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NOSOCOMIAL INFECTION PROGRAM RAPID EVALUATION GUIDE

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**Health Surveillance and Disease Management Area
Communicable Disease Unit**

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Instructions for Application of the Nosocomial Infection Rapid Evaluation Guide

General Considerations

The purpose of this guide is to provide orientation for hospital directors on review and improvement of the nosocomial infection programs that all such facilities should have. According to the experts, a well-developed program in the areas currently considered necessary will contain the components and characteristics described in this guide.

The purpose of this guide is to provide a general overview rather than specifics on the status of hospital nosocomial infection prevention and control activities. Therefore, it does not consider the risk of individual patients or specific cases. By nature, it is intended only as an instrument to provide support for an external assessment of the status of the program. It should not be considered an accreditation system. Furthermore, it does not consider other aspects related to care outside of surveillance, prevention, and control of nosocomial infections.

Description of the Guide

The guide provides information on a number of aspects that, according to a group of Latin American experts, should be included in nosocomial infection prevention and control programs. These aspects have been organized in eight *areas* that include similar topics. In each area, some *components* considered to be essential in a good infection program have been selected. In each component, the *characteristics* considered to best describe an acceptable component have been established. Then, *indicators* have been established so that the presence of the characteristics could be considered objectively. A single characteristic may have several indicators and a single component may have several characteristics. One or more *verifiers* (“suggested verifiers”) have been proposed for each indicator. These simply offer orientation or sources of information for the evaluators that can be used to determine whether a certain indicator is present. The evaluators can use other methods to establish the presence of indicators.

According to this guide, evaluation of the nosocomial infection program is based solely on the presence of indicators. The characteristics and components have been established following analysis of the indicators used for evaluation.

The only exception to the above is the “INEFFECTIVE PRACTICES” area, in which the presence of any of the indicators is considered in a comment to the report.

General Instructions

This guide is designed for application within a short period of time (i.e., approximately 12 person-hours).

- All actions conducted during an evaluation have a well-defined purpose that should be made known during the activity.
- Make written notes of your observations when they occur to you. Do not rely on your memory.
- The written report must be compatible with the oral comments made at the visit.

Instructions and Recommendations for Interviews

This process includes three main types of interviews:

- I. ***Initial interview:*** This interview is usually with the hospital director, who may or may not be accompanied by other people. The objectives are as follows:
 - Introduction to the local authority
 - Meet the people who will accompany the evaluators during the activity
 - Become familiar with the general characteristics of the hospital
 - Explain which activities will be conducted in the hospital during the evaluation
 - Set a time for the final meeting
 - Confirm that the local authority has consented to the activity

- II. ***Technical interviews:*** These interviews are with professionals who perform different activities in the hospital. The objective is to obtain specific information related to the guide. In order to make the most of these interviews, the following is recommended:
 - You should always be accompanied by a professional from the hospital
 - Interview the person in charge of the unit or activity. A meeting with personnel working under him should be held only with his consent.
 - Introduce yourself and explain the reason for the interview
 - Tell them what information is required

- III. ***Final interview:*** This interview is usually with the hospital director, accompanied by other people. The objectives of this interview are as follows:
 - Report the main findings of the observations.
 - Briefly summarize each area, highlighting aspects that are partially or fully acceptable as well as those that can be improved. Use clear examples. Avoid going into detail.
 - Compile any information that was not included previously
 - Receive comments and clarifications on your observations
 - Thank the facilities and the appropriate individuals for having participated in the activity

It is strongly recommended that the team of evaluators meet alone for a few minutes before the final interview and agree on the points that will be dealt with.

Instructions and Recommendations for Document Review

Some of the information will be obtained from documents that directly or indirectly contribute data that can be used as a basis for determining compliance with the characteristics in the guide. Document review tends to be a long and complex process. For document review:

- Focus the document review on the objectives of the guide.
- Request that your local contacts show where the information is found in the documents. Review by a person unfamiliar with the local documentation system may be tedious and fruitless. Be explicit about your needs.
- Avoid requesting a particular document. It is preferable to request documentation for the activities. Each hospital has its own form of documentation. For example: In order to find out about training activities, avoid requesting “committee minutes” since the information

needed may not be found there. However, if you request a list of training activities performed, there may be different types of documentation (e.g., annual summaries of activities and specific training reports).

