?	Target?			Preference
		Plan?					(5= high,
							1 =low)
Call center							
Clinical							
capacity							
Filling a							
staff							
vacancy							
Error-free							
computer							
systems							63

### Candidate Project Assessment

Activity: Apply the Project Rating sheet to review given candidate projects and some that are of potential interest to you or your organization.

- **Discussion** 
  - ➤ Which projects are good candidates?
  - >Surprises?
  - > Recommendations?





#### **Express Intake Team**

August, 2008

(LaGanga and Lawrence, 2009, POMS Conference Proceedings)

### Motivation: Target State



- ➤ Provide high-quality services
- ➤ Provide access to more people seeking services
- > Start service delivery promptly
- ➤ Match work time to reimbursement rate
- ➤ Positive consumer experience
- ➤ Valuable clinical outcomes



### **Solutions**

- ➤ Identify appropriate payer/contract sources
- ➤ Identify value-added intake information
- Reduced data items/forms from 17 (or 19) to 4
- ➤ No state CCAR outcome form
- Focus on appropriate treatment outcome measures



### **Solutions**

- ➤ Bypass Access Team
- ➤ Direct to designated clinicians
- ➤ Continuity of care
- ➤ Contact & Triage form
  - ➤ Halved from 4 to 2 pages
  - ➤ Completed by clinicians
  - Eliminate waiting for MIS staff to complete form
  - ➤ Use for all new intakes, not just special grants and



#### Electronic Health Record

- > Opportunities to streamline clinical work flow
- ➤ Improve quality of care
- > Structures and standardizes work processes
  - > Menus
  - Programmed logic and forms
  - > Data validation and feedback
- ➤ Lean Paradox
  - ➤ Bottleneck in programming
  - > Implementation delays in some projects
- ➤ New forms and intake processes within 90 days

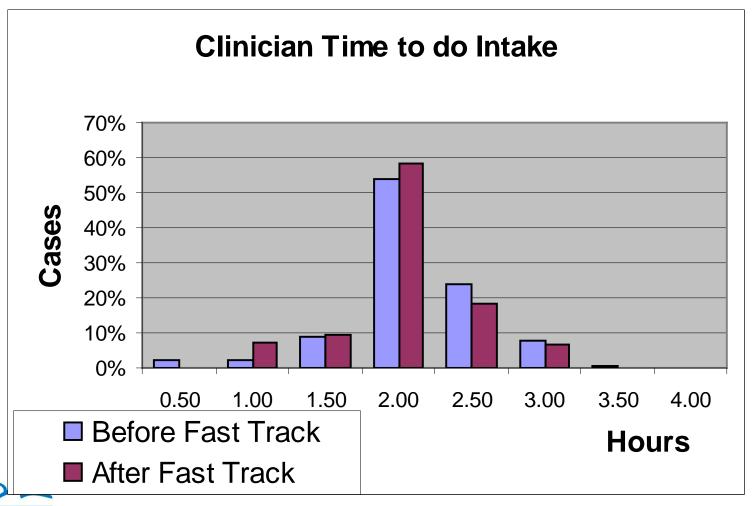


### Results with Department of Corrections

- ➤ Prison parolees
- ➤ Rate of intakes *tripled*
- ➤ Duration appeared unchanged
- > Standard versus actual time recorded
  - $\geq$  3 hours > 2.07 average of other clinicians



## Lean Process Improvement: (First 3 months) Express Intake: Fast Track Project



#### Results

- > Service times shortening
- ➤ Decreased range and variability
- > Room for more intakes
- > Increased access to services





#### Human Resources Hiring Project October, 2008

## Hiring: Improving a Business Process

- ➤ Delays and bottlenecks in communication
- > Automated communication
- ➤ Built on Electronic Health Record
- > Required systems analysis and programming
- ➤ Six months to implement
- Reduced time to fill positions by 3 days
- ➤ Harder to measure than clinical improvement





Grants Financial Management Team
December, 2008

#### Financial Management: A Business Process

- ➤ Initial state: Lack of feedback and reporting
- Requires technology and programming
- ➤ About a year to implement
- ➤ Dependent on completion of prior lean project for staff tracking and allocation
- > Redone later with immediate implementation
  - ➤ Not reliant on technology
  - New grants management and financial staff





#### New Clinician Training Team January, 2009

#### New Clinician Training: A Business Process

- Target State: Clinicians trained to be productive within 3 days of hire
- > Job requires use of Electronic Health Record
- > Quickly determined how to achieve target
- Designed new training program

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- ➤ Implemented initial computer training within 1 month
- Development of on-line training modules:
  - tess progress due to other staff commitments

## Insights from the First Year





# Beyond Year 1: Considering Appropriate Projects and Measurements

- ➤ Project to reduce emergency room and inpatient expenses, February 2010.
  - ➤ Goal: Reduce expenses, *not* increase bed capacity
  - ➤ Reduced hospital admissions, readmissions, visits
  - ➤ Better communication and shifted utilization from costly inpatient to less expensive outpatient case management and care coordination

