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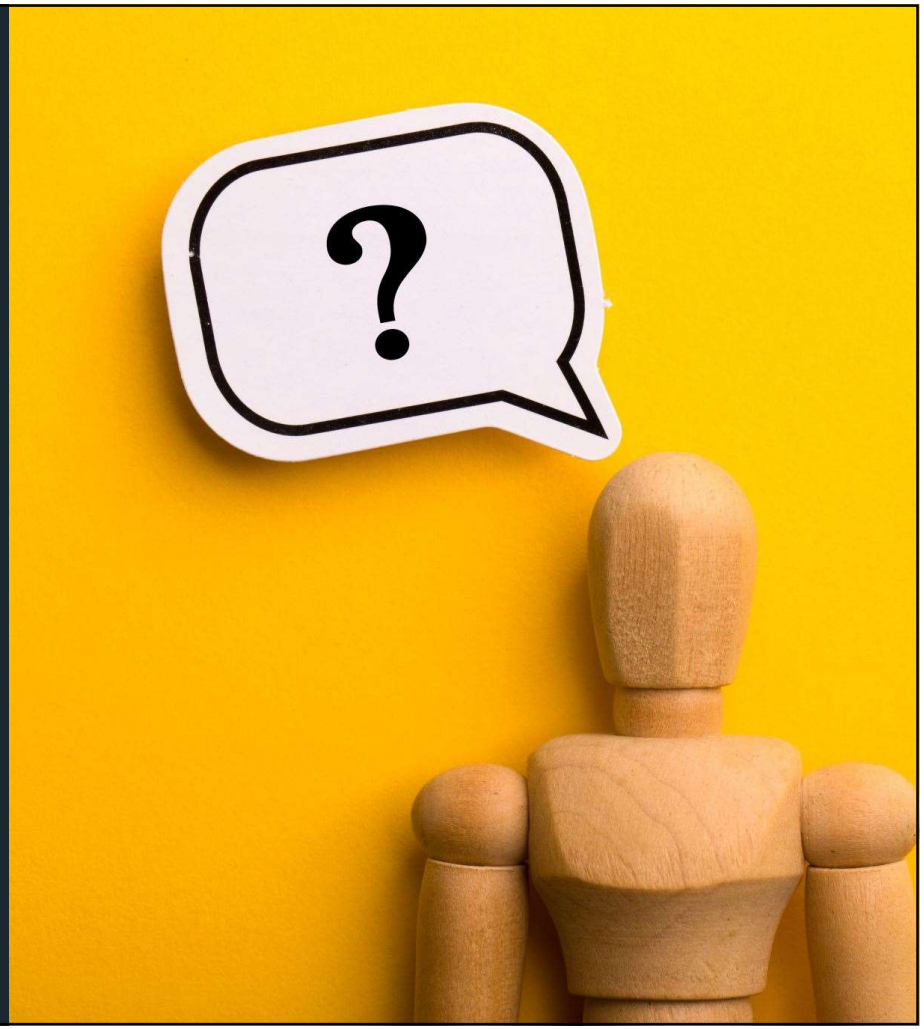
Areas of Focus

Questions will focus on:

1. Program Planning
2. Communication and Feedback
3. Quality/Performance Improvement and Patient Safety



Influences on IPC Programs

Infection Prevention programs are affected and influenced by many factors such as:

Government, regulatory and accrediting agencies

Scientific research and publications

Increasing acuity of patients

Aging of the population

Complexity and location of treatment options

Increasing move toward ambulatory and home care

- Mandated reporting requirements
- Procedures, service lines, surgeries
  - Performed by facility
  - High volume, high risk, high cost
- New equipment, instruments, procedures
  - Infection prevention and infection control related risks, concerns, or benefit
- Patient demographics
  - Diseases common to patient population
  - Risk factors common to patient population
  - Socioeconomic status of the community
- Changing recommendations/requirements and new scientific literature and guidelines.

Organizational and Accreditation Influences

Organizations:

- American Hospital Association (AHA)
- Association for Professionals in Infection Control and Epidemiology (APIC)
- Centers for Disease Control and Prevention (CDC)
- Centers for Medicare & Medicaid Services (CMS)
- Certification Board of Infection Control and Epidemiology (CBIC)
- Food and Drug Administration (FDA)
- Society for Healthcare Epidemiology of America (SHEA)
- U.S. Department of Health and Human Services (HHS)
- Institute for Health Care Improvement (IHI)

Accreditation Agencies:

- The Joint Commission (TJC)
- DNV GL
- National Institute for Occupational Safety and Health (NIOSH)
- Occupational Safety and Health Administration (OSHA)
- Society for Healthcare Epidemiology of America (SHEA)

Mission and Vision

Mission: Defines the common purpose, focus, and context for all departmental activities

- Mission statements enable a group to set boundaries for their activities, to know what is and what is not within their jurisdiction and to understand where they fit in the organization's overall improvement efforts.
- The IPC Program mission should support the overall institutional mission

Vision: A picture of where the infection prevention program wants the organization to go and where it wants it to be (a picture of the future).

