

**Prevention
of
Surgical Site Infection**

**Preventive Measures
in
Operating Theatre**

Good Practice

Appropriate use of prophylactic antibiotics

Appropriate hair removal

Patient education (Pre-op)

OT control (Intra-op)

Observation (Post-op)

Appropriate use of prophylactic antibiotics

- Indicate in dirty or contaminated wound
- initial dose 1/2 hour before surgical incision
- not exceed 24 hours
- complete the infusion before the tourniquet is inflated.
- Aware of allergy

Contributing factors

Patient

- age group—when very young/old
- rheumatoid arthritis
- size/weight—eg, obese
- nutritional status
- malignancy
- acute infection prior to surgery
- underlying diseases
- renal failure
- diabetic
- blood transfusions
- steroid/cytotoxic therapy
- foreign bodies

Surgery

- surgical wound classification
- emergency surgery
- operative site
- length of surgery
- wound contamination during surgery
- use of drains
- surgical technique
- wound closure
- length of incision
- implants in situ

Situation

- ultra clean OR—clean air systems, stringent cleaning at end of OR list
- length of preoperative stay
- presence of other infections
- preoperative preparation
- skin preparation
- number of people in OR
- traffic volume during the surgery

Recommendations on Prevention of Surgical Site Infection



衛生防護中心

Centre for Health Protection

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Pre-operative Surgical Hand Preparation of Surgical Team

Surgical Scrubbing Technique



New Concept



NO BRUSHES

New Concept



Nail Cleaner

New Concept



Waterless Brushless Scrubless

THREE PUMP APPLICATION

- First application of the day, clean under nails with a 3M™ Avagard™ Nail Cleaner.
- Apply to clean, dry hands and nails.



STEP 1

Dispense **one pump** (2 ml) into the palm of one hand. Dip fingertips of the opposite hand into the hand prep and work under fingernails. Spread remaining hand prep over the hand and up to just above the elbow.



STEP 2

Dispense **one pump** (2 ml) and repeat procedure with opposite hand.

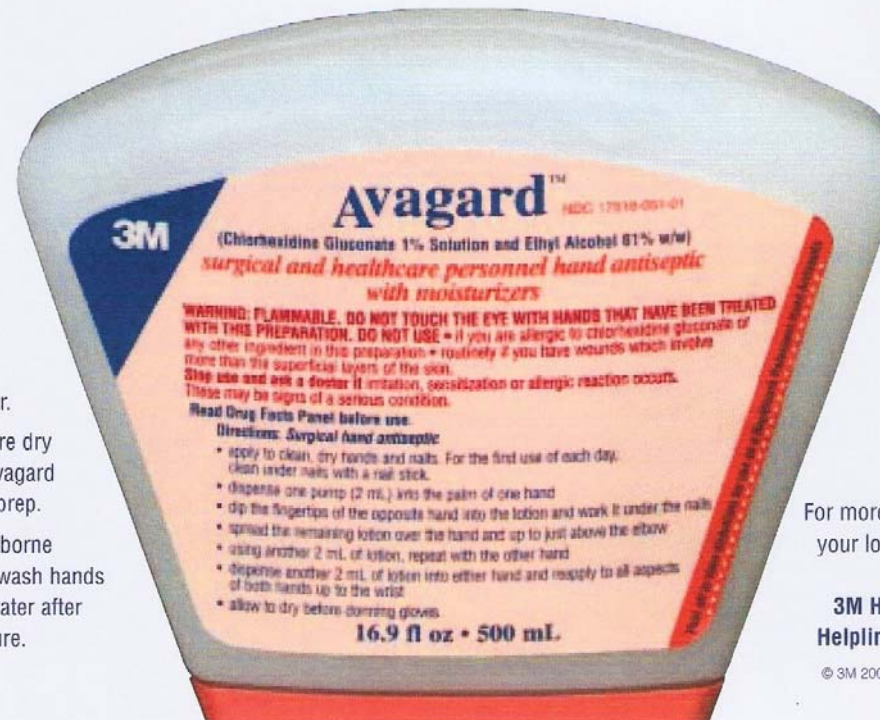


STEP 3

Dispense **final pump** (2 ml) of hand prep into either hand and reapply to all aspects of both hands up to the wrists. Rub hand prep into hands until completely dry.

TIPS

- Do not use water.
- Be sure hands are dry prior to using Avagard antiseptic hand prep.
- Per OSHA Bloodborne Pathogen Rule, wash hands with soap and water after surgical procedure.



For more information, contact
your local 3M representative
or call:
**3M Health Care Customer
Helpline at 1-800-228-3957**

