A faded background image of a Grady Memorial Hospital ambulance. The ambulance is white with "Grady Memorial Hospital" written on the side. A person in a dark uniform and cap is standing next to the ambulance, and another person in a white protective suit is visible near the open back door. The scene is outdoors.

Infection Control and Prevention: Protecting Yourself, Protecting Your Patients

Grady Health System



Protecting Yourself

- Preventing exposure to bloodborne pathogens
- What to do if exposure occurs
- Preventing exposure to TB (for yourself, other HCWs, and patients)

What is Meant by “Blood or Body Fluid Exposure”?

- **Sharp object injury (aka NEEDLESTICK)**
 - Percutaneous injury with a used sharps device (needle, scalpel, lancet, etc.) or patient fingernails or teeth
 - Needlesticks, cuts, scratches, bites

OR

- **Other exposures (aka splashes and spills)**
 - Patient blood, tissue or potentially infectious* body fluids make contact (splash, spill, etc) with a healthcare worker's:
 - mucous membranes
 - or
 - non-intact skin

What Body Fluids are “Potentially Infectious”?

- Blood and blood products
- Any visibly bloody body fluid
- Semen and vaginal secretions
- Cerebrospinal fluid
- Synovial fluid
- Pleural fluid
- Peritoneal fluid
- Pericardial fluid
- Amniotic fluid
- Breast milk

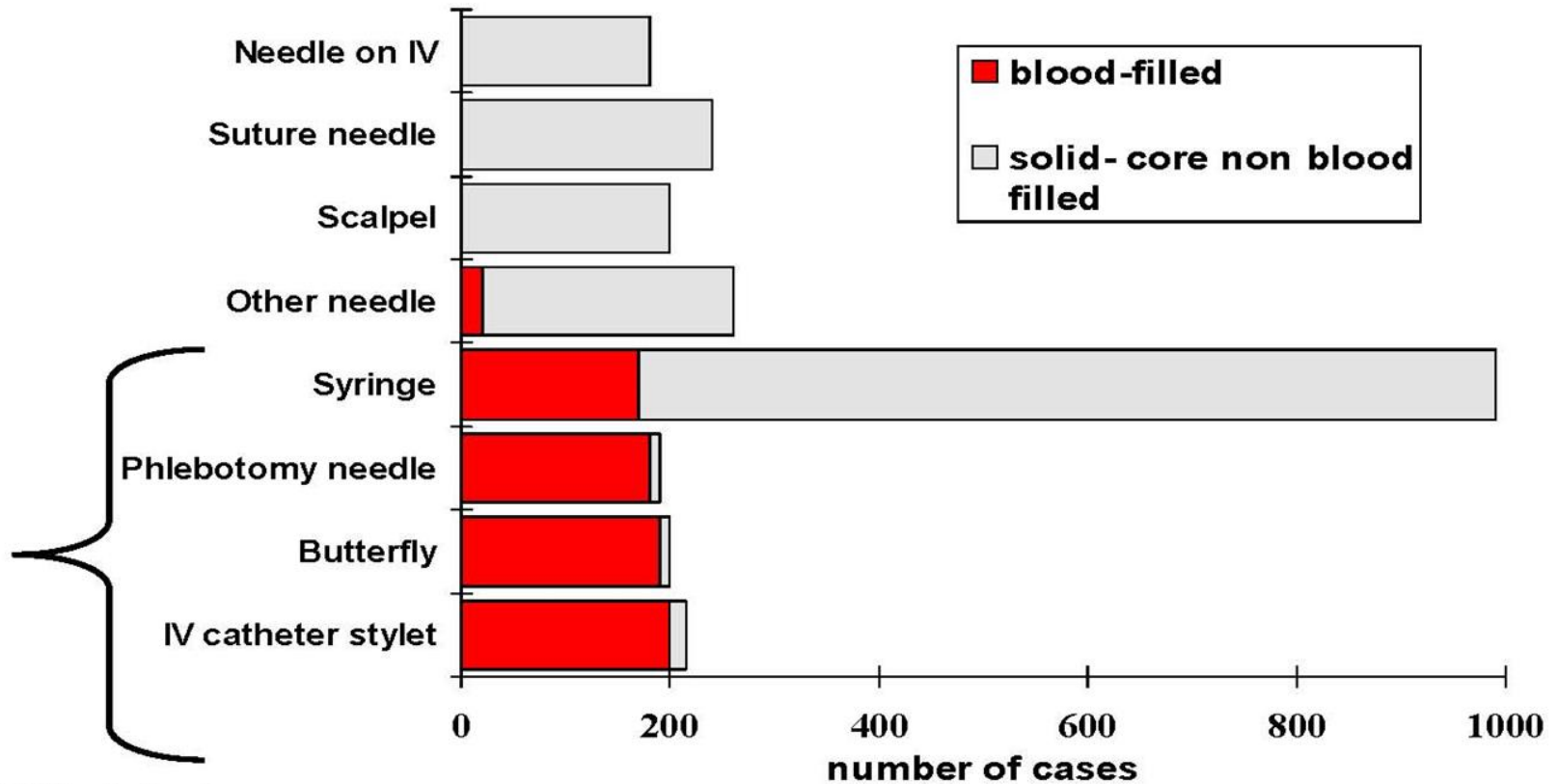
Bloodborne Pathogens: Risks and Prevention Measures

