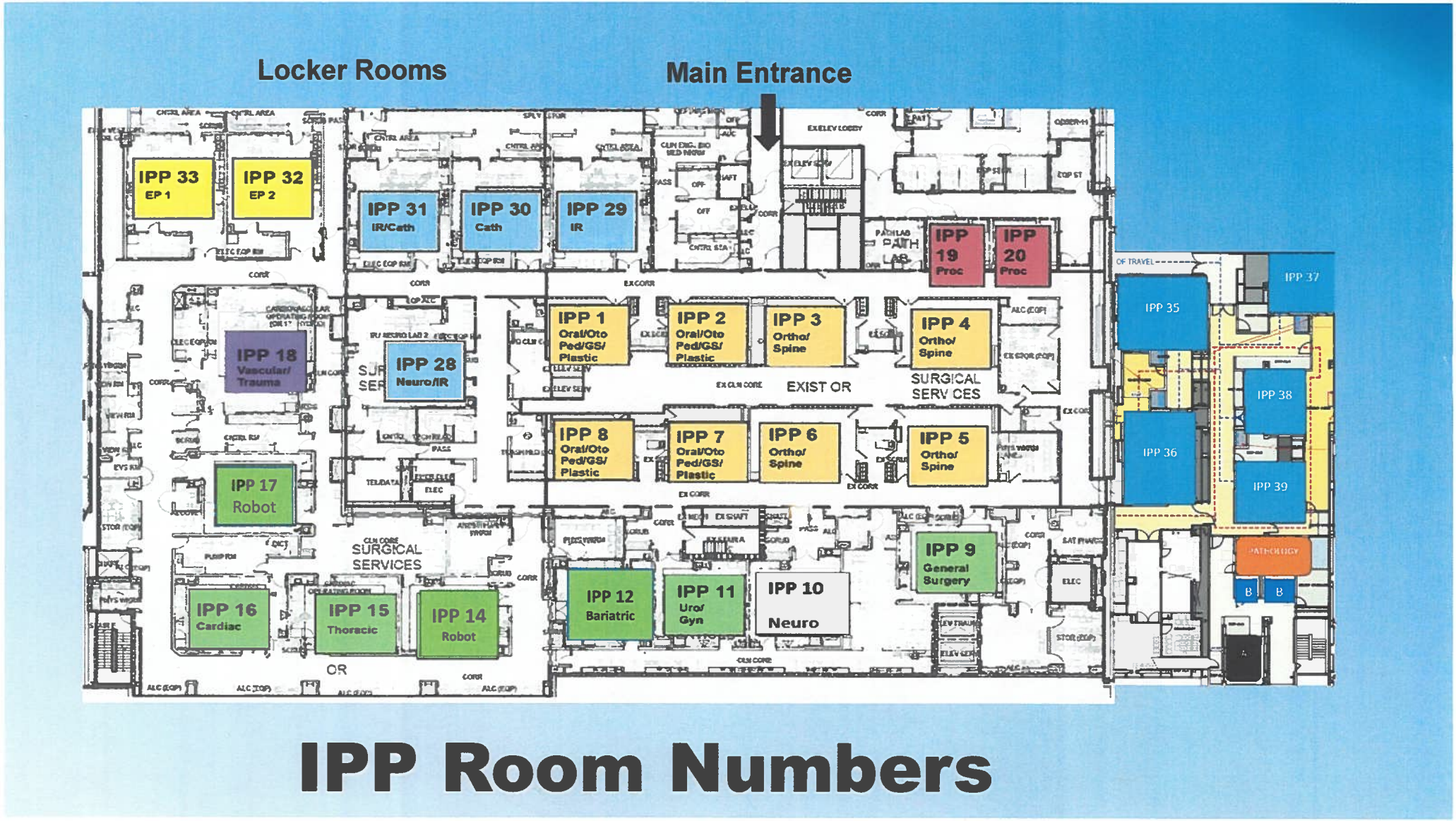


IPP Room Numbers

Universal Protocol – Operating Room/Integrated Procedural Platform

Upon Entering Operating/Procedure Room

STOP

Person conducting Universal Protocol (UP) requests all activity in the room come to a complete stop; confirms visually and verbally everyone is providing their full attention before initiating next portion of the UP.