Instructions and Recommendations for Direct Observation

Evaluation of many of the characteristics is based on observation of how activities are conducted in practice.

- When direct observation activities are conducted, tell your contacts what you expect to find before beginning observation. After completing the activity, summarize whether what you found was appropriate or the practices did not meet the requirements.
- Be cautious about the comments and your reactions to noncompliance of practices, particularly because the visits are often accompanied by personnel who may have a partial or distorted understanding of the practices.
- If you observe failure to comply with techniques or inappropriate practices, it is important to take note and possibly mention it at the meeting. However, this does not necessarily mean that it represents a trend unless the practice is repeated.

Specific Instructions

Some areas have special conditions to be evaluated

AREA: INTERVENTION STRATEGIES

This is one of the most important areas of the evaluation. It is also the area in which there are usually the most comments. In order to evaluate this area, fill out the "PREVENTION AND CONTROL STRATEGIES RECORD FORM." Each indicator refers to the summary of one of the columns on the RECORD FORM.

The evidence-based concepts used to evaluate the preventive strategies are only some of the most well-known and least controversial concepts. Therefore, they should be included in the usual practice of all hospitals.

AREA: INEFFECTIVE PRACTICES

A series of practices have been introduced in hospitals in the past to prevent infections. However, there is currently no basis for maintaining them, as there is sufficient evidence that they do not prevent infection. In addition, in some cases, there is even enough information to consider that it would be advisable to eliminate these practices since they increase risk.

In this evaluation it is enough to be aware of and verify the presence of an ineffective measure that increases the risk of infection in order to include a comment about it in the final interview and the written report. The information on the presence of ineffective measures may be acquired from multiple sources. It often occurs by chance during observations in the clinical units.

Written Report

INSTRUCTIONS AND RECOMMENDATIONS FOR PREPARATION OF THE REPORT

- When the field activities have been completed, a final written report should be prepared.
- It is recommended that the report be written on the same day as the evaluation was made, particularly if more than one hospital has been evaluated that day.
- This is an activity that should be performed by the entire team. If more than one hospital has been evaluated on the same day, it is recommended that the hospitals be analyzed one at a time.

RECORDS

Indicate whether or not each indicator is present by recording **YES**, **NO** or **PARTIAL** in the guide. Whenever **NO** or **PARTIAL** is recorded, a brief written description on the actual status should be provided so that there can be records for local follow-up. **UNEVALUATED** should only be recorded in extraordinary circumstances, and the reason should be explained.

Glossary

access	In this document it is the condition by which a hospital provides a service that is not necessarily directly under it. For example, a hospital may not have a Microbiology Department. Rather, the appropriate services are provided by an external laboratory when required. In this case, the hospital has “access” to microbiology.
immunization coverage	Proportion of vaccinated individuals out of the total number planned. In this guide, evaluation of immunological response to the vaccine is not considered.
disinfection	Procedure designed to eliminate pathogenic agents from articles and other patient care equipment in order to decrease the risk of infection. Microbial spores are not usually eliminated. A distinction is made between different levels using Spaulding’s classification. High-level disinfection is considered to be of interest.
official document	Document that satisfies local requirements to be considered in compulsory compliance or knowledge. It must be signed by at least the hospital management.
sterilization	Procedure designed to eliminate all forms of microbial life from articles and other patient care equipment in order to decrease the risk of infection.
program oversight	A specific, stable unit that includes the individuals responsible for the safety of clinical activities (department or unit chiefs). In addition to the individuals themselves, it includes their method of communication and the hierarchical structure of the organization.
evidence	Certainty derived from studies on a certain subject that are currently considered to be conclusive. This usually means, but is not limited to, several controlled clinical trials with similar findings.
guide	Document with recommendations for action on a specific subject. The subjects are usually technical, and they are not compulsory.
basic NI indicators	Minimum ongoing information that a hospital should have in order to determine the infection status. The following are considered to be minimum: central venous catheter-related sepsis, catheter-associated urinary tract infections, mechanical ventilation-associated pneumonia, surgical site infections by type of operation, and puerperal endometritis by type of delivery. These indicators may be different if a hospital has other frequent high-risk procedures.