Virus	Risk of transmission from needlestick	Pre -exposure prevention measures
Hepatitis B	5 – 45%	Vaccine Safer work practices
Hepatitis C	1 – 3%	Safer work practices
HIV	0.3%	Safer work Practices

What Types of Exposures are Considered Highest Risk?

- Injury with hollow-bore needles used in patient's vein or artery
- Exposures to blood with a high viral titer
- Deep injury
- Exposure to large quantity of blood

Devices Causing Sharps Injuries



Blood-filled device injuries are highest risk

US EPINet Data *55 hospitals 3,067 cases



Preventing Exposure to Bloodborne Pathogens:

- **Universal precautions**
- Work practices controls
- Sharps safety

Standard (Universal) Precautions

- Consider all blood and body fluids as potentially infectious
- Use appropriate **barrier precautions*** to avoid direct contact with all blood or body fluids from any patient
- For all patients wear **gloves*** when:
 - touching blood, body fluids, mucous membranes, or non- intact skin
 - drawing blood, starting IV catheters, etc.
- Use gloves once, dispose of, wash hands
- **Gown, mask, eye protection*** where appropriate

* PPE – see next slide

PPE: Personal Protective Equipment

- “Specialized clothing or equipment worn by an employee for protection against infectious materials” (OSHA)
- PPE can be considered a first line of defense against blood and body fluid exposures
- **Gloves** – bare hands should never touch body fluids, mucous membranes or open skin lesions
- **Mask and goggles or a face shield** – prevent splash exposures to mucous membranes (eyes, nose, mouth)
- **Gowns** – when there is a possibility of exposure to a large volume of patient body fluid (i.e. trauma bay, OR), gowns impervious to liquid may be worn

Rules To Follow with PPE:

- Always wear PPE when there is a possibility of being exposed to infectious materials
- Remove & replace PPE that is torn or punctured
- Remove PPE before leaving the work area

Sharps Injuries Occur Due To:

- Improper activation of safety mechanisms
- Passing or transferring equipment
- Recapping needles
- Accessing full sharps containers
- Collisions with co-workers
- Sharps left behind: in/on laundry, mattresses, tables, trays or other surfaces

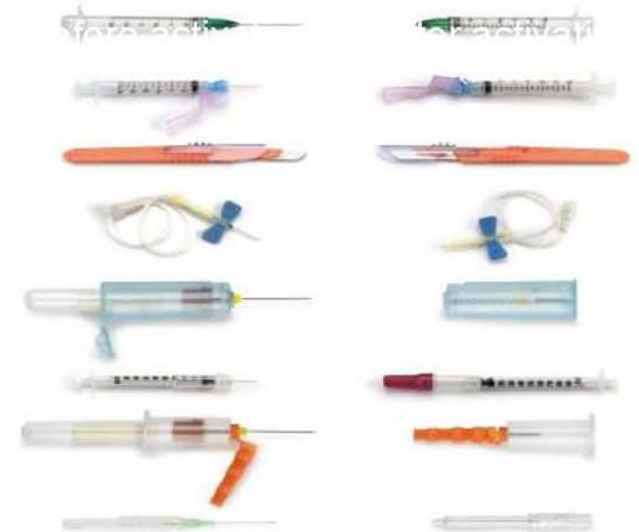
Sharps Containers



Safety Devices: Things You Need to Know

- Most safety features are not passive...
 - the user must activate the safety mechanism
- It is not always obvious how some safety features work....
 - training is necessary
- Safe work practices are important...
 - safety devices do not prevent all injuries
- Safety devices are not available for all tasks