1. Are there contact **precautions**?
2. **Introduce** team members
3. Is the stretcher/table **locked**?
4. Are **safety belts** on?
5. **Introduce patient** *(confirm using name/DOB/MRN with consent, wrist band & Epic)*
6. What **procedure** is being performed?
   a. Does this match the consent and what is in Epic? *(and imaging if applicable)*?
   b. Does **laterality & site** marking match consent and Epic?
7. Patient **positioning**?
8. **How long** is the case?
9. What **special** equipment/tissue/implants are needed?
10. Are there any **high-risk retention** items? *(bite block, vaginal or throat pack, eye shields)*
11. Will **fluoroscopy** be used? *(if so, team must wear lead)*
12. Are there **blood loss** concerns? *(if yes, do we need blood bank sample or cell saver?)*
13. Is **IV access** adequate?
14. Is **emergency equipment** available?
15. What is the **Fire Risk**? *(over)*
16. What is the **Pulse Ox** waveform and value?
17. Is there a difficult **airway** or other anesthesia concerns?
18. What are the **temperature** control measures?
19. What are the **fluid** plans?
20. **Urinary catheter** needed?
21. What is the **prep** and who will be applying it?
22. Are there any **allergies**?
23. What is the **antibiotics** plan?
24. Are all drugs & solutions **labeled**?
25. What is the **VTE** prophylaxis plan?
26. What is the **blood pressure** management plan?
27. Using **neuromuscular** blocking agents?
28. Any **glucose** control plans?
29. **Any questions or concerns from the team?**

Please feel free to **speak up** during the case if you are concerned about something

Final Pause Prior to Incision

STOP

All activity in the room comes to a complete stop; visually and verbally confirm everyone is providing their full attention before initiating next portion of the UP.

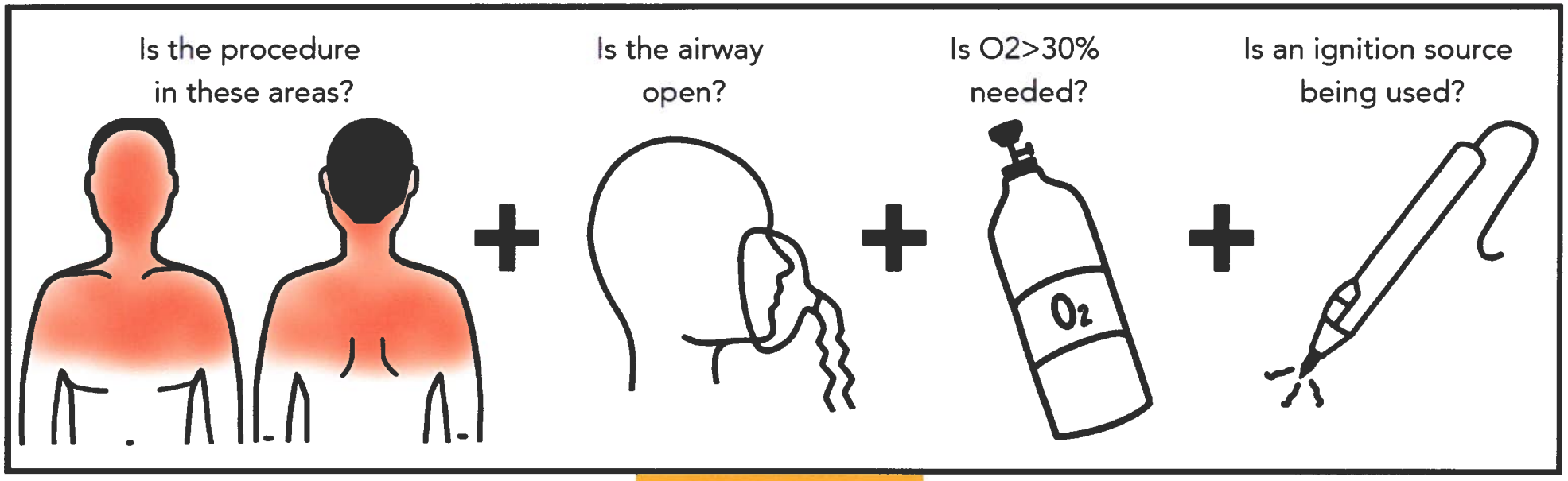
1. Is **Attending Surgeon** present?
2. Does everyone concur about safe **positioning and padding** throughout the operation?
3. Is **safety belt** placed in the appropriate position? Are **extremities** secure?
4. Is **site marking** visible after prep and drape?
5. Were **antibiotics** given within 60 minutes of incision (if necessary)?
6. **Any questions or concerns from the team?**