- Vision statements begin by identifying the IP programs strategic advantage in the organization and how they add value to others

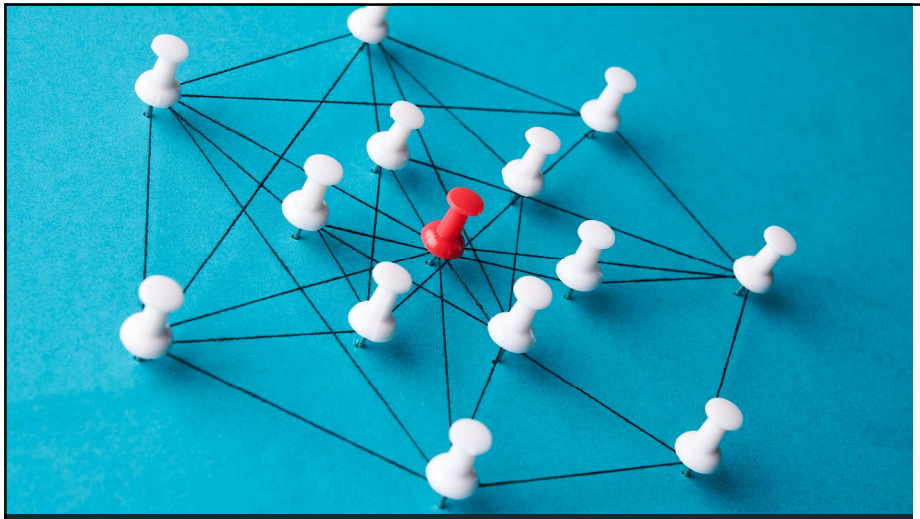
Overall Structure and Function

Program documents should outline the three principal goals for an IPC program:

- Protect the Patient
- Protect HCP, visitors, and others in the healthcare environment
- Accomplish the previous two goals in a cost-effective manner whenever possible

Functions of the IPC program should be based on the institution's unique needs.

- Obtain and manage critical data and information, including surveillance for infections
- Develop and recommend policies and procedures
- Intervene directly to prevent infections and interrupt the transmission of infectious diseases
- Educate and train HCP and patients



Reporting Relationships

Depending on the setting or structure in an organization, Infection Prevention may report to or be integrated with :

- Administration
- Nursing service
- Quality Improvement
- State agencies
- Local health departments
- Safety
- Human resources
- Employee Health

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Infection Prevention Team

- Core team responsible for carrying out all aspects of the infection prevention and control program:
  - Infection Preventionist
  - Chair of the infection prevention committee
  - Healthcare epidemiologist
- One person should be designated as having responsibility for the program.
- Team members should be qualified and guided by sounds principles and current information.
- Teams should set goals, collect and analyze data and select interventions

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Infection Prevention Committee(IPC)

- **Function:** a central decision-making and policy making body for infection prevention.
- **Reporting:** chairperson reports to the administration or the medical staff
- **Purpose:** advocate for prevention of infections in the facility provides political support that empowers the team.
- **Membership:** multidisciplinary and includes representatives from appropriate departments (e.g., nursing, administration, pharmacy, medical staff, environment services)
- **Role:** refine and ratify the ideas of the IP team and disseminate information discussed at the meeting.
- If an IPC is not used, IP teams need to develop other mechanisms to obtain multidisciplinary support for changes and actions.

Infection Prevention Professionals

- IPs function as:
  - Consultants
  - Educators
  - Role Models
  - Researchers
  - Change Agents

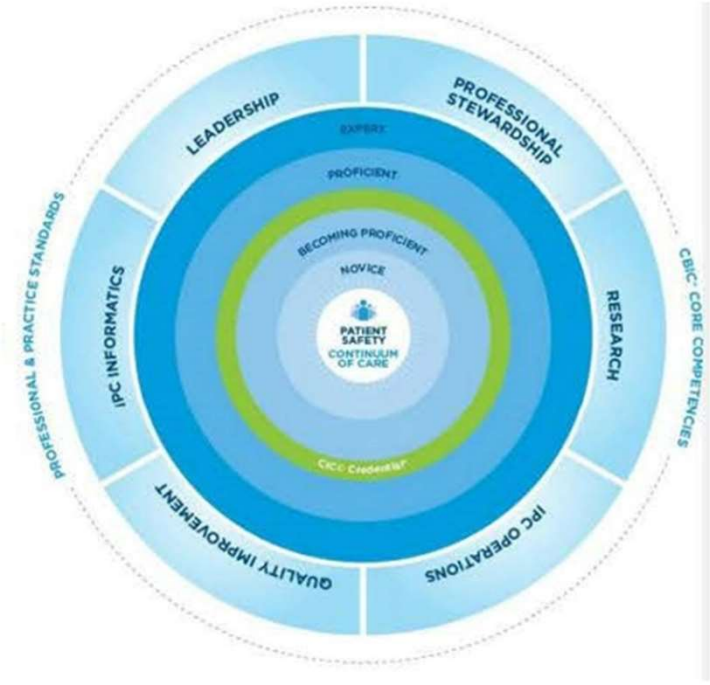
- With the expanding responsibilities IPs need the ability to evolve and grow their skills.
- Including professionals with diverse backgrounds in the IP team will ensure a robust program with new insight.