Devices with Engineered Sharps Injury Prevention Features



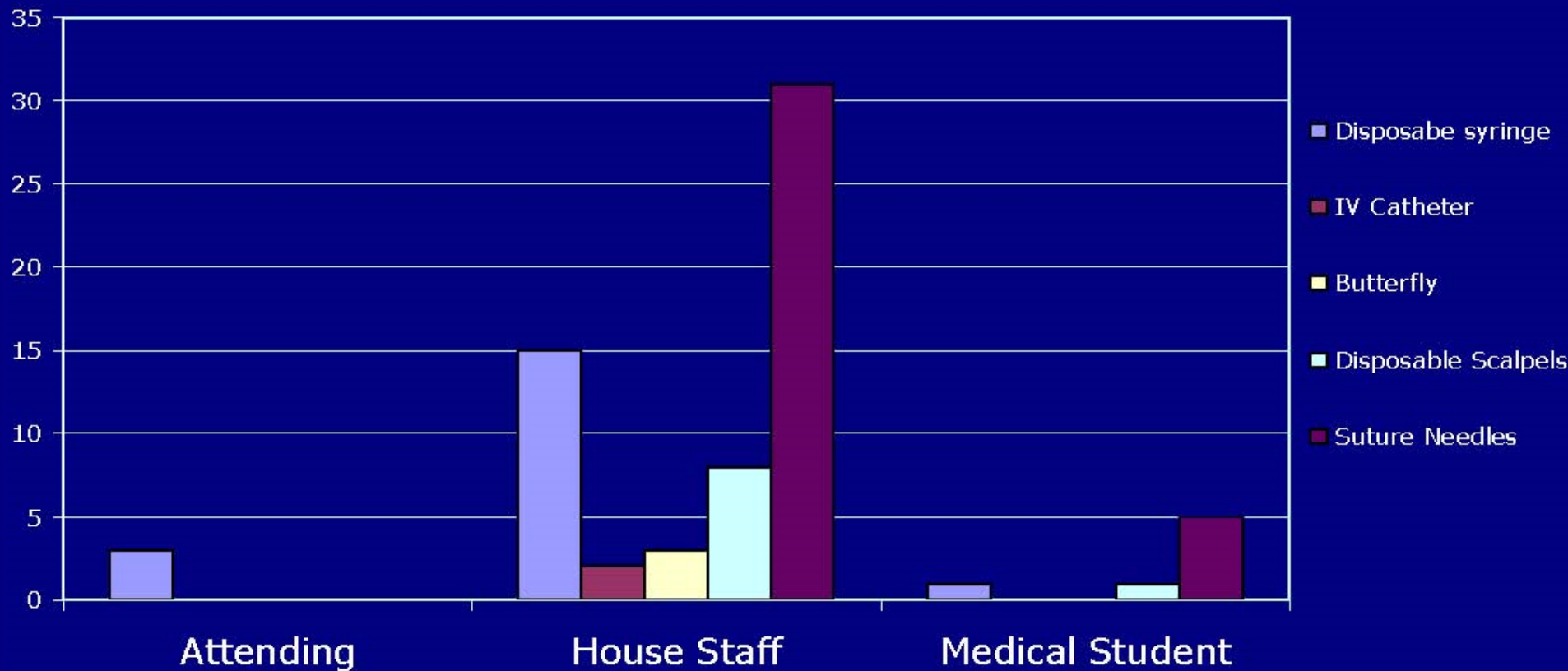
Sharp Object Injury & Blood/ Body Fluid Exposure by HCW Occupation: Grady

Occupation	Grady 2009 (n=277)
House Staff	77 (28%)
RN/LPN	88 (32%)
Attending MD	15 (5%)
Medical Student	17 (6%)
Paramedic/EMT	27 (10%)
Surgery Tech	8 (3%)
CNA	1 (0%)
Mid-Level Provider	6 (2%)
Phlebotomist	7 (3%)
Housekeeper	4 (1%)
Respiratory Therapist	0 (0%)
Other	27 (10%)

Where Do Sharps Injuries Occur?