If Additional Surgeons: verify patient, procedure, site, laterality, level, position, implants, special equipment & consents

End of Procedure Debrief

1. What is the **recovery plan** & location?
2. Have all **temporary items** been removed? *(bite block, throat pack, eye shield)*
3. Are all **counts** correct?
4. Have the Circulating Nurse & Surgeon reconciled **specimens**?
5. **Surgeon confirms** diagnosis, procedure, & Wound Classification
6. **Any final concerns?**

Safety Risk Assessment (Fire)



Are ALL of these present?

NO → **Standard Risk**

YES → **High Risk**

Know Your O.R Emergency Buttons



**** Where are they located in YOUR room?

BOSTON MEDICAL CENTER
INSTRUMENTATION QUALITY FEEDBACK & SAFETY REPORTING

CensiTrac

BMC reports instrumentation quality events via CensiTrac; this enables PeriOperative Services to pull full details on instrument kit preparation, location, & other granular data such as which employee serviced the kits, etc.

- OR & CPD staff have access to file instrumentation quality events.
- Instrument kits have barcode scanning.
- Scopes, cameras, lens, and phaco hand pieces require free text input of their serial numbers into the comment box for quality tracking.
- The reported data is filtered by event type & applied to BMC's Key Performance Indicator (KPI) metric & trend chart.
- Weekly review meeting is held by PeriOperative Services Quality Officer, OR, & CPD Leaders.
- Quality improvement initiatives are developed for major trends as applicable.
- PeriOperative Services threshold for this KPI is <2%



RL System



Below is a list of 4 circumstances when a **secondary report is required** to be filed in BMC's RL system:

i. Patient harm occurred
(i.e. contaminated instrument reached patient)
ii. Case cancellation or complete change in approach to surgical/procedural case due to instrumentation
iii. Employee injury
iv. Significant delay in care occurred

- Having the RL filed in addition to CensiTrac Quality Feedback enables reconciliation and full investigatory scope to occur
- All BMC staff has access to the RL System

Intra-Operative Team Hand-Off - SWITCH

S Surgical Procedure

- ☐ Planned surgical procedure/s (site, side, stage)
- ☐ Anesthesia type
- ☐ Allergies, Significant Past Medical History
- ☐ Imaging needed
- ☐ Position/Aides
- ☐ Plan for postoperative patient disposition

W Wet (i.e., fluids)

- ☐ Medication/Irrigation (type/amount)
- ☐ Blood loss
- ☐ Blood products in room/available – room temp vs. cooler
- ☐ LDAs

I Instruments

- ☐ Instruments on/off field
- ☐ Instruments on hold
- ☐ Implants (implanted/needed/documented)
- ☐ Stat / Priority turnover instruments ID'd

T Tissue (i.e., specimens)

- ☐ Specimens on/off field (name/source/location)
- ☐ Grafts/Tissue/Organ (type, source, location)
- ☐ Blood Bank products (disposition/returns)
- ☐ Specimen documentation status

C Counts

- ☐ Laps, sponges, sharps, instruments - status
- ☐ Items off the sterile field or in body cavities
- ☐ ? IRFOs

H Have you any questions?

