

Infection Control Standards In OR At Palestine Medical Complex

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Outline

- **Dressing for the theatre ?**
- **Masks – should we wear them?**
- **Food in the OR!**
- **Cleaning the environment – How clean is clean?**
- **– is hand washing enough?**
- **Surgical Hand Scrubs**
- **Instruments – is flashing good enough?**
- **Cleaning challenging instruments –**
- **Artificial Fingernails – there's no place for them in HC**
- **a body piercing !**
- **Infection control program .**
- **Conclusion**

Palestinian medical complex contain 4 wing



operation room at PMC

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| Wing | No of room | No of nurses |
|------------------------------|-------------------|---------------------|
| Ramallah wing | 5 | 18 |
| Pediatric wing | 1 | 3 |
| Especial surgery wing | 4 | 13 |
| Emergency wing | 2 | 3 |
| total | 12 | 37 |

**Ramallah wing
OPERATION**



Minor operation



**Pediatric wing
OPERATION**



Special surgery wing OPERATION



Definition :

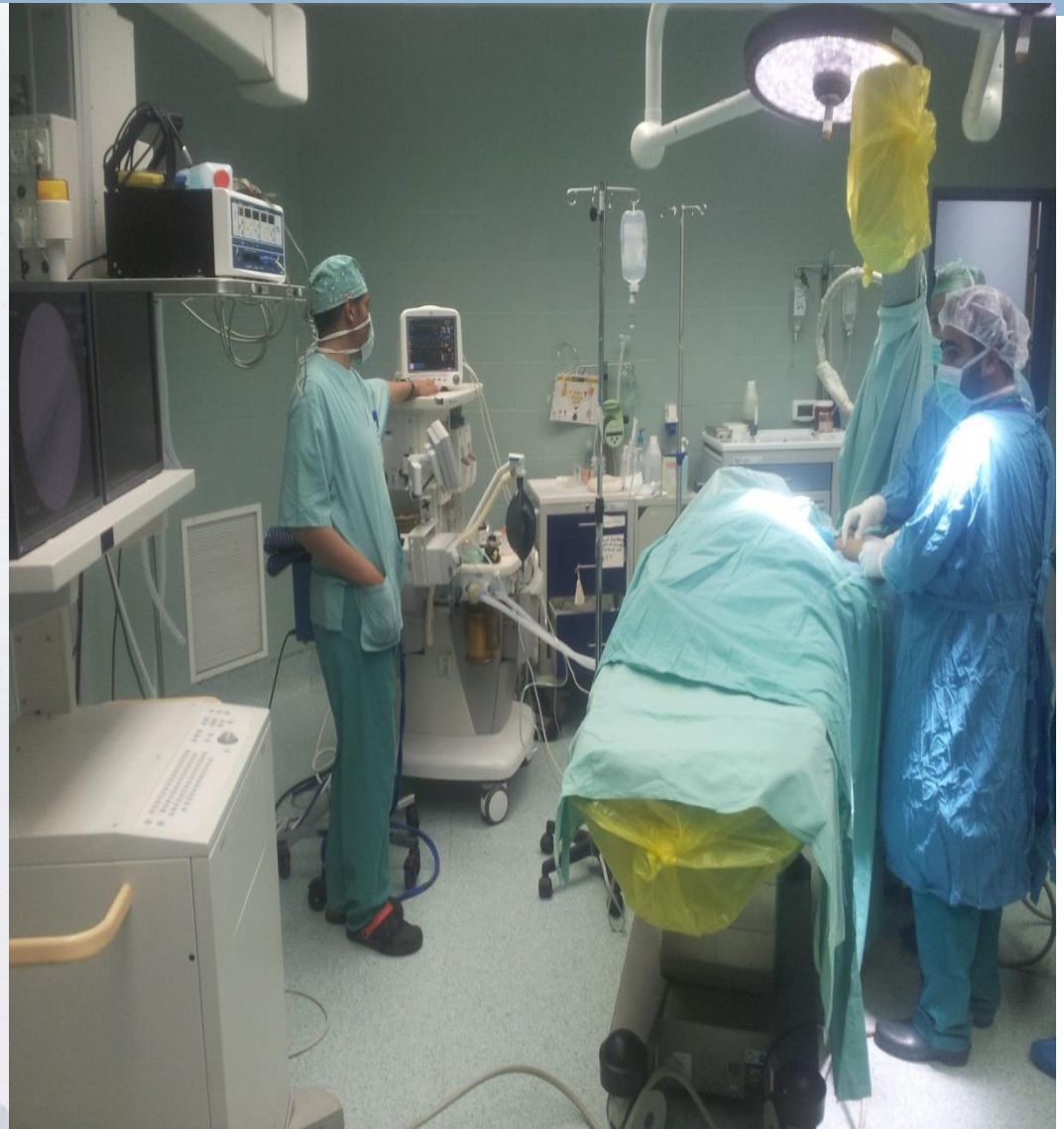
- **An operating room (OR), also called surgery center, is the unit of a hospital where surgical procedures are performed**



Introduction

- **Nosocomial infections affects approximately 2 million patients annually in acute care facilities**
- Studies shows** that nearly one-third of nosocomial infections can be prevented by a well organized infection control programme.
- But only less than 10% are actually prevented**

Dressing for the Theatre





Laundering of Scrubs

- **“Contaminated” scrubs should be washed in 160°F (71°C) water with 50-150 ppm chlorine bleach and dried in a hot dryer**



Home laundering?

- ▣ **University of Florida conducted a 4 year study to determine the effect on perinatal infection rate of wearing home laundered scrubs in L&D. Prior to study rate was 1.7% - after study rate was 1.0%.**
- ▣ **Practice was found to ↓ costs without in ↑ SSI**



WHO/CDC

- All persons entering the surgical theatre must **wear surgical attire restricted** to being worn only within the surgical area.
- The design and composition of surgical attire should **minimize bacterial shedding** into the environment
- No recommendations on how or where to launder scrub suits, on restricting use of scrub suits to the OR or for covering scrub suits when out of the OR.

Masks – should we wear them?



Masks – should we wear them?

- AORN Association Of Perioperative Registered Nurses – all persons entering the restricted area of the OR suite should wear a mask when open sterile items and equipment present.
- AORN acknowledges that there is a difference of opinion.
- CDC states “**a surgical mask that fully covers the mouth and nose when entering the OR** if surgery is about to begin, is already underway or if sterile equipment is open.”

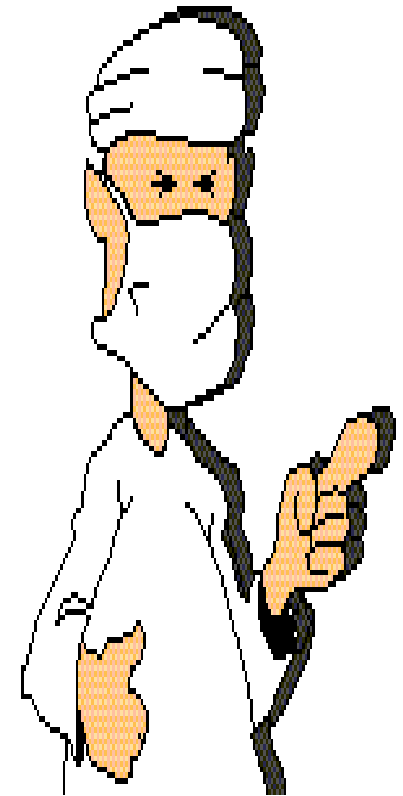
What's the evidence?

- Recent reports in the literature advocate wearing of masks by non-scrubbed staff with forced ventilation is not necessary
- Studies from Europe show that oral bacteria expelled during talking by non-scrubbed personnel not in the immediate vicinity of the operating site posed no risk of infection.



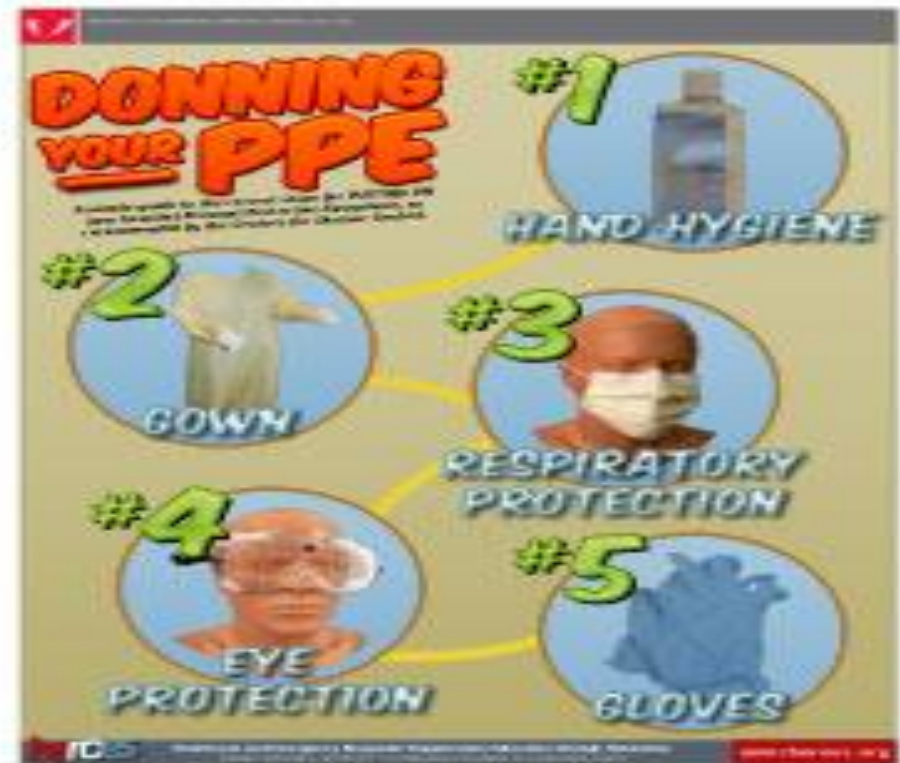
What is the risk?

- The risk of contamination depends on
 - Airflow
 - Traffic
 - Personal practices.
- Best practice would require wearing of mask, independent of distance until research provides definitive answers.



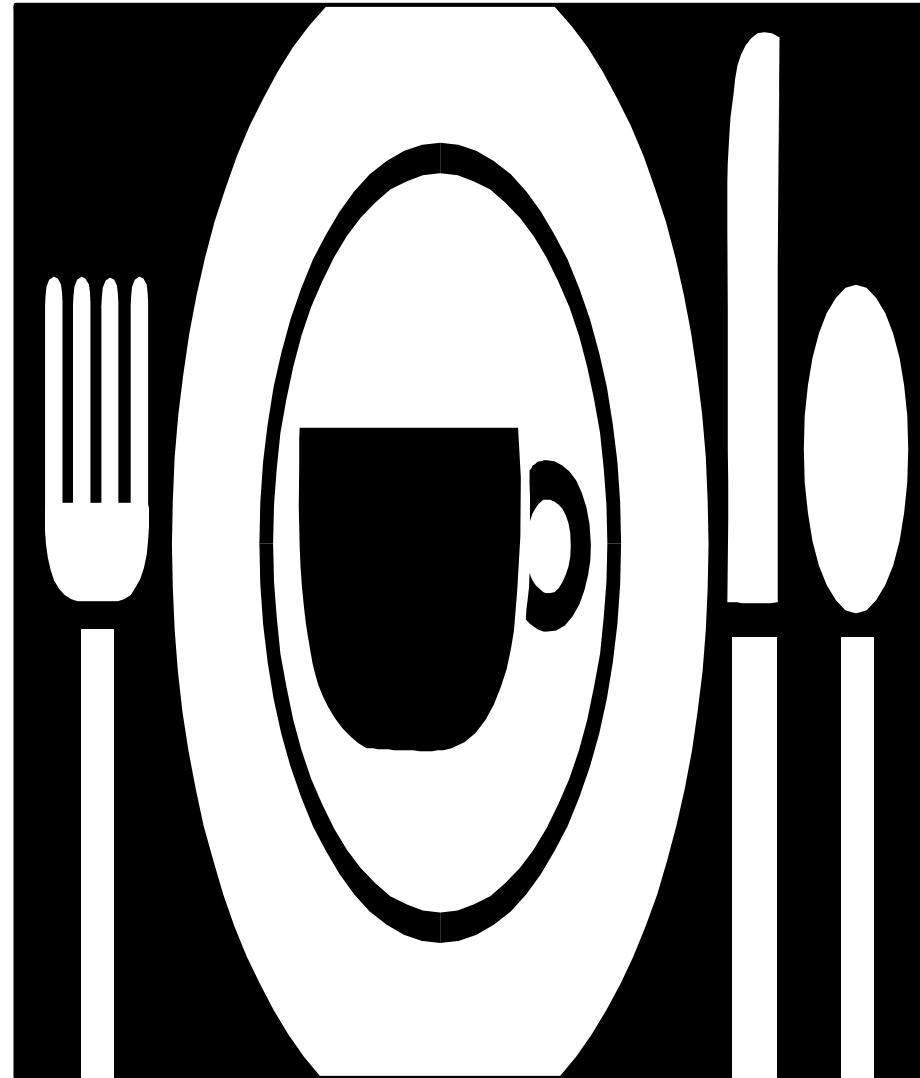
Personal Protection

- As part of Routine Practice
 - Wearing a mask as part to reduce the risk of exposure to potentially infectious material.



Food in the OR?

- Eating in the OR is not acceptable!
- Eating, drinking, smoking,



Cleaning the environment :



Cleaning the environment :

- Airborne bacteria must be minimized and surfaces kept clean.



WHO recommends: Cleaning the environment

- Cleaning of all horizontal surfaces **every morning**
- Cleaning and disinfection of horizontal surfaces and surgical items **between procedures**
- Complete cleaning of the OR **at the end of the day**
- Complete cleaning of the entire OR annex **once a week.**

Standard precautions for all patients

- **Wash hands** promptly after contact with infective material
- **Use no touch** technique wherever possible
- **Wear gloves** when in contact with blood, body fluids, secretions, excretions, mucous membranes and contaminated items
- **Wash hands** immediately after removing gloves
- **All sharps should** be handled with extreme care

Cont---

- **Clean up spills** of infective material promptly
- **Ensure that patient-care equipment**, supplies and linen contaminated with infective material is either discarded, or disinfected or sterilized between each patient use
- **Ensure appropriate** waste handling
- **If no washing machine** is available for linen soiled with infective material, the linen can be boiled.

Current Recommendations

- ❑ **Wash your hands!**
- ❑ **Follow Routine Practices**
- ❑ **Use contact precautions**
- ❑ **Use regular cleaning practices.**
- ❑ **Antibiotic resistance \neq disinfectant resistance.**



Hand Scrubs – Alcohol vs. CHX



Hand Scrubs – Alcohol vs. CHX

- ❑ **A surgical hand disinfection should be performed by all persons participating in the operative procedure.**
- ❑ **The AORN continues to recommend the traditional hand scrub with an antimicrobial hand scrub agent.**
- ❑ **AORN acknowledges that alcohol is an excellent skin antiseptic with a persistent effect for up to three hours.**

Instruments – is flashing good enough?

- **Flash sterilization** should only be used for patient care items that will be used immediately (e.g. to reprocess an inadvertently dropped instrument)
- **Instruments should not** be flash sterilized because it is convenient or because you don't have enough sets or to save time!

Flash Sterilization

- ❑ A chemical integrator that confirms temperature, pressure and steam saturation was achieved.
- ❑ Instruments must be cleaned before they can be sterilized.
- ❑ Cycle 3 minutes at 132°C for non-porous, non-lumen
- ❑ Cycle 10 minutes at 132°C for porous or lumened instruments.
- ❑ Complex instruments – only at manufacturer's recommendation.
- ❑ Ensure staff are educated, process monitored and audited.

“The infection control dream”

- **“an instrument that is never reused does not present and infection risk to another patient!”**



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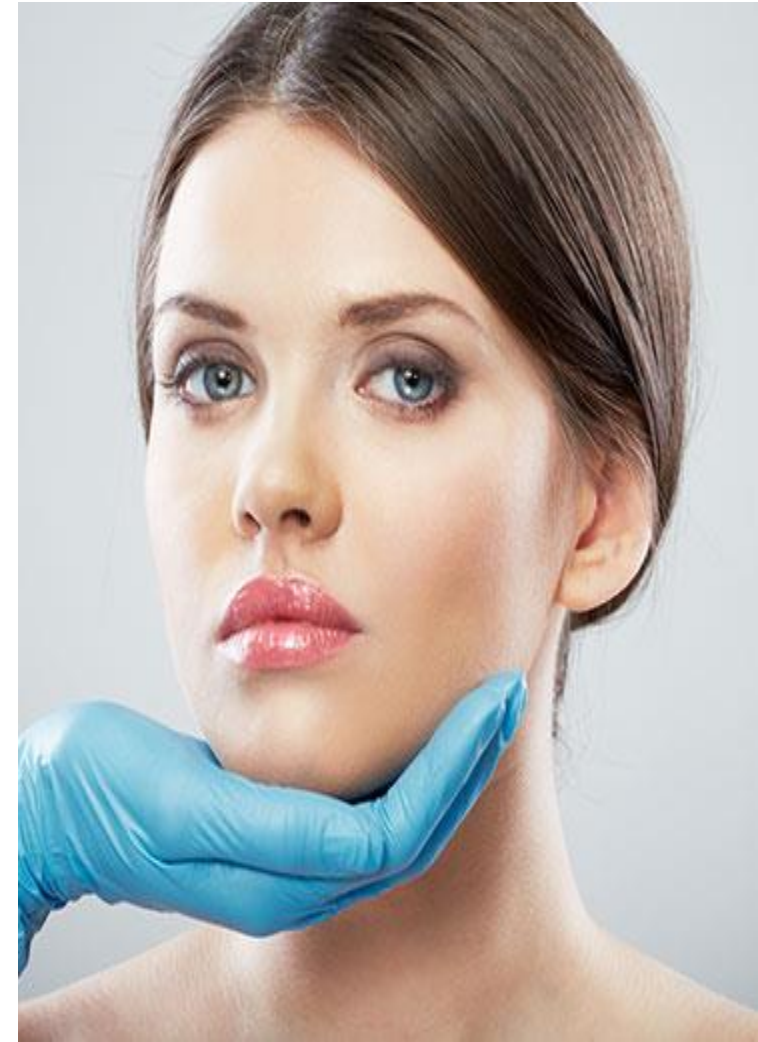


Problems with Endoscopes

- ❑ Long narrow shaft are difficult if not impossible to clean.
- ❑ The more complicated the device the harder it is to clean.
- ❑ Focus is on function, not on cleaning in the design phase.
- ❑ Forces sterile processing technicians to do what they can and hope for the best...

Cosmetic in the OR?

- applying cosmetics or lip balm and handling contact lenses in work area where there is reasonable likelihood of occupational exposure to infectious materials is prohibited.



What about artificial fingernails?



a body piercing

- **Removing jewelry means removing jewelry!**
- **There is a risk of burns if an electrosurgical unit is used.**



Designing the OR for IC

- **Special attention given to surfaces finishes for ease of cleaning and durability.**
 - **Epoxy terrazzo floor.**
 - **Ceramic tile walls with epoxy-based grout.**
 - **Seamless gypsum wallboard for ceiling, sealed with epoxy paint.**
 - **Stainless steel and glass cabinets.**

Stainless steel

Epoxy terrazzo



Ventilation

- Laminar flow HVAC system that delivers air from the ceiling and exhausts in rooms corners.
- Positive pressure to outside rooms
- All ductwork insulated on the exterior to minimize surfaces where moulds and bacteria can grow.

Positive pressure



Negative pressure

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Lighting

- Voice command adjustable lighting.
- Gaskets and seals on fixtures to promote dust control and make cleaning easier.



Surgical Safety Checklists

- Researchers found that using a checklist in surgery significantly reduce Post-Op Complications, wound infections and blood loss

OR SURGICAL SAFETY CHECKLIST

BEFORE INDUCTION OF ANESTHESIA →

(Nurse or anesthetist reads out loud)

BEFORE SKIN INCISION →

(Circulator Calls Time -Out)

BEFORE PATIENT LEAVES ROOM

(Nurse reads out loud)

Has the patient confirmed:

- Identity
- Site
- Procedure
- Consent
- Surgical site marked?

Does the patient have a known allergy:

- Yes No

Difficult airway/aspiration risk?

- No
- Yes, and equipment/assistance available

Risk of > 500ml blood loss or (7ml/kg in children)?

- No
- Yes, and two IVs/central access and fluids planned.

Risk of hypothermia (operation >1hr)?

- No
- Yes, and warmer in place

Anticipated Critical Events

Surgeon reviews:

- Are there any patient-specific concerns?

Anesthesiologist Reviews:

- Are there any patient-specific concerns?

Nursing team Reviews:

- Are there equipment issues?

- Are there any patient-specific concerns?

Surgical Scrub Reviews:

After induction of anesthesia

- Confirm all team members have names & roles written on the white board.

Time Out

Surgeon, anesthesiologist, scrub, circulator nurses verbally confirm:

- Patient identification
- Procedure
- Side / Site

Has antibiotic prophylaxis been given within the last 60 minutes?

- Yes
- Not applicable

Operative duration?

- If case longer than 4 hours antibiotic re-dosing necessary

Is essential imaging displayed?

- Yes
- Not applicable

* BEFORE SKIN INCISION check complete *

Nurse verbally confirms with the team:

- Name of the procedure recorded
- Instrument, sponge & needle counts are correct
- How the specimens are labeled (including patient name) and disposition
- Whether there are any equipment problems to be addressed

- Surgeon, anesthesiologist, and nurse review the key concerns for recovery and management of this patient.

* BEFORE LEAVING ROOM check complete *

Education and Training: Key for OR Hygiene





**Hospital
program**



**Infection
control
program**

**Infection
control
team**

**Infection
control
committee**

**Infection
control
manual**

Goal of Infection control program “ ICP “

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- ❑ **Protect the patients**
- ❑ **to improve clinical outcomes using a multidisciplinary team approach .**
- ❑ **to promote a healthy and safe environment by preventing transmission of infectious agents among patients, staff and visitors.**
- ❑ **To keep healthcare systems viable, costs must be cut to increase the profit margin.**
- ❑ **should be cost control and reduction**

To be effective the infections control programme should include the following

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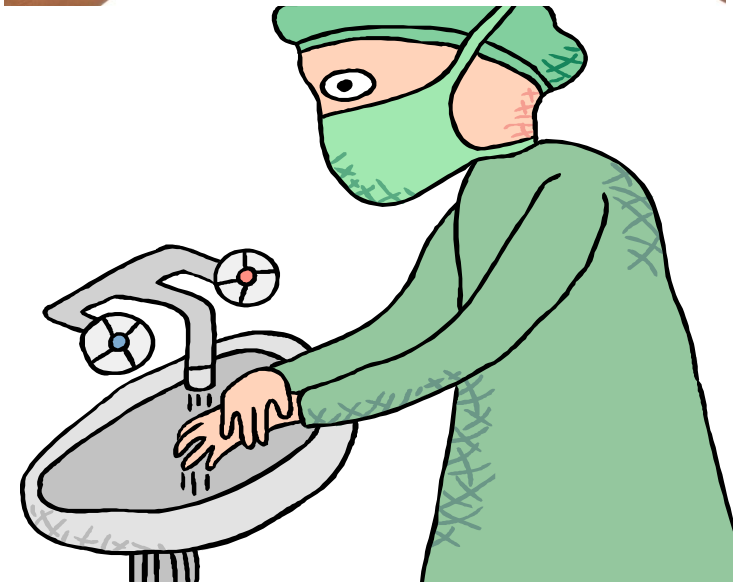
- 1. Organized surveillance and control activities**
- 2. One infection control practitioner for every major Health Facility.**
- 3. A Trained Hospital Epidemiologist**
- 4. A system for reporting surgical wound infection rates and other infection back to the practicing surgeons and physicians**

according of JCI Patient Safety Goal number seven (7) is very important for infection control:

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7. “Reduce the risk of health care acquired infections”
(Nosocomial Infections-
Hospital Acquired
Infections)

Number one way...Good
Hand Hygiene
**Practices...WASH,WASH,
and WASH AGAIN!**





**Program
component**

surveillance

**Preventive
activity**

**Staff
training**

مجمع فلسطين الطبي

نتائج مسحات الزراعة من اقسام العمليات

شهر 4 لسنة 2014

| No | Wing | Division | Room | Location | Sample Type | Sampler | Receiving Date | Result | Result Date | LabTech .Sign |
|----|---------------|----------|------|------------|-------------|---------|----------------|-----------------|-------------|---------------|
| 1 | جناح رام الله | العمليات | 2 | bed | swab | ميساء | 06/04/2014 | No growth | 08/04 | عايده |
| 2 | جناح رام الله | العمليات | 4 | trolley | swab | حنين | 06/04/2014 | Staphaures | 08/04 | عايده |
| 3 | جناح رام الله | العمليات | 3 | Oxygen | swab | حنين | 06/04/2014 | No growth | 08/04 | عايده |
| 4 | جناح رام الله | العمليات | 1 | Bed | swab | حنين | 06/04/2014 | No growth | 08/04 | عايده |
| 5 | جناح رام الله | العمليات | 4 | ventilator | swab | حنين | 06/04/2014 | Staphepidermeds | 08/04 | عايده |



مجمع فلسطين الطبي

نتائج مسحات الزراعة من اقسام العمليات

شهر 5 لسنة 2014

| No | Wing | Division | Room | Location | Sample Type | Sampler | Receiving Date | Result | Result Date | LabTech .Sign |
|----|---------------|----------|------|------------|-------------|---------|----------------|-----------|-------------|---------------|
| 1 | جناح رام الله | العمليات | 2 | Light | swab | حنين | 19/05/2014 | No growth | 20/05 | ميسون |
| 2 | جناح رام الله | العمليات | 4 | Oxygen | swab | حنين | 19/05/2014 | No growth | 20/05 | ميسون |
| 3 | جناح رام الله | العمليات | 3 | Trolley | swab | حنين | 19/05/2014 | No growth | 20/05 | ميسون |
| 4 | جناح رام الله | العمليات | 1 | Bed | swab | حنين | 19/05/2014 | No growth | 20/05 | ميسون |
| 5 | جناح رام الله | العمليات | 4 | ventilator | swab | حنين | 19/05/2014 | No growth | 20/05 | ميسون |

Actions that have been taken

- **Reporting to ICC**
- **Clean and disinfect the operation room**
- **Training and education for all staff**
- **Swap culture were taken again**
- **The result was negative**

لأجراءات التي تم اتخاذها للنتائج التي تحمل نمو للبكتيريا

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- ✓ تم رفع تقرير بالنتائج التي ظهر في نمو للبكتيريا في بعض الاماكن في قسم العمليات.
- ✓ تم البدء في عملية تنظيف وتطهير للاماكن ذات الصلة .
- ✓ تم اعطاء وقت كافي للزملاء في القسم للتنظيف والتطهير.
- ✓ تم اعادة أخذ مسحات ثانية من الاماكن ذات الصلة للتأكد من خلوها من البكتيريا بعد التنظيف والتطهير.
- ✓ تم التأكد من النتائج وخلوها من البكتيريا.

مجمع فلسطين الطبي

نتائج مسحات الزراعة المعادَة من اقسام العمليات للأماكن التي ظهر فيها نمو للبكتيريا

شهر 4 لسنة 2014

| No | Wing | Division | Room | Location | Sample Type | Sampler | Receiving Date | Result | Result Date | LabTech .Sign |
|----|---------------|----------|------|------------|-------------|---------|----------------|-----------|-------------|---------------|
| 2 | جناح رام الله | العمليات | 4 | trolley | swab | حنين | 09/04/2014 | No growth | 10/04 | ميسون |
| 5 | جناح رام الله | العمليات | 4 | ventilator | swab | حنين | 09/04/2014 | No growth | 10/04 | ميسون |

Cont----- hospital program

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Patient care

- Hand hygiene
- Isolation precautions practices
- Invasive procedures (intravascular and urinary catheterisation, mechanical ventilation, tracheostomy care, and wound management)
- Oral alimentation

Area specific procedures

- Isolation precautions procedures for infectious patients
- Surgical and operating theatre techniques
- Obstetrical, neonatal, and intensive care techniques

Cont----

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Processing of items of critical importance

- Cleaning, sterilisation, and disinfection
- Medication and preparation of infusions (including blood products)

Staff health

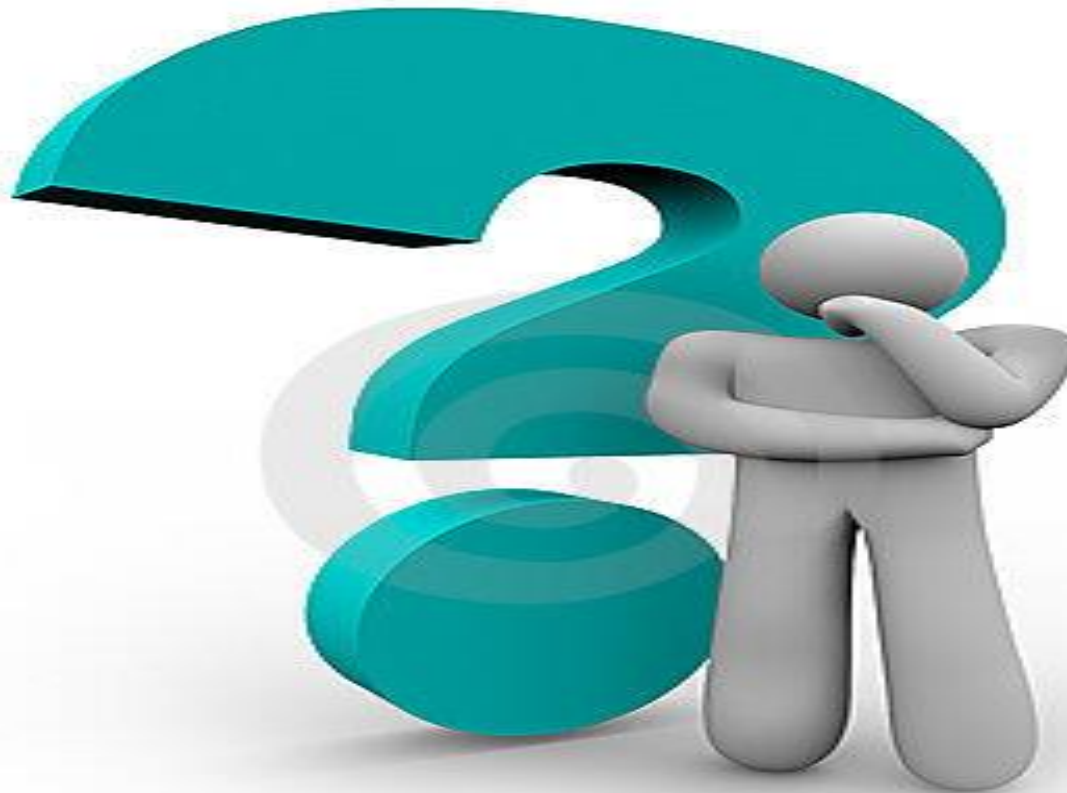
- Immunisation
- Post-exposure management for employees, patients, and others
- exposed to infectious diseases within the facility

Investigation and management of patients with specific infections

- Methicillin-resistant *Staphylococcus aureus* (MRSA)
- Diarrhoea
- Human immunodeficiency virus
- Tuberculosis
- Multi-resistant Gram-negative bacteria

Infection control is responsibility of ???