Surgical Gloving

Open method

Close method

New Concept



Ventilation and Environment in the Operating Theatre

Air Flow

Room design/Room size

Exert traffic control

Airflow of Operating Theatre

Positive Pressure

Air exchange/ temperature/ humidity

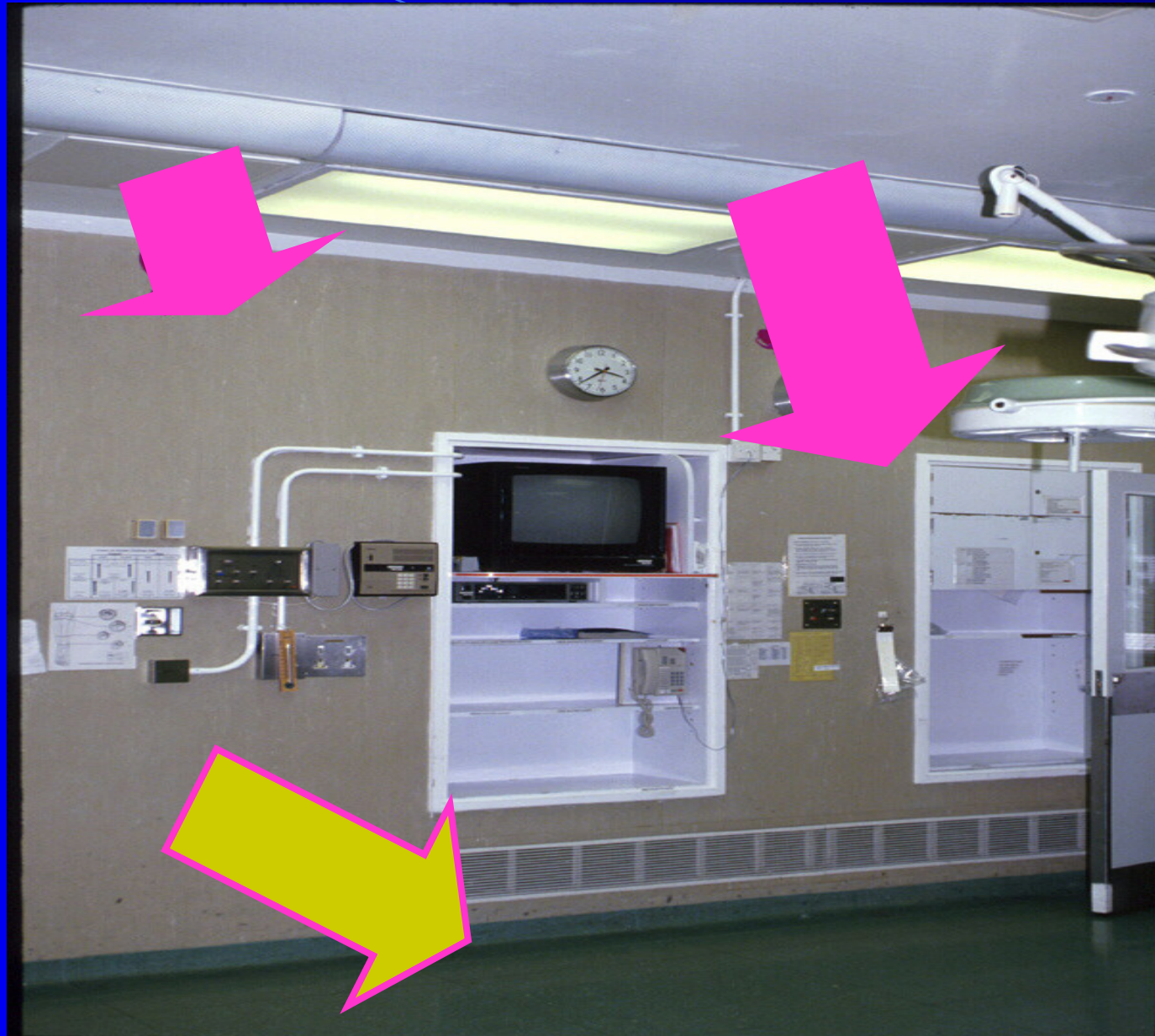
HEPA filter VS Laminar flow

Double/ Single Door

Limited movement/ personnel

Negative pressure system in OT

Positive air pressure



Negative air pressure



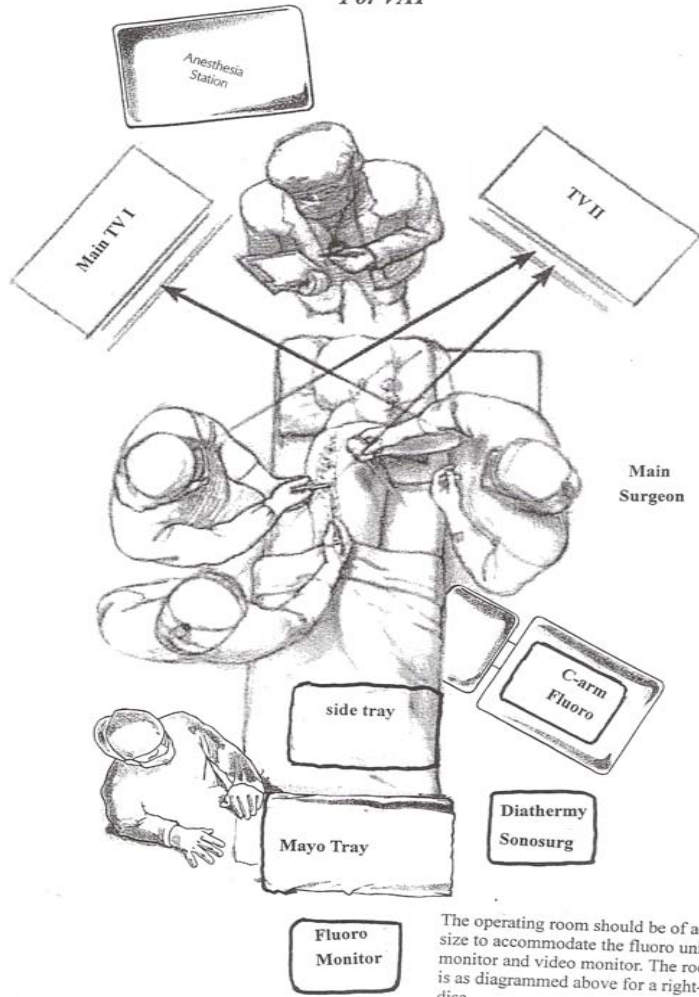
Double door



Theatre

Patient Positioning & Operating Room Set-Up

For VAT



The operating room should be of adequate size to accommodate the fluoro unit, fluoro monitor and video monitor. The room set-up is as diagrammed above for a right-sided disc



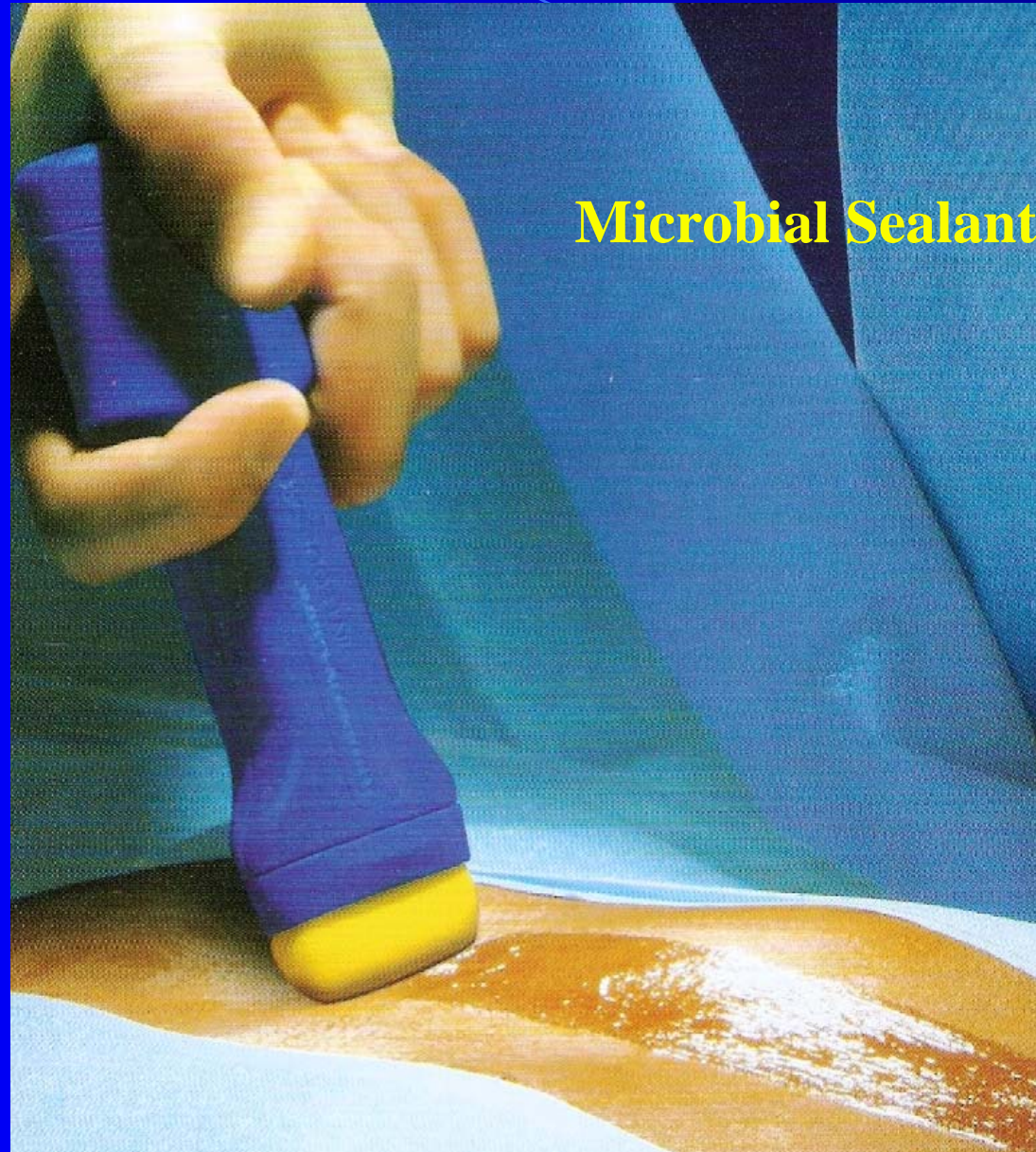
Skin Preparation

- Remove hair only when it interferes with the operation.
- Perform hair removal immediately before surgery and preferably with a clipper
- Razors are not recommended.