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# Designing Appropriate Projects and Measurements

- ➤ Project to improve accuracy of counting consumers funded through Medicaid, December, 2011
  - ➤ Disagreement on project scope
    - Examine organization's entire reporting process?
    - ➤ Narrow scope on the one specific contract?
  - Lack of alignment between desires, skills, and interests of stakeholders and participants
  - Computer programming systems analysis or lean process improvement?
- Cross-functional, multi-level lean team members

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#### How Lean process improvement operates

- ➤ Rapid Improvement Events
  - ➤ Almost week-long with 10-20 participants
  - ➤ Benefits: Concentrated, uninterrupted effort with the right participants to thoroughly review a process with those who know it best
  - ➤ Generates insights and commitment to improvement
  - Costs: Human resources involved in the events
  - ➤ Evolution: Shortened events, preliminary work



## What is the RIE process?

- ➤ During Rapid Improvement Event:
  - > Current state
  - ➤ Target state
  - ➤ Gap analysis
  - ➤ Brainstorm solutions
  - > Select solutions
- > After
  - > Implement solutions
  - > Track progress
  - ➤ Measure results
  - > Report results



## Adding Project Champions

- ➤ Designated member(s) of the Executive

  Management team to ensure project progress

  and success
- ➤ Adds accountability
- ➤ Visibility, resources, momentum



### Can you adapt lean RIEs for other problems?

- Extracting the essence of the lemon
- ➤ Participation
- > Structured problem-solving
- > Staff engagement and development
- ➤ Shorter RIEs with more upfront analysis and preparation
- Classic Tools of Quality and their application
- ➤ How to get from idea generation to project implementation and successful completion?





# Affinity Chart: Safety Problems in a House Setting

Hurricanes

Fire

Shooter

**Smoking** 

Poisoning

Slips and falls

Loose railing

Falling

Snow

IDs

Infant

**Violent** 

People

Abduction

Drug Seekers

Illegal Drugs

	•	Setting				
Security Issues	Safety Issues	Disaster Planning	Negligence	Facilities	Personnel	
Weapons	Hot Food	Power Outage	Misdiagnosis	Old	Residents	

Confusion

Infection

Lack of

Standardization

Broken

Equipment

Wait times

Transportation

Interns

Overworked

Unqualified

86

#### Tree Diagram

Goal

Solve Hospital
Safety
Problems

**Sub-Goals** 

Improve
Personnel
Performance

Update Facilities

Standardize Procedures Means

Selection and Recruiting

Training

Replace wornout equipment

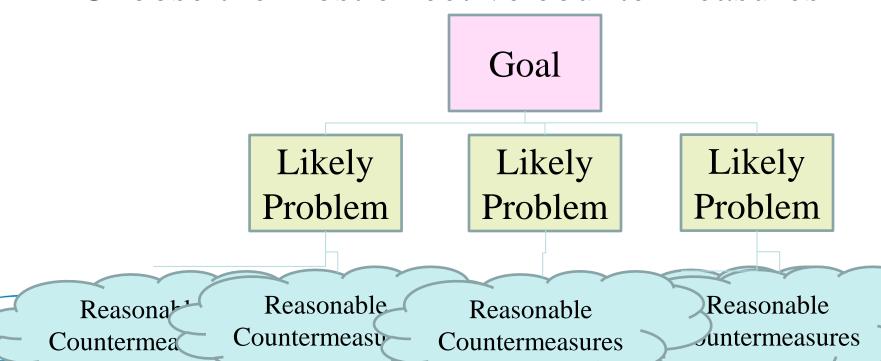
Remodel facility

Policy review



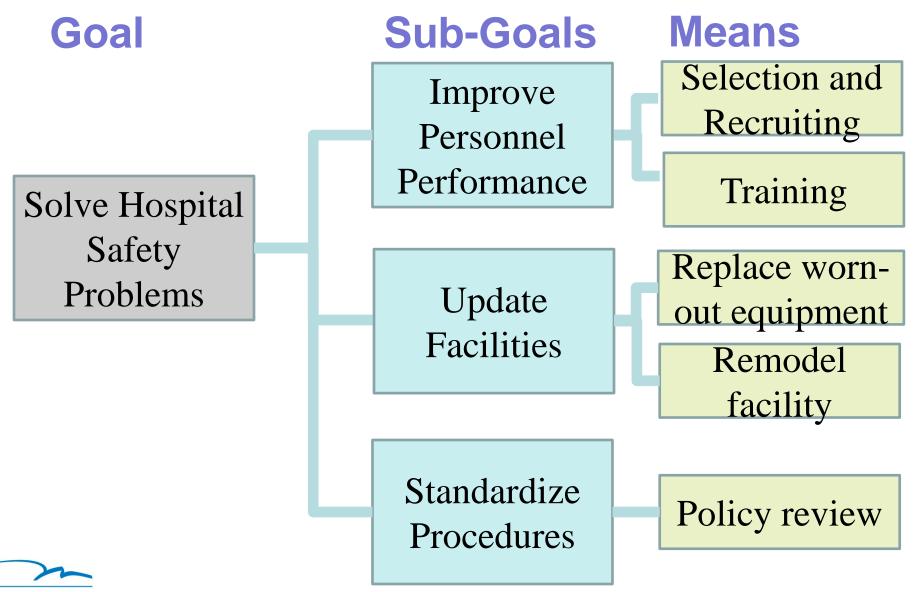
### Process Decision Program Chart (PDPC), Tree Variation

