Research 201

AAPA
American Academy of PAs

Introduction to Quality Improvement

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Faculty and Disclosure Statement

Brittany has been a PA at Mayo Clinic, Rochester for the last twelve years. She practices in Community Internal Medicine and as an adjunct for the Butler DMSc. She has published peer-reviewed articles, book chapters, and abstracts, presented posters, and spoken locally, nationally, and internationally. She has received POCN Top PA and MAPA Preceptor/Mentor of the Year. She is currently serving on the AAPA Commission on the Health of the Public, the Minnesota Board of Medical Practice PA Advisory Council, and as the Minnesota Academy of PAs President. In her free time, she is a wife and mom to two kids.

Disclosure: Exact Sciences PA Advisory Council

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OBJECTIVES

- Recall the definition and purpose of Quality Improvement
- List the fundamental principles of Quality Improvement
- Identify the various tools and methods used in Quality Improvement

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WHAT IS QUALITY IMPROVEMENT (QI)
DEFINITION:
QUALITY IMPROVEMENT IS AN ORGANIZED, STRUCTURED APPROACH TO THE ANALYSIS OF PERFORMANCE AND EFFORTS TO IMPROVE IT

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QI VERSUS RESEARCH
QUALITY
• Purpose and Goals
• Approach and Focus
• Application in Medicine

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WHERE QI STARTED
Increase
Increase efficiency
Reduce
Reduce defects
Improve
Improve product quality

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QI IN HEALTHCARE
• Enhance patient care
• Reduce errors
• Improve patient satisfaction

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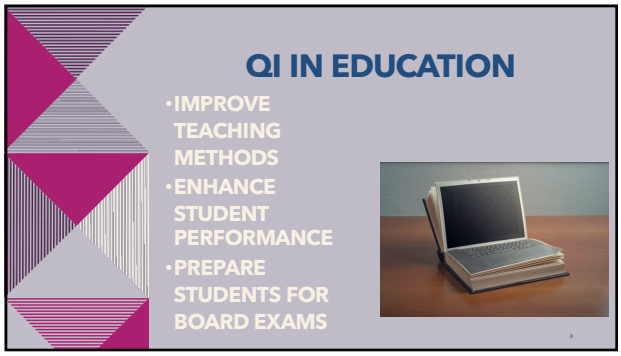
QI IN EDUCATION
•IMPROVE TEACHING METHODS
•ENHANCE STUDENT PERFORMANCE
•PREPARE STUDENTS FOR BOARD EXAMS

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QI IN ADMINISTRATION
• OPTIMIZE OPERATIONAL EFFICIENCY
• REDUCE ADMINISTRATIVE ERRORS
• ENHANCE PATIENT SATISFACTION

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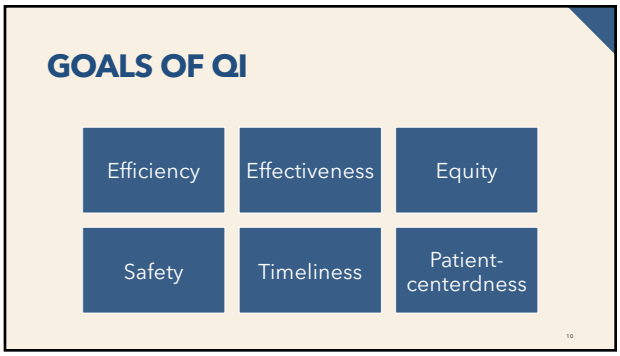
GOALS OF QI
Efficiency
Effectiveness
Equity
Safety
Timeliness
Patient-centerdness
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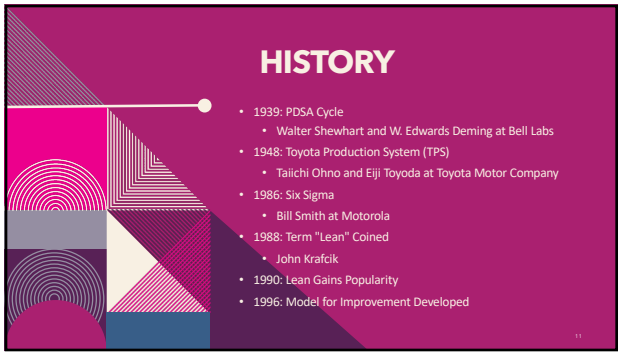
HISTORY
1939: PDSA Cycle
Walter Shewhart and W. Edwards Deming at Bell Labs
1948: Toyota Production System (TPS)
Taiichi Ohno and Eiji Toyoda at Toyota Motor Company
1986: Six Sigma
Bill Smith at Motorola
1988: Term "Lean" Coined
John Krafcik
1990: Lean Gains Popularity
1996: Model for Improvement Developed
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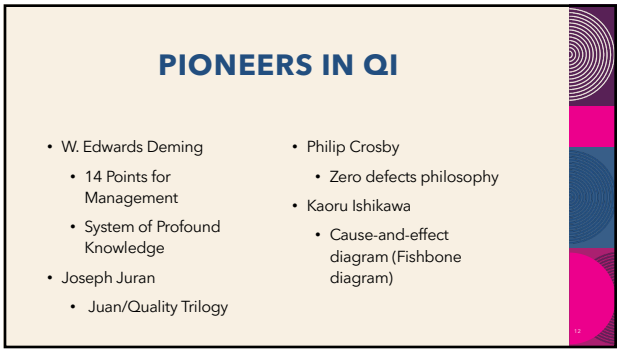
PIONEERS IN QI
W. Edwards Deming
14 Points for Management
System of Profound Knowledge
Joseph Juran
Juan/Quality Trilogy
Philip Crosby
Zero defects philosophy
Kaoru Ishikawa
Cause-and-effect diagram (Fishbone diagram)
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CORE PRINCIPLES OF QI