	National Data*	Grady 2009
Patient room (inpatient)	39%	41%
Operating room	27%	18%
Outpatient	8%	9%
ER	8%	17%
Laboratory/ Pathology	5%	5%

Needle or Surgical Device by Occupation



Bloodborne Pathogen Exposure - What to do If you have an exposure or think you might have had an exposure:

- Report it
- Report it even if you're not sure it's really an exposure
– it's not your job to make this judgement
- Report it right away –
 - time is of the essence in managing exposures to HIV
 - if medications are indicated they should be started within four hours of an exposure
- Report it!

HCW Blood/Body Fluid Exposures

What to Do:

Step 1: Local Care

- Wash puncture wounds and cuts with soap and water
 - If visible defect, wound should be irrigated with sterile saline
- Exposed oral and nasal mucosa should be decontaminated by vigorous flushing with water
- Eyes should be irrigated with clean water, saline or sterile irrigants

HCW Blood/Body Fluid Exposures

What to Do:

Step 2: Immediately Report the Exposure

- During week-day hours:
 - **Employee/Occupational Health Services** at the hospital where exposure occurred
- During nights/weekends/holidays:
 - **Call 404-616-STIX and then report to PACE zone in emergency room**

Why Report?

- Because you will worry if you don't
 - If you do report, but you'll have some support while you feel anxious
 - Our psychologist contacts every person who reports an exposure to check on their emotional well-being
- For your physical safety and health
 - Specific interventions may be indicated that can decrease the risk of the exposure
- For your financial / legal protection
 - Very unlikely that virus transmission would occur, but the impact of such a transmission event would be even worse without documentation to prove occupational acquisition
- To provide information that can be used in developing new prevention messages

Protecting Your Patients

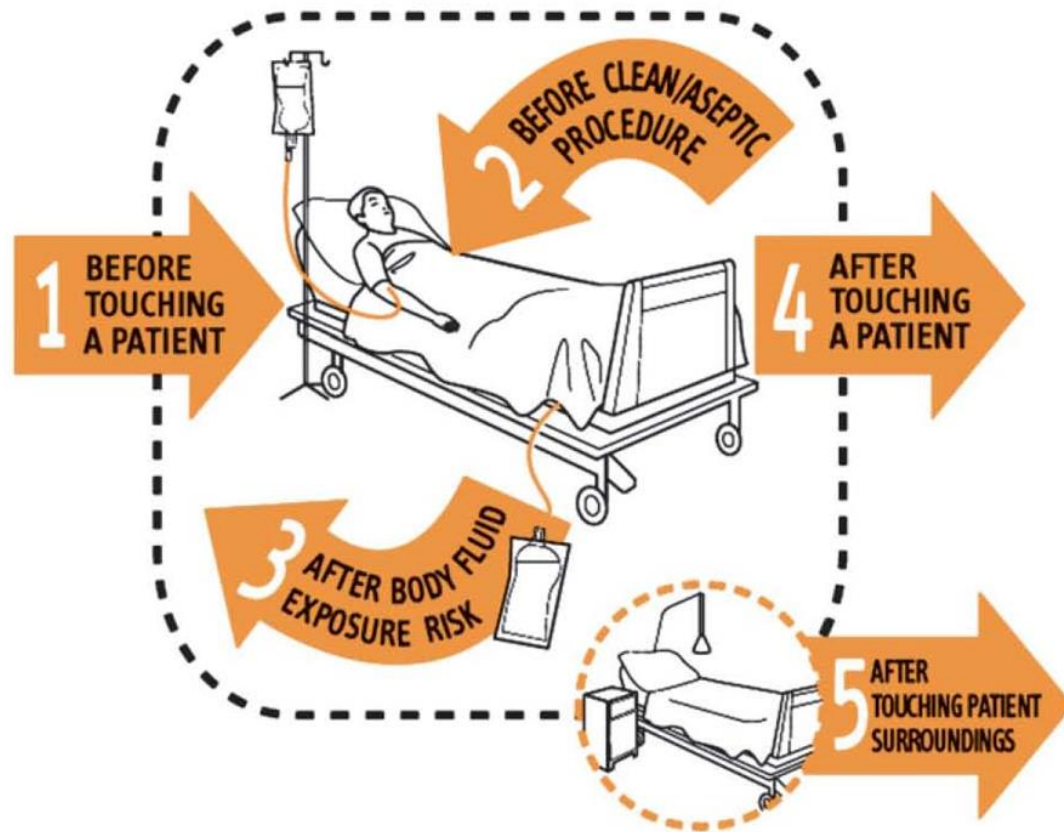


When Should Hands be Cleaned?