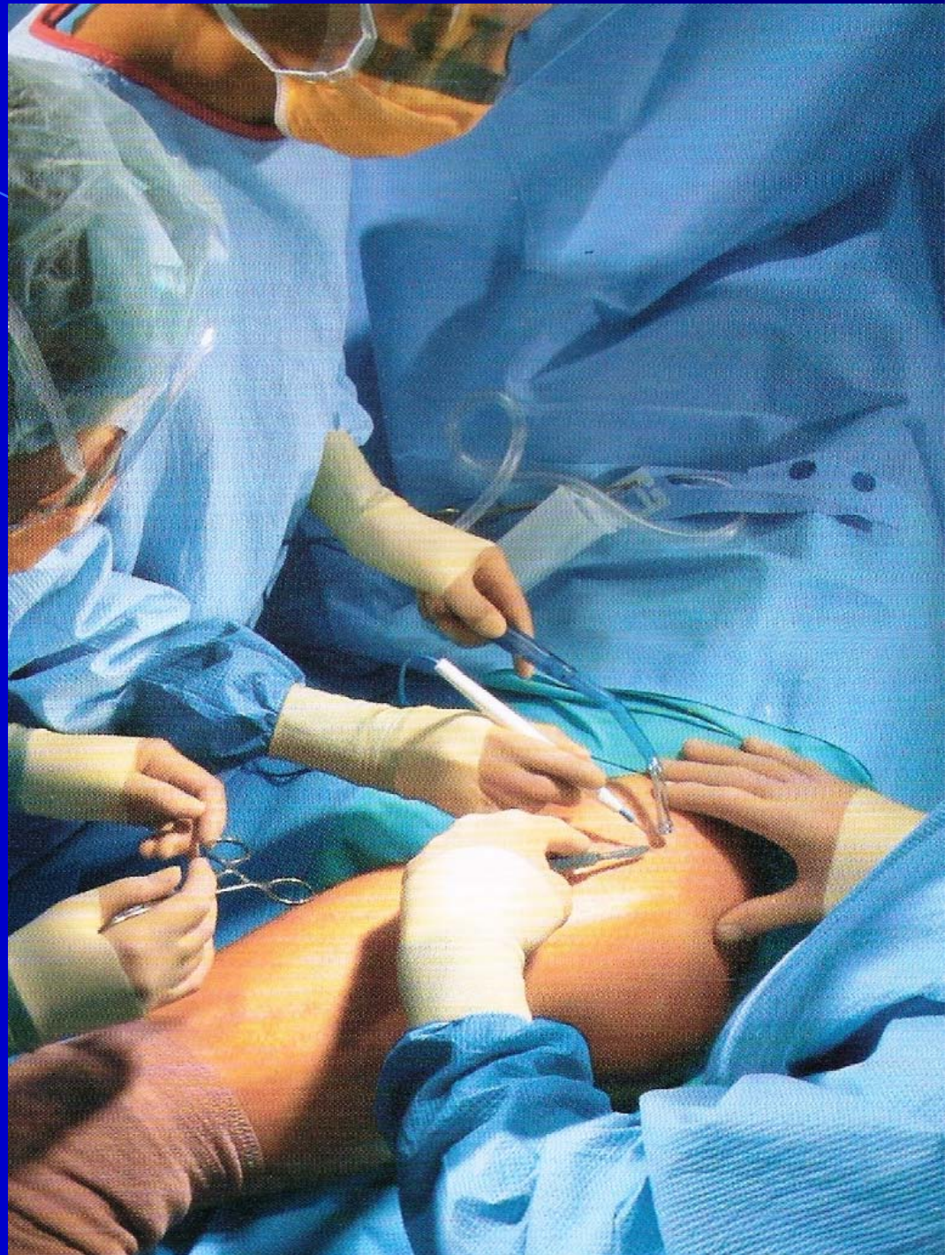
Skin Preparation

- Chlorhexidine is a more effective skin disinfectant
- indicated for surgical patients with known MRSA in or in Cluster of MRSA
- Povidone Iodine is another choice

