LOGISTICS

FOR HEALTHCARE IMPROVEMENT

A Destiny of Success

IPC

TRAINING

EDUCATION

QUALITY IMPROVEMENT

HEALTHCARE EXCELLENCE

Risk assessments infection control

Joint Commission Resources

Objectives

- Identify areas of risk related to healthcare associated infections
- Develop a HAI prevention program including evidence based best practices
- Develop and implement an education program for staff using current infection prevention and control best practices
- Create a system for data collection and surveillance

Joint Commission Resources

Identify areas of risk related to healthcare associated infections

Joint Commission Resources

Why Perform An Annual Risk Assessment?

- Helps focus our activities on those tasks most essential to reducing critical infection control risks.
- Changes to guidelines related to infection control and prevention from CDC and other agencies and professional organizations.
- New technologies, procedures, medications, vaccines, populations served, services provided and planned collaborative research projects.

Joint Commission Resources

Goal Of An Effective IC Program

- Reduce risk of acquisition and transmission of health care-associated infections (HAIs)
  - Design and scope of program is based on risk that organization faces related to acquisition and transmission of infectious disease

Joint Commission Resources

What do the Joint Commission Standards and CMS say about assessing risk?

- **IC. 01.03.01**
- **EPs 1-3 The hospital identifies risks for acquiring and transmitting infections based on the following:**
  - **Its geographic location, community, and population served.**
  - **The care, treatment, and services it provides.**
  - **The analysis of surveillance activities and other infection control data.**

Joint Commission Resources

What do the Joint Commission Standards and CMS say about assessing risk?

- **EP 4 The hospital reviews and identifies its risks at least annually and whenever significant changes occur with input from, at a minimum, infection control personnel, medical staff, nursing, and leadership.**

- **EP 5 The hospital prioritizes the identified risks for acquiring and transmitting infections. These prioritized risks are documented. (Not CMS)**

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What do the 2010 NPSGs 7 say?

- Assess risk for MDROs (.07.03.01)
- Assess risk for central line infections (.07.04.01)
- Assess risk for surgical site infections (.07.05.01)

- Periodic risk assessments; intervals to be determined by the organization

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What is a risk assessment?

- Assessment performed to determine potential infection threats associated with equipment and devices, treatments, location and patient population served, procedures, employees, and environment.
  - Infection Control Program Risk Assessment
  - Infection Control Risk Assessment (ICRA)
  - Focus Risk Assessments (MDROs)
  - Hazard vulnerability analysis (HVA)

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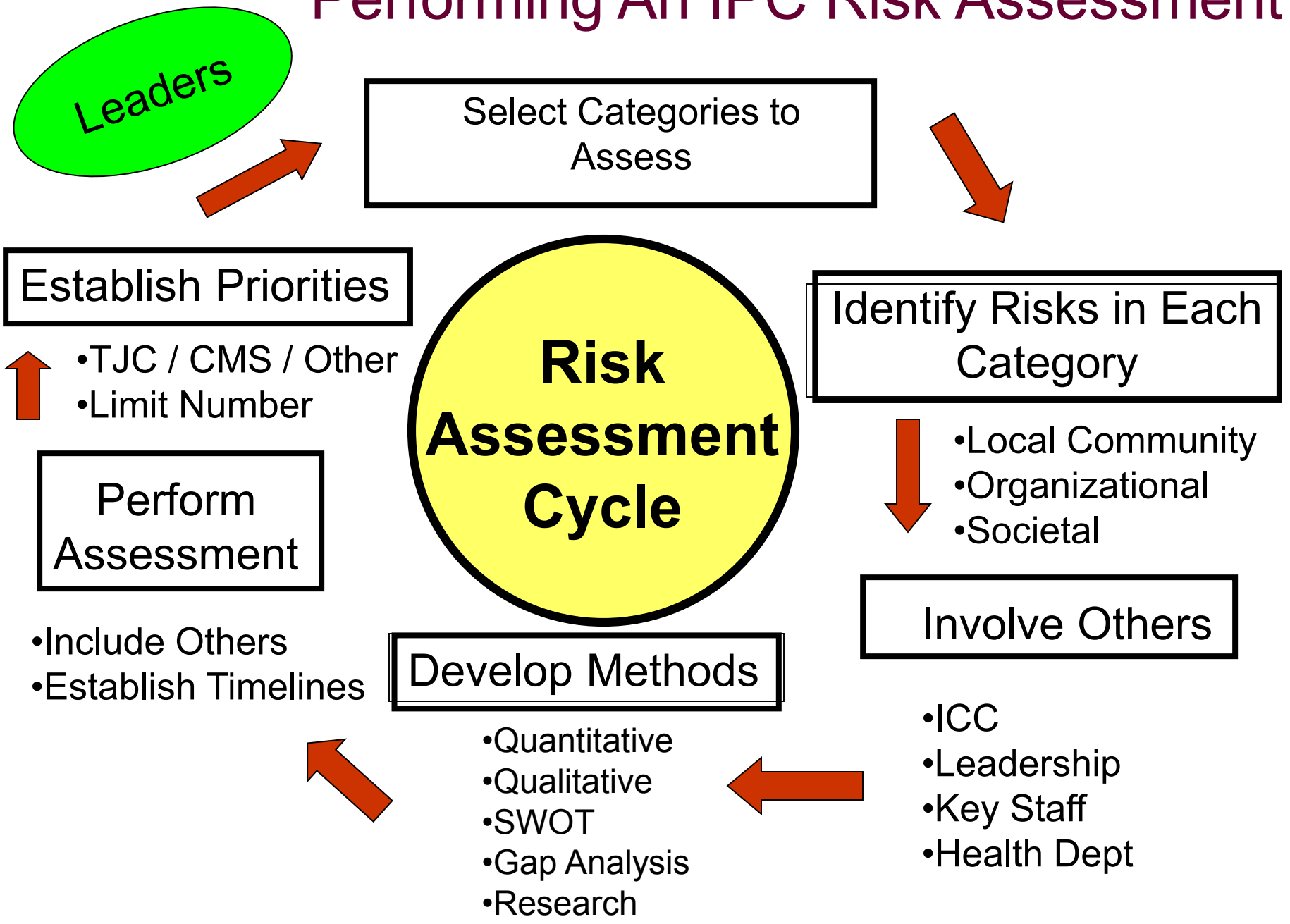
Performing An IPC Risk Assessment



Infection Control Program Risk Assessment

- Identifying Risks for Acquisition and Transmission of Infectious Agents – Select Targets or Groups for Assessment

  - External
    - **Community-related**
    - **Disaster-related**
    - **Regulatory and Accreditation Requirements**

  - Internal
    - **Patient-related**
    - **Employee-related**
    - **Procedure-related**
    - **Equipment/device-related**
    - **Environment-related**
    - **Treatment-related**
    - **Resources**

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External Risks

- Natural disasters
  - Tornadoes, floods, hurricanes, earthquakes
- Breakdown of municipal services (i.e., broken water main, strike by sanitation employees),
- Accidents
  - Mass transit (i.e., airplane, train, bus)
  - Fires involving mass casualties
- Intentional acts
  - Bioterrorism
  - “Dirty Bomb”
  - Contamination of food and water supplies

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External Risks

- Community outbreaks of transmissible infectious diseases
  - Influenza, meningitis
  - Other diseases linked to food and water contamination, such as salmonella and hepatitis A
  - May be linked to vaccine-preventable illness in unvaccinated population
    - Assess risks associated with primary immigrant populations in geographic area

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External Risks

Regulatory and Accreditation Requirements

- Reporting of Infection Rates
  - Data requirements
  - Other requirements
- Meeting old and new regulatory standards and accreditation requirements

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Patient-Related Risks

- Characteristics and behaviors of populations served
  - Type of patients
    - Women and children
    - Adult acute care
    - Special needs populations
      - Behavioral Health
      - Long Term Care
      - Rehabilitation

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Patient-Related Risks

- Age of patients
  - Inherent risks
    - Examples:
      - Children:
        - » Immunologic status, socialization-related illnesses, diseases associated with lifestyle issues
      - Adults:
        - » Diseases associated with lifestyle issues
      - Frail Elderly:
        - » Predisposition for illnesses due to cognitive and physical changes

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Equipment-Related Risks

- Cleaning, Disinfection and Sterilization processes for equipment
  - Scopes
  - Surgical instruments
  - Prostheses
  - Prepackaged devices
  - Reprocessed single-use
  - devices

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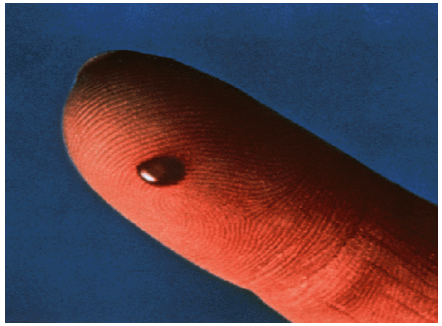
Employee-Related Risks

- Personal health habits
- Cultural beliefs regarding disease transmission
- Understanding of disease transmission and prevention
- Degree of compliance with infection prevention techniques, e.g., personal protective equipment, isolation technique
- Inadequate screening for transmissible diseases
- Hand Hygiene
- Sharps Injuries



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X

Mop in Dirty Water

√

Mop hung to Dry

Procedure-Related Risks

- Degree of invasiveness of procedure performed
- Equipment used
- Knowledge and technical expertise of those performing procedure
- Adequate preparation of patient
- Adherence to recommended prevention techniques

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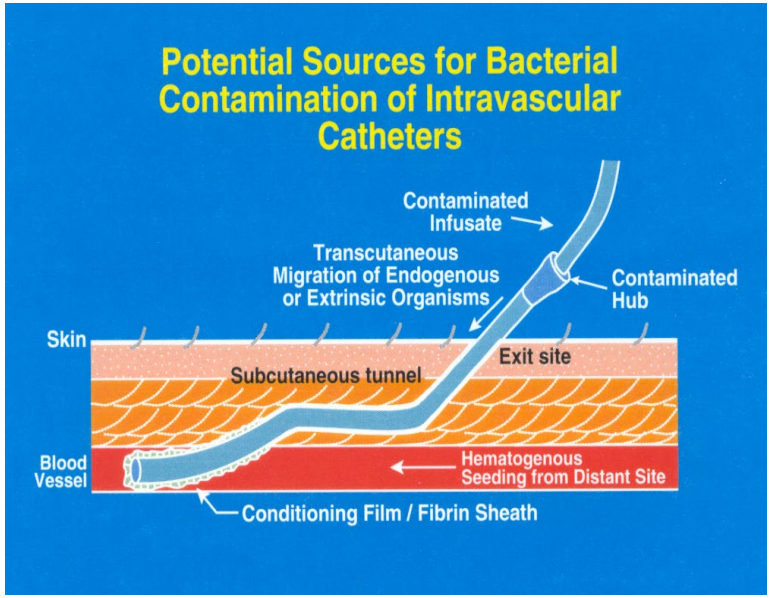
Invasive Device-Related Risks e.g., central lines



- Complexity of device
- Skill and experience of user
- Safety features: user dependent or automatic

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Environmental Risks

- Construction
- Supplies and Equipment
- Cleaning

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Disposal of Sharps and Needles

Overfilled Sharps Box

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Resources

- Staffing of patient care personnel
- Environmental services staff
- Communication support

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Strategies for Success

- Get leadership's support and endorsement for assessment
  - Educate Leadership, ICC, Others

- Develop Methods to Obtain Organizational and Community Data
  - Access to key reports
  - Past surveillance data
  - Tap into organizational data (medical records, lab records, admission and discharge numbers)
  - Community resources for data and information

- Create a Risk Assessment Team or Advisory Council
  - Form partnerships with those who have information you need
  - Find some opinion leaders in organization to work with you
    - 3-5 key staff to work as a team or advisory group
    - Involve patient safety and performance improvement staff or committees to assist

Joint Commission Resources

Strategies for Success

- Take time to develop systematic methods, templates, and timelines
  - Determine what will be assessed using quantitative methods vs. qualitative methods
  - When is a SWOT needed?
  - Conduct risk assessment based on:
    - Populations served
    - High-volume, high-risk procedures
    - Information re: community risks, e.g., local health department, others

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Let's Look at Some Risk Assessment Tools

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Risk Assessment Grid

Event	Probability of Occurrence				Potential Severity/Risk Level of Failure				Potential Change in Care, Treatment, Services				Preparedness			Risk Level
	High	Med	Low	None	Life Threatening	Permanent Harm	Temp Harm	None	High	Mod	Low	None	Poor	Fair	Good	
Score:	3	2	1	0	3	2	1	0	3	2	1	0	3	2	1	
GEOGRAPHY AND COMMUNITY																
Increasing Population with TB	3					2				2					1	**8**
Hurricanes		2			3				3					2		**10**
POTENTIAL INFECTION																
Surgical Site Infection		2			3				3					2		**10**
Vent Associated Pneumonia		2			3				3					2		**10**
Central Line Related Blood Stream Infection (CLBSI)	3				3				3					2		**11**
VRE (hospital acquired)		2					1				1			2		6
COMMUNICATION																

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Event	Probability of Event Occurrence				Potential Severity/Risk Level of Failure				Current State of Preparedness			Risk Level For Org
Emergency preparedness	H 4	M 3	L 2	N 1	Life Threatening 4	Permanent Harm 3	Temp Harm 2	None 1	P 3	F 2	G 1	
Water Supply Unavail		X					X				X	6
Patient Care Supplies Unavail		X				X			X			27
Evacuation Required			X		X						X	8
Hi Risk Procedures and Processes	H 4	M 3	L 2	N 1	Life Threatening 4	Permanent Harm 3	Temp Harm 2	None 1	P 3	F 2	G 1	
Hand Hygiene Compliance <90%			X			X				X		12
Endoscope Contamination			X			X					X	6
Unauthorized Use of SUDs			X		X						X	8
Inadequate Cleaning/Disinfection of patient care equipment				X		X					X	3
Inappropriate use of Isolation		X				X			X			27