- Before and after every patient contact
- After taking off gloves

Hand disinfection is the single most important intervention for the prevention of nosocomial infections in hospitalized patients.

My 5 moments for HAND HYGIENE



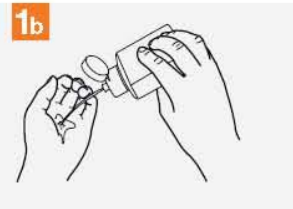
HOW TO HANDRUB?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

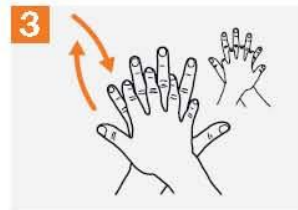
🕒 Duration of the entire procedure: 20-30 seconds



1a Apply a palmful of the product in a cupped hand, covering all surfaces;



2 Rub hands palm to palm;



3 Right palm over left dorsum with interlaced fingers and vice versa;



4 Palm to palm with fingers interlaced;



5 Backs of fingers to opposing palms with fingers interlocked;



6 Rotational rubbing of left thumb clasped in right palm and vice versa;




7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



8 Once dry, your hands are safe.

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

 Duration of the entire procedure: 40-60 seconds



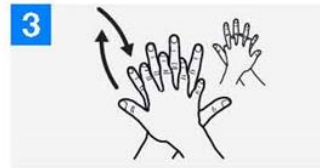
Wet hands with water;



Apply enough soap to cover all hand surfaces;



Rub hands palm to palm;



Right palm over left dorsum with interlaced fingers and vice versa;



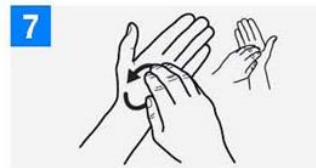
Palm to palm with fingers interlaced;



Backs of fingers to opposing palms with fingers interlocked;



Rotational rubbing of left thumb clasped in right palm and vice versa;



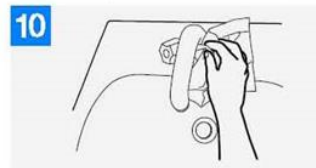
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



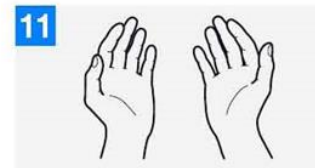
Rinse hands with water;



Dry hands thoroughly with a single use towel;



Use towel to turn off faucet;



Your hands are now safe.

GHS Fingernail Policy

- No artificial nails for direct patient care givers (gel, tips, acrylic, etc).
- Natural nails should not exceed 1/4 inch in length.



Standard Precautions – Updated by CDC in 2007

- Consider all blood and body fluids as potentially infectious
- Use appropriate barrier precautions to avoid direct contact with all blood or body fluids from any patient
- Respiratory Hygiene/Cough Etiquette
- Safe injection practices
- Use of masks for insertion of catheters or injection of material into spinal or epidural spaces via lumbar puncture procedures (e.g., myelogram, spinal or epidural anesthesia)
- Airborne, Droplet, Contact Precautions should be used when appropriate

Isolation Precautions

Standard (Universal) Precautions

Airborne Precautions TB Chickenpox Measles	Droplet Precautions Meningitis Parvovirus Influenza	Contact Precautions VRE MRSA
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- As discussed in the modules on bloodborne pathogens, Standard Precautions were initially developed as measures to protect healthcare workers from inadvertent exposure to bloodborne pathogens
- There are special categories of precautions (transmission-based) which may be implemented to prevent the transmission of other infectious agents in the healthcare setting:
 - Airborne precautions
 - Droplet precautions
 - Contact precautions