New Product



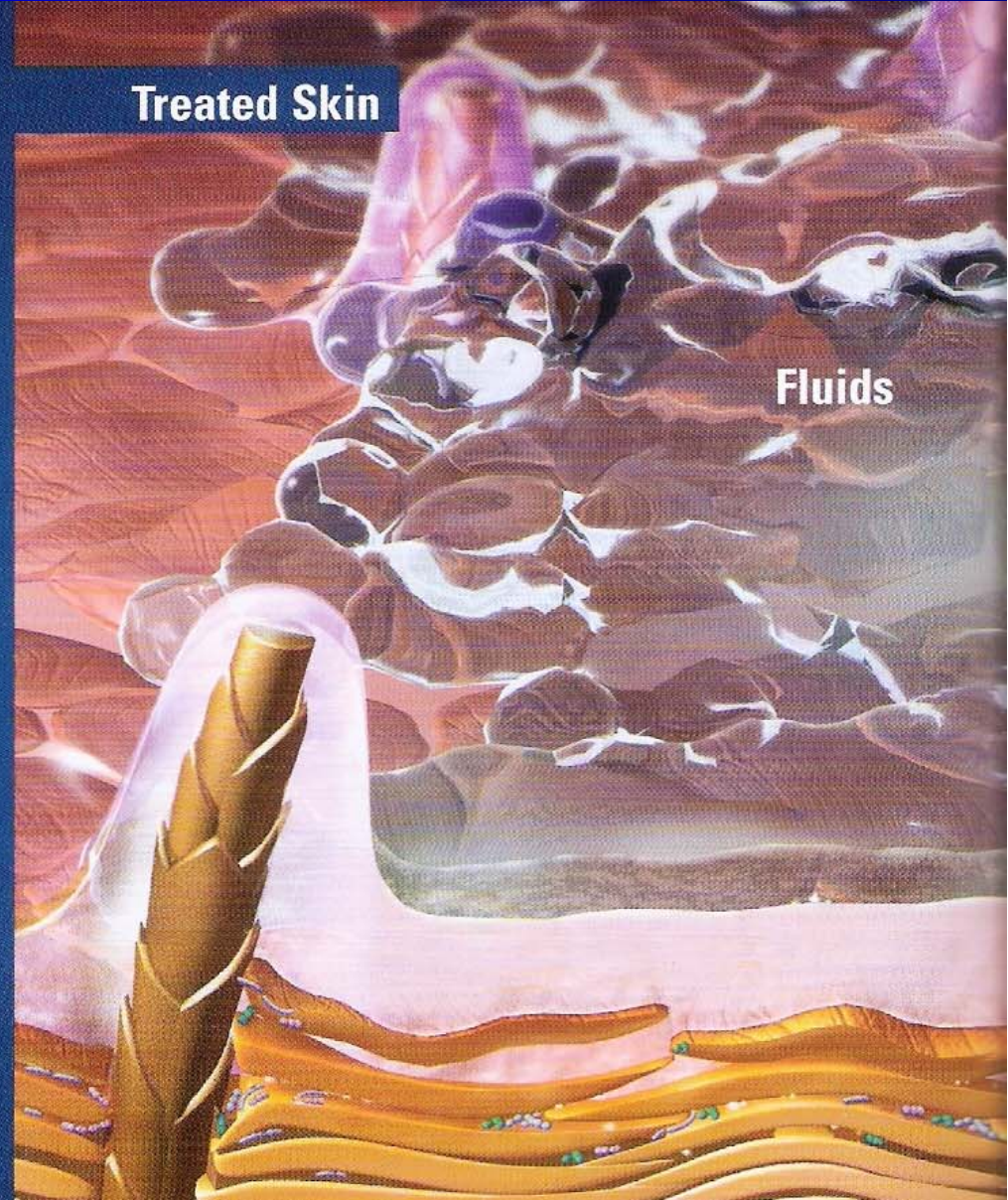
Microbial Sealant



Untreated Skin

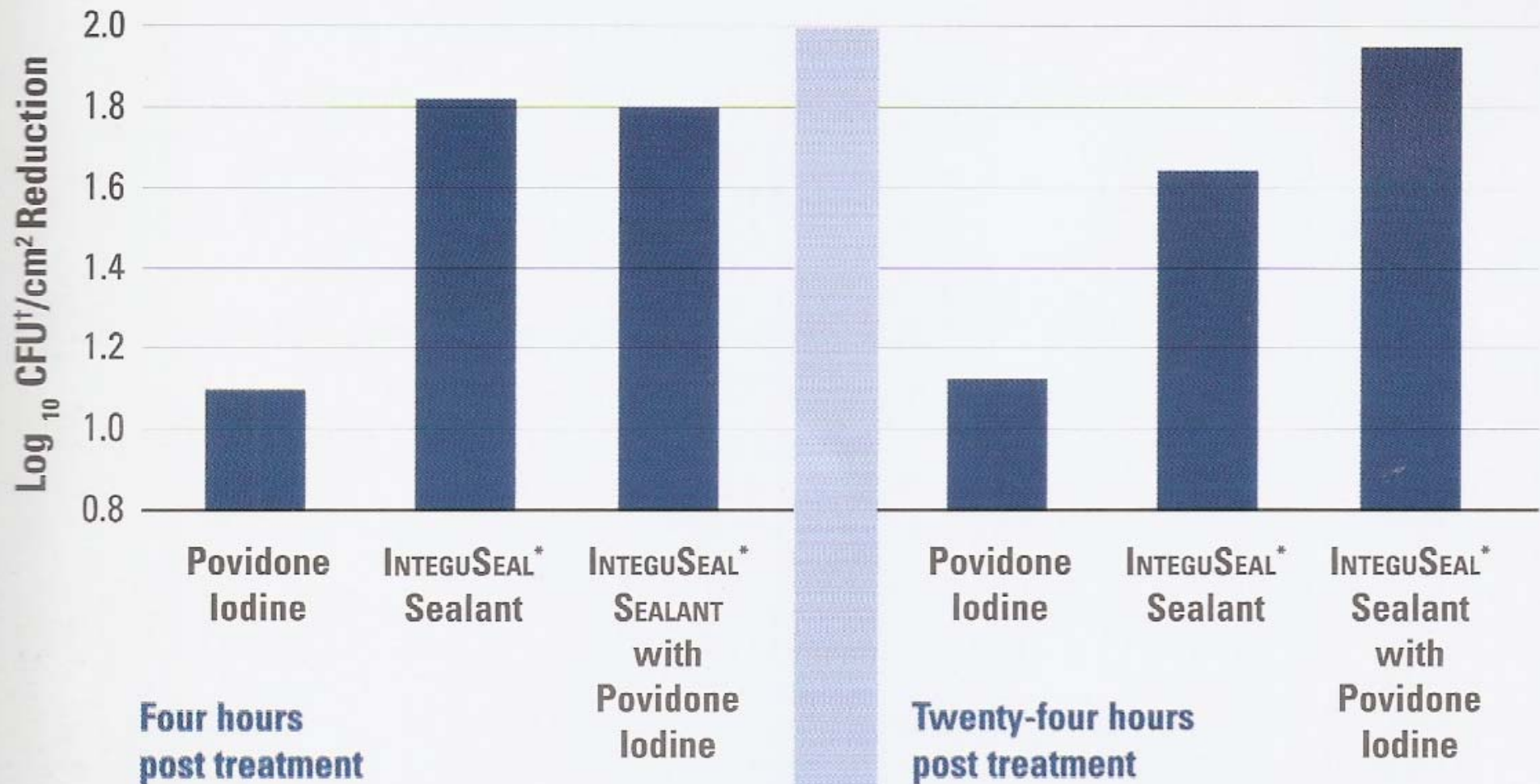


Treated Skin



Highly effective with a variety of prep solutions

Reduction of bacteria recovered *in vivo* using a cup scrub sampling technique four hours and twenty-four hours post treatment⁶



CFU=Colony Forming Units (of bacteria)

Log₁₀ = 10,000,000,000 = 10¹⁰

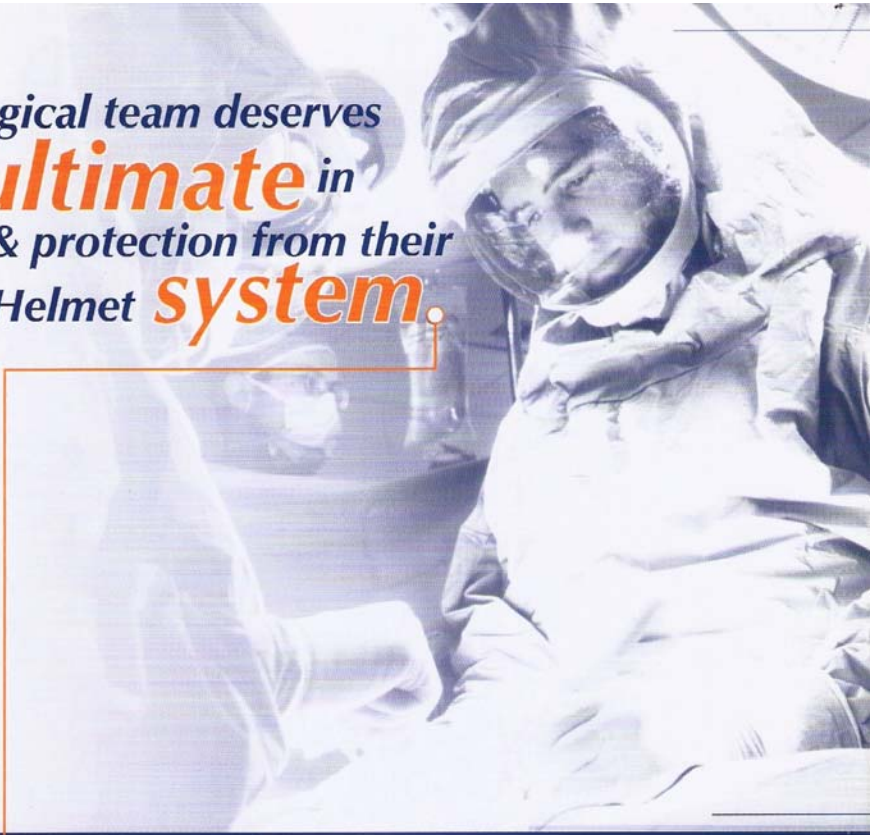
Surgical Attire and Drapes (Surgical site barrier)