- ☐ Status of EHR charting

OR Pre-Op Hand-Off Tool

Post-op Hand-Off Tool

Situation Background Assessment Recommendation

Situation:	Situation:
Pre-op diagnosis:	Surgical Procedure:
Background:	**Background:**
Age: Weight: Height:	Lines:
Allergies:	Drains:
Latex allergy? Y N Precautions:	
	Chest Tube/s:
Consent Signed: Y N Confirmed by Pt: Y N	
Circle: anesthesia / surgical	Medications:
Site Marked: Left Right	
	Blood Products:
Antibiotic:	
	EBL:
Implants/Prosthetics:	
	U/O:
Surgical History:	
	Dressing:
Medical History:	
	Packing:
Medications:	
Assessment:	**Assessment:**
ID Bracelet Checked: Y N NPO:	Skin Integrity:
ASA: Pain:	
HCG: Y N	Untoward Events:
Blood Products Available: Y N T&S: Y N	
Lab Values:	
Skin Condition:	
Recommendations:	**Recommendations:**
Special Concerns:	Ventilator Required:
	Special Concerns:
Last Voided:	

OR Code Blue

The "OR Code Blue" team consists of a Resource Nurse and a Pharmacist to support the nurses and anaesthesia personnel in the event of an unstable patient. The purpose of this team is to provide additional emergency support for patients and physicians during OR or IPP procedures.

To activate an OR Code Blue

1. **Dial 4-7777**

2. **State "OR Code Blue" and specific location (Menino OR# or Moakley OR#)**

3. **Resource RN and Pharmacy beepers will be activated BUT there will be NO overhead hospital paging**

4. **The Charge desk at Menino or Moakley will direct the Pharmacist and the Resource RN to the specific room.**

The purpose of this process is to bring resources that may not be available in the OR while limiting excess traffic. Specific personnel can always be STAT paged as well. OR Staff can activate a FULL CODE BLUE at their discretion if the situation requires such.

OR to SICU Handoff

OR Circulator RN
- 1st call to SICU Unit Coordinator → Transfer to SICU RN Phone
- Brief Report – Lines, Blood Products, +/- Vent, ETA

SICU RN
- SICU RN prepares room and reviews patient record
- Alerts SICU team by page
- RT prepares vent if necessary

Surgical resident
- Places postop orders

OR Circulator RN
- 2nd call to SICU Unit Coordinator: Patient is en route to unit (~10 minutes)

SICU RN
- Asks Unit Coordinator to alert SICU team by page and by overhead that patient has arrived to unit
- Assemble at bedside for iPASS handoff

Multidisciplinary Handoff of Surgery Patient to SICU Team

Prior to Handoff

Team members assemble in SICU patient room:
- OR RN
- Anesthesia
- Surgeon familiar with case
- SICU RN
- Respiratory therapy
- SICU MD/NP

Patient transferred to ventilator.

*Hold on bed and monitor transfer.

Handoff

Brief introduction of name and role.

iPASS Handoff from:
- OR nursing
- Surgeon
- Anesthesia

SICU RN, MD/NP and RT verbalize understanding, ask any questions or voice any concerns.

Post Handoff

Transfer of care from Anesthesia team to SICU team.

OR team leaves.

Bed and monitor transfer

10.1.23

Revised Workflow for NICU Babies Coming to the O.R.