nosocomial infection	Infection that occurs during or as a result of hospitalization, and was not present or incubating at the time of patient admission. This definition does not distinguish between severe and minor infections, nor preventable and nonpreventable infection.
invasive procedure	Clinical procedure that leads to mechanical interruption of the body's barriers of defense (e.g., skin perforation or insertion of catheters that change the usual fluid flow).
manual	Reference document that organizes and summarizes the regulations, instructions, procedures, or any other type of information, usually operational, on a specific subject.
goals	Quantifiable objectives that are expected to be achieved. They are usually stated numerically in ratios, rates, proportions, or other indicators of this type.
standard	Guideline that must always be fulfilled
professional	Worker with a university education and degree
immunization program	Activities designed to vaccinate a given population that establish who should be vaccinated, which vaccines will be used, dosage, route, frequency, and all other specifics of this objective.
program	Organized set of resources and activities to attain a known end. It also includes the objectives, goals, and individuals responsible.
orientation program	Organized training activities to ensure that recently hired personnel are familiar with the hospital's technical and administrative procedures.
routine	Customary practice without a rationale that is performed according to current practice.
supervision	Observation process to measure compliance with standards, instructions, care procedures, or other parameters in daily practice.
epidemiological surveillance	Ongoing information system on diseases (usually infectious diseases) in the population in order to determine their frequency, risk factors, morbidity, mortality, and early detection of epidemics.

Description of Hospital

Name of hospital			
City:		Country:	
Administrative status: State Private University Other:			
Beds:		Annual discharges:	
Intensive Care Unit Beds:		Number of annual major surgeries:	
Mark the clinical services available with an X	Surgery		Evaluation date:
	Obstetrics		Name of evaluators
	Pediatrics		
	Internal Medicine		
	Neonatology		
	Adult Intensive Care		
	Other sub specialties		

Individuals to Interview

- Director
- NI Committee or Program Director
- Infection Control Nurse
- Physician-Epidemiologist
- Microbiologist
- Sterilization Supervisor
- Unit Chiefs: Intensive Care, Pediatrics, and Surgery
- Head of Nursing
- Personnel Health Supervisor

Proposed Program

Activity		Estimated time (min)	Number of evaluators	Objective
Initial interview		40	All	Introduction, arrange final meeting
Meet with Technical Committee		90 - 120	1 Recommended: all	Review information, documents, evaluate organization and monitoring
Visit departments	Sterilization	30 - 45	1	Evaluate sterilization
	Laboratory	30 - 45	1	Evaluate microbiology
	Intensive Care Unit	30 - 45	1	Evaluate intervention strategies Integrate program into routine practice
	Pediatrics	30 - 45	1	
	Surgery	30 - 45	1	Aspects of physical plant and environmental sanitation Identify ineffective practices
	Medicine	30 - 45	1	
	Others based on time available	30 - 45	1	
Meet with Personnel Health Supervisor		30 - 40	1	Evaluate personnel health
Meet with Governing Body		30 - 60	All	Oral report on findings
Write report		120 - 180	All	Prepare report

Guide to Areas

Area: Organization

Components	Characteristics	Indicator	Suggested Verifier	Present?
Leadership	Hospital infection control oversight* has been established and responsibilities have been defined	There is an official document * that designates the individuals responsible for NI control.	Document signed by local authority	
		The tasks described for each of the individuals responsible are present	Document signed by local authority	
		Personnel responsible for infection control are at a high level in the institution.	Document signed by local authority	
	NI control functions are directed and evaluated by the highest level of the organization	There are annual NI control goals* for the hospital.	Official document of the institution (program, plan or annual report)	
		Evidence that decisions are made in order to achieve the goals.	Minutes, reports, or intervention programs	
		Goals are evaluated and monitored at least once a year by the hospital management.	Minutes, reports, or annual report	
NI Control Education	The infection control program is considered to be an integral part of work by all personnel	There is an orientation program* for new personnel and this program is followed.	Written program that includes NI standards. Program compliance report.	

* See Glossary

Area: Epidemiological Surveillance of Infections

Components	Characteristics	Indicator	Suggested Verifier	Present?
Personnel	The program has a physician for the activities	Physician trained in basic epidemiology and infection control	Interview, certificates	
		10 or more hours per week for every 100 beds	Interview	
	The program has a nursing professional for NI control	Full-time professional*	Interview	
		Trained in epidemiological surveillance, infection control, and supervision	Interview, certified	
		One full-time professional for every 150 beds	Interview	
	Microbiologist	Access* to professional microbiologist	Interview	
Surveillance method	Surveillance is conducted with active data collection methods	Standardized definitions of most frequent infections	Local document	
		At least weekly case-finding in risk groups by reviewing medical records and laboratory data	Surveillance record sheets, interview	
		Case-finding performed by professionals	Interview	
		Standardized definitions of exposed individuals (denominators of rates) and of how information on such individuals is collected	Local procedure and interview	
	Epidemiological information is analyzed to detect NI problems and evaluate the impact of intervention	NI rates with a monthly frequency of at least 80% per year for each basic indicator*	Reports	
		Annual analysis of antimicrobial drug resistance	Report	
		Annual analysis of NI trends that identifies problems and proposes solutions	Report	
		Evaluation system (e.g., prevalence) of surveillance system capacity to detect infections	Evaluation report	
		Identifies epidemic outbreaks and has outbreak reports	Outbreak report	
		Information circulation	Information is circulated to all personnel affected	Report with analysis, recommendations, and known distribution
Up-to-date information is available and known in all departments involved in surveillance	Interview directors			

* See Glossary

Area: Microbiology

Components	Characteristics	Indicator	Suggested Verifier	Present?
Diagnostic capability	Hospital has access* to identification of the most relevant microbial agents in NI control	Identification of aerobic bacteria to species level in blood cultures	Laboratory interview or report	
		Identification of viral agents: hepatitis, HIV, adenovirus, influenza, respiratory syncytial virus, rotavirus	Laboratory interview or report	
		Detection of <i>M. tuberculosis</i>	Laboratory interview or report	
		Identification of <i>Candida</i>	Laboratory interview or report	
	Able to routinely identify antimicrobial susceptibility of NI agents isolated	Identify susceptibility patterns of most frequent NI agents	Laboratory interview or report	
		Methicillin-resistant <i>Staphylococcus aureus</i>	Laboratory interview or report	
Vancomycin-resistant <i>Enterococcus</i>		Laboratory interview or report		
Quality control	Microbiology activities evaluated periodically by internal and external audits	Maintain quality control records on identification of agents and antimicrobial susceptibility studies in accordance with NCCLS or other standards	Laboratory interview or report	
		Submitted to external quality control at least once a year	Reference laboratory report	
Specimen collection and shipment standards	Standardized techniques and procedures	Specimen collection and shipment manual updated at least every 3 years and circulated	Manual	
Microbiological information	Analysis of clinical information	Report on agents responsible for NI according to the type of specimen and department of origin	Microbiology report	
		Report on antimicrobial susceptibility pattern of relevant etiologic agents	Microbiology report	

* See Glossary

Area: Intervention Strategies

Component	Characteristics	Indicator	Suggested Verifier	Consolidated Activities ¹	Present?
Interventions to improve NI prevention and control	Main NI prevention activities are regulated in accordance with best current knowledge	Existence of a complete regulatory technical basis	Standards *, guides * or manuals *	Summary column (a)	
		Regulations updated within the last three years	Standards *, guides * or manuals *	Summary column (b)	
		Technical regulation contents and indications are evidence-based	Standards *, guides * or manuals *	Summary column (c)	
	Compliance with regulations is promoted and evaluated	Regulations with effective activities have been circulated to personnel that should know them	Evaluated program training reports on assistants	Summary column (d)	
		Supervision * of personnel compliance with regulations	Supervision reports	Summary column (e)	
		Evidence of compliance with basic regulations	Direct observation	Summary column (f)	

¹ Use the “**PREVENTION AND CONTROL STRATEGIES RECORD FORM**” to record the detailed information that will be consolidated here.

* See Glossary

Prevention and Control Strategies Record Form

Infection Prevention Activities	Characteristics						
	(a) Present	(b) Updated (< 3 years)	Evidence-Based ² Main Concepts	(c) Are these concepts included in the standard?	(d) Circulated to personnel	(e) Supervision plan for standard applied	(f) Compliance with standard
Central venous catheter			<ul style="list-style-type: none"> • Maximum barriers (aseptic technique) for installation • Circuit handled with aseptic technique 				
Mechanical ventilation			<ul style="list-style-type: none"> • Aspiration closed or with aid of secretions • Circuits handled with aseptic technique • Circuit changed between patients • Semi-prone position 				
Urinary catheter			<ul style="list-style-type: none"> • Circuit permanently closed • Bag emptied and hands washed between patients • Collection bag permanently below bladder level 				
Pre-operative preparation			<ul style="list-style-type: none"> • Infectious foci are eliminated prior to surgery • Surgical site is not shaved with razor blade 				
Standard precautions and isolation			<ul style="list-style-type: none"> • Gloves are used to handle secretions • Well-fitted masks with filter are used in respiratory isolation (suspicion or diagnosis of tuberculosis and other diseases) • Hand washing after contact with blood and body fluids 				
Aseptic technique			<ul style="list-style-type: none"> • Hand washing before and after patient care • Antiseptics are used before invasive procedures • Sterile material is used in invasive procedures 				
Antibiotic prophylaxis			<ul style="list-style-type: none"> • Administered within two hours before the surgical incision 				
Restricted-use antibiotics			<ul style="list-style-type: none"> • Vancomycin • Third-generation cephalosporin 				

² These concepts are based on well-designed studies that permit the conclusion that compliance is effective for preventing infection

Area: Sterilization and High-Level Disinfection

Components	Characteristics	Indicator	Suggested Verifier	Present?
Sterilization * methods	Appropriate methods	Only sterilization methods of proven efficacy ³ are used	Interview, standards, direct observation	
	Standardized procedures	Standards and procedures have been established for all sterilization and disinfection processes	Standards and Procedures Manual	
	Sterilization processes are controlled in order to guarantee results	Individual chemical indicators are used	Direct observation	
		Biological indicators are used at least weekly	Record form	
		Surgical instruments processed are free from organic matter	Direct observation	
		All packages are labeled with expiry date and are within the effective period	Direct observation	
	Undamaged containers that are appropriate for the method ⁴	Direct observation		
Processes are performed on operational equipment	Preventive maintenance program has been established for sterilization equipment	Maintenance program record forms		
High-level disinfection * methods	Appropriate methods	Only high-level disinfection methods of proven efficacy ⁵ are used	Interview, standards, and direct observation	
	High-level disinfection processes are controlled to guarantee results	Appropriate exposure time is controlled in each cycle	Standards and record forms	
		Chemical indicator of concentration at least weekly	Record forms	

* See Glossary

³ On the date of preparation of this document: autoclaves, dry heat, ethylene oxide in automated equipment, formaldehyde in automated equipment, hydrogen peroxide plasma in automated equipment, peracetic acid in automated equipment.

⁴ Fenestrated boxes for use in autoclaves, use of paper packaging without memory in all paper packaging, packaging without cellulose for plasma sterilization

⁵ On the date of preparation of this document: 2% glutaraldehyde, peracetic acid, orthophthalaldehyde (OPA). For dialysis filters 4% formaldehyde can be used