- **Surgical Gowning Technique**
- **Use of Surgical Helmet**
- **Woven fabrics VS Non Woven fabrics**

Gowning Technique



Every surgical team deserves
the ultimate in
 comfort & protection from their
 Surgical Helmet **system.**



FreedomAire 2
 Surgical Helmet System

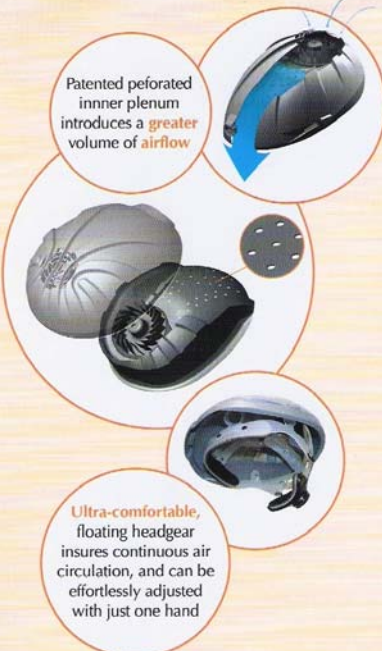
The FreedomAire 2 Surgical Helmet System delivers the features your surgical team has asked for:

- Lightweight, Compact Helmet with Comfortable Secure Headgear
- High Airflow with Smooth Quiet Operation
- Ergonomically Designed to Help Reduce Neck Fatigue
- No Cumbersome Chin-Guard to Interfere with Head Movements
- Optically Correct – Impact Resistant Lens
- UV Protection and Wide Field of Vision
- Rigid Lens to Withstand Wiping During Surgical Procedures
- Powerful Lightweight Battery Pack with Charge Level Indicator

The **FA2** Helmet combined with **FreedomAire TOGA** or **Lens Hood**, offers protection from blood and body fluid splatters, potentially infectious microorganisms while providing your surgical team with a cool, comfortable work environment.



STACKHOUSE
 a VASIS MedSystems Company



- Airflow:**
- 5 airflow settings - 8 to 16 cfm – allow each user to choose an airflow setting to maximize their personal comfort and provide a cool comfortable breathing environment
 - Patented inner plenum design circulates a continuous high volume of cool fresh air throughout the entire helmet system
- Helmet:**
- At 16 oz, the FA2 Helmet is lightweight and compact to help reduce neck strain - yet durable for long lasting use
 - Revolutionary multi adjustable headgear provides a comfortable secure customized fit
 - Ergonomically balanced for smooth quiet operation
 - Designed without a cumbersome chin-guard which can interfere with head and body movements
- Battery:**
- Run time of 9 hours on high setting - over 12 hours on low
 - Lithium Ion technology for a long lasting and dependable charge
 - ON/OFF, Airflow Settings and Battery Charge Indicator all are conveniently located on battery face for easy access
 - LED display for visual confirmation of remaining battery charge
 - Vibratory low level warning feature
 - Lightweight - clip to scrubs waist band or fit inside pocket
 - Compact 8 bay charger displays Charged, Charging or Fault for accurate status of each battery's charge
- Lens:**
- Optically correct "Bubble" Lens helps reduce eye strain while providing clear accurate vision
 - Impact resistant polycarbonate lens provides additional facial protection from surgical debris while the rigid design withstands wiping during surgery
 - UV protection for specialized procedures



Recommendation

- 6.3 Surgical gowns and drapes should be sterile and resistant to liquid penetration and remain effective barriers when get wetted.

- 6.7 Change surgical gowns and scrub suit if visibly soiled or penetrated by blood or body fluids.

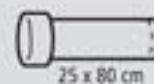
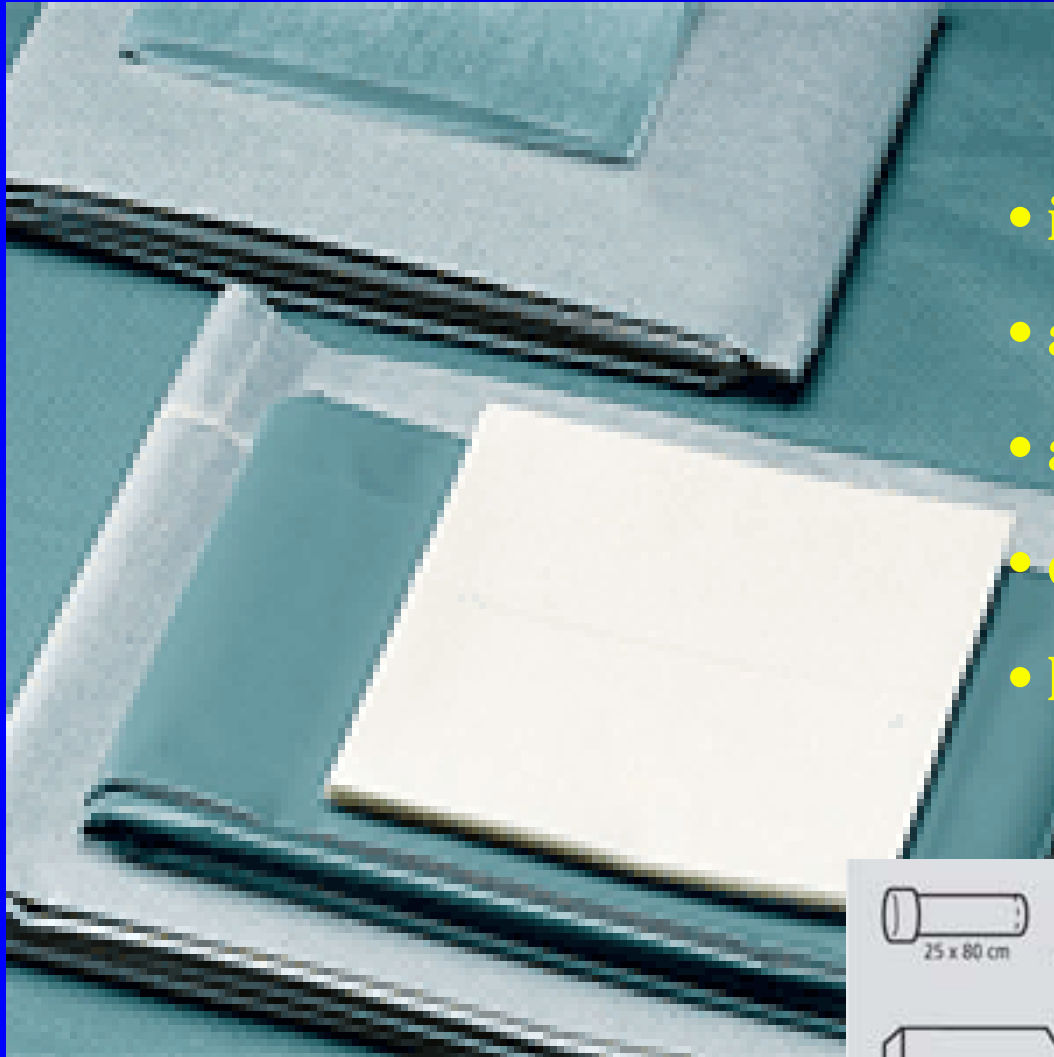
Linen Drape



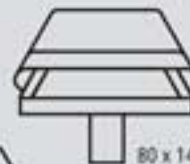
Non Woven Drape



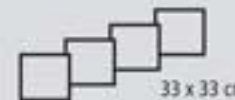
- impermeable to moisture & bacteria
- absorbent non-woven top layer
- abrasion resistant
- extremely low linting
- highly conformable



25 x 80 cm



80 x 145 cm



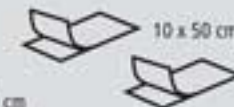
33 x 33 cm



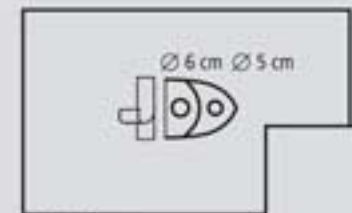
140 x 190 cm



130 cm

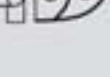


10 x 50 cm



200 x 320 cm

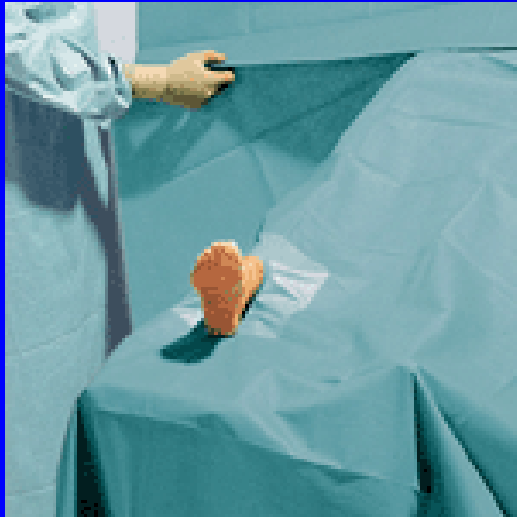