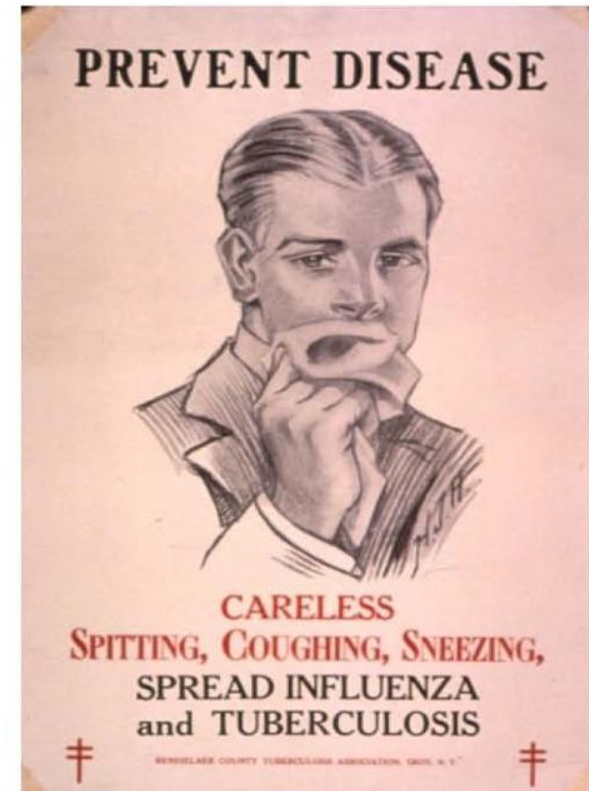
These transmission-based precautions are important in preventing transmission from patients to healthcare workers AND (very importantly) from patient to patient.

Respiratory Hygiene/Cough Etiquette

Covering sneezes and coughs and placing masks on coughing patients prevent infected persons from dispersing respiratory secretions into the air.

Elements of the respiratory hygiene/cough etiquette guidelines:

1. Education of healthcare facility staff, patients, and visitors – applies to all
2. Posted signs (e.g., “Cover Your Cough”) with instructions to patients and accompanying family members or friends
3. Source control measures (e.g., covering the mouth/nose on the coughing person with a tissue or surgical mask)
4. Hand hygiene after contact with respiratory secretions
5. Spacial separation, ideally >3 feet, of persons with respiratory infections in common waiting areas when possible



Airborne Infection Isolation

- Negative pressure room
- Varicella, measles, **TB**, smallpox, SARS
- N-95 respirator **for healthcare workers**
- Surgical-type masks **for the patient**
 - Worn when outside of the negative pressure room
 - Keeps droplet nuclei from becoming airborne



N-95 mask used by Emory-affiliated hospitals

AIRBORNE PRECAUTIONS

VISITORS: Report to Nurse before entering & must wear surgical mask. Antes de entrar, vea al enfermero

RESPIRATOR
Use mascarilla
When Healthcare Worker Entering Room

PERFORM HAND HYGIENE
Lávase las manos

- Before patient contact
- After removing PPE
- Prior to leaving room

DOOR MUST BE KEPT CLOSED
La puerta debe permanecer cerrada
Patient transport - Patient wears surgical mask

Respiratory Protection Training



- **How to maximize “best fit” of mask on your face**
 - “small” mask often needed
 - determined by shape of face/chin, not height and weight
 - Conform mask to make a tight seal on the face so that you create negative pressure inside the mask when you inhale
 - BOTH elastic straps should be worn for a proper fit

Droplet Precautions

DROPLET PRECAUTIONS

VISITORS: Report to Nurse before entering
Antes de entrar, vea al enfermero



PERFORM HAND HYGIENE

Lávase las manos

- Before patient contact
- After removing PPE
- Prior to leaving room



MASK

Mascarilla

Upon entry to room or
within 6 feet of patient
when outside room.

To prevent transmission of pathogens spread through close respiratory or mucous membrane contact with respiratory secretions

- Different from airborne isolation
 - Because these pathogens do not remain infectious over long distances, special air handling and ventilation are not required to prevent droplet transmission
- For:
 - Bacterial meningitis (1st 24 hours)
 - Influenza
 - Respiratory Syncytial Virus (plus contact precautions)