Area: Personnel Health

Components	Characteristics	Indicator	Suggested Verifier	Present?	
Prevention of infections that can be transmitted between health care workers and patients	Activities to prevent transmission of infections between patients and personnel	Staff training on prevention of sharps exposure and immunization	Care records and plan		
		Immunization * program	written program * for hepatitis B immunization of personnel exposed to blood	Program	
			hepatitis B program personnel coverage * $\geq 80\%$ of target population	Records and coverage	
			written program * for annual influenza immunization of all clinical personnel	Program	
			personnel influenza program coverage * $\geq 80\%$ of target population	Record forms and coverage	
			written program * for rubella immunization of susceptible women	Program	
			personnel rubella program coverage * $\geq 80\%$ of target population	Record forms and coverage	
	Management of blood exposure caused by sharps injuries with articles used in patients	Standards and record forms			
	Personnel infections are monitored and measures are taken to protect exposed personnel and patients	Management of personnel with communicable ⁶ infections is supervised * and complied with	Standards and record forms		
		Occupational exposure of epidemiological ⁷ importance is monitored*	Standards and record forms		

* See Glossary

⁶ Establish whether personnel with infectious communicable diseases may be in contact with patients or whether they should be absent from work during the course of each infection.

⁷ On the date of preparation of this document: exposure to blood and body fluids with high risk of containing HIV, hepatitis B or hepatitis C, and exposure to *Mycobacterium tuberculosis*.

Area: Hospital Environment and Sanitation

Components	Characteristics	Indicator		Suggested Verifier	Present?
Physical plant conditions	Basic general structural conditions for prevention of infection	Hand washing	Permanent availability of drinking water with minimum autonomy of eight hours	Direct observation	
			Accessible and operational washbasins ⁸ with soap and supplies to dry hands or glycerinated alcohol in all patient care areas	Direct observation	
			Accessible and operational washbasins with supplies in all drug preparation and invasive procedure areas	Direct observation	
		Minimum space	Separation of ≥ 1 meter between beds in Pediatrics	Direct observation	
			Separation of ≥ 1 meter between cradles in Neonatology	Direct observation	
			Separation of ≥ 1 meter between beds in Intensive Care Units	Direct observation	
		Participation by NI team if remodeling or construction are performed in areas where activities of clinical importance are conducted	Minutes and interviews		
Conditions for individual patient isolation	Availability of individual patient isolation room with operational washbasins, supplies, and closed doors. If patients with active tuberculosis are admitted to the hospital, the isolation rooms also have air extraction towards the outside.	Direct observation			
Sanitation conditions	Sharps handled with technique that prevents accidents	Disposal in waterproof, puncture-resistant containers		Direct observation	
		Personnel that handle waste use protective ⁹ barriers		Direct observation and interview	

⁸ The washbasin should be inside the patient's hospital room

⁹ Thick, waterproof gloves; eye covers if splashing may occur during activities.

Area: Ineffective Practices

The following practices have been established in the past in order to prevent infections. At present, there are no foundations to recommend maintaining them.		Present?
Practices recognized as ineffective that increase risk¹⁰	Processing with quaternary ammonium for high-level disinfection or sterilization	
	Syringes or needles used in more than one patient (e.g., anesthesia)	
	Use of <i>flash</i> sterilization as routine method of instrument sterilization	
	Surgical site is shaved with razor blade	
	Use of immersion in chemical agents for sterilization	
	Environmental disinfection with formaldehyde	
	Sterilization with formaldehyde tablets	
	Sterilization of materials in plastic bags and ethylene oxide ampules	
	Recycling of disposable peripheral venous infusion material	
	Use of air conditioning without filter in operating room	
	Chemical decontamination of contaminated material	
Costly practices recognized as ineffective¹¹	Routine culture of personnel that are carriers ¹²	
	Use of topical antiseptic on open wounds	
	Continuation of antibiotic treatment after operation concludes	
	Routine culture of vascular catheter tips	
	Disinfection of hospital waste (except for Microbiology laboratory)	
	Use of footwear covers in all areas of hospital	
	Routine environmental cultures (e.g., air, surfaces, or soap)	

¹⁰ These concepts are based on well-designed studies that have led to the conclusion that they do not prevent infections. Rather, they increase the risk of infection.

¹¹ These concepts are based on well-designed studies that have led to the conclusion that they do not prevent infections. Although they do not increase risk, they often cause unnecessary expenses.

¹² These cultures are not useful unless there is an epidemic with evidence that carriers should be considered as a risk factor.