- ➤ Contingency Planning
- ➤ What could go wrong?
- > Choose the most effective countermeasures



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#### Problems and Solutions???



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## Inter-Relationship Digraph (ID)

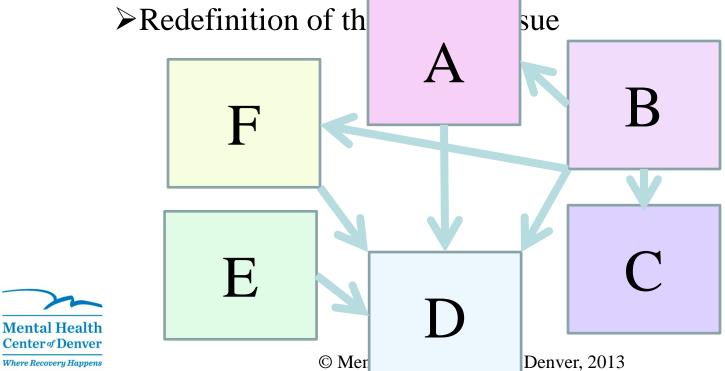
- ➤ Identify Cause-and-Effect Relationships
- ➤ Identify key drivers and outcomes
- ➤ How?
  - Assemble team who is knowledgeable about the process
  - Arrange ideas/issues from other tools or brainstorming
  - Look for cause/influence relationships, determine directions, and draw arrows
  - > Review and revise first round

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Count up outgoing and incoming arrows

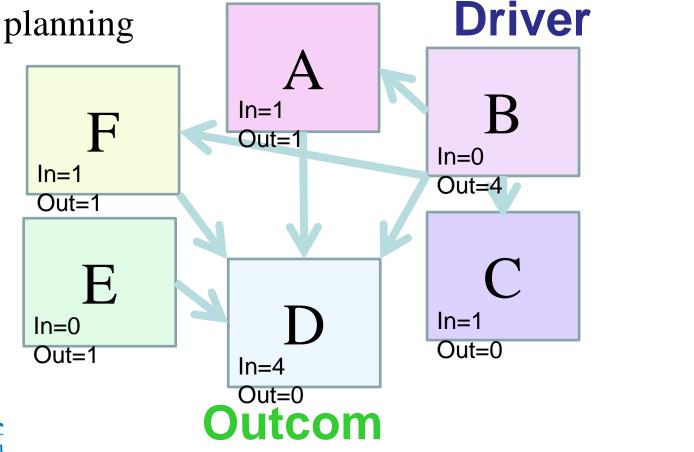
## Inter-Relationship Digraph (ID)

- Count up outgoing and incoming arrows
  - ➤ Outgoing Arrows = Root causes or drivers
  - ➤ Incoming Arrows = Key outcomes as focus for planning
    - ➤ Meaningful measure of overall success



## Inter-Relationship Digraph (ID)

- > Count up outgoing and incoming arrows
  - ➤ Outgoing Arrows = Root causes or drivers
  - ➤ Incoming Arrows = Key outcomes as focus for





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### Tree Diagram: Mapping Tasks for

Affinity Diagram

Implementation Headers as major subgoals

Tree Diagram



Interrelationship Digraph



#### Problem Cause and Effects

- > Inter-relationships
- Could have many drivers and results







## Activity: Inter-Relationship Digraph

- ➤ What are the issues involved with high utilization of expensive behavioral healthcare services?
- ➤ Develop an Inter-Relationship Digraph
- ➤ Identify the *Drivers* and the *Results*



#### Conclusions and Areas for Continued Work

- Adoption
  - Spread in outpatient healthcare
- Alignment
  - with Culture, Values,
  - and Incentives(Accuracy of recording)
- Agreement
  - on Project Scope and Objectives
- Appropriateness
  - Scope, goals, probability of success
- Accessibility
  - Data for analysis
- Availability





Where will you start?

## Questions? Discussion?

Lean Six Sigma Tools in Behavioral Healthcare



#### 2013 CBHC FALL CONFERENCE

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