Pre-Procedure

- Pedi Anesthetist will go to the NICU for Preop huddle at patient's bedside
- Pedi Anesthetist will return to OR to set up for the procedure
- NICU team (including NICU backup Attending, RN, RT) will transport baby to the OR. On arrival to the OR, baby will be taken directly to the allocated operating room (**NOT to the preop waiting area**)
- NICU RN will give handoff report to OR RN and handover the preop checklist
- NICU RN will transfer patient to bed
- NICU RT and NICU Attending will provide help with airway management if needed by Pedi Anesthesia team
- OR Team (Anesthetist, Surgeon, OR RN, NICU RN, NICU Attending, NICU RT) will participate in the initial time-out – first column of the OR Universal Protocol (UP)
- NICU team can depart OR once the first column of the UP is complete
- For any questions, the OR team can contact any of the members in the phone list provided

Post Procedure

- As the procedure is nearing completion, OR team should inform the NICU team (857/286-7453-Charge RN). NICU RN and RT will then come to the Operation Room. NICU RN will take report and handover from OR RN in the OR
- Pedi Anesthetist, NICU RN and RT will transport baby back from the OR to NICU

Important Contact Phone Numbers

- NICU Attending: 857-286-7453
- NICU Resident: 857-260-3719
- NICU Charge RN: 857-278-6194
- NICU Front Desk: 617-414-4359
- OR Front Desk: 617-414-4116
- Pediatric Surgery: Chief Resident Pager # 7337
- Pediatric Anesthesia Pager # 5789

Boston Medical Center
Transfusion Service
Boston, MA 02118

DRY ICE TRAINING CHECKLIST - Abbreviated Version for Operating Room (OR) Staff

Learner Name:_____ **Date:**_____

Dry Ice Safety - For OR Staff Handling Blood Coolers	**Trainer Initials**	**Learner Initials**
Never handle dry ice with bare hands		
Avoid eye or skin contact with these substances		
Do not use or store dry ice in confined areas or rooms without ventilation		
First Aid		
Remove any clothing that is not frozen to the affected skin. Do NOT rub frozen body parts because tissue damage may result. Seek medical assistance as soon as possible.		
Place the affected part of the body in a warm water bath (not above 40°C). Never use dry heat.		
Safety Data Sheets		
Locate in the Hub --> Departments --> Environmental Health and Safety --> Dry Ice		

Trainer Signature:_____ **Date:**_____

Boston Medical Center
Transfusion Service
Boston, MA 02118

DRY ICE TRAINING CHECKLIST - Abbreviated Version for Operating Room (OR) Staff

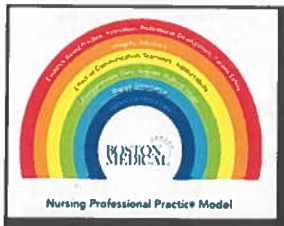


Specimen Management in the Operating Room

Review of standards of care for OR/Procedural Specimen Handling

BOSTON MEDICAL CENTER

1



Disclosures

- Boston Medical Center grants 1 nursing contact hours to nurses who complete this program. You must stay for the entire program, and complete an evaluation form.
- This program has no commercial support. Faculty and planners have no vested interests, and there are no conflicts of interest.
- Boston Medical Center is an approved provider of continuing nursing education by American Nurses Association, Massachusetts, an accredited approver by the American Nurses Credentialing Center's Commission on Accreditation.

2

Specimen Management in the OR

Objectives; the learner will:

- List key steps for specimen collection
- Describe proper steps for specimen labeling
- Discuss required specimen documentation

1 Collection & Handling

2 Identification & Labeling

3 Documentation

3

3

Specimen Management

Errors in specimen management lead to:

- Inaccurate or incomplete diagnosis
- The need for additional procedures
- Physical and psychological injury

4

Examples of Errors during Phases of Specimen Management

Pre-Analytical Phase of Specimen Management (intra-op):

- pathology request,
- order entry,
- patient identification,
- specimen identification,
- specimen (or no specimen) in the container,
- collection or handling methods,
- container or preservative, and
- transport methods or destination.

Post-Analytical Phase of Specimen Management:

- equipment malfunction,
- specimen mix-ups, and
- undetected failure in quality control.

Analytical Phase of Specimen Management:

- equipment malfunction,
- specimen mix-ups, and
- undetected failure in quality control.