IP Core Competencies

1. Identification of infectious disease process
2. Surveillance and epidemiologic investigation
3. Preventing/controlling the transmission of infectious agents/HAIs
4. Employee/occupational health
5. Management and communication
6. Education and research
7. Environment of care
8. Cleaning, sterilization, disinfection and asepsis

APIC IP Competency model

- Patient safety is the core of the model with a focus on application through the continuum of care.
- Concentric circles represent the IP career stages, with a band representing timing of CIC credential.
- The outermost bands represent six future oriented competency domains which grow form the center and expand through the expert stage.
- The final element are the foundational documents that support IP professional development.



Career Stages

- Acquiring baseline knowledge about the departments and teams in which they interact
- Demonstrates emotional intelligence, listening and learning skills

- Collaborates well with peer groups
- Developing collaboration skills and involved in focused group projects
- Becoming more independent in situational assessments

- Actively suggests and develops ideas to improve quality
- Able to prepare for meetings and identify resources

- Actively pursues collaboration and leadership opportunities
- True mastery of content and shares mastery through modeling and teaching
- Models effective listening skills but respectively challenges perspectives while welcoming diverse opinions
- Builds a sense of shared accomplishment, advocates for the group

Future-Oriented Competency Domains/Sub domains

- **Leadership**
  - Communication
  - Critical Thinking
  - Collaboration
  - Behavioral Science
  - Program management
  - Mentorship
- **Professional Stewardship**
  - Accountability
  - Ethics
  - Financial Acumen
  - Population Health
  - Continuum of Care
  - Advocacy
- **Quality Improvement**
  - IP as Subject Matter Expert
  - Performance Improvement
  - Patient Safety
  - Data Utilization
  - Risk Assessment and Risk Reduction
- **IPC Operations**
  - Epidemiology and Surveillance
  - Education
  - IPC rounding
  - Cleaning, Disinfection, Sterilization
  - Outbreak Detection and Management
  - Emerging Technologies
  - Antimicrobial Stewardship
  - Diagnostic Stewardship
- **IPC Informatics**
  - Surveillance Technology
  - Electronic Medical Records
  - Data Management, Analysis and Visualization
  - Application of Diagnostic Testing Data and Techniques
- **Research**
  - Evaluation of Research
  - Comparative Effectiveness Research
  - Implementation and Dissemination Science
  - Conduct or Participate in Research or Evidence Based Practice

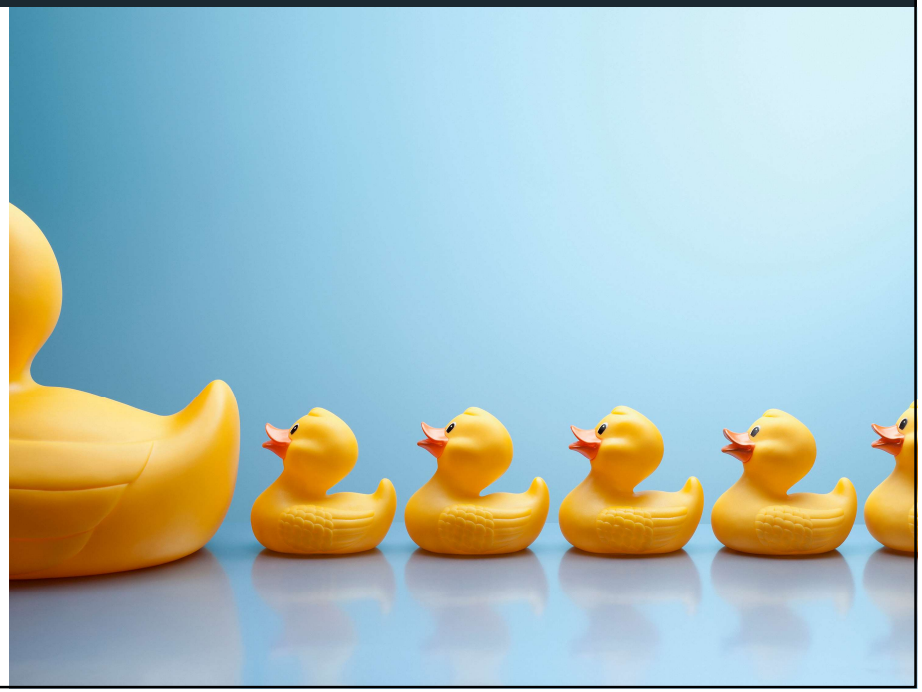
IPs as Leaders

Leadership: the art of influencing behavior

Management: achieving desired results through efficient utilization of human and material resources.

Management styles include:

- Consultative- shares problems with subordinates, gets ideas prior to making a decision.
- Democratic- shares problems with the group and together they make decision as a team.
- Autocratic- solves problems alone



Leadership Concepts

Program Management:

Requires the ability to:

- Manage everyday aspects of the infection control program
- Respond quickly to regulatory and accreditation requirements
- Incorporate data from emerging science into practice
- Understand the impact of HAIs on healthcare finances
- Carry out strategic and operational planning

Organizational Management Styles:

Functional: a person who has management authority over an organizational unit—such as a department—within a business, company, or other organization.

Charismatic: the process of encouraging certain behaviors in others via force of personality, persuasion and eloquent communication.

Situational: when the leader or manager of an organization must adjust his style to fit the development level of the followers he is trying to influence.

Motivational: Motivation is the word derived from the word 'motive' which means needs, desires, wants or drives within the individuals. It is the process of stimulating people to actions to accomplish the goals.

Impact of Healthcare-Associated Infection on Outcomes and Cost

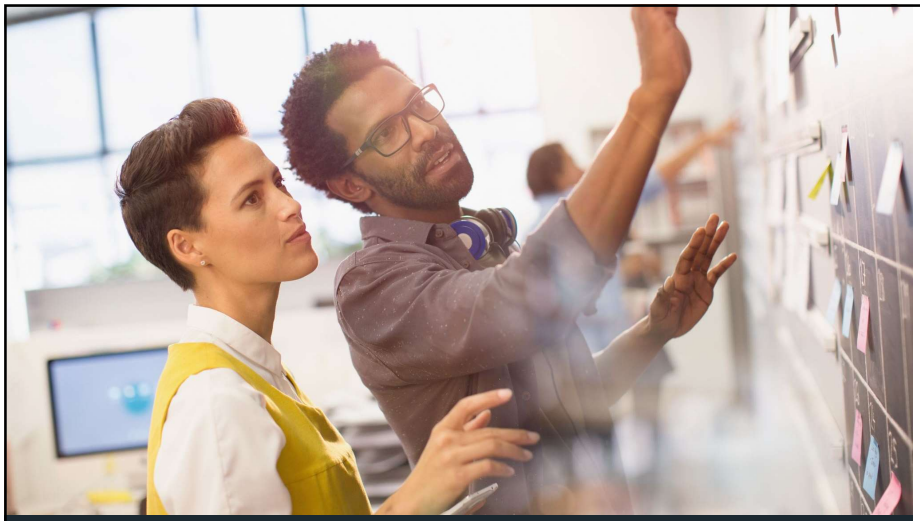
- The effectiveness of an IPC program can be partially measured with a cost-benefit analysis.
- The need for a change should be driven by data that measure process and outcome variables.
- Incorporate business modeling to assign value to the prevention of healthcare-associated infection (e.g. cost-benefit analysis, return on investment)
- Cost-benefit = Outcomes in terms of cost
  - Can be expressed as the number of cases prevented, the number of lives saved, or the number of life-years saved
- Return on Investment = benefit obtained from an investment
  - The investment gains outweigh the investment cost

IP Staffing

- No required IP staffing levels from federal regulatory agencies.
- Resources should be allocated to accomplish the tasks required.
- Factors that should be taken into account:
  - Number of occupied beds
  - Scope of the program
  - Complexity of the facility
  - Facility patient population
  - Unique needs of the facility

- Determine goals and objectives for the IP program based on:
  - Findings from the previous year's activates
  - Institutions strategic goals
  - Institutional data
- An Annual Risk Assessment can assist in setting priorities and gaining support from key stakeholders
- Infection prevention resources and data system needs of the IP program should be evaluated in the context of these goals

Quality of an Infection Prevention Program: Goals



Quality of an Infection Prevention Program: Priorities

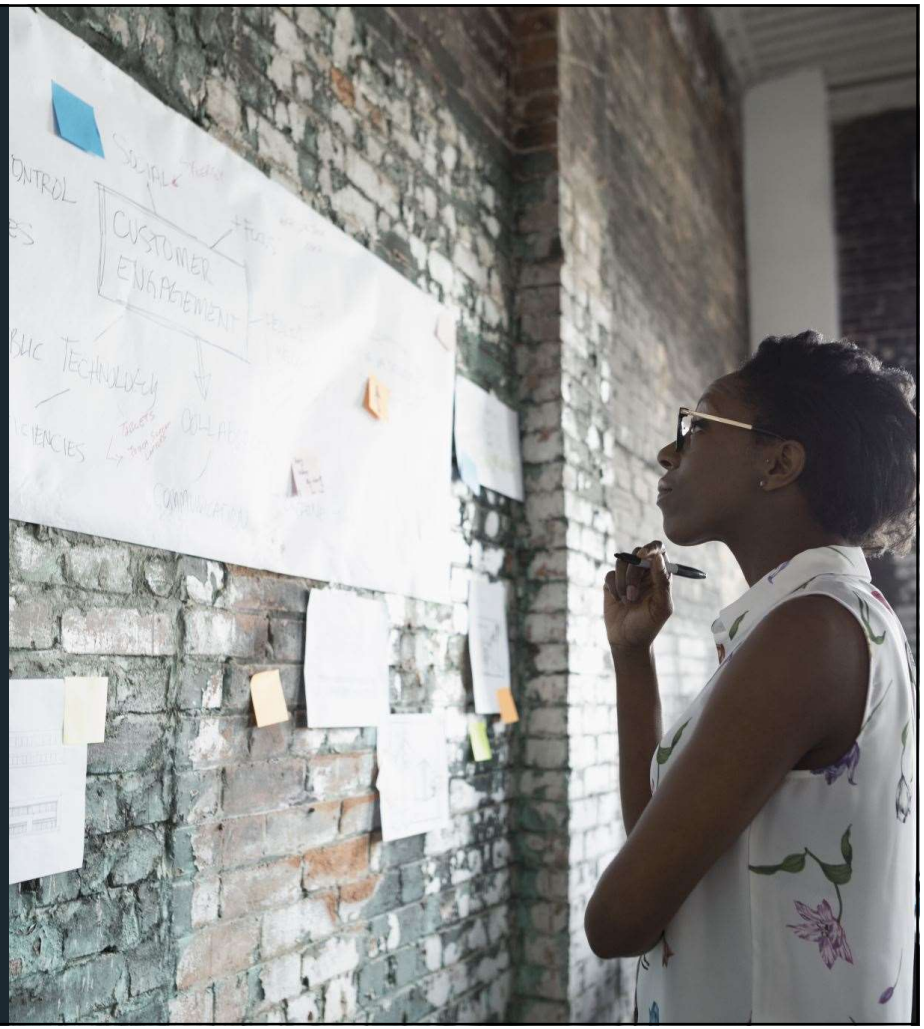
Set priorities and realistic strategies by:

- Establishing a reliable, focused surveillance system
- Streamlining data management activities
- Analyzing healthcare-associated infection rates
- Aiming for zero HAIs
- Educating staff regarding prevention techniques
- Identifying opportunities for performance improvement
- Taking a leadership role on performance improvement teams
- Developing and implementing action plans that outline the steps needed to accomplish each objective

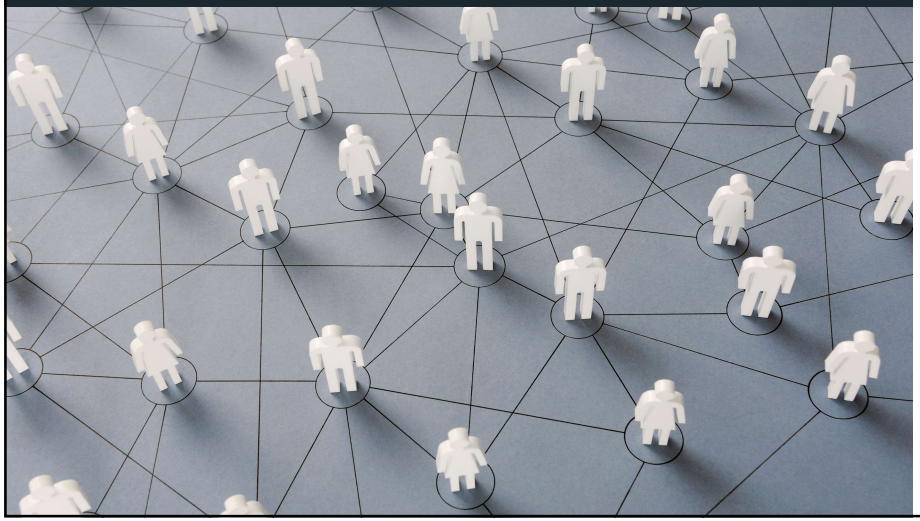
Quality of an Infection Prevention Program: Evaluation

Routinely assess the quality of the IP program by evaluating customer satisfaction, appropriateness, efficacy, timeliness, availability, effectiveness, and efficiency.

- An annual evaluation of the program should:
  - Outline achievements and activities
  - Describe support requirements
  - Emphasize the value of the program to the organization
  - Patient outcomes
  - Cost savings
  - Be widely distributed to organizational leadership



Communication



Regular communication should occur to various stakeholders:

- Infection Prevention Committee Chairperson
- Facility management
- Medical staff
- Nursing
- Risk Management
- Ancillary Clinical departments and support staff

Communication:

- Plan the method
- Knowledge is power
- Use all methods: Electronic, Face to face, Written

Who are the IP Customers

Anyone to whom the infection prevention and control program provides service.

- Includes patients, their families, physicians, nurses, visitors and all employees at facility
  - Internal customers: nurses, physicians, patients, patient families, facility employees
  - External customers: visitors, community, IP professionals at other facilities, regulatory agency personnel, local and state health departments
- Important to identify customer needs
- Study all work processes and improve them based on customer needs and outcomes
- Final product or service should exceed customer expectations

Key Relationships

Employee Health:

- Consult regarding Worker's Compensation related to infection or exposures
- Consult regarding employee infections and illnesses
- Integrate infection prevention and control related employee health policies
- Assist with surveillance of employee illnesses/exposures

Risk management:

- Assist with investigation of patient claims or sentinel events related to HAI
- Report cases with potential for legal action; incidents; product recalls

Administrative Leader Support

- Administrative leader support is crucial for IP programs.
- Administrative leaders should approve and support IP activities
- Infection Prevention Programs should:
  - Have regularly scheduled meetings with the administrators
  - Keep administration well-informed of the infection prevention and control activities
  - Develop annual goals and objectives based on the goals of the organization
  - Annually evaluate the infection prevention and control program to outline the achievements and activities of the program and describe support requirements
  - Emphasize the values of the IP program, patient outcomes and cost savings.

Implementation of Polices, Procedures and Recommendations

Infection Prevention policies and procedures form the bases of the IP program and are applicable to staff in the whole facility.

Policies:

- Give direction that helps to govern an organization or programs activities
  - must be supported scientifically
  - Development involves all disciplines impacted
  - Policies should address IP needs for the institution as a whole, but also include unit/area specific policies where applicable.
- **Procedures**:
  - A particular way of accomplishing something
  - A series of steps to follow

Quality/Performance Improvement

- Quality improvement uses interdisciplinary teams to enact changes and improvements.
- Front line staff knowledge, skills, and expertise are valued in a quality focused culture
- Performance Improvement is a continuous cycle that focuses on patient clinical outcomes, customer satisfaction, and service.
- Determine IP quality projects by assessing processes/procedures which are:
  - High risk
  - High volume
  - Problem prone
  - New

Strategic Plan

Strategic planning: used to determine the direction a program is headed.

An IPC strategic plan should:

- Prioritize the risk for acquiring and transmitting infections
- Set goals to limit:
  - Unprotected exposure to pathogens
  - The transmission of infection associated with procedures
  - The transmission of infections associated with the use of medical devices, equipment and supplies
- Describe activities to minimize, reduce or eliminate the risk of infection
- Describe the process to evaluate the IP program

Performance Improvement Analysis

Gap analysis

Technique to determine the steps necessary to move from a current state to a desired future state, based on identified gaps in processes

Root cause analysis

Takes a retrospective look at adverse outcomes

Determines what happened and why it happened,

Used to investigate major incidents, sentinel events, and errors

Strategies to prevent reoccurrence

Avoids individual blame

Failure mode effect analysis (FMEA)

Proactive, preventive approach to identify potential failures and opportunities for error.

A **failure mode** is a way in which something can fail

Brainstorm possible reasons for failure; rate these based on severity and probability of occurrence

Determine appropriate actions to eliminate the failure or redesign the process

Strengths, Weaknesses, Opportunities, Threats Analysis (SWOT)

Investigate public health issues and improve healthcare outcomes

Points out what the organization should plan for and how to use resources to guide efforts

Quality Toolbox

The Team:

- Most valuable tool to foster the quality focused culture and process
- Multidisciplinary to include a leader, facilitator, and an array of team members with fundamental knowledge of the process.

Multi-voting:

- Process for prioritizing (risk assessment)

Goal-directed checklists:

- Contain evidence-based criteria
- Help with memory recall and make expected steps explicit

Statistical Process Control:

- To ensure that each process is performed consistently and correctly within predetermined parameters.
- Focuses on process and is based on the principle of random variation
- Used to monitor outcomes or to monitor the process

Six Sigma and Lean Approach

- Precision and accuracy that leads to data-driven decisions
- Speed, efficiency and the elimination of 'waste'
- Value stream mapping used to
  - Visualize flow of materials and information
  - Identify barriers, and waste
- Sigma Six and Lean principles use a DMAIC format (Define, Improve, Measure, Control, and Analyze)

  Define the customer, project boundaries, and improvement process

  Measure the performance of the process involved

  Analyze the data collected and map the process to determine root causes and improvement opportunities

  Improve the target process by designing creative solutions to fix and prevent problems

  Control the improvement to keep the process on the new course

The Plan, Do, Study Act Model

Two-part model designed to accelerate improvement

1st part:

setting aims, establishing measure and selecting changes

2nd Part

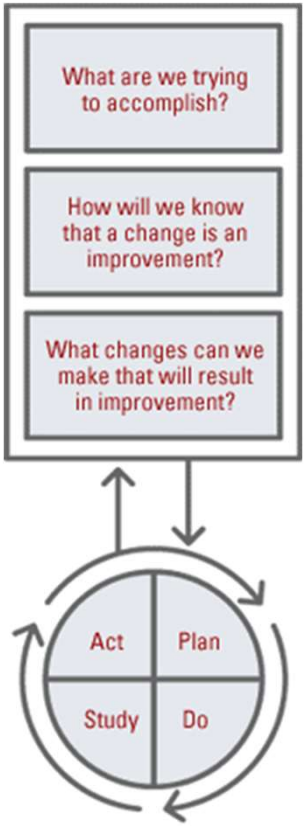
Testing the selected changes in a PDSA cycle

Plan: identify responsibilities of the program, resources, risks, and goals

Do: Implement strategies specified in the plan to achieve goals

Study: Collect and display data about goal achievement

Act: Continual change in order to achieve goals and stay abreast of new developments



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Selecting Performance Measures

Must establish clear priorities for measurement and improvement before selecting performance measures.

- **External priorities:**
  - Federal and state regulations
  - Accreditation
  - Payer/Purchaser expectations
  - Areas of interested to the patient community served
- **Internal priorities:**
  - Services in need of improvement
  - Medical staff concerns
  - Clinical care representing the high-risk or high-volume services
- **Performance measures selection for specific HAIs should focus on measures that:**
  - Have clearly defined definitions
  - Provide precise and usable information
  - Are supported by previous studies
  - Can be readily applied in most settings.

Performance Measures: Fundamental Concepts

Quality of measure:

- Valid – the extent to which a measure accurately reflects the concept or construct it is intended to measure.
- Reliable- ability of an indicator to accurately and consistently identify the events it was designed to identify.

Types of Measures

1. Outcome measure:
   - Indicates the result of the performance of a function or a process.
   - Examples for IP are CAUTI, CLABSI, SSI
2. Process measure:
   - Focus on a process or the steps in a process that lead to specific outcomes.
   - Example for IP would be compliance audits with prevention bundles

Determining the Patient Population to Measure

1. **Risk Potential:**
   - Is risk adjustment or stratification necessary?
   - If an individual patient characteristic increases the likelihood
   - Risk potential: ASA score, wound contamination classification, duration of surgical procedure
2. **Sample Size:**
   - The volume of patients in the population of interest.
   - Sampling may be appropriate with a large volume of patients
   - Sample approach to data collection may be an acceptable way to minimize resources and still obtain valid data
     - Common sampling methods
       - General random sample
       - Stratified random samples (i.e. every third surgery)
   - May require measurement of the entire population at risk as small sample sizes can limit data analysis

Data Analysis

Method of calculation:

- Performance measures should include a numerator and a denominator
  - Numerator: event being measured
  - Denominator: population at risk
- Can be calculated as a rate, continuous variable, or ratio.
- There must be clear definitions of the event and population of interest (for example: CLABSI/per 1000 Central Line days)

Risk adjustment and stratification:

- Risk adjustment is a statistical process for reducing, removing, or clarifying the influences of confounding factors that differ among comparison groups. It is used most frequently with outcome measures.
- Stratification is a form of risk adjustment that involves classifying data into subgroups based on one or more characteristics. Examples include gender, age, or birth weight.

Performance Measures

Evaluate existing performance measures:

- Determine if the measure adequately defines the event and patient population of interest.
- Determine how the data will be used.
- Does a measure already exist that will meet the purpose.

Develop performance measures if none exist:

- Define and compare the event of interest and the population.
- Define data elements and data collection.
- Timeliness of data collection and reporting.
- Accuracy and completeness of data collection
- Feasibility and ease of data collection

Questions to ask regarding data collection:

- Who may already have these data?
- Who already has a need to review this record?
- If other have collected data, what are their criteria and methodology?
- Are the data collected reliable and valid?
- Who reviews the data before it is finalized?
- What database exist that could provide a framework to build on?

Using Data to Drive Improvement

Internal data tracking and comparisons

To compare over time to drive improvement

External data tracking and comparisons

To compare data between institutions

Requires data to be collected by the same methodologies, in all institutions including training of data collectors, definitions used, and resources used to make determinations

Relation to quality improvement and patient safety

There must be a link between the collection of infection data and the organization's continuous improvement strategy

Patient Safety

Department of Health and Human Services underlying causes of medical error:

- Communication problems
- Inadequate information flow
- Patient-related issues
- Organizational transfer of knowledge
- Staffing patters/workflow
- Technical failures
- Inadequate polices and procedures

Patient Safety Culture

Understand the organization culture

Set of values, guiding beliefs, or a shared way of thinking

Culture is powerful and very noticeable when a new concept is introduced

Culture of safety

Anticipates accidents and errors in order to identify and correct risk before it causes harm

Just Culture

Looks for factors that affect behavior

Bidirectional communication

Open, honest discourse about safety events is encouraged

Patient Safety Tools

Human Factor Engineering

- Create designs that are safe, comfortable and effective for humans to use.
- Example: Indwelling urinary catheter kit with number to depict order of steps

Human factors analysis

- Study of elements of human-device interface to improve working conditions or operations
- What tasks are being preformed, and what characteristics may contribute to unsafe patient care or workarounds?

Key Concepts in Patient Safety

Error Wisdom:

- **Skill Based-** a slip or a lapse
- **Rule Based-** action in response to how we were taught.
  - When we do not recognize a situation, we may misapply a seemingly good rule.
  - Past experiences, training or misunderstanding can result in a rule-based mistake.
- **Knowledge Based-** new situation where it might not be evident that we lack knowledge

Implementing processes such as a formalized checklist or bundles can reduce errors.