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Do not forget it is everyone's responsibility

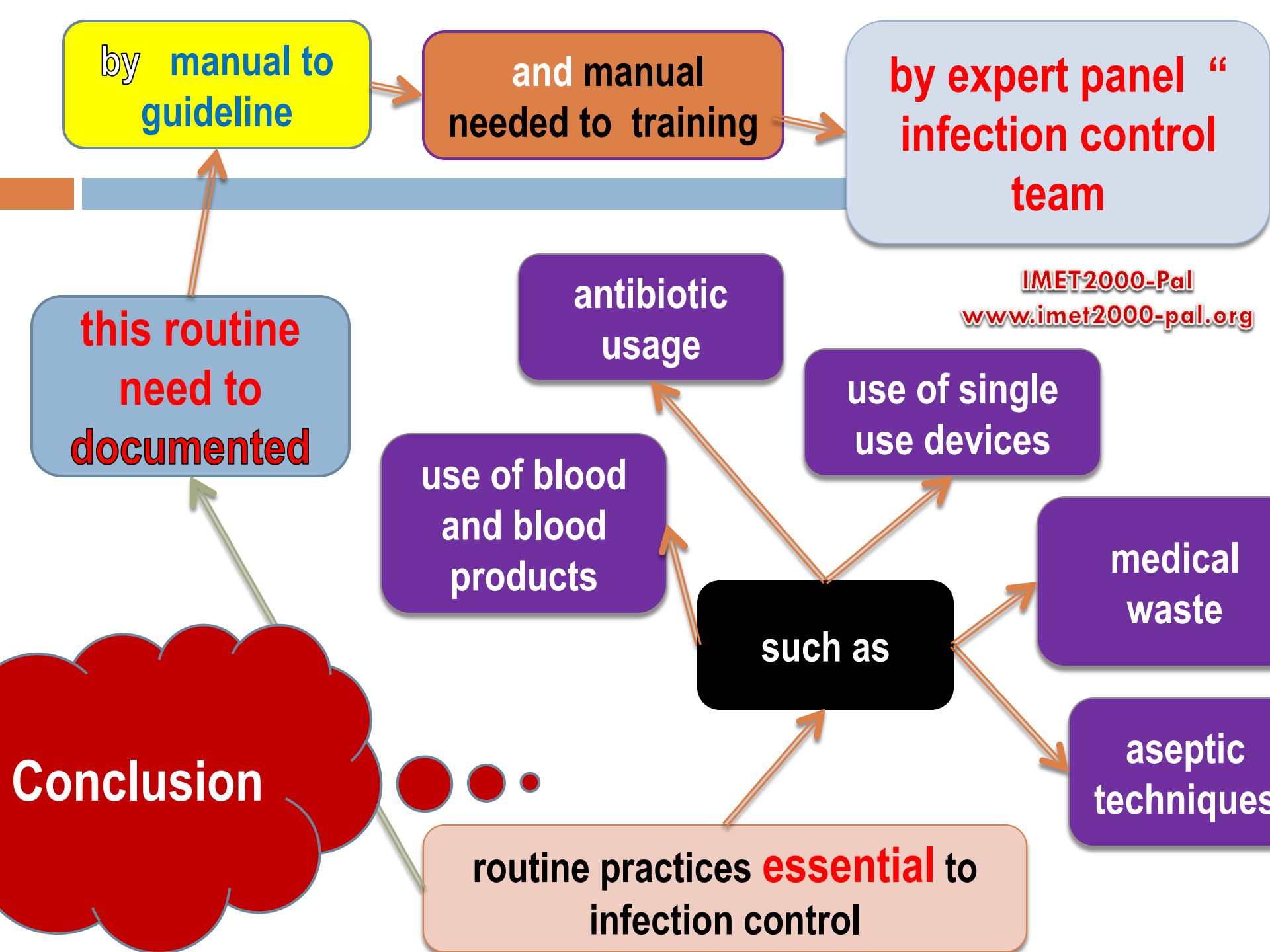


The Important Components Of Infection Control Program

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- 1) **Basic measures i.e. standard and additional precautions**
- 2) **Education and training of healthcare workers**
- 3) **Protection of healthcare workers e.g. immunization**
- 4) **Identification of hazards and minimizing risks**
- 5) **Routine practices such as aseptic techniques, handling and use of blood and blood products, waste management, use of single use devices**
- 6) **Surveillance**
- 7) **Incident monitoring**
- 8) **Research**



THANK YOU

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Attention