5

Errors in specimen management may be classified as

- **Near misses**
  - ie, the error has the potential to harm the patient, but does not, either by chance or because the error was detected before harm resulted
- **Adverse events**
  - ie, the error causes the patient either inconvenience or harm
- **Sentinel events**
  - ie, the error results in significant harm to the patient

6

Most errors in specimen management are a result of human errors caused by slips, lapses, and mistakes

- Slips are unintended actions
  - eg, placing an incorrect label on a specimen container
- Lapses are omissions of intended actions
  - eg, omitting the last letter of a patient's name and writing "Smith" rather than "Smithe"
- Mistakes are errors of conscious thought
  - eg, choosing to disregard known policies and procedures

7

BMC Surgical Biological Specimens Policy

Application:
This policy applies to all perioperative and procedural personnel and Attending physicians participating in invasive procedures.

All biospecimens removed during a procedure must be sent to the Pathology Department, unless explicitly exempted pursuant to this policy.

Exceptions:
Patient request for removed items: Refer to Surgical Implants Policy #15.01.100

Exempted procedures that generate tissues
The following procedures generate tissues that may be discarded into the medical waste stream and do not need to be forwarded to the Department of Anatomic Pathology. The decision to forward or discard these tissue items is at the discretion of the attending surgeon. All tissues that are discarded should be described and documented in the patient's EHR in the Pathology section of the intra-operative navigator. Discarding of tissues generated during these procedures is at the discretion of the attending surgeon.

Link to policy:
https://bostonmedicalcenter.policytech.com/dotNet/documents/?docid=2198

8

BMC Policy, Cont.

Procedure:

1. Surgical/procedural specimens are handed off the field to the circulating nurse.
2. All specimens for permanent sections are placed in an appropriate container, labeled with at least two unique patient identifiers and bagged for delivery to the Anatomic Pathology department. ***It is not appropriate to send any specimens on towels or in open containers, with the exception of amputated limbs.*** Routine specimens are generally put in formalin, but if there is a need for transport media this should be confirmed with the physician.
3. Multiple specimens are numbered sequentially. Each specimen label is numbered to match the corresponding number on the pathology requisition.
4. Markers placed on a specimen are indicated on the pathology requisition.

9

9

Surgical Specimens

Guideline I

Specimen Management Needs

- The perioperative registered nurse (RN) should incorporate specimen management needs when developing the plan of care.
- Begin assessing specimen management needs when the need for obtaining a specimen is identified, including:
  - personnel to be notified
  - requirements for **specimen collection** and handling
  - method of transfer
  - requirements for containment
  - method of preservation
  - transport needs
  - disposition of the specimen
  - documentation

10

10

Surgical Specimens

Guideline I, Cont.

- Assess the cultural and personal preferences of the patient preoperatively to determine special needs for collecting, handling, or disposing of specimens.
- Assess and plan specimen management with surgical team members during the preoperative briefing before operative or other invasive procedures.

11

11

Special Cases

For forensic specimens, see Policy #15.03.070 - Evidence Preservation.

For Placentas, see Policy #16.01.421 - Specimen/Placenta Collection on Labor and Delivery and Submission to the Department of Anatomic Pathology

For Explants, see Policy #15.01.100 - Surgical Implants.

12

12

Specimens Guideline II Preoperative Assessment

- Complete a preoperative assessment that confirms the **site identification** of specimens to be collected.
- Label photographs of dermatologic lesions that will be excised or biopsied during the surgical procedure, if available, with the patient's identification, and display these in the procedure room.

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Specimens Guideline III Collection and Handling

- Collect and handle specimens in a manner that protects and preserves the integrity of the specimen.
  - Incorrect collection and handling may compromise specimens and lead to inaccurate or incomplete diagnosis or the need for additional procedures or unnecessary surgeries.

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Specimens Guideline III, Cont.