Risk Assessment Grid

MDRO RISK ASSSESSMENT

Risk Event	Probability the Risk will Occur				Potential Severity if the Risk Occurs				How Well Prepared is the Organization to Address this Risk?			Risk Priority
	High	Med	Low	None	Life Threatening	Permanent Harm	Temp Harm	None	Poorly	Fairly Well	Well	
Score:	4	3	2	1	4	3	2	1	3	2	1	
Increasing incidence of Infections with MDROs												
Methicillin Resistant *Staphylococcus aureus* (MRSA)	X				X						X	16
Vancomycin Resistant Enterococci (VRE)		X				X				X		18
Clostridium difficile	X					X			X			36
Multidrug Resistant (MDR) Pseudomonas			X			X				X		12
MDR Enterobacter ssp			X			X					X	6
MDR Klebsiella			X			X					X	6
MDR Acinetobacter		X			X					X		24

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Risk Assessment Grid

RISK ISSUE / EVENT_____	**PROBABILITY OF RISK OCCURENCE:__** Frequent Occasional Uncommon Rare	**Risk Severity ATIENTS_____** Catastrophic Major Risk Moderate Risk Minor Risk No Risk	**Risk Severity __STAFF_____** Catastrophic Major Risk Moderate Risk Minor Risk No Risk	**RISK RATING FOR PROBABILITY PLUS SEVERITY BY GROUP** Pts	Staff	**ACTION PLAN TO PREVENT, MONITOR, REPAIR, IMPROVE:** P = Policy PI = Process Improvement QC = Quality Control / Audit ICC = Committee O = Other

	CATASTROPHIC	MAJOR	MODERATE	MINOR
FREQUENT	16	12	8	4
OCCASIONAL	12	9	6	3
UNCOMMON	8	6	4	2
RARE	4	3	2	1

Adapted from Detroit Receiving Hospital and University Health Center - with Permission

Detroit Receiving Hospital and University Health Center
2006 Infection Control Risk Assessment
Hazard Scoring Matrix

Element	Probability Frequent Occasional Uncommon Remote	Risk/ Impact Severity Rating Patients 10-Catastrophic Event 7- Major Event 4- Moderate Event 1- Minor Event 0 = none/non applicable	Risk/ Impact Severity Rating Staff 10-Catastrophic Event 7- Major Event 4- Moderate Event 1- Minor Event 0 = none/non applicable	*Risk Factor Severity of Effect	Monitoring, Mitigation and Remediation Activities P = Policy PI = Process Improvement QC = Quality Control Activity ICC = Committee PG- Practice Groups
Surveillance, Data Analysis and Reporting					
Device related infections in ICU	F	7	0	12	P, PI, QC, ICC, PG
IV related infections	F	4	0	8	P, PI,QC, ICC
Foley catheter associated UTI on acute care	O	7	0	9	PI,QC, ICC, PG
Syndromic surveillance for communicable disease	F	7	7	12	QC, MCDR Plan
Clean surgical site infections	F	7	0	12	QC, ICC, Surgical PI
Trauma associated infections in ICU	F	7	0	12	QC, Trauma Systems, PG
Antibiotic resistant organisms of epidemiologic significance	F	4	1	8	QC, ICC

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SWOT ANALYSIS – Catheter Related Bloodstream Infections

STRENGTHS

- ICU Staff Competent
- Policy evidence-based and current
- Hand hygiene compliance good

OPPORTUNITIES

- Education of staff
- Identify nurse and physician champions- empower
- Revise procedure and supplies to enhance compliance
- Require physicians to adhere

WEAKNESSES

- Equipment not always available
- Physicians do not adhere to maximal sterile barriers
- Many non subclavian sites selected

THREATS

- Abuse to nurses who use authority
- Lack of insertion technique in subclavian vein – patient safety
- Interruption of supplies from vendors

Strengths, Weaknesses, Opportunities, Threats

Joint Commission Resources

Infection Prevention Gap Analysis for Risk Assessment

Area/Issue/ Topic /Standard	Current State	Desired State	Gap Between Current and Desired (Describe)	Action Plan and Evaluation
The Infection Program is based on current accepted practice guidelines	WHO Hand Hygiene Guideline approved by ICC. Not fully implemented in organization	Full implementation throughout the organization by December 09	Only 40 % of units and services are following the CDC Hand hygiene guideline.	•Develop proactive implementation plan •Make leadership priority •Get all necessary supplies •Monitor and provide feedback to staff every 2 weeks •Evaluate existing hand hygiene compliance with WHO guideline against participation in the hospital in 4 months.
There is systematic and proactive surveillance activity to determine usual endemic rates of infections	Current surveillance is periodic retroactive chart review of a few infections.	Proactive surveillance for selected infections an populations on an ongoing basis	•Lack of IC staff and computer support to perform ongoing surveillance. •Absence of well designed surveillance plan •Difficult to access laboratory data	•Involve ICC in designing surveillance plan, methods for analysis. •Request computer and software to enter and analyze data •Teach IC staff about surveillance methodologies •Work with Laboratory Director to design access system for microbiology and other reports. •Determine if program exists in 6 month.
Catheter-related bloodstream infections (CRBSI) are very high.	Catheter-related bloodstream infections in medical ICU at 75% percentile of the NHSN benchmark	Reduce CRBSI to 10th NHSN benchmark or lower. Strive for zero BSI in MICU for a period of at least 6 months	Processes to prevent CRBSI are not followed consistently among staff	•Implement the BSI Bundle from IHI. •Form team with MICU, IC, MDs, Others •Evaluate the bundle processes and the outcomes and report to leadership and ICC monthly
Needle sticks in Employees	The incidence of needle sticks among environmental services staff is 3% for all personnel. Analysis shows that greatest risk is during changing of needle containers.	Reduce needle sticks overall to equal to or less than 1% during next 6 months and.5% thereafter among all environmental services staff	Observations show that needle containers are overflowing There is confusion among nursing and housekeeping staff about responsibility and timing for emptying or changing containers Nursing supervisors not aware of issue	•Clarify the policy and repeat education to staff about criteria for filling /changing needle containers •Discuss situation with nurse managers-emphasize responsibility •Display ongoing data to show number of weeks without needle sticks •Celebrate successes

High Priority Risk Issues for IPC

- Fill in the blanks for your organization….
  - MDROs
  - Staff
  - Environmental Services
  - SSI, CLABSI, CAUTI
  - Infrastructure
  - Physician Involvement
  - Leadership Support

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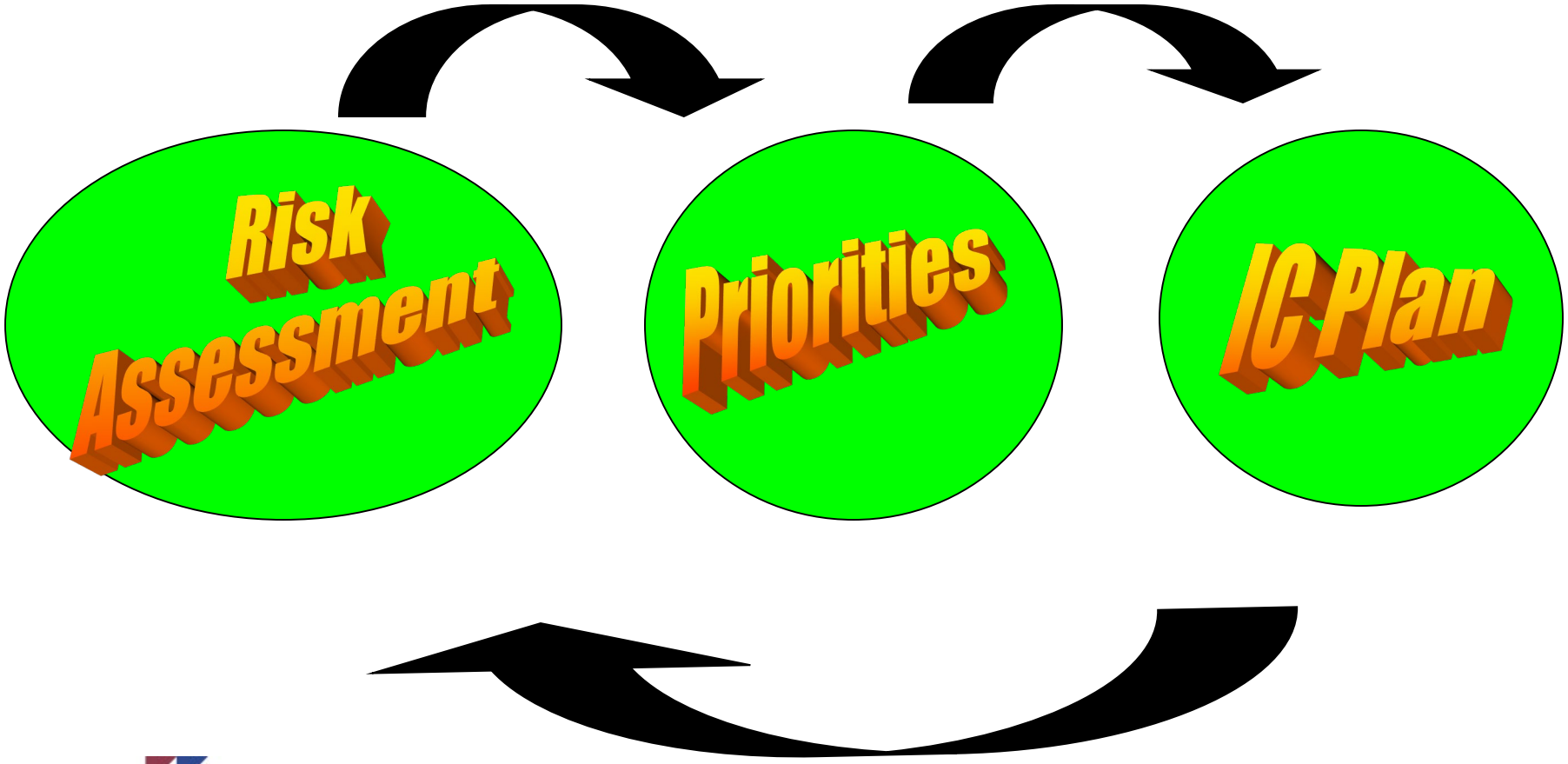
From Risks to Priorities to Plan



Joint Commission Resources

Develop a HAI prevention program that includes evidence-based best practices

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Your Hospital Infection Control Plan for 2010

Priority	Org Goals/ Strategies	IC Goal	Measurable Objective	Method(s)	Evaluation	Participating Staff
VAP Rates Exceed NHSN	Provide safe, excellent quality of care for all patients	Reduce VAPS in SICU	Achieve zero VAPs for at least 90 sequential days in the SICU	Use evidence -based bundle for VAPS PI Team	Monitor monthly – report quarterly to Staff and ICC	ICU Staff RT Staff Med Staff ICP Other
Increase in sharps Injuries among OR staff	Provide Safe Work Environ for Employees	Reduce Sharps injuries from scalpels in OR staff	Reduce from 20/qtr to < 2 /qtr scalpel injuries	PI Team	Monitor monthly – report weekly to OR staff	OR Staff Employee Health Surgeons Inf Control
Lack of readines s for Influx of Patients With Comm Disease	Prepare Organ for Emergency Situations	Develop and test plan for influx of infectious patients	Triage and care for up to 100 pts per day for 3 days with resp. illness	Develop triage and surge capacity plan	Test X3 by December 20, 2006 =>90% Effective Report Dis Prep Comm	ER Staff Physicians Administration Admitting Infection Control Other

The Components of an Effective IPC Program

- Clinically qualified staff to oversee the program
- Perform a risk assessment
- Develop a written risk based infection prevention and control plan with goals and measureable objectives, strategies and evaluation methods
- Design a surveillance program
  - System for obtaining, managing, and reporting critical data and information
  - Use of surveillance findings in performance assessment and improvement activities

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The Components of an Effective IPC Program

- Establish internal and external communication systems
- Develop written policies and procedures based on evidence-based practices
- Maintain compliance with applicable regulations, standards, guidelines, and accreditation and other requirements

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Using Evidence-Based Policies and Procedures

The Compendium of Strategies to Prevent Healthcare-Associated Infections in Acute Care Hospitals

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Development of the Compendium

- **The Compendium was developed for 6 common HAI including:**

Clostridium difficile infections (CDI)
Methicillin-resistant S. aureus (MRSA)
Central line-associated bloodstream infections (CLABSI)
Catheter-associated urinary tract infections (CAUTI)
Surgical site infections (SSI)
Ventilator-associated pneumonia (VAP)

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Compendium and NPSG Comparison

Compendium Strategies	HAI NPSGs (Full implementation 2010)
1. Strategies to prevent Central line associated bloodstream infections	NPSG 07.04.01 Implement best practices or evidence-based guidelines to prevent central line–associated bloodstream infections.
2. Strategies to prevent Ventilator associated pneumonia	No
3. Strategies to prevent Catheter-associated urinary tract infections	No
4. Strategies to prevent Surgical site infections	NPSG 07.05.01 Implement best practices for preventing surgical site infections.
5. Strategies to prevent Methicillin-resistant S. aureus	NPSG 07.03.01 Implement evidence-based practices to prevent health care–associated infections due to multidrug-resistant organisms in acute care hospitals.
6. Strategies to prevent Clostridium difficile infections	NPSG 07.03.01 Implement evidence-based practices to prevent health care–associated infections due to multidrug-resistant organisms in acute care hospitals.

- CDC/HICPAC Guidelines
  - Catheter Associated Urinary Tract Infection (2010)
  - Norovirus (2010)
  - Disinfection and Sterilization (2008)
  - Isolation Precautions (2007)
  - Multi-Drug Resistant Organisms (2006)
  - Influenza Vaccination of Healthcare Personnel (2006)
  - Tuberculosis (2005)
  - Healthcare Associated Pneumonia (2004)
  - Environmental Infection Control (2003)
  - Smallpox Vaccination (2003)
  - Intravascular Device-Related Infections (2002)
  - Hand Hygiene (2002)
  - Infection Control in Healthcare Personnel (1998)
  - Surgical Site Infection (1998)
  - Immunization of Healthcare Workers (1997)

The Components of an Effective IPC Program

- Develop the capacity to identify epidemiologically important organisms, outbreaks, and clusters of infectious disease
- Determine who has the authority to implement infection prevention and control measures
- Integrate IPC with the employee health program

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The Components of an Effective IPC Program

- Provide ongoing relevant education and training programs
- Maintain well-trained personnel
- Assure nonpersonnel resources to support the program
- Integrate with emergency preparedness systems in the organization and community
- Collaboration with the health department

Joint Commission Resources

Create a system for data collection and surveillance

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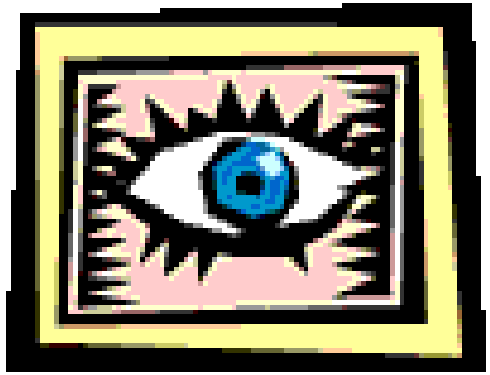
Surveillance

To watch

Implies systematic observation of the occurrence and distribution of a specific disease process



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What is Surveillance ?

- Continuous systematic collection of data on illness in a defined population

- Uses standard definitions for the outcome of interest; e.g., central line associated bloodstream infections (CLABSI), catheter associated urinary tract infection (CAUTI)

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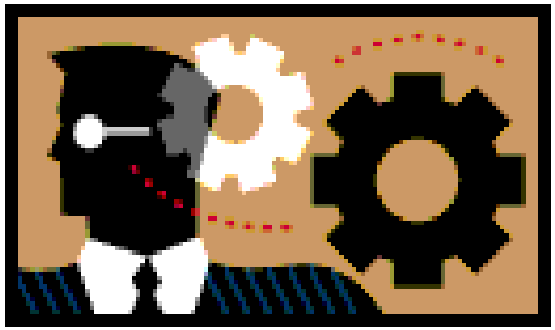
What is Surveillance?

- Involves analysis, interpretation, & dissemination of data for the purpose of using it to improve health & prevent disease



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Purposes of Surveillance

- Get baseline and endemic rates of infections
- Detect/investigate clusters/outbreaks
- Assess effectiveness of patient care processes
- Monitor occurrence of adverse outcomes to identify risk factors

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Purposes of Surveillance

- Detect & report notifiable diseases
- Identify organisms and diseases of epidemiological importance
- Determine the need for education
- Detect a bio-terrorist event or an emerging infectious disease

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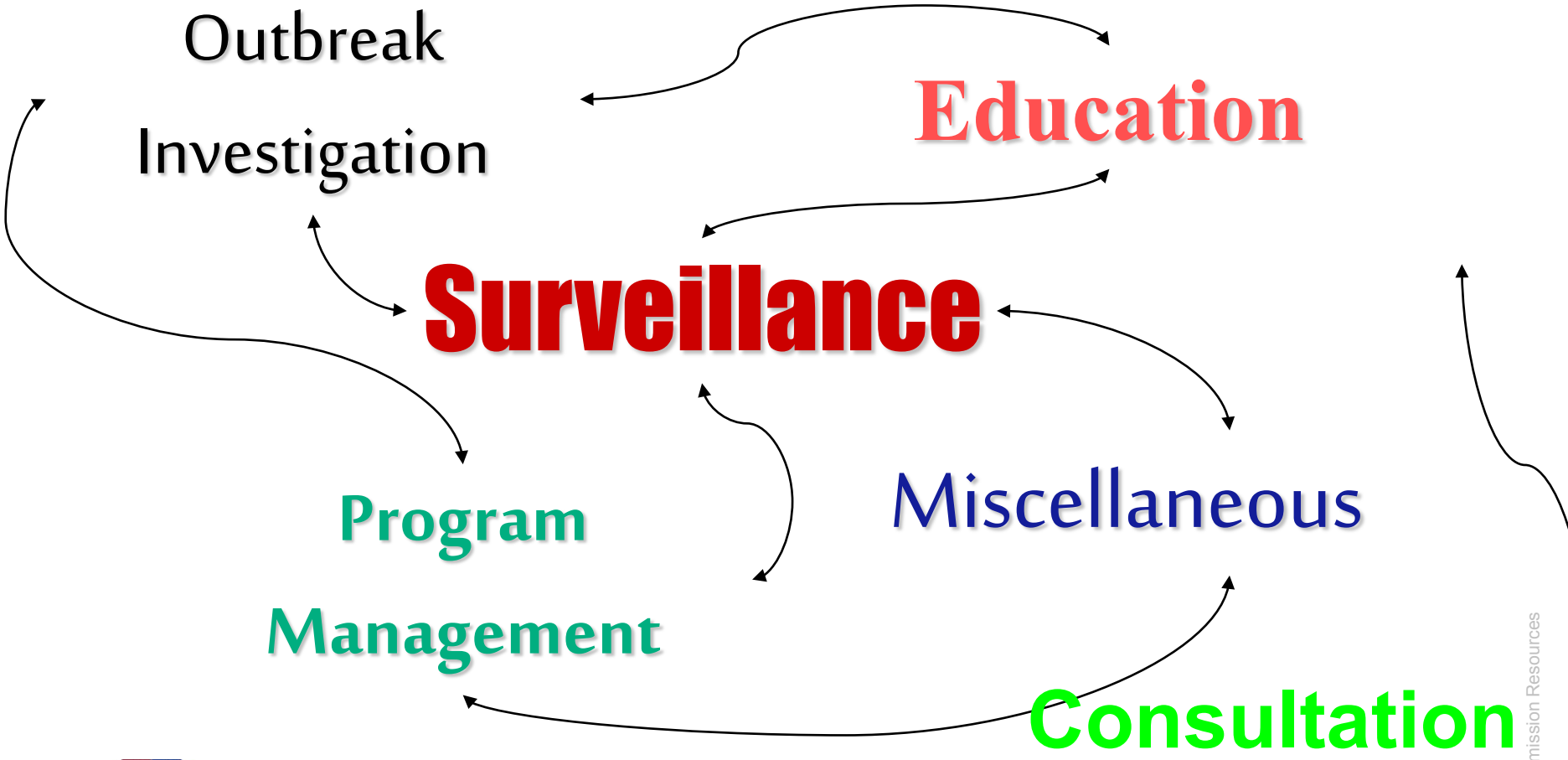
Infection Preventionist (IP) Activities



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Recommended Practices for Surveillance

- Assess population
- Select outcomes/processes to survey
- Apply surveillance definitions
- Collect surveillance data
- Calculate rates and analyze findings
- Apply risk stratification methods
- Report and use surveillance findings

Website:
http://www.apic.org/AM/Template.cfm?Section=Surveillance_Definitions_Reports_and_Recommendations&Template=/CM/ContentDisplay.cfm&ContentFileID=2710

Joint Commission Resources

Assessing the Population

- Data to describe your patients, (employees)
  - Most frequent diagnoses, (injuries)
  - Most frequent surgeries, invasive procedures
  - Community assessment
  - Looking for increased risk of infection (or other outcome)

Assessing the Population : Acute Care Settings Examples

- Frequent DRGs
- Most frequent surgeries
- ICUs
- Patients with Devices
- Oncology, Orthopedics
- Vaccination Rates

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Assessing your population: Long Term Care Examples

- Catheterized Patients?
- Vaccination Rates?
- Pneumonia/Influenza
- Skin breakdown/infection
- TB skin testing compliance

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Assessing your Population: Clinic Setting Examples

- Vaccination rates
- TB Skin testing compliance
- Wound infection
- Reportable diseases

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Surveillance helps at your facility to:

- Direct your daily work
- Drive interventions to prevent/reduce infections
- Give valuable feedback to clinicians
  - i.e. surgeon-specific surgical site infection [SSI] rate
- Reach administrators who pay/allocate $ for IC and HAI prevention

Joint Commission Resources

SURVEILLANCE METHODs

1. Total house surveillance
2. Targeted surveillance
3. Prevalence survey

Joint Commission Resources

TOTAL HOUSE SURVEILLANCE

Hospital Infection Rate 4.2%

- Entire population
- Overall infection rate
- Not sensitive to specific problem identification
- Difficult to target potential performance improvement activities

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TARGETED SURVEILLANCE

- Particular care units, ie:
  - ICU
  - Nursery
- Medical device infections, ie:
  - Catheters
- Invasive procedures, ie:
  - Surgery
- Epidemiologically significant organisms, ie:
  - *MRSA*
  - *VRE*
  - *Clostridium difficile*

Joint Commission Resources

Determine the targetd surveillance indicators based on your assessed risks

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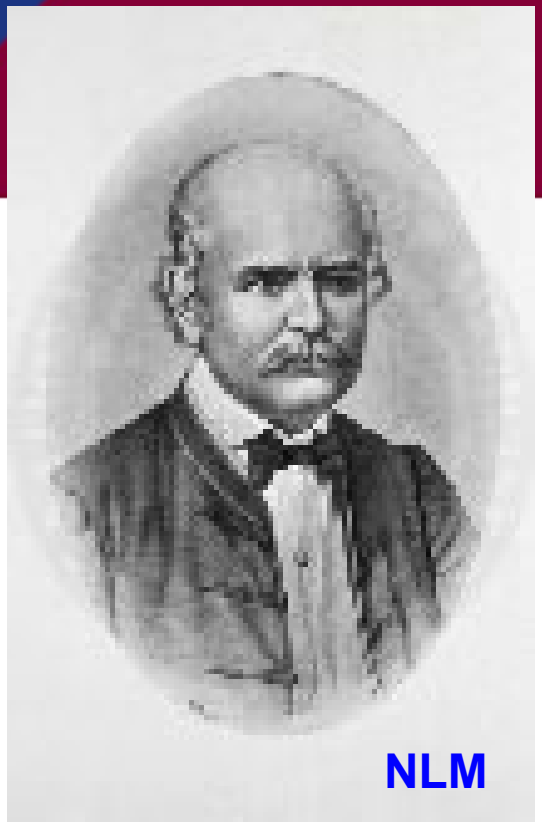
Choose the Indicators

- The indicators chosen will depend on the type of healthcare setting, the population being studied, procedures performed, services provided, acuity of care, identified risk factors for infection

Targeted Process indicators include:

- Aseptic technique during invasive procedures
- Hand Hygiene
- IHI bundle compliance for central lines
- Surgical preparation of patient
- Antimicrobial prescribing and administration
- Hepatitis B immunity rates in personnel
- Personnel compliance with protocols - isolation precautions, hand hygiene
- Sterilization quality assurance testing,
- Environmental cleaning

Joint Commission Resources



Semmelweis

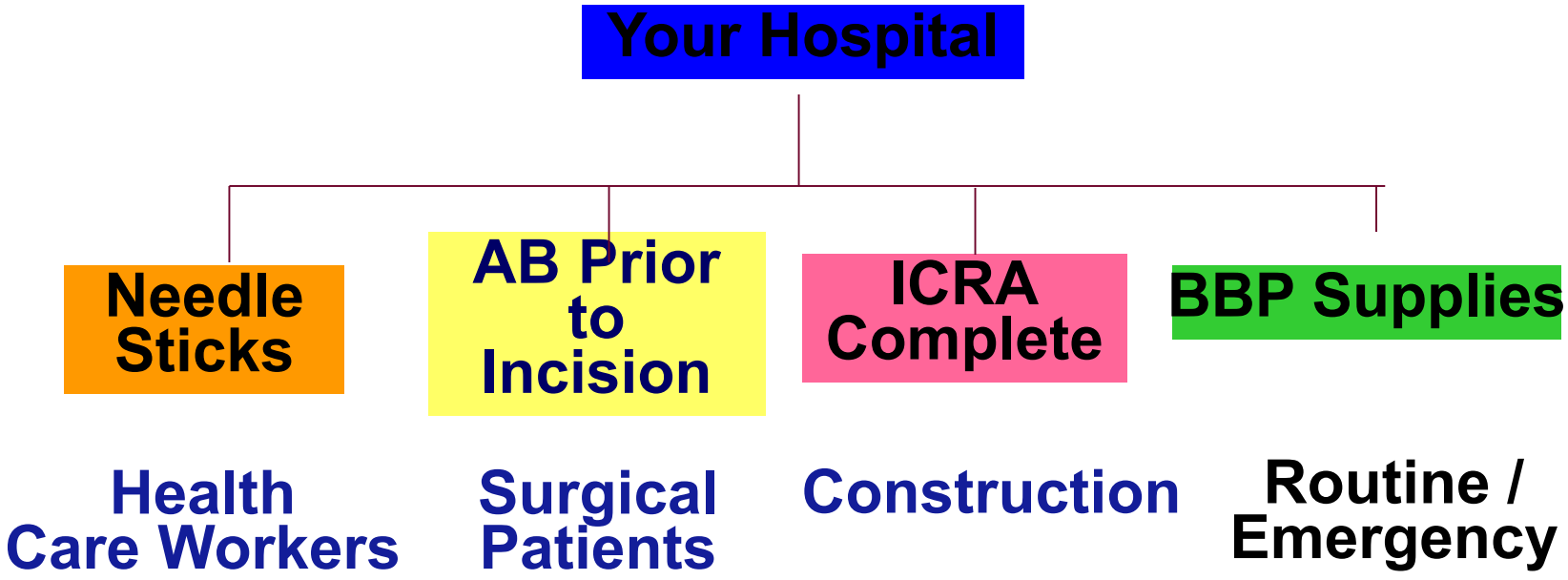
Early Quality Assessment/ Improvement

Documented per Semmelweis

Joint Commission Resources


NLM Archives

Your Hospital Surveillance Process Indicators



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Targeted Outcome Indicators for Surveillance

- Primary Bloodstream infections
- Ventilator-associated pneumonia,
- Surgical site infection
- Conjunctivitis
- Local IV site infections
- MRSA, VRE
- RSV
- Vascular access infection in hemodialysis patients

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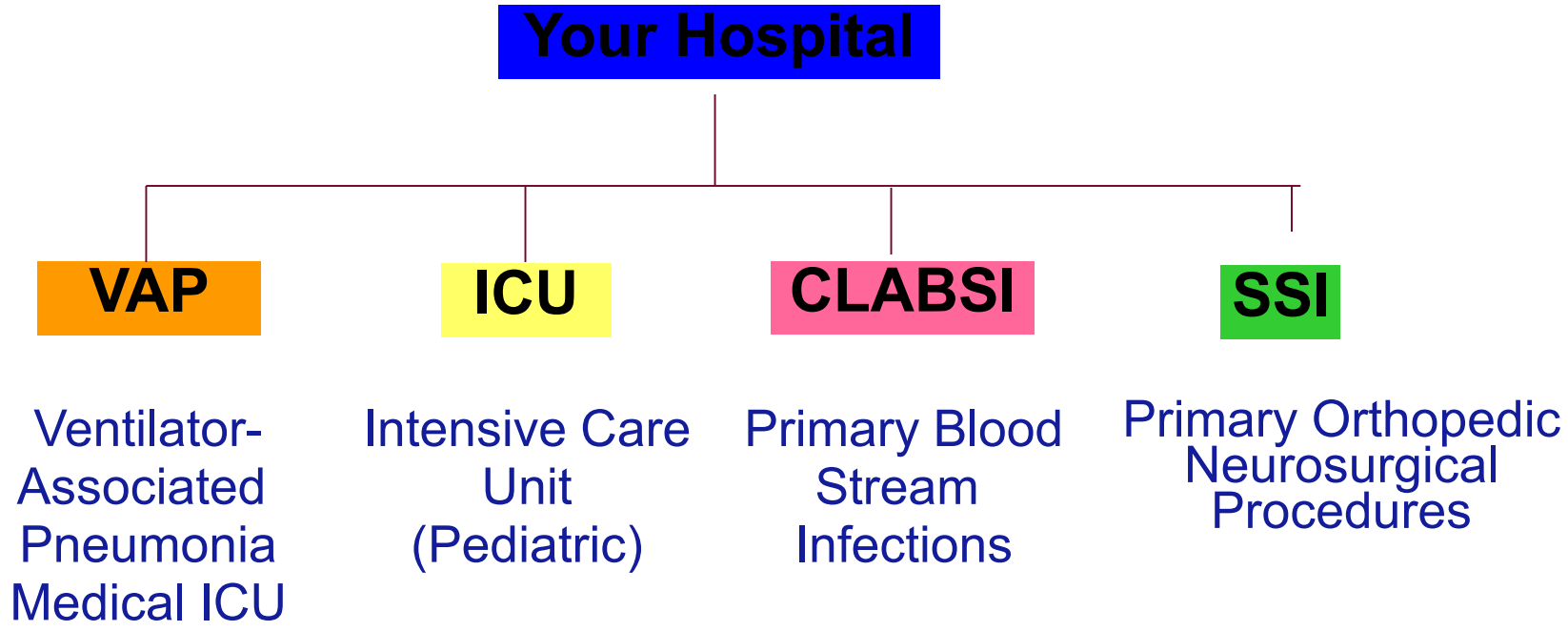
Your Hospital Surveillance System Targets:



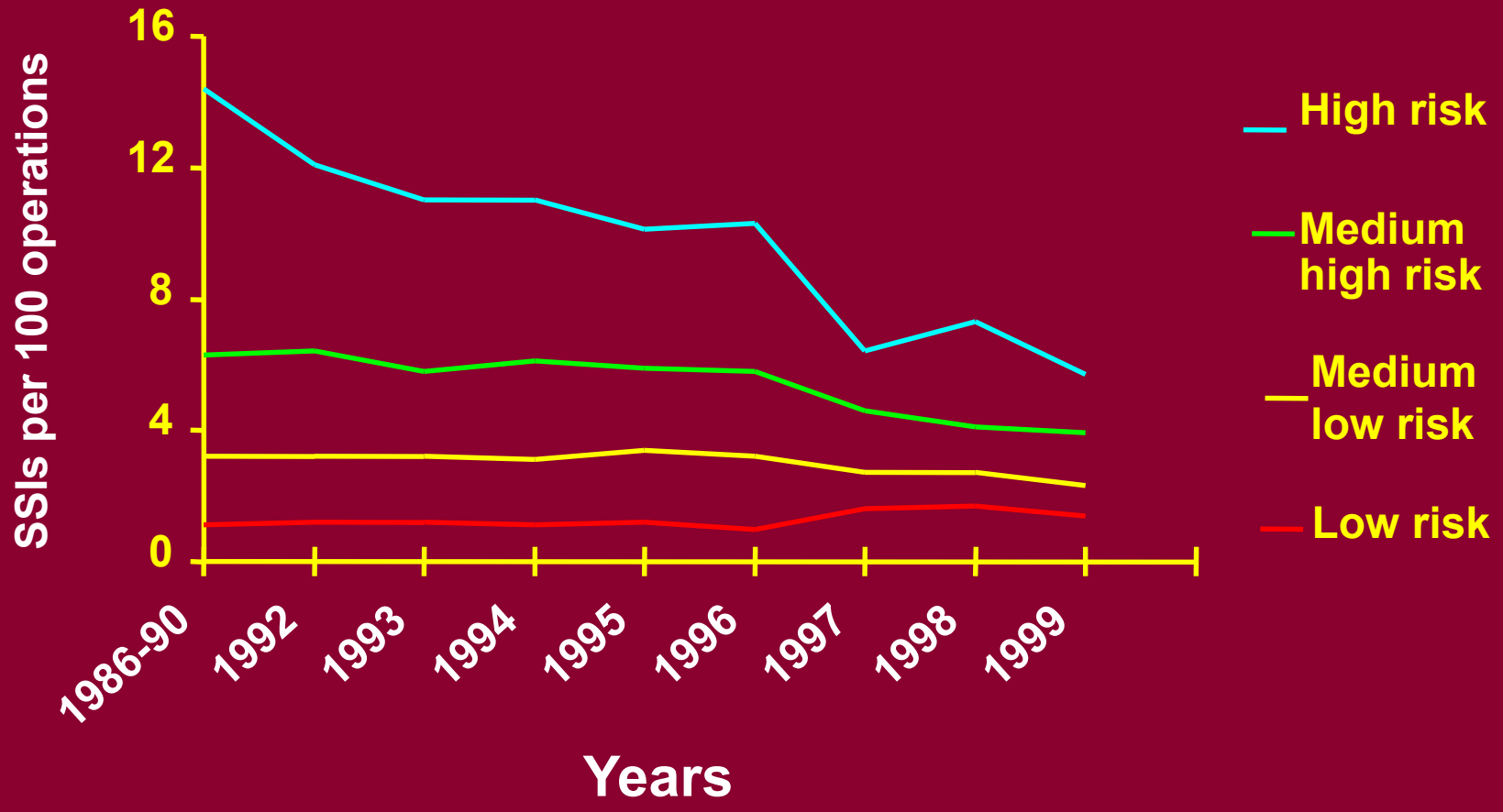
Joint Commission Resources

Surgical Orthopedic Hip Procedures

- Primary and Repeat Total Hip Replacement
- Infections
  - Organism, antimicrobial susceptibility
- **Risk adjustment**
  - **Risk Index**: Surgical wound class, ASA score, Operation duration,
  - Age, sex, trauma, emergency, multiple procedures through same incision, implant, general anesthesia
  - Device exposure

Joint Commission Resources

Trends in Surgical Site Infection (SSI) Rates By Risk Group*



*NNIS, Unpublished data.

Surgical Antibiotic Administration

Proportion of patients who receive prophylactic antibiotics within 1 hour before surgical incision

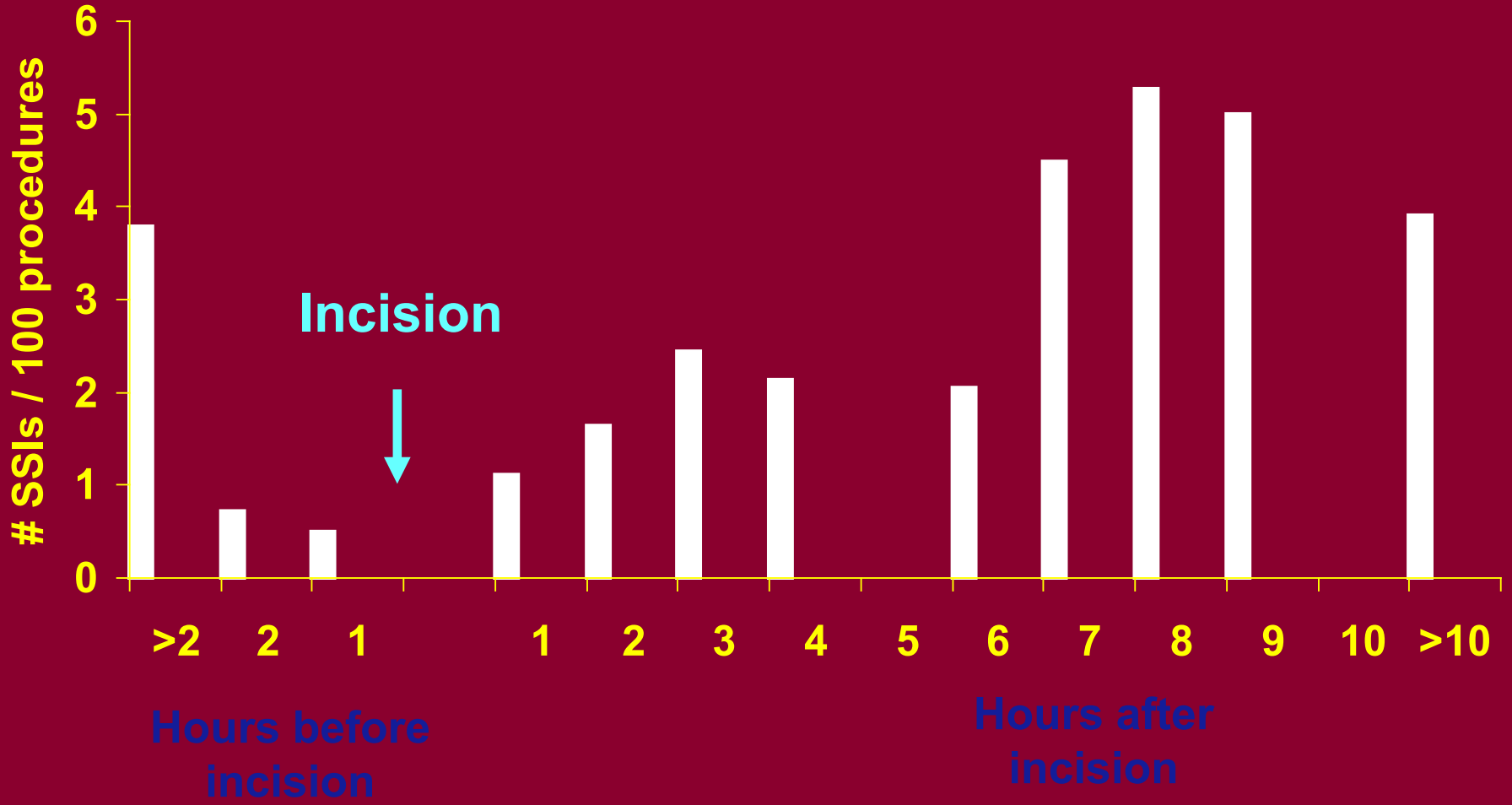
Proportion of patients who receive antibiotics consistent with current recommendations

Proportion of patients whose antibiotics were discontinued within 24 hours of the surgery end time

Joint Commission Resources

Targeted Process Surveillance

Timing of Perioperative Antimicrobial Prophylaxis



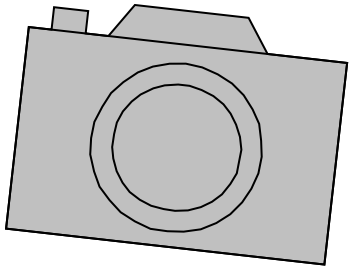
Classen DC, et al. The timing of prophylactic administration of antibiotics and the risk of surgical-wound infection. N Engl J Med 1992;326:281

Targeted Surgical Procedures

- CABG
- Other cardiac surgery
- Colon surgery
- Hip and knee arthroplasty
- Abdominal and vaginal hysterectomy
- Vascular surgery (e.g., peripheral vascular surgery)

Prevalence Surveillance

- Efficient – less time consuming
- Point Prevalence – Period Prevalence
- Processes or Outcomes
- “Snapshot” at that time
- Cannot compare with incidence rates
- May miss clusters not present at time of surveillance



Joint Commission Resources

Advantages/Disadvantages

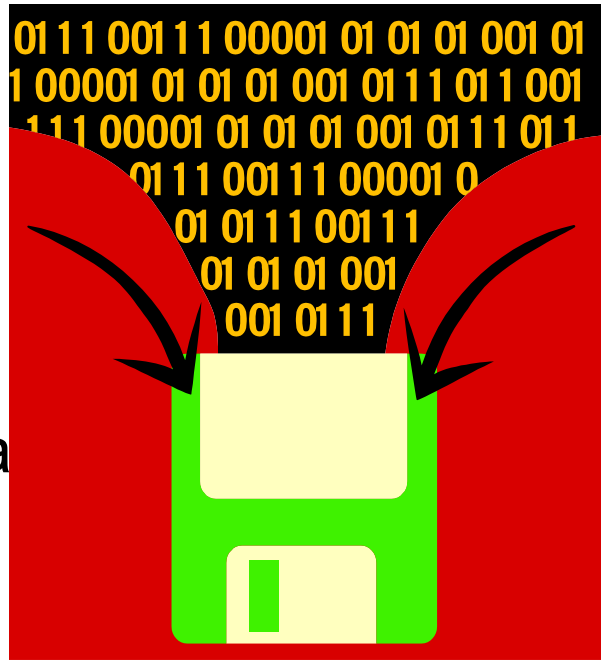
Name	Advantages	Disadvantages
Traditional Housewide	Provides data on all infections in all patients; Identifies clusters early; Identifies HAI patients; Increases visibility of IC professional (ICP)	Expensive, labor intensive, time consuming; Yields excessive data, leaves little time for analysis and intervention; Detects infections that cannot be prevented; Overall HAI rate not valid for interhospital comparison
Periodic	Increases efficiency of surveillance; Enables ICP to perform other activities	Provides data only during periods in which surveillance is conducted; May miss clusters or outbreaks in nonsurvey periods
Prevalence	Documents HAI trends; Relatively quick and inexpensive; Identifies areas that need additional surveillance	Data collection may be tedious; must collect in a short time frame; Data are restricted to a specific time period; Cannot compare prevalence rates with incidence rates; May miss clusters or outbreaks

Advantages/Disadvantages

Name	Advantages	Disadvantages
Targeted/ Focused Surveillance by Objective	Concentrates limited resources – high risk areas; Focuses on HAI with known control measures; Can determine valid denominator; Flexible, can be mixed with other strategies; Increases efficiency of surveillance; Enables ICP to perform other activities	Collects data only for targeted patients or risks; May miss clusters or outbreaks in non-surveyed areas or groups
Outbreak Thresholds	Automatic, ongoing monitor; Thresholds are institution-specific; Investigation is prompted by objective threshold	Does not provide continuous data on endemic rates; Difficult to compare rates with those of other institutions
Post Discharge	Substantially increases SSI case-finding	Problems with timeliness, accuracy of data, and patients lost to follow-up

How do you design the surveillance plan for your facility?

- Risk Assessment
- Surveillance priorities
- Surveillance criteria
- Collectable data elements
- Method of data collection
- Methods of analysis
- Process for display and dissemina
- Turn data into action



Joint Commission Resources

Who can help provide surveillance data denominators?

- OR - surgeries
- Ward Clerks – admissions – device use
- ICUs Number of pts
  - Device days
- Patient care days - finance

Joint Commission Resources

CALCULATING RATES

Numerators and Denominators

5 / 125 X 1000

numerator — The event being measured

denominator — Population at risk for The event

multiplier

Joint Commission Resources

To Risk Adjust For:

- Varying length of stay
- Exposure to devices
- Surgical site differences
- Severity of illness

- Use patient days
- Use appropriate device-days
- Wound classification system
- Consider available risk indices, not w/o discussion and literature review, validation needed

Joint Commission Resources

Pottinger et al. Infection Control Hosp Epidemiology 1997; 18:513-527

Analyzing Data

- Incidence $= \frac{\text{new cases x constant (1000)}}{\text{population at risk}}$

- Prevalence $= \frac{\text{existing cases x constant}}{\text{population at risk}}$

Joint Commission Resources

Analyzing data

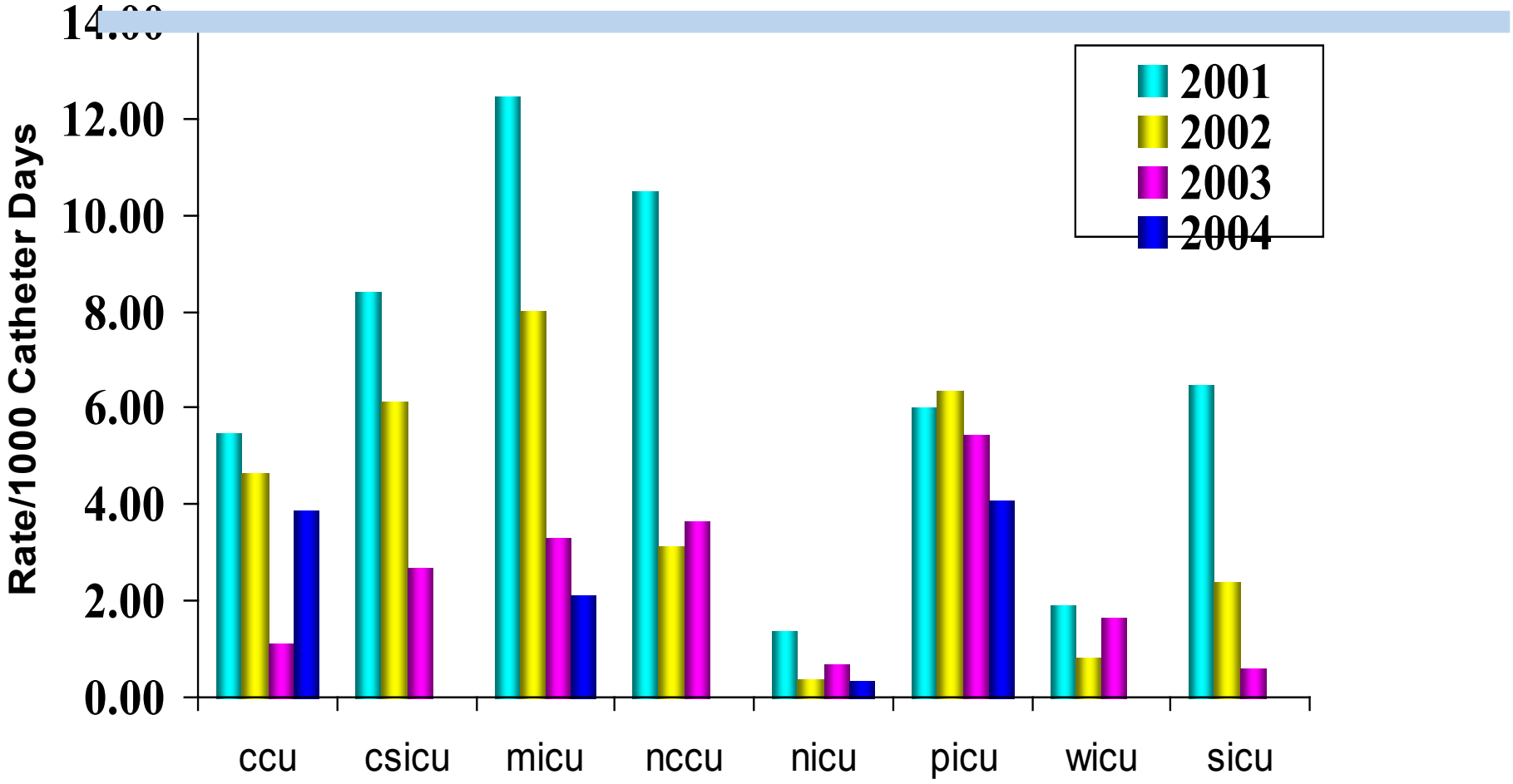
- ATTACK RATE:
  - E.g Influenza attack rate
    20/40 x 100 = 50 %

Data Display

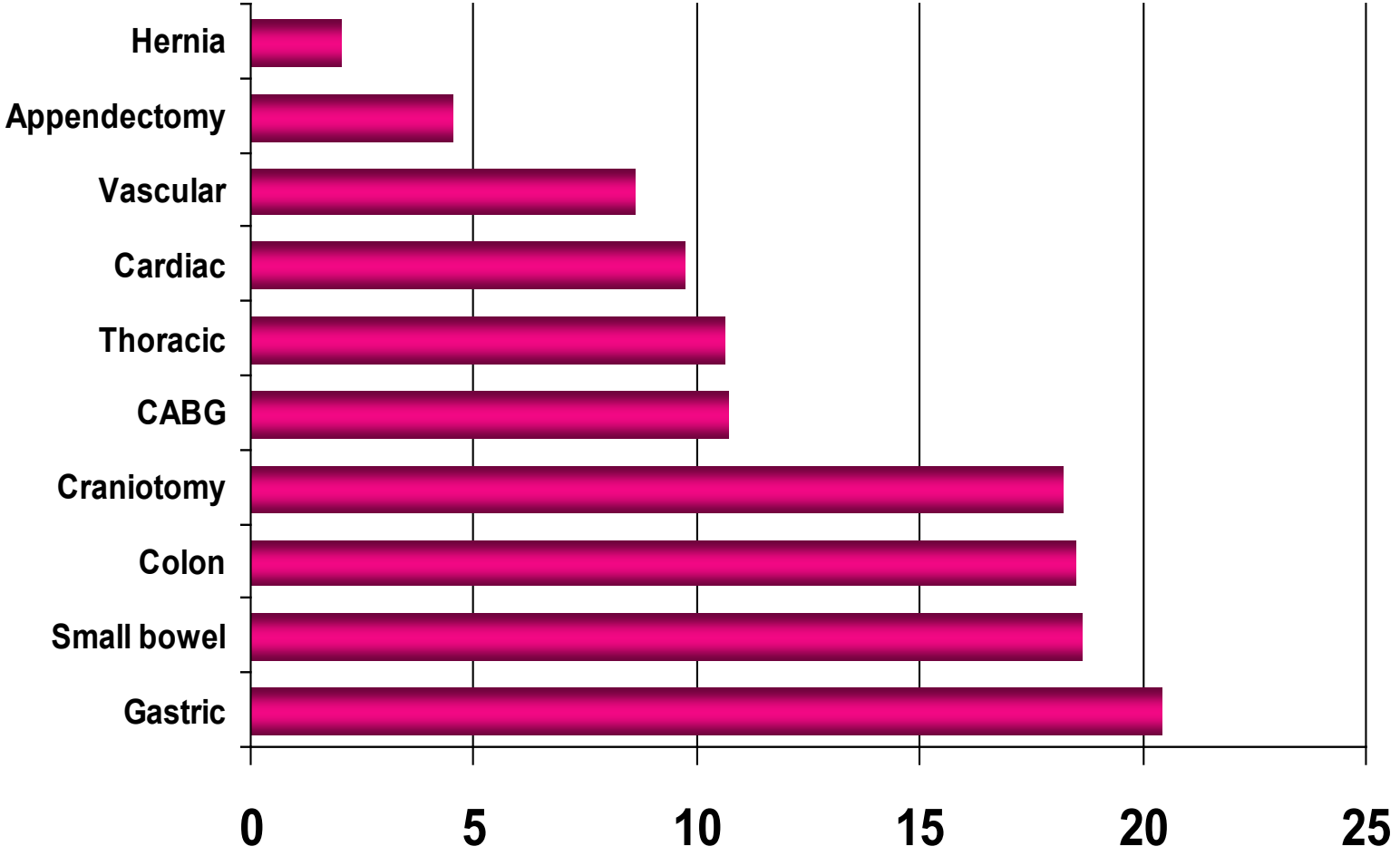
- Run charts – frequency polygons – Std Deviations
- Histograms
- Tables
- Bar Charts
- Pie Charts
- Statistical Process Control Charts

Joint Commission Resources

Catheter Associated BSI Rates *ICU* (2001-2004)



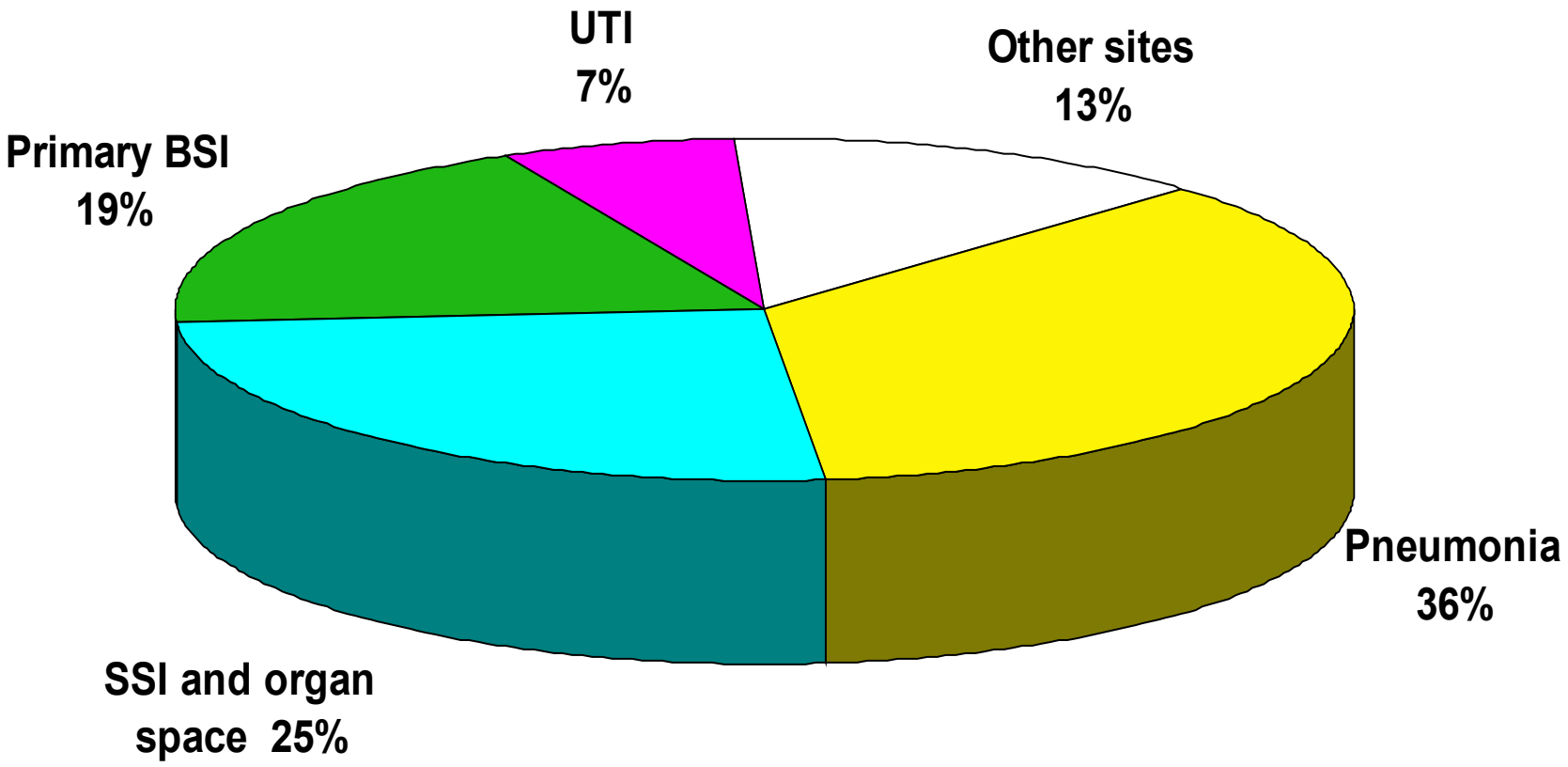
Nosocomial Infection Rates by Procedure Type



Horan et al. ICHE 14:73-80, 1993

Joint Commission Resources

Contribution of Nosocomial infections to mortality



Horan ICHE 1993; 14: 73

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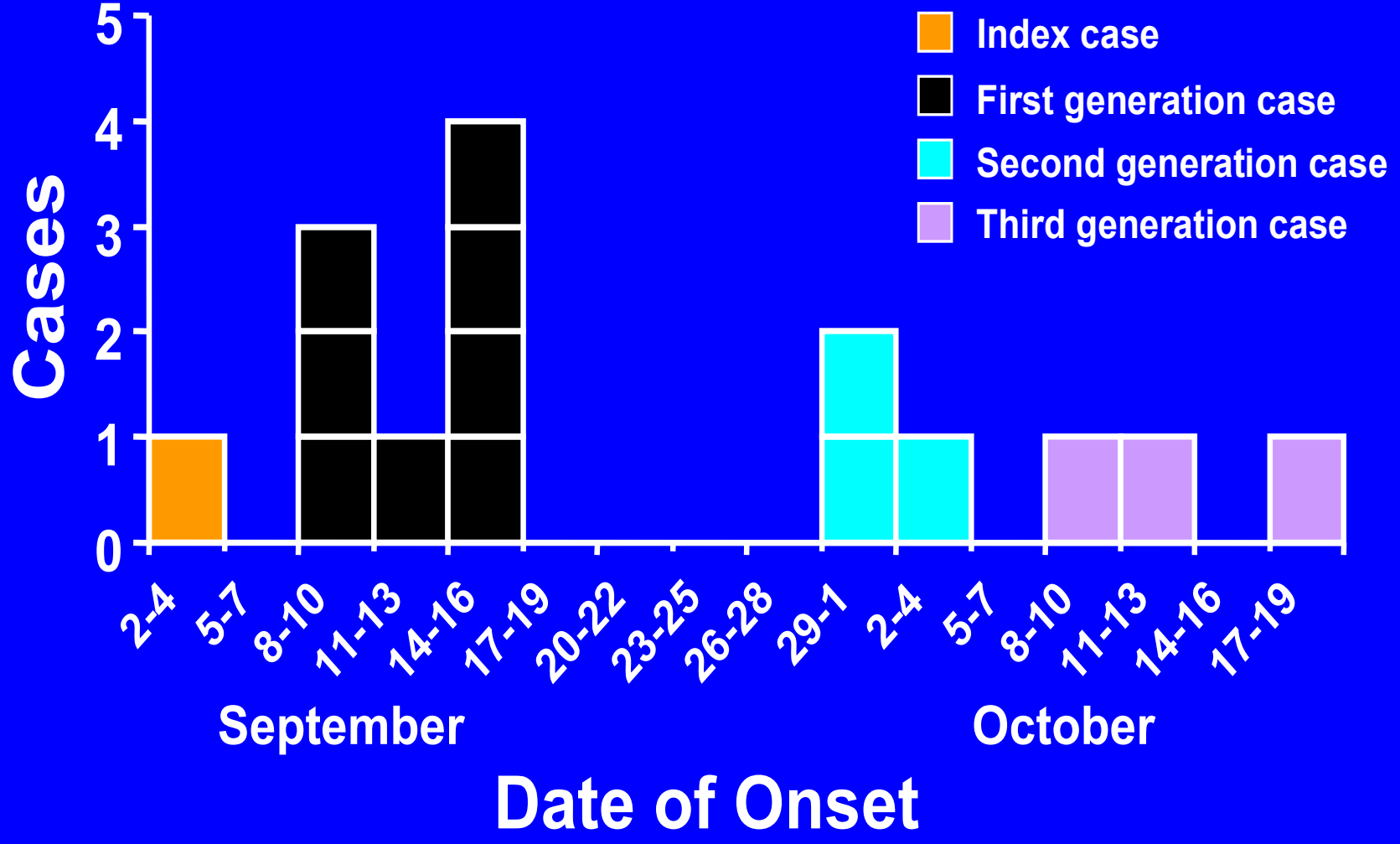
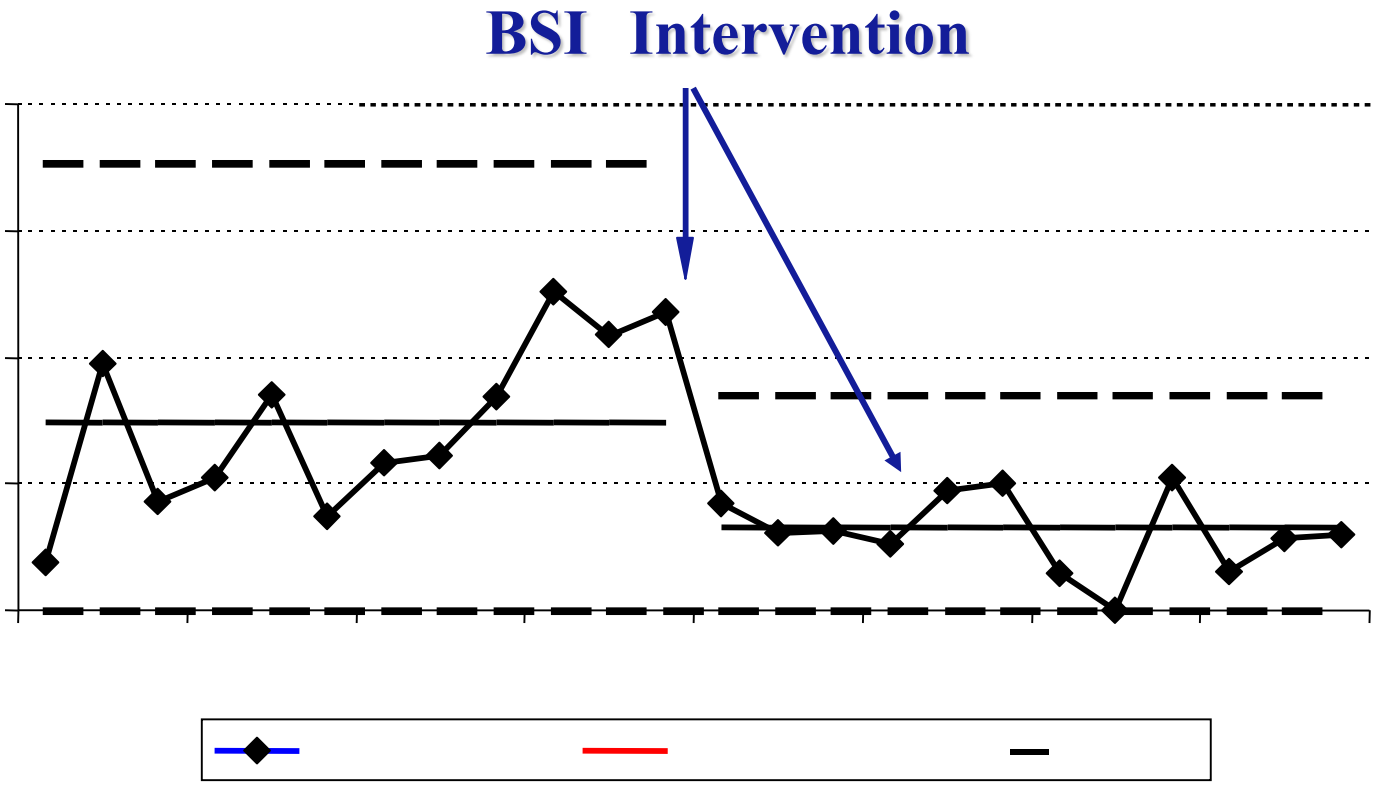
Epidemic Curve



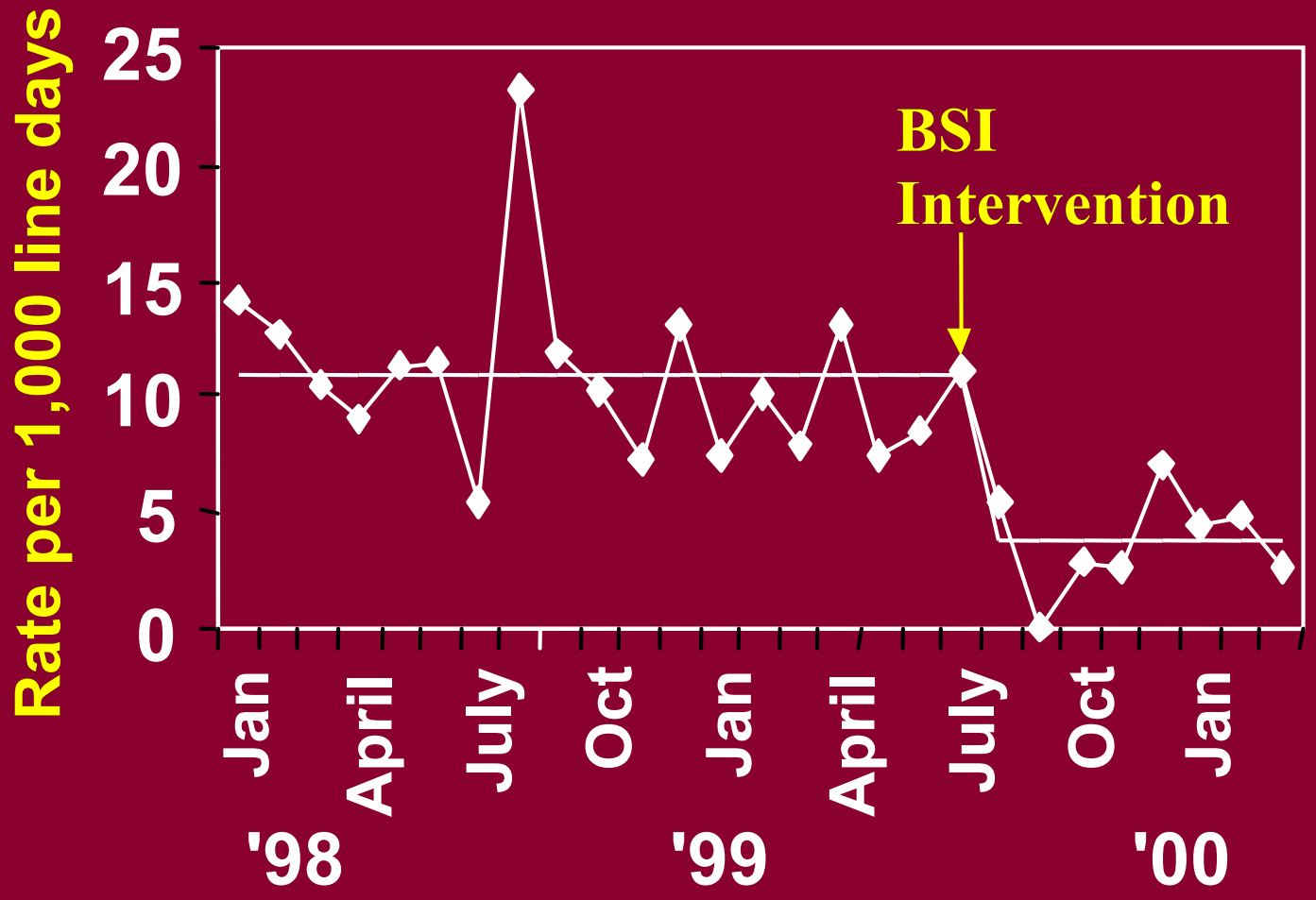
Med/Surg BSI Jan ‘98 - Dec ‘99



LD = central line days

Source: Infection Control Consortium, BJC

SICU BSI Jan '98 - March '00



Source: Barnes Jewish Consortium – St. Louis, Missouri

CDC Reports of Aggregated Data

AJIC major articles

National Healthcare Safety Network (NHSN) report: Data summary for 2006 through 2008, issued December 2009

Jonathan R. Edwards, MStat, Kelly D. Peterson, BBA, Yi Mu, PhD, Shailendra Banerjee, PhD, Katherine Allen-Bridson, RN, BSN, CIC, Gloria Morrell, RN, MS, MSN, CIC, Margaret A. Dudeck, MPH, Daniel A. Pollock, MD, and Teresa C. Horan, MPH Atlanta, Georgia

Published by the Association for Professionals in Infection Control and Epidemiology, Inc. (Am J Infect Control 2009;37:783-805.)

www.cdc.gov/nhsn/PDFs/publications/AJIC-NHSN-2006-2008.pdf

Writing the surveillance report

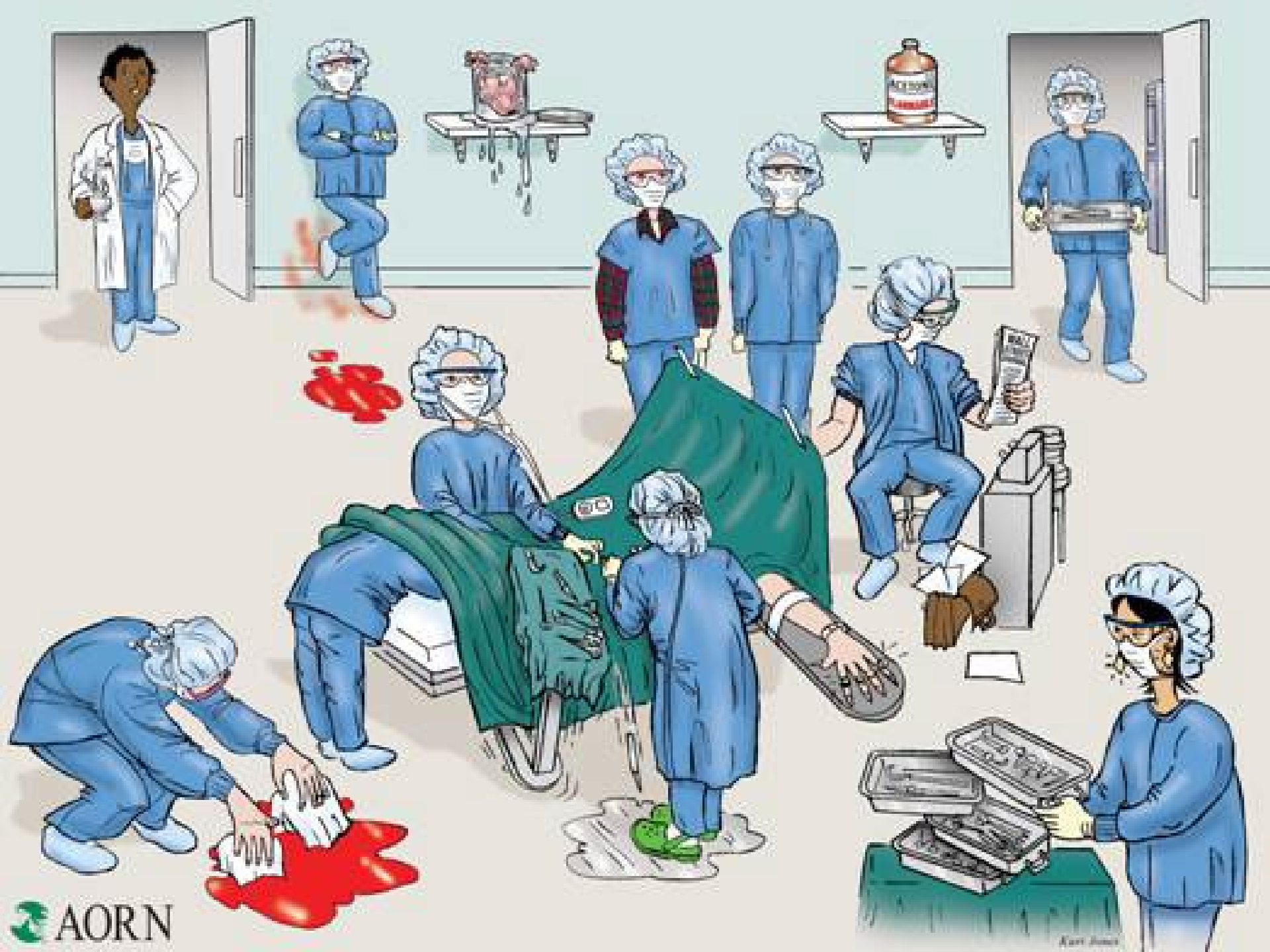
- Purpose for surveillance
- Interpret the findings
- Actions taken and recommendations
- Author and date
- Recipients of report

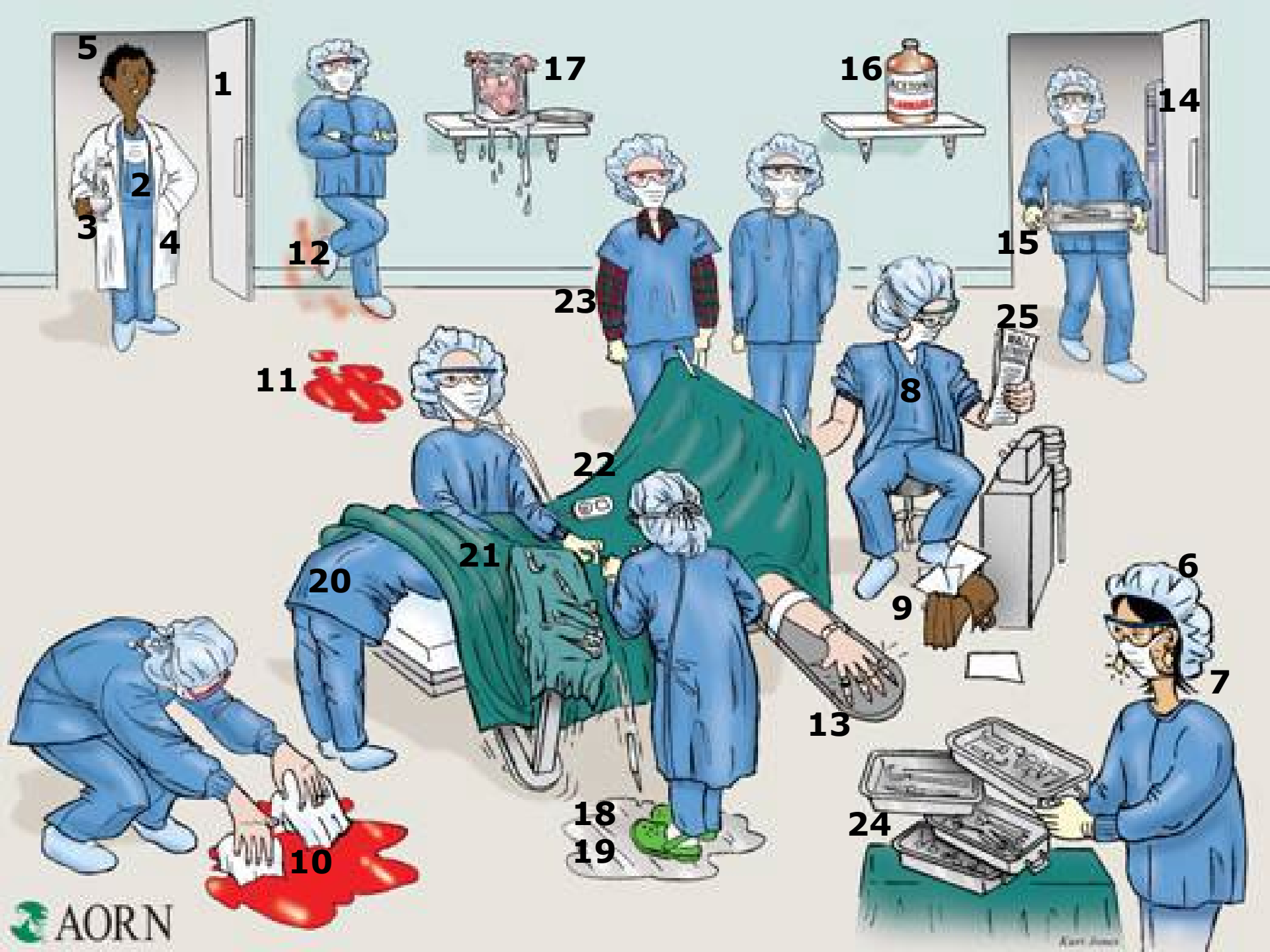
Joint Commission Resources

Observational Surveillance Tells Many Stories….

Can you find the 25 breaks in technique in the AORN's 2008 cartoon?

Joint Commission Resources


AORN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AORN

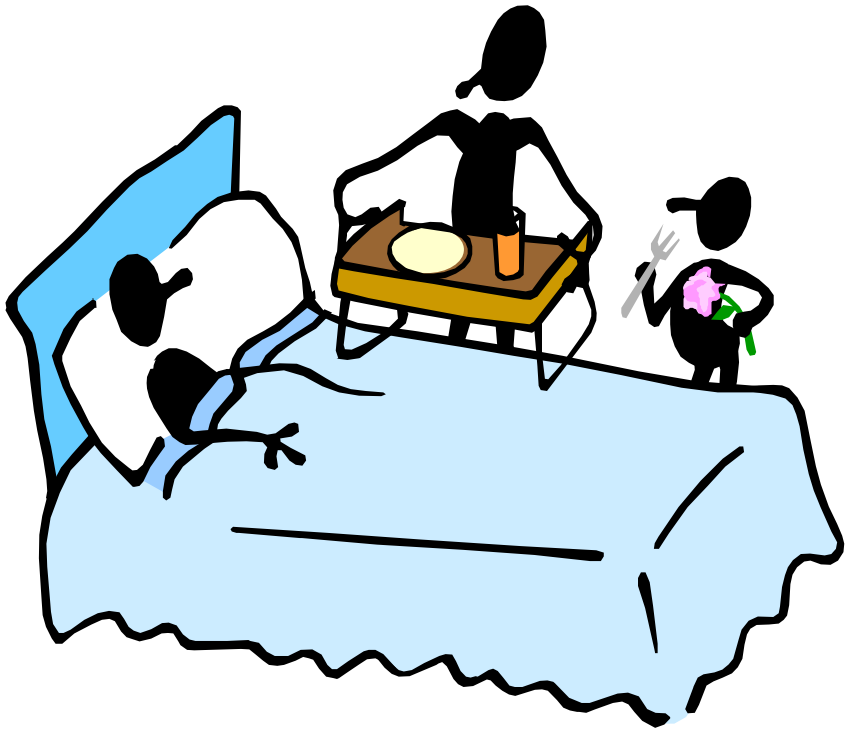
Surveillance can be overwhelming!

- Remember: It is only a means to an end !
  - Keep it simple
  - Focus on highest risks
  - Use it to know your:
    - population
    - endemic rates
    - outbreak investigation triggers

Joint Commission Resources

So You Can:

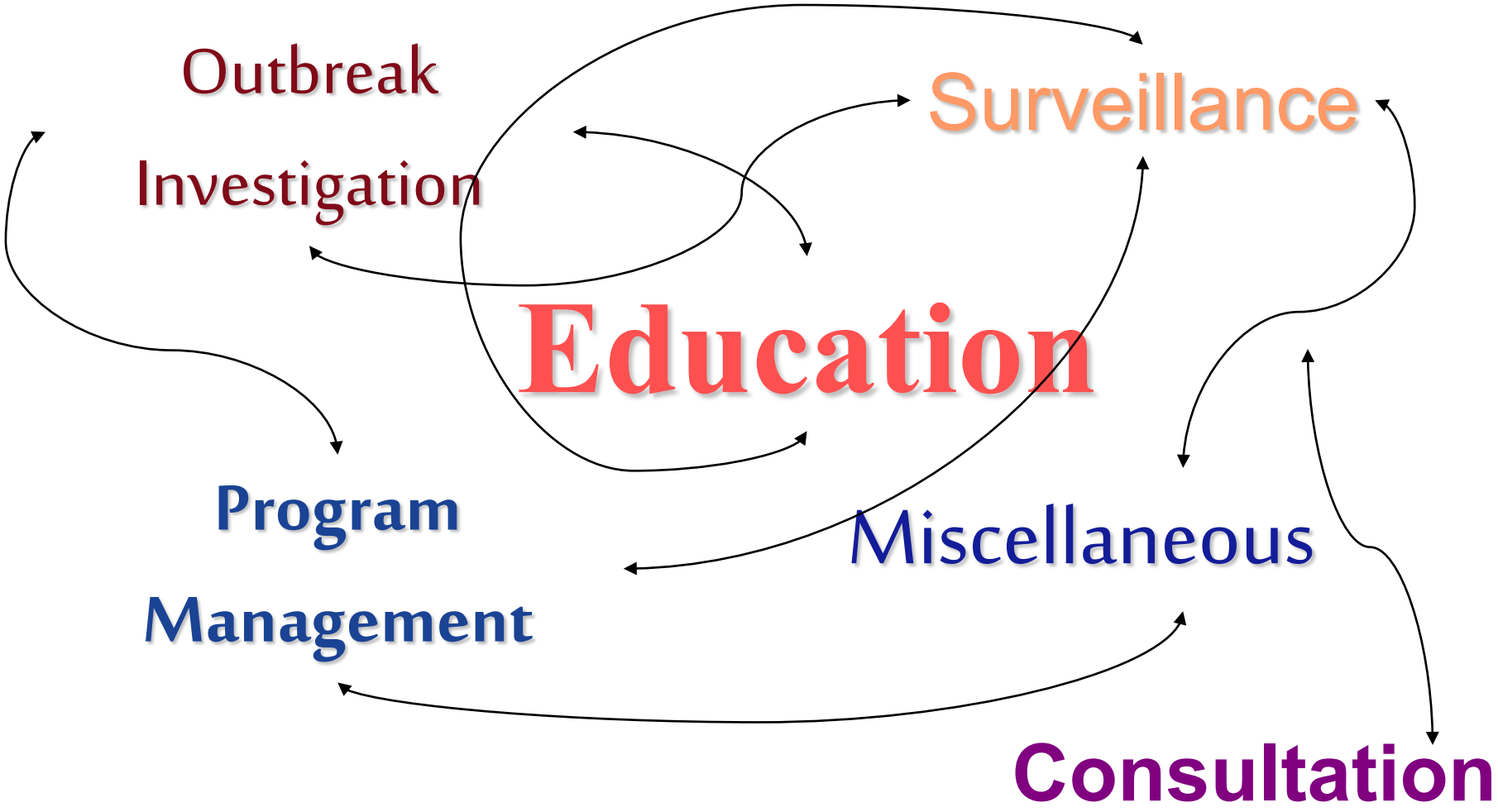
- Focus on interventions
- Improve patient care!



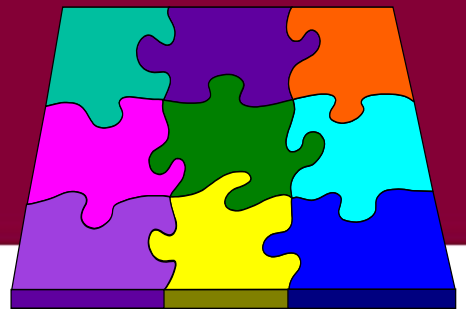
Joint Commission Resources

Develop and implement an education program for staff using current infection prevention and control best practices

Joint Commission Resources



Joint Commission Resources



Objectives of educational activities

- improve care practices and patient outcomes
- reduce risk of infection
- create safer workplace for staff

Joint Commission Resources

How do we know when is education "effective" ?

When learning translates into behavior that results in the desired outcomes for patients or staff

Joint Commission Resources

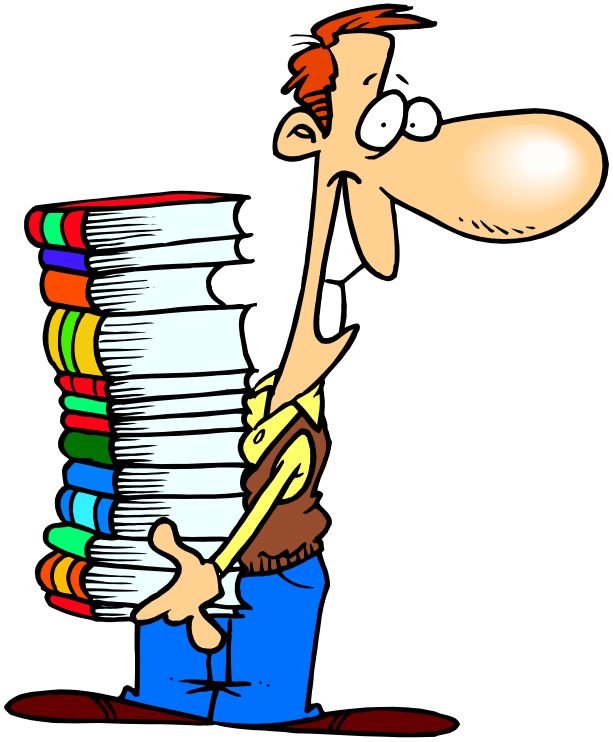
Our challenges as ICP Educators

Adult Learners have special needs for learning !

What are Effective Educational Strategies for Adult Learners?

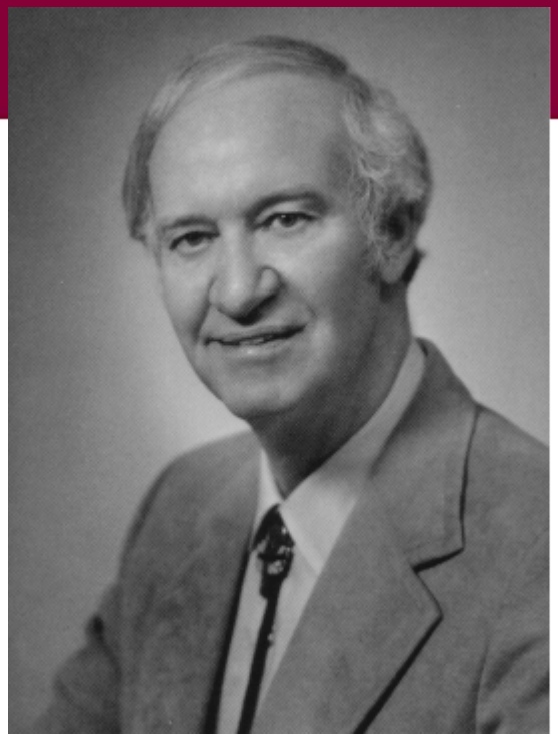
Joint Commission Resources

First Some Theory



Joint Commission Resources

- “At its best, an adult learning experience should be a process of self-directed inquiry, with the resources of the teacher, fellow students, and materials being available to the learner, but not imposed on him (sic).”
- Andragogy



Malcolm Knowles. Modern Practice, 1950

Joint Commission Resources

Core Principles of Adult Learning

- **The learners "need to know."**

What will make them successful in their work

When new hand hygiene guidelines are issued and all staff must follow them, this it a time that workers "need to know" what to do.

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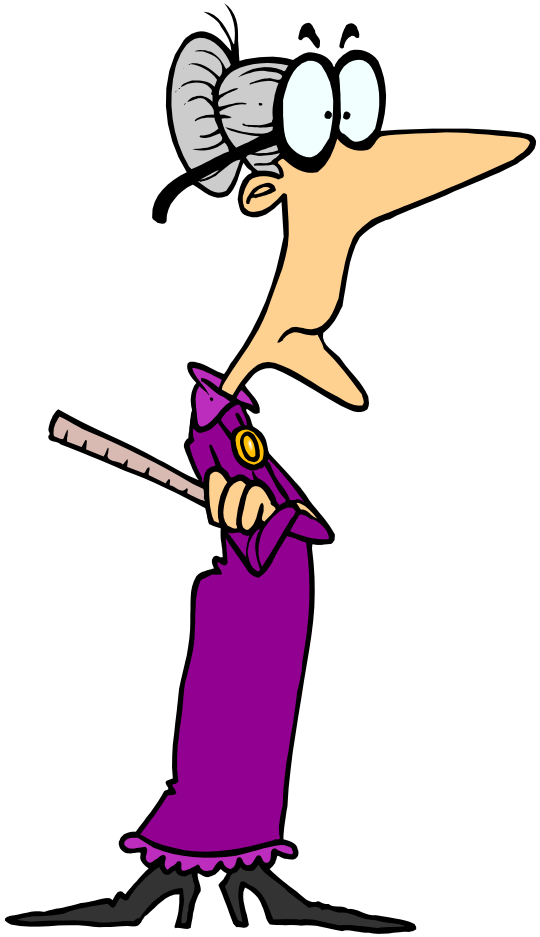
Self-directed learning

Self- directed means the student participates in creating their own learning experience. They want to be treated with respect as an adult not a child



Joint Commission Resources

Core Principles of Adult Learning

- **Prior experiences**

Create biases, differences, values and perspectives that shape new learning.

Prior experiences create a wide range of individual differences.
Prior experiences provide a rich resource for learning, create biases that can inhibit or shape new learning

Joint Commission Resources

Personal and Situational Influences on Readiness to Learn

Readiness to Learn

- age
- health
- life phase
- psychological development
- self concept

Gelula M. The Alan Stoudemire Lecture: residents, students, and adult Learning. Bull Am Assoc Acad Psychiatry. Spring 1998;26;1.

Core Principles of Adult Learning

- **Orientation to learning and problem solving**

Joint Commission Resources

Age and Generation Differences

- Books to Computers
- Passive to Interactive
- Generational Learning Styles

Joint Commission Resources

Core Principles of Adult Learning

- **Motivation to learn**

Joint Commission Resources

Motivation to Learn

Adults want to

- be successful
- have a choice
- learn something they value
- experience the learning as pleasure
- 3 R's relevancy, relationship, responsibility

Joint Commission Resources

Educational Strategies that often fail

- Single approach
- No assessment of learner needs
- No customization to the specific audience
- No reinforcement of the information
- No feedback of results
- No monitoring and evaluation after the education has occurred.

Joint Commission Resources

Some tools to use for teaching adult learners about infection prevention and control principles and practices

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How do you prefer to learn?

- Alone
- In a group
- In a hands-on situation
- In the heat of the moment
- Slowly over time
- By reading, talking, doing
- Other

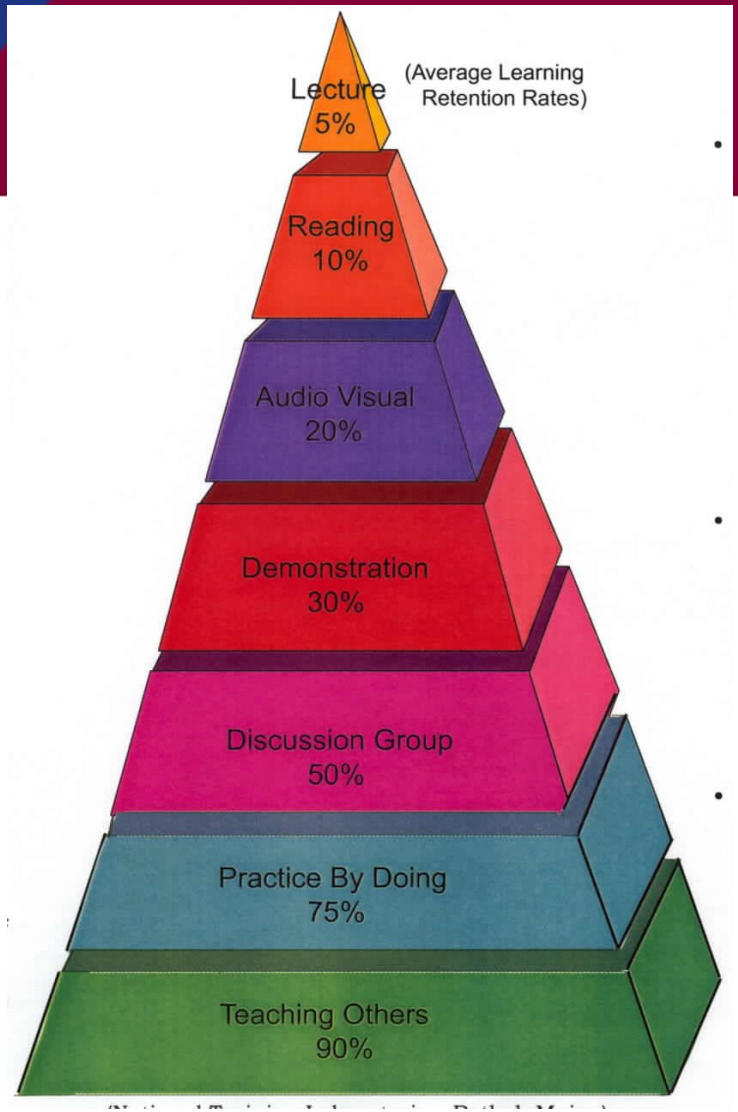
Joint Commission Resources

Some Tools for To Consider for Enhanced Adult Learning

- Case Studies
- Scenario Planning
- Imagery
- Role Play
- Interactive Videos
- Feedback
- Storytelling
- Brainstorming / Six Hats Thinking
- Blended Learning
- Games
- Art
- Mind mapping
- Programmed Instruction
- Web based programs
- Inquiry Teams
- E Learning Games

Joint Commission Resources

ACTIVE LEARNING.



- ***TELL ME and I WILL FORGET***
- ***TEACH ME and I WILL REMEMBER***
- ***INVOLVE ME and I WILL LEARN***

Joint Commission Resources

Case Study

- Cluster of 4 cases in burn and surgical wounds.
- Traced to outside packaging of dressing supplies.
- Construction in central inventory control area
- Inoculation of large exposed surface areas of wounds by dressing materials.

Joint Commission Resources

Tools for getting learners involved

- Learning partners
- Scenarios
- Role play
- Focus groups
- Fishbowl exercise
- Demonstrations

Joint Commission Resources

Scenarios

Joint Commission Resources

ati.ucsd.edu/images/ group.jpg

Using Graphics and Triggers for Recall

- A good illustration helps gain the learner's attention and helps recall information that supports and supplements the message.


WEST-TECH
Link-Belt
D-185
973

Storytelling

- Uses multiple aspects of memory
- Reaches into emotional memory conflict or plot of the story.

Once upon a time . . .

STRATEGIES FOR EFFECTIVE DELIVERY OF EDUCATIONAL PROGRAMS

Joint Commission Resources

Key Concept !!

Multiple approaches

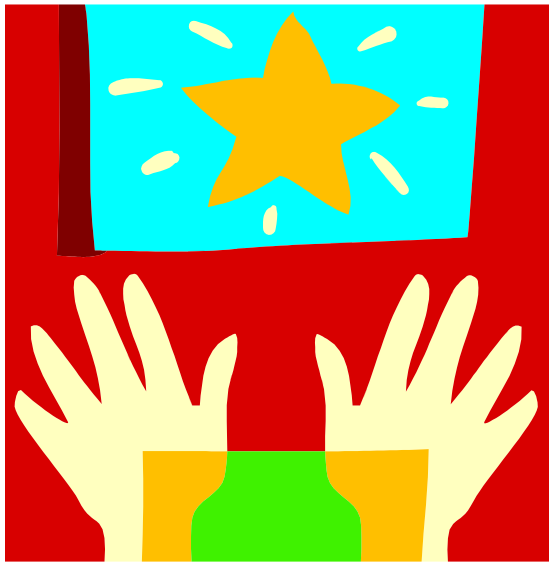
No single method

Many strategies

Gross, PA
Pittet, D

Joint Commission Resources

Multiple approaches to increase hand hygiene



- Memoranda

  regarding handwashing to all attending staff and departments
- Posters

  for handwashing in MICU
- Visitors instructed
- Closed door to MICU
- Handwashing specifically requested to all entering

Joint Commission Resources

For more information on Education and Training for Health Care Personnel:

- APIC Text of Infection Control and Epidemiology, 3rd Edition
- Volume 1; Chapter 11
- Education and Training

Joint Commission Resources

With thanks to colleagues who have shared their work

- Trish Perl, MD, Epidemiologist- Baltimore
- Denise Murphy, RN, VP for Quality- Philadelphia
- Marguerite Jackson, RN, PhD – San Diego
- Marcia Patrick, RN, Seattle
- Gwen Felizado, RN, Seattle

Joint Commission Resources

Thank you and Questions?

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