∅ 6 cm ∅ 5 cm



150 x 175 cm



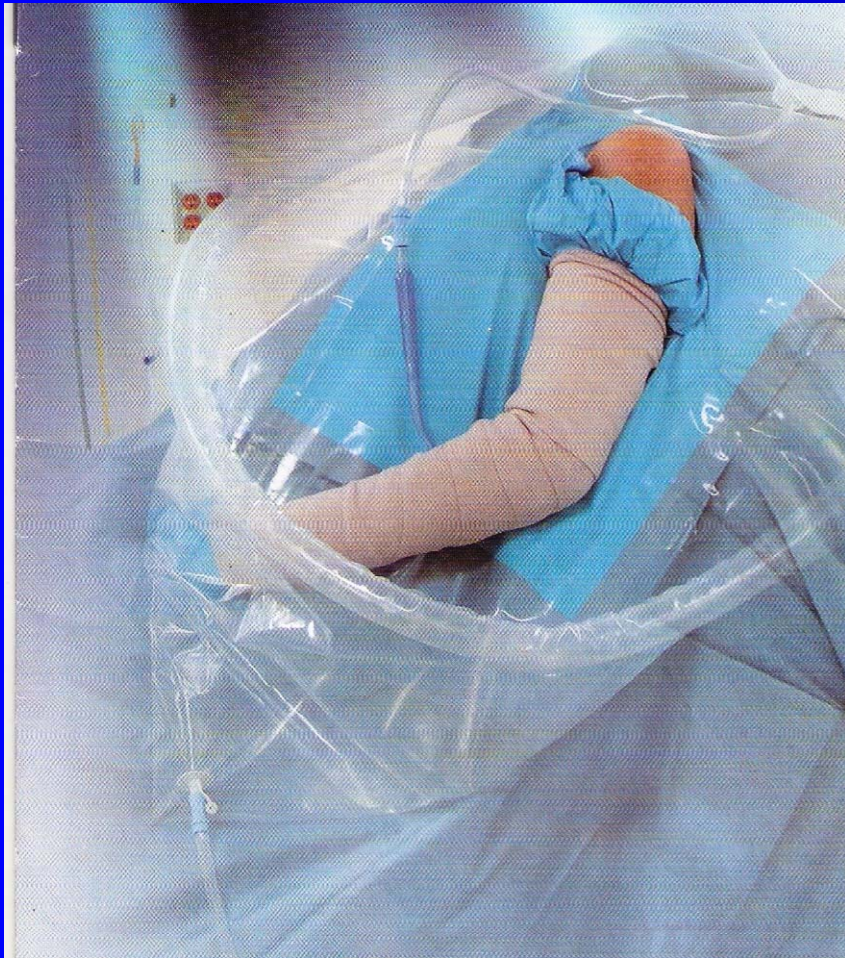
Non Woven Drape



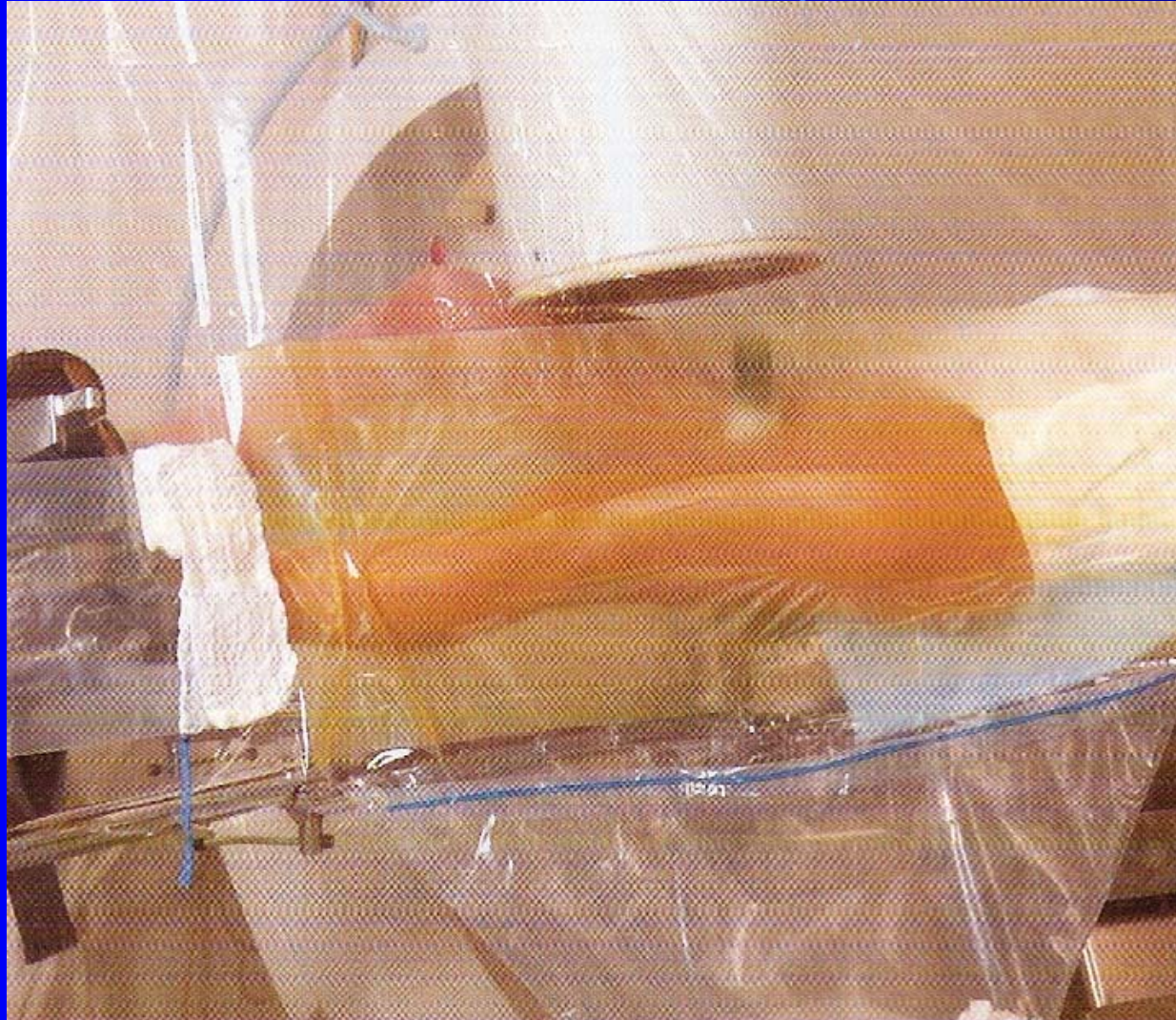
Drape with Pouch



Special Feature



Drape for Fluoroscope



Drape for Fluoroscope

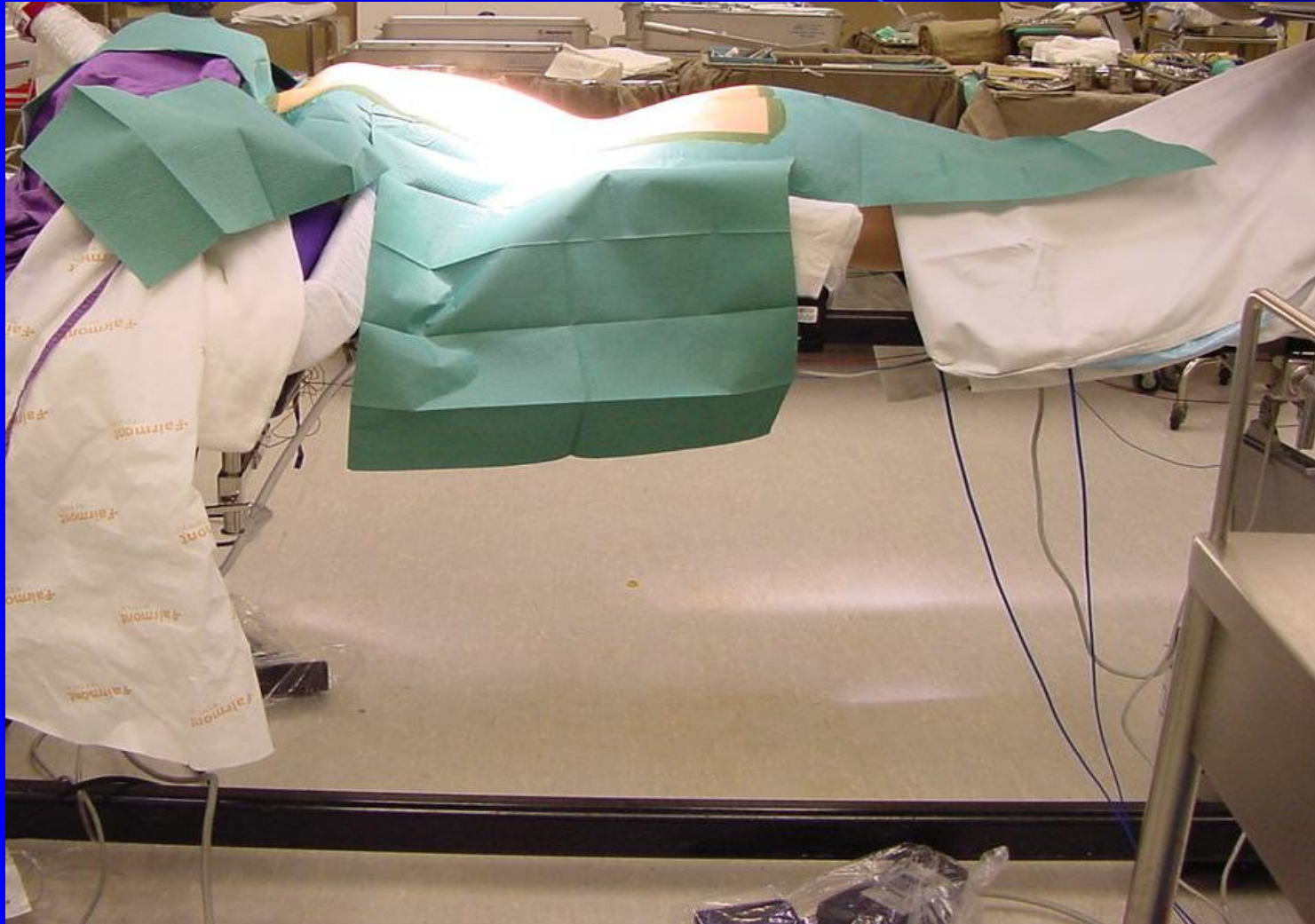


Drape for Fluoroscope

C-ARM Draping Guideline



Pre-op preparation



Sterilization of Surgical Instruments

Not the duty of TSSU staff only

Team

Sterilization of Surgical Instruments

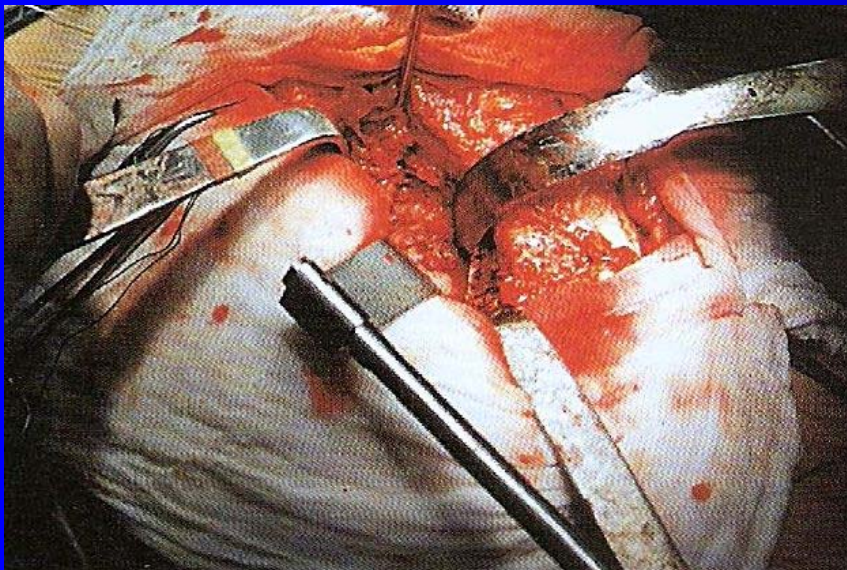
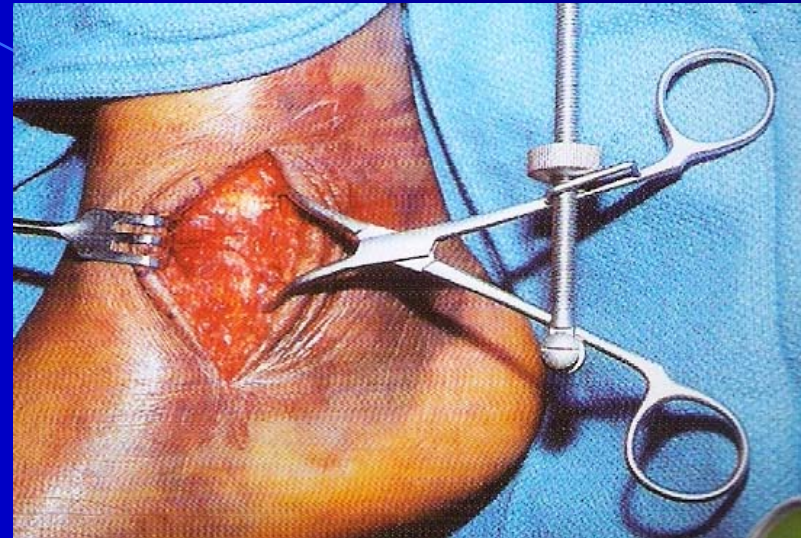
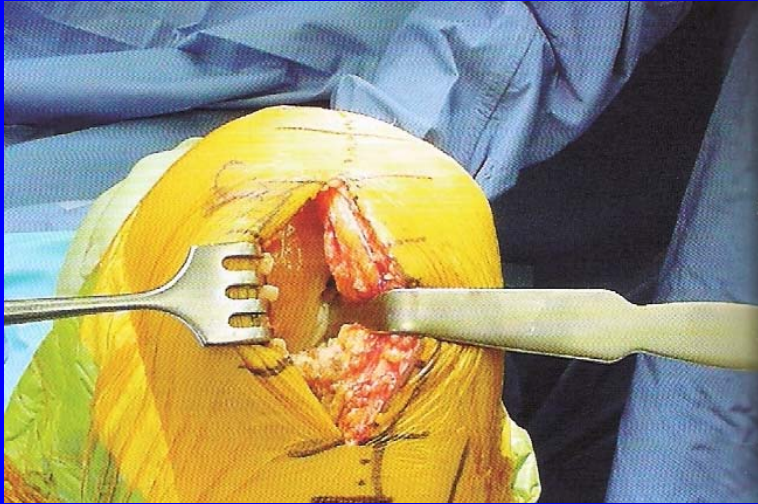
New recommendation

- **Pre mature release on Plasma Sterilization**
- **Cidex treatment**

Surgical Technique

- 9.1 Maintain good operative technique during the operation, such as gentle tissue handling to minimize trauma

Use of Retractor



Use of Skin Knife



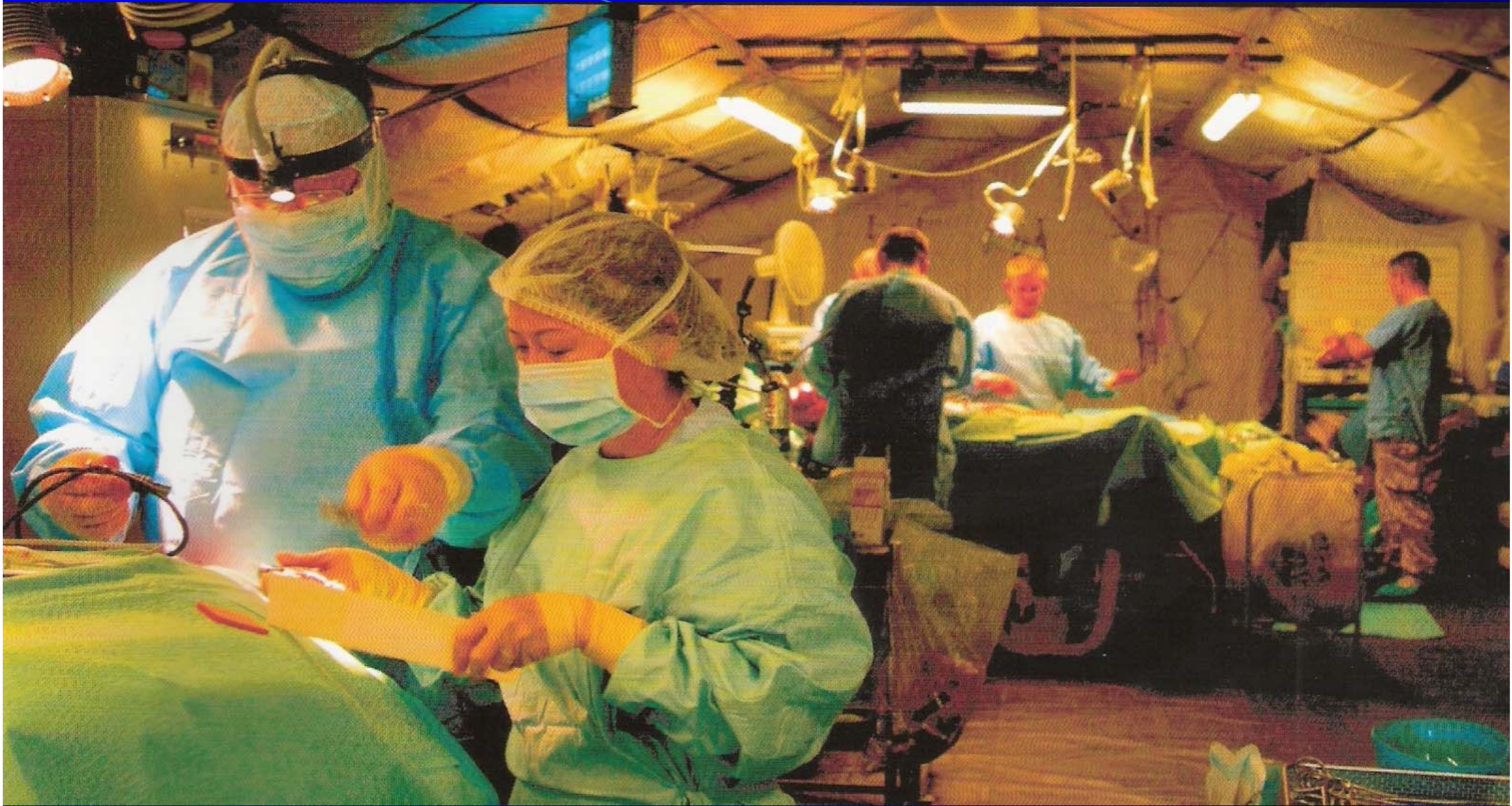
Use of Drain



Choice of dressing



**Culture of Safety
Is
the key
To
Prevent SSI**







Thank You !