

Principles and Methods of Quality Improvement— Using CQI to improve Infection Control Practices

Review of the Cesarean-section Antibiotic
Prophylaxis Program in Jordan and Workshop on
Rational Medicine Use and Infection Control

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Drug Administration in collaboration with SPS and SIAPs



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Acknowledgment

Materials adapted from—

- A Modern Paradigm for Improving Healthcare Quality

Source: Massoud, R., K. Askov, J. Reinke, et al. 2001.
QA Monograph Series 1(1). Bethesda, MD: Published
for the U.S. Agency for International Development
(USAID) by the Quality Assurance Project.



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Outline

- Principles of improvement
- Improvement process
- Continuous Quality Improvement methodology used for the Jordan Antibiotic Surgical Prophylaxis Project
- Quality improvement tools
- Summary



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What is High Quality Health Care?

- The right care administered the right way* at the right time with efficient use of resources

* using established methods and delivered in a way that is acceptable to the patient



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Achieving Improvement

- Implementing (waiting for) the next “big” thing*
- Vs.
- Closing gaps in care using existing resources

* New diagnostics, therapeutics, or prevention measures



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Principles of Improvement (1)

- Client (patient) focus
 - Care should be designed to meet the needs and expectations of patients and the community
- Understand the system of care
 - Providers must understand the system of care, including its inputs, key processes, and outcomes, to improve care



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Principles of Improvement (2)

- Teamwork
 - System improvement is achieved through a team approach to problem solving
- Test changes in the system using data
 - Data are used to analyze processes, identify problems, and to determine whether changes in the system have resulted in improvement



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Client Focus—Needs and Expectations

- Technical performance
- Effectiveness of care
- Service delivery efficiency
- Safety
- Access to services
- Interpersonal relations
- Service continuity
- Physical infrastructure and comfort
- Choice



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Understand the System of Care

- Inputs
 - People, infrastructure, materials, information, and technology
- Processes
 - Sequence of activities involving inputs and decision-making
- Outcomes
 - Clinical outcomes, length of stay, cost, patient satisfaction
- System
 - Sum of elements that interact together to achieve an objective



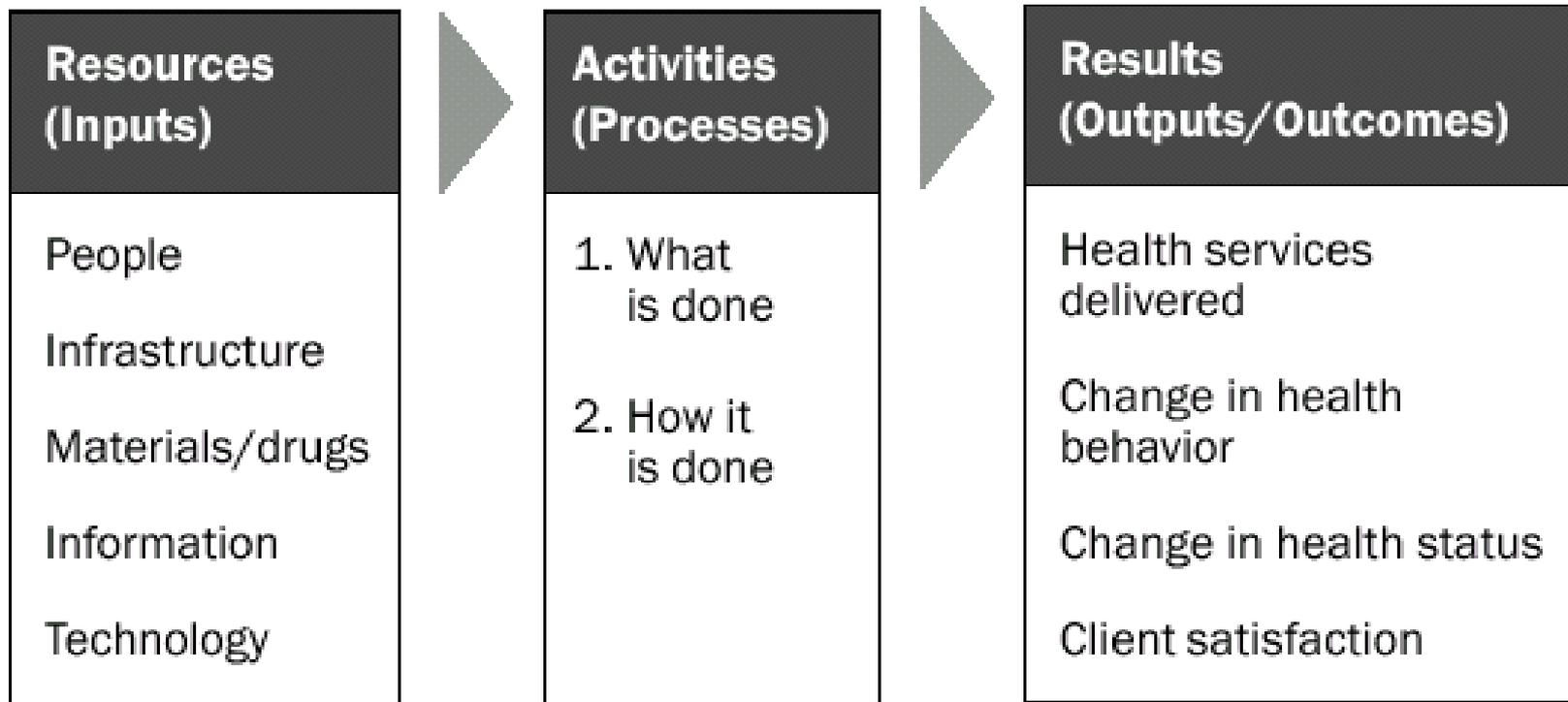
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Conceptual Design of a System



Source: Donabedian (1980)



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Teamwork

- Team
 - A high-performing task group whose members are interdependent and share a common objective
- Team members
 - Key players in the parts of the system being improved (stakeholders), experts, people being affected by the system



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Test Changes in the System Using Data

- Improvement requires change
- Not all change is improvement
- Data are required to demonstrate that change is improvement



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Improvement Process

1. Identify—

- Determine what to improve

2. Analyze—

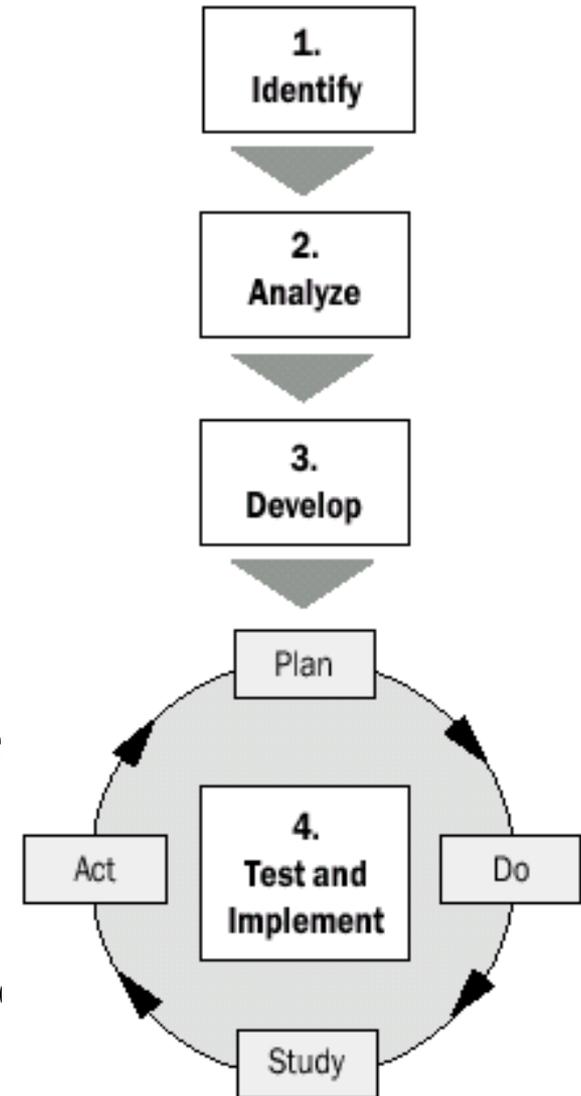
- Understand the system

3. Develop—

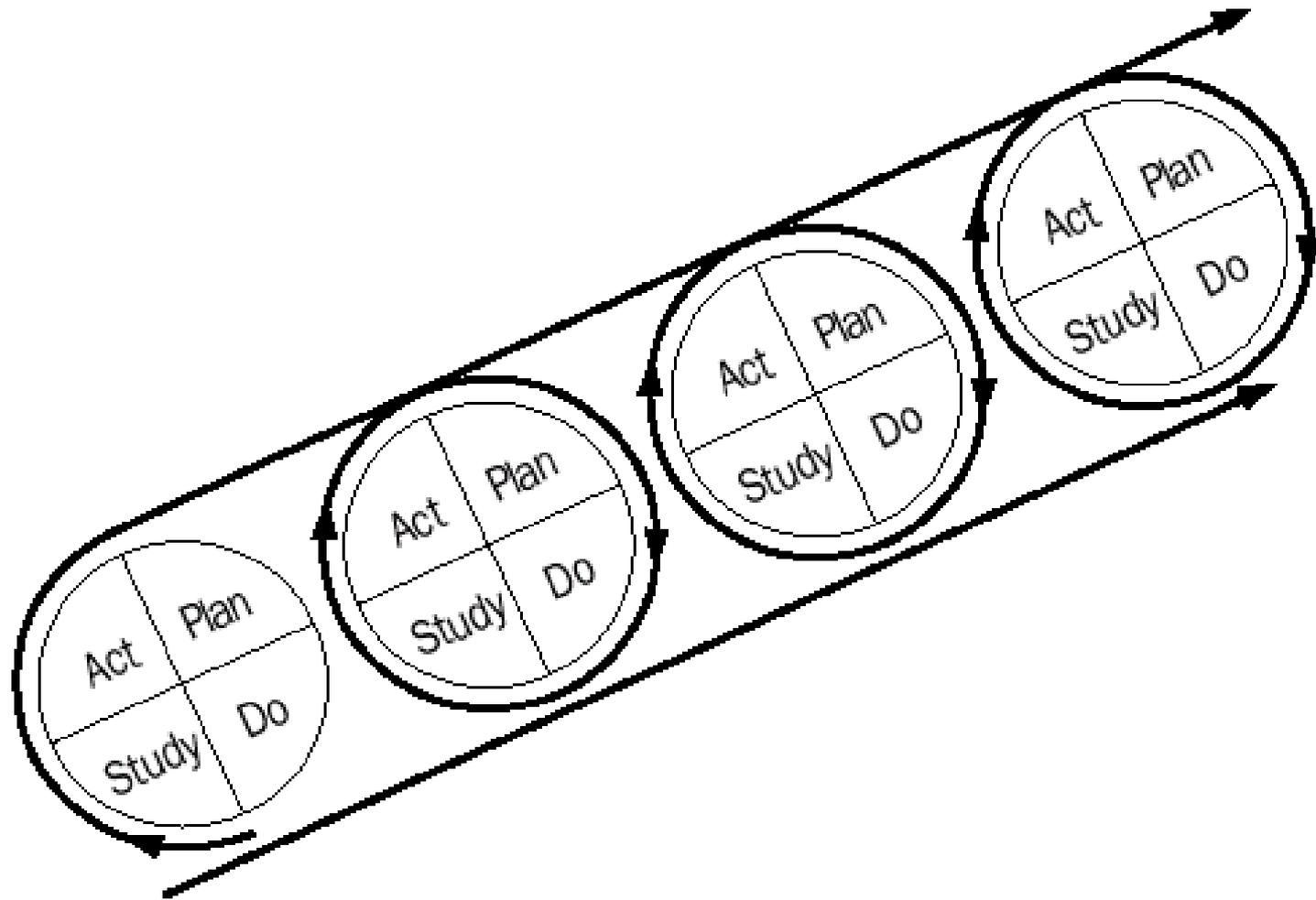
- Design a change to improve the system

4. Test and implement—

- Test the change and decide whether to abandon, modify, or implement (study, act, plan, do)



Rapid-Cycle, Small-Scale Tests of Change



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Identify

- What is the problem?
- How do you know it is a problem?
- How frequently does it occur?
- How long has it existed?
- What are the effects of the problem?
- How will you know when it is resolved?



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Analyze

- Describe the system
 - Qualitative—describe the inputs, processes, and outcomes, and their interactions
 - Quantitative—measure the performance of the system
- Formulate ideas about how the system could be improved



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Develop

- Develop a series of small changes to be tested sequentially
- Anticipate resistance to change and take steps to minimize it
 - Involve key stakeholders in the work
 - Educate and communicate



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Continuous Quality Improvement Methodology used for Jordan CS Project

- Initial workshop – April 2011
- Development of a workplan at each hospital
- Development of a Continuous Quality Improvement (CQI) team at each hospital
- Self-assessment doing feasible activities
- Sharing results at review workshop – March 2012



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CQI methodology used for Jordan CS Project (2)

- **Identify** – The use of antibiotics for CS surgical prophylaxis was identified to be suboptimal and wasteful practice.
 - The use of multiple antibiotics (at most hospitals) in multiple doses over several days including at discharge from the hospital
 - The initial dose was frequently given after the surgical procedure



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CQI methodology used for Jordan CS Project (3)

- **Analyze** – The system was fragmented, no guidelines available.
 - Review of hospital practices show multiple antibiotics for multiple doses for CS prophylaxis
 - Systematic reviews (Cochrane), RCTs, cohort studies, international guidelines all show a single antibiotic, before surgery is sufficient to provide prophylaxis



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CQI methodology used for Jordan CS Project (4)

- **Develop a Change** – New guidelines/protocols for CS prophylaxis were developed and implemented
- **Test and Implement** - protocols were provided to medical staff. Follow-up procedures and tools were developed to monitor including:
 - CQI meetings
 - Monitoring log
 - CQI tool to record CS prophylaxis and results of indicators



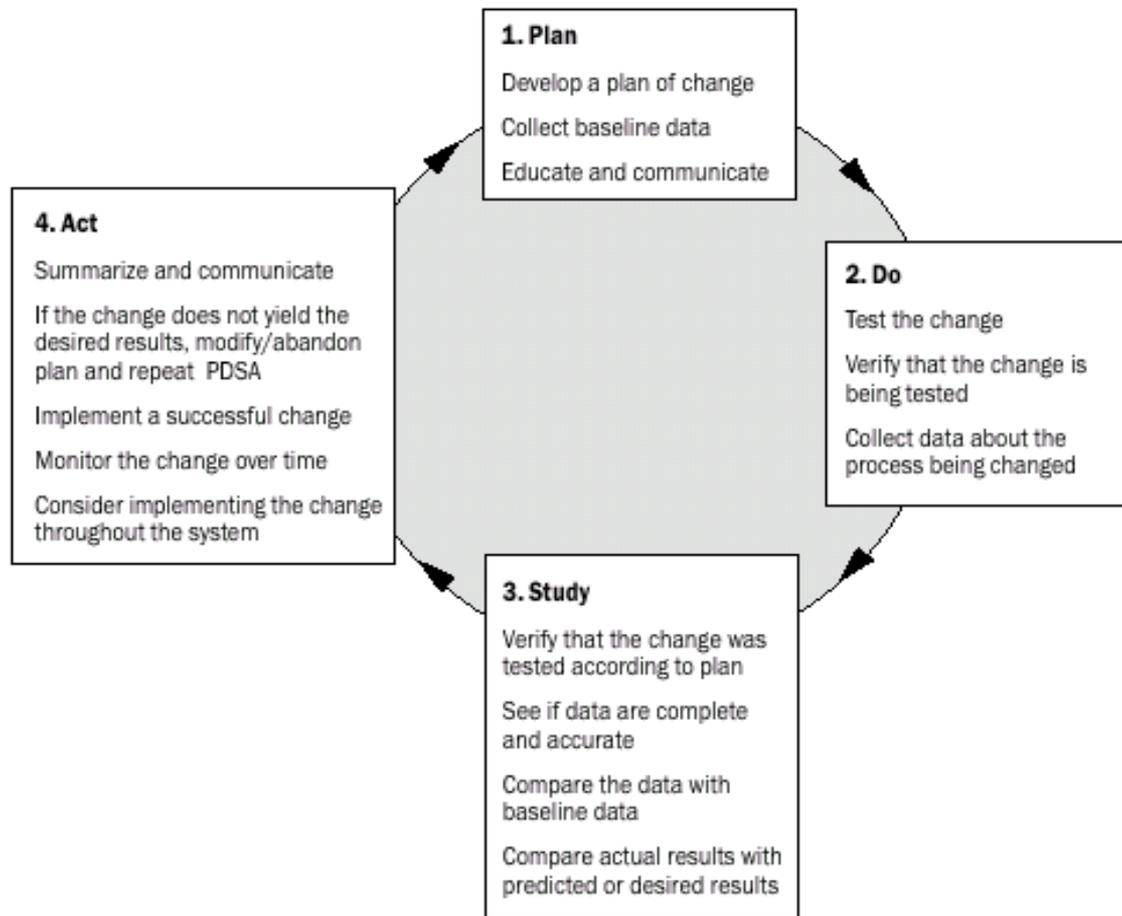
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CQI methodology used for Jordan CS Project (5) -



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Quality Improvement Tools

- Identify
 - Brainstorming
 - Affinity analysis
 - Cause-and-effect diagrams
- Analyze
 - Flowcharts
 - Data presentation
 - Pie chart
 - Histogram
 - Run chart
- Develop
 - Benchmarking
 - Storyboards
- Test and implement
 - Gantt charts
 - Storyboards



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What Is the Value of These Tools?

They organize the team and help make it more efficient.

- Brainstorming, cause-effect diagram
 - Analyze available information
 - Acknowledge that many factors affect the outcome
 - Gather information from multiple sources: literature, experts, people involved in the system
- Priority matrix, Pareto diagram
 - Rank and prioritize problems and interventions
 - Target work toward the biggest problems
 - Only some factors are within control
 - Only a subset of these can be optimized quickly with existing resources



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What Is the Value of These Tools? (2)

- Flowcharts, process measures, run charts
 - Evaluate systems: qualitative and quantitative
 - Target specific areas for improvement
 - Monitor trends in effects of changes



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What Is the Value of These Tools? (3)

- Provide a logical history of the team's work
- Keep work on track
 - Orient new team members
 - Report to leaders
- Simple and applicable to a wide range of problems



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Summary

- Improving infection control practices is a key strategy to prevent nosocomial infections and contain AMR
- A system to identify poor infection control practices and to introduce interventions to improve practices is essential
- Improving infection control practices and subsequently reducing nosocomial infections and AMR is facilitated and enhanced by using a quality improvement approach



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