- CONTINUOUS IMPROVEMENT
- CUSTOMER FOCUS
- EMPLOYEE INVOLVEMENT
- PROCESS APPROACH
- DATA-DRIVEN DECISION MAKING

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CONTINUOUS IMPROVEMENT

ANALYZING PROCESSES

SEEKING FEEDBACK

NEW IDEAS

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CUSTOMER FOCUS

Understanding and meeting customer needs and expectations:

- Patients
- Students
- Leadership
- Staff

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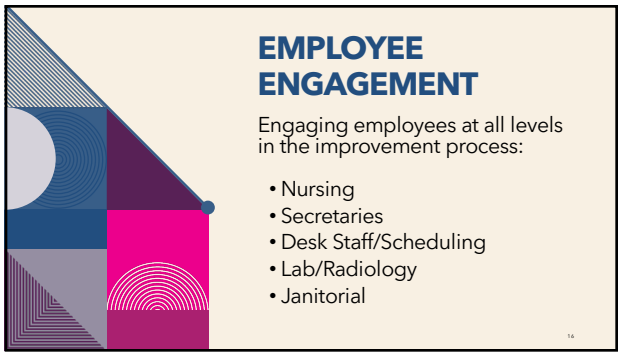
EMPLOYEE ENGAGEMENT
Engaging employees at all levels in the improvement process:
• Nursing
• Secretaries
• Desk Staff/Scheduling
• Lab/Radiology
• Janitorial

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PROCESS APPROACH
• Identify Key Processes
• Analyze and Map Processes
• Measure Performance
• Continual Improvement
• Employee Involvement
• Standardization
• Customer Focus
• Risk Management

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DATA-DRIVEN DECISION MAKING
Objective Analysis
Evidence-Based Improvements
Tracking Progress
Benchmarking
Transparency and Accountability
Root Cause Analysis

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METHODOLOGIES

- Just Do It
- Lean
- PDSA
- Six Sigma
- DMAIC

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JUST DO IT

- Simple and immediate action to fix a problem
- Act without waiting for committee approval if it doesn't impact others negatively

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LEAN

- Continuous improvement methodology
- Reduces waste, process variation, and imbalance
- Enhances customer service, performance, and quality
- Ensures each process step adds value to the customer

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PLAN-DO-STUDY ACT (PDSA) CYCLE

- **Plan**: Develop a plan to test a change
- **Do**: Carry out the test
- **Study**: Observe and learn from the outcomes
- **Act**: Determine what modifications should be made

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SIX SIGMA

Sigma Level	Defects (DPMO)
1	690,000
2	308,537
3	66,807
4	6,201
5	233
6	3.4

- Systematic, data-driven methodology
- Focuses on process improvement
- Aims to reduce variability and defects
- Uses facts, data, and statistical analysis
- Design processes with high reliability
- Target: 3.4

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DMAIC

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KEY CONCEPTS IN QI

- Root Cause Analysis
- Process Mapping
- Benchmarking
- Performance Measurement

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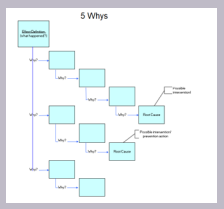
ROOT CAUSE ANALYSIS

Identifying the root causes of problems to address them effectively



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PROCESS MAPPING

Visual representation of a process to identify areas for improvement

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BENCHMARKING

Comparing processes and performance metrics to industry bests or best practices from other industries

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PERFORMANCE MEASUREMENT

Using key performance indicators (KPIs) and metrics to monitor and evaluate the effectiveness of processes

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TOOLS AND METHODS IN QI

- FLOWCHARTS
- CAUSE-AND-EFFECT DIAGRAMS
- PARETO CHARTS
- CONTROL CHARTS
- CHECK SHEETS
- HISTOGRAM

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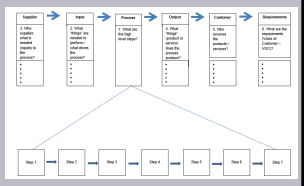
SIPOC+R

- Supplier
- Input
- Process
- Output
- Customer
- Requirements



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FLOWCHARTS

Visual tool to represent the sequence of steps in a process

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AFFINITY DIAGRAM

- Organizes brainstormed ideas into related groups
- Speeds up idea generation without initial judgement