- Collect and handle specimens of **breast tissue** to be examined for cancer in a manner that preserves the molecular and genetic signatures of the specimen.
  - Levels of human epidermal growth factor receptor 2 (HER2) are increased in a percentage of breast cancers.
  - Recommendations for improving the accuracy of HER2 testing and its usefulness as a predictive marker for therapeutic decision making for patients with breast cancer

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Specimens Guideline III, Cont.

- Estrogen receptor status in breast cancer is an important predictive biomarker for determining breast cancer prognosis after treatment with endocrine therapy.
- Recommendations to standardized procedures for estrogen receptor testing in breast cancer include:
  - placing breast specimens in fixative within a **maximum time of 1 hour**
  - placing needle core biopsies immediately into fixative and recording the **time of fixative placement**;
  - recording both the time of specimen removal and the time of placement into fixative when **specimen x-rays** are required;
  - Keeping specimens being examined for **calcifications moist on saline-soaked gauze**
  - using **only 10% phosphate-buffered formalin** as the fixative for breast tissue specimens
  - **recording the time between removal of the specimen and placement into fixative, as well as the length of fixation time.**

16

BMC Policy, Cont.

9. Breast biopsy with needle localization specimens are placed "fresh" in a transpec container and are delivered with the localization films and the pathology requisition to the Breast Imaging Department.

   The transporter is instructed to wait for the specimen in the Breast Imaging Department and to then deliver the specimen, films and pathology requisition directly back to the OR circulating nurse.

17

Breast Cases at BMC

- **Please call 4-5310 when you are in the OR to alert them of the case and page 3650 (courier) when specimen is removed from patient and ready to be picked up**
- It should be put in saline and courier should be paged immediately for prompt pick up
- Please be sure to write the time removed from body on pathology sheet

18

Specimens Guideline III, Cont.

- Collect and handle forensic specimens in a manner that preserves and protects the condition of the evidence and verifies that the evidence has been in secure possession at all times.
  - Handle potential evidence with gloves on
  - Place items in separate paper bags
  - Keep evidence from each wound separate
  - Secure all clothing and belongings as evidence
    - Cut along the seams or around bullet or stab wound holes
  - Contain and document physical evidence
  - Exercise caution – needles or other sharps objects in pockets
  - Do not handle bullets with metal instruments (rubber shods)
    - Place in non-metal container
    - Handle as little as possible
  - Document **Chain of Custody** and identification of persons in possession of the evidence

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Specimens Guideline III, Cont.

- Radioactive specimens must be collected and handled according to facility or health care organization policies and procedures and local, state, and federal regulation
- Collect and handle explanted medical devices according to the facility's or health care organization's policies and procedures; manufacturers' instructions; and local, state, and federal regulations:
  - Explanted medical devices that are subject to medical device tracking regulation must be reported to the manufacturer
    - **How does this happen here? Item to Nurse Manger who sends to Risk**
  - Collect, handle, decontaminate, label, package, and document explanted orthopedic hardware to be returned to the patient according to the facility or health care organization policies and procedures.
    - **Process for BMC – goes to pathology, letter to request explant goes to the patient with pathology contact information**

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Patient Instructions to Retrieve Explanted Hardware

BOSTON MEDICAL CENTER

Patient Instructions to Retrieve Explanted Hardware/Device

Date of Surgery: _____

Surgeon: _____

Place Patient Sticker Here

Thank you for your request to keep your removed hardware explanted today. The hardware has been sent to the Department of Anatomic Pathology at Boston Medical Center, per hospital protocol, to ensure they are properly processed for you to receive.

In one week, please call the Manager of Anatomic Pathology, at telephone number 617-414-3379.

Please provide your name and hospital medical record number (see sticker above) and inform them that you would like to pick up your explanted hardware that was removed today and sent to Pathology. Pathology staff will arrange a mutually convenient time and provide you instructions on how to retrieve your hardware.

Thank you,

BMC Nursing Staff

Policy Addendum - 15.01.10c

21

21

Specimens

Guideline IV

Transfