Risk Assessment and Infection Control in Health care Settings

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Introduction

The institution documents Infection Prevention & Control (IPAC) risk assessment which describes the Infection risks unique to the institution.

Risk Assessment –ongoing process because Infection risks change overtime and sometimes rapidly.

It is the 1st step in a systematic process to create and implement an IPAC Plan.

INTRODUCTION (Cont)

The Infection Control Committee Members must approve the facility wide IPAC risk assessment and the IPAC Program plan for the following year.

The risk assessment document to have the following;

1) Assessment of risk
2) Assessment of services provided
3) Assessment of the population served.
4) Prioritized strategies to decrease risks.
5) IPAC Plan 2018

The plan is formally reviewed at least annually and whenever significant changes occur in the elements that affect risk.

Risk Assessment

The facility wide risk assessment to be prepared by a Multidisciplinary team formulated by the Chairman of Infection Control Committee.

The team comprises of the members from:

- Infection Control Department
- Environmental Health and safety Department
- Engineering services department
- Nursing department
- Medical staff
- CQI and PS department.

Why Perform An Annual Risk Assessment?

- **Helps to 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.**

Goal of An Effective Infection Control Program

❖ **Reduce the risk of acquiring and the transmission of health care-associated infections (HAIs)**

❖ **The design and scope of the program is based on risk that the organization faces, which is related to the acquisition and transmission of infectious disease**

What do the Joint Commission Standards say about assessing risk?

- IC. 01.03.01

EP 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.

What do the Joint Commission Standards 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.**
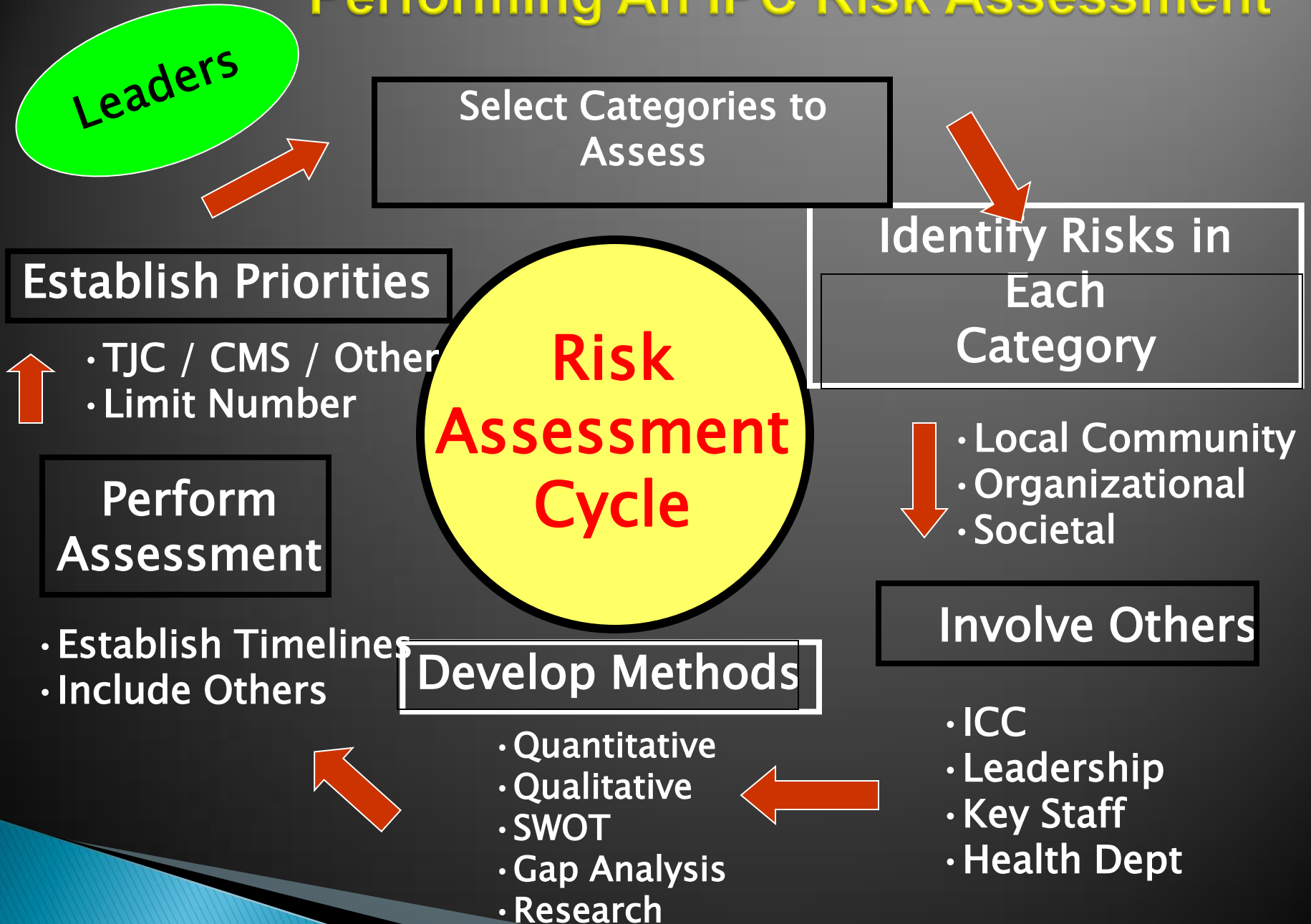
What do the national guidelines say?

- **Assess risk for MDROs**
- **Assess risk for central line infections**
- **Assess risk for surgical site infections**

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

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)**

Performing An IPC Risk Assessment

Leaders

Select Categories to Assess

Identify Risks in Each Category

Establish Priorities
- TJC / CMS / Other
- Limit Number

Risk Assessment Cycle

- Local Community
- Organizational
- Societal

Perform Assessment
- Establish Timelines
- Include Others

Develop Methods
- Quantitative
- Qualitative
- SWOT
- Gap Analysis
- Research

Involve Others
- ICC
- Leadership
- Key Staff
- Health Dept

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**

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**

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**

Regulatory and Accreditation Requirements

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

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**

"I'm glad you brought the grandkids, but they're sitting on my broken hip."

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**
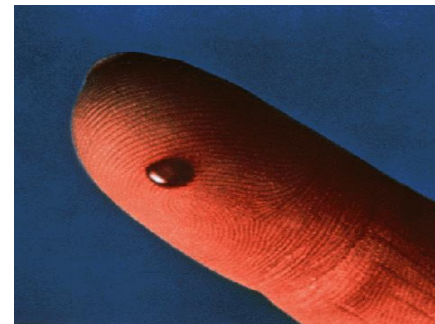
Equipment-Related Risks

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

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**

X

## Mop in Dirty Water

√

Mop hung to Dry

Resources

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

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**

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

Potential Sources for Bacterial Contamination of Intravascular Catheters
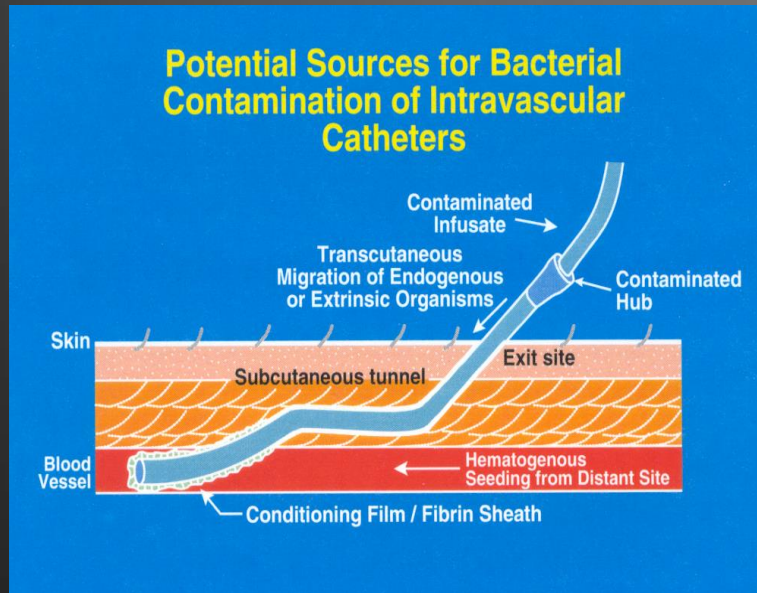
- Complexity of device
- Skill and experience of user
- Safety features: user dependent or automatic

Environmental Risks

- **Construction**
- **Supplies and Equipment**
- **Cleaning**

Disposal of Sharps and Needles

Overfilled Sharps Box

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

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**

Let's Look at Some Risk Assessment Tools

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																

Risk Scoring

The scores could range from 1 (lowest vulnerability) to 48 (highest vulnerability).

Each risk factor is rated as follows:

- Assessing the probability of occurrence of the risk according to the "*Probability of occurrence scores*"

   (1-Rare / 2-Unlikely / 3-Moderate / 4-Certain)

- Assessing the consequences if the risk will occur according to the following "*Consequences of occurrence scores*"

   (1- None / 2- Temporary Harm / 3 – Permanent Harm / 4 – Life   Threatening/

- Assessing the level of preparedness of the institution to deal with each risk according to the following "*level of preparedness score*"

   (1 – Good / 2 – Fair / 3 – Poor)

Risk Assessment Grid

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	Perman ent 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	Perman ent 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 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**

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

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**

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

From Risks to Priorities to Plan
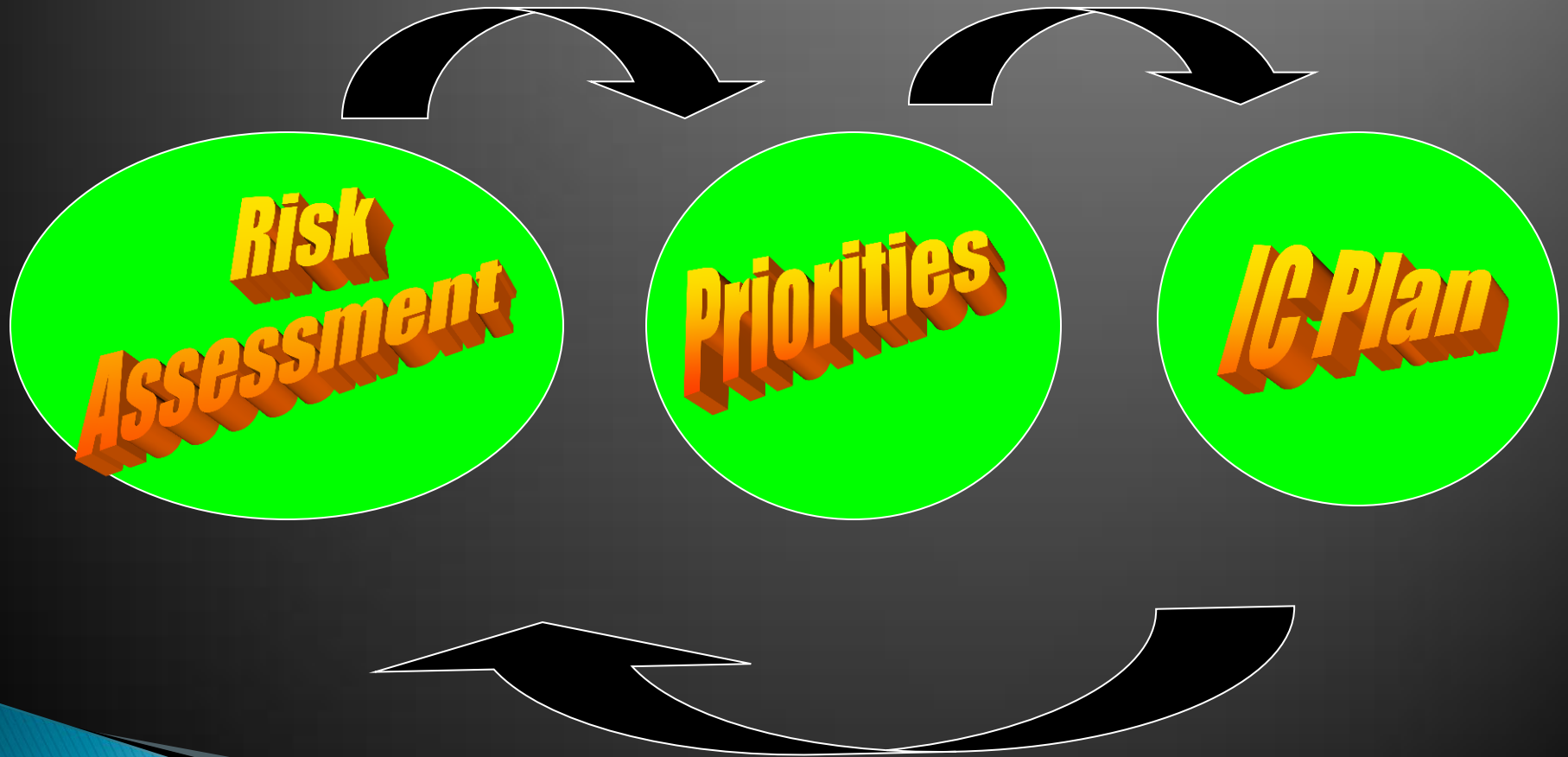
REFERENCES:

- **APIC Text of Infection Control and Epidemiology, 3rd Edition**

- **Centers for Disease Control (CDC)**

- **Joint Commission International Accreditation (JCIA)**

- **Central Board for Accreditation of Healthcare Institutions (CBAHI)**

- **Ministry of Health (MOH)**

Thank you

Questions?