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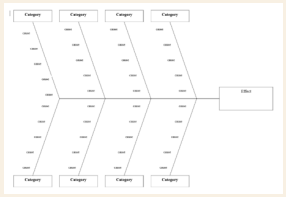
CAUSE-AND-EFFECT DIAGRAMS

- Also known as Fishbone or Ishikawa diagrams
- Used to identify potential causes of a problem



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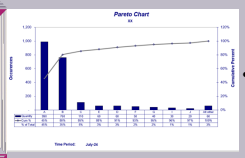
PARETO CHARTS



- Bar graph that shows the frequency or impact of problems
- based on the 80/20 rule

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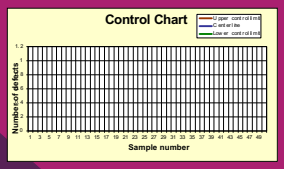
CONTROL CHARTS

Used to monitor process stability and performance over time



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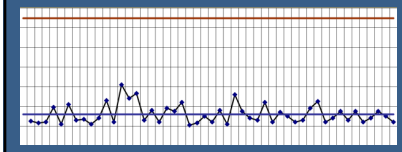
COMMON CAUSE VARIATION



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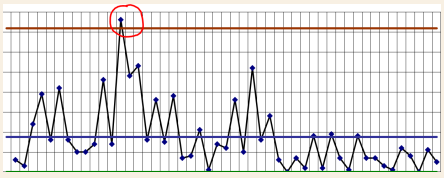
SPECIAL CAUSE VARIATION



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CHECK SHEETS

Simple data collection tools used to gather and analyze data

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WASTE WALK

Mis-Utilization of Skills	Reprioritization	Transportation of Things
Inventory	Motion of People	Waiting
Overproduction	Overprocessing	Defects

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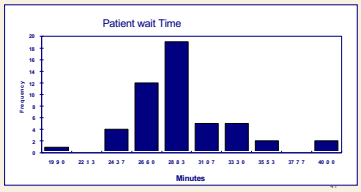
HISTOGRAM

Graphical representation of data distribution



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FIVE S

- Sort
- Set In Order
- Shine
- Standardize
- Sustain

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IMPLEMENTING QI INITIATIVES

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QI TEAM

- Project Sponsor/Champion
- Process Owner/Team Leader
- Process Improvement Expert
- Project Manager
- Team Members

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STAKEHOLDERS

- Employees
- Managers
- Patients

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SETTING GOALS AND OBJECTIVES

- State Clear, Specific Goals
- Include Numerical and Time-Constrained Goals
- Consider Balancing Measures
- Avoid solutions in the aim statements

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QI EDUCATION

- American Society of Quality (ASQ)
- Institute for Healthcare Improvement (IHI)

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DATA COLLECTION

- Determine current process performance
- Identify gaps in performance
- Establish baseline metrics for comparison

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ANALYSIS

- Identify root causes of the performance gaps
- Understand the factors contributing to the issue

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IMPLEMENTATION

- Brainstorm
- Evaluate Solutions
- Pilot Test
- Measure and Scale

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MONITORING AND SUSTAINING

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CHALLENGES IN QI

- Resistance to change
- Lack of resources
- Data quality
- Sustaining momentum
- Cultural barriers

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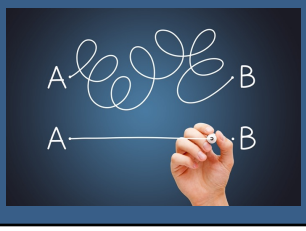
RESISTANCE TO CHANGE



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LACK OF RESOURCES

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DATA QUALITY

- Informed Decisions
- Robust Collection
- Standardized Methods
- Regular Audits
- Staff Training

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SUSTAINING MOMENTUM

- Regular Communication
- Leadership Support
- Celebrate Achievements

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CULTURAL BARRIERS

- Leadership Commitment
- Clear Communication
- Global Adaptation
- Respect Differences

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INNOVATIONS IN QI

- Digital tools
- Methodologies
- Advanced Analytics
- Collaborative Platforms
- Artificial Intelligence

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PUBLISHING

- The American Journal of Medical Quality
- Journal of Evaluation in Clinical Practice
- Journal of Nursing Care Quality
- The Journal of Healthcare Quality
- Quality Management in Healthcare
- BMJ Quality and Safety
- Journal of Patient Safety
- International Journal for Quality in Health Care
- BMJ Open Quality
- Joint Commission Journal on Quality and Safety
- JAAPA
- PAEA

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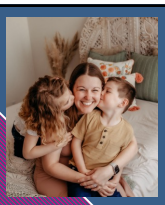

THANK YOU

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Additional Talks
• Baseline Evidence-Based Medicine
• Maximizing Secondary Data for Research Use
• Research Methods: Outcomes Research
• The Ins and Outs of Networking
• Using Advanced Excel Tools for Managing Your Data
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