UNC Central Venous Catheter Placement Checklist

Identify indications/contraindications to procedure?	□ YES	□ NO
Obtain informed consent?	□ YES	□ NO
Perform procedure time-out?	□ YES	□ NO
Position patient in Trendelenburg position?	□ YES	□ NO
Explain each step to patient and ensure patient's comfort?	□ YES	□ NO
Ensure a member of nursing staff is in the room and available for entire procedure?	□ YES	□ NO
Select the linear array probe to identify internal jugular vein and carotid artery? Demonstrate compressibility of the vein throughout course in neck?	□ YES	□ NO
Measure from skin to target vessel?	□ YES	□ NO
Demonstrate maximal sterile barrier precautions in prepping and draping patient and probe? (Wash hands, prep with chlorhexidine + alcohol for 2 minutes, gown, gloves, cap, mask, full drape, sterile probe cover & gel)	□ YES	□ NO
Flush all lumens of catheter with sterile saline and clamp or attach claves?	□ YES	□ NO
Anesthetize skin, being careful not to inject in a vessel?	□ YES	□ NO
Introduce needle into vein under direct ultrasound guidance? (Most experienced operator in room takes over after 2 unsuccessful sticks)	□ YES	□ NO
Confirm nonpulsatile bleeding? Attach manometry tubing to angiocath to confirm venous placement?	□ YES	□ NO
Insert no more than 20 cm of guidewire and retain control of guidewire at all times while threading wire and removing angiocath/needle?	□ YES	□ NO
Visualize guidewire in vein with ultrasound in transverse and longitudinal view before dilating and threading the catheter? Document with ultrasound image.	□ YES	□ NO
Ensure all ports aspirate and flush freely?	□ YES	□ NO
Place Biopatch and then suture line?	□ YES	□ NO
Place sterile dressing?	□ YES	□ NO
Safely dispose of all sharps/contaminated equipment?	□ YES	□ NO
Confirm placement with CXR?	□ YES	□ NO

Key Concepts in Patient Safety

Reliability Science

5 attributes of a high-reliability organization

1. **Preoccupation with failure-**maintain sensitivity for the early signs of failure
   - What might cause staff not to follow isolation precautions?
2. **Sensitivity to operations-**awareness of changes in the dynamic systems
   - What type of disease activity are we seeing in the community that could affect our operations?
3. **Reluctance to simplify-** appreciate diverse perspectives and stagnation may impeded further evaluation
   - How can we involve other disciplines when making practice changes to ensure they can be operationalized?
4. **Commitment to resilience-**ability to absorb acute or chronic stress and adjust to sustain operations
   - How can we quickly adjust to the next emerging pathogen?
5. **Deference to expertise-** recognition of expertise of those in all organizational levels.
   - Who is my expert to help with a chemical safety issue?

Adverse event: an unintended consequence of health care or service that results in a negative patient outcome (HAI)

Sentinel event: an unexpected occurrence involving death, or serious physical or psychological injury not related to the natural course of the patient's illness or underlying causes

Human factor limitations that lead to errors:

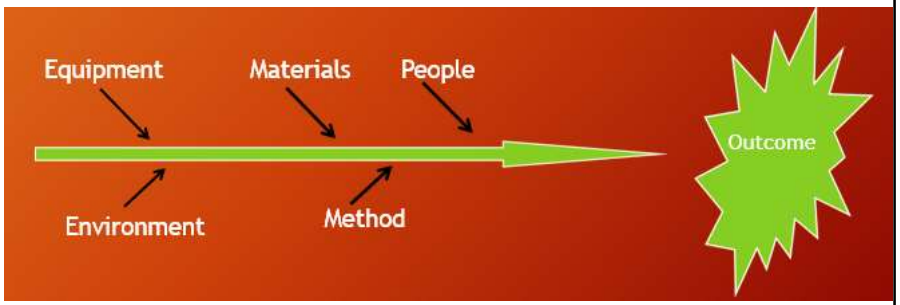
- Limited memory capacity
- Overdependence on multitasking skills
- Negative influence of fatigue and sensory overload
- Stress, fatigue, and sensory overload

Serious Adverse/Sentinel Events

Root Cause Analysis

Root Cause Analysis is an approach to identify problems and factors that may have contributed to an incident and inform the development of corrective actions to prevent recurrence.

- A fishbone diagram may be used to visualize contributing factors



Failure Modes and Effects Analysis

- **Failure (F)**: when a system performs in a way that is not intended
- **Mode (M)**: the way a system operates or how a thing is done
- **Effects (E)**: The results of an action
- **Analysis (A)**: The detailed examination of the system or structure
- FMEA determines the possible failure modes and effects, how serious the possible effects could be, and way to eliminate or reduce failure risk to prevent harm.
- Useful in preventing failures and harm from near misses
- Useful when evaluating a new process or a change in an existing process

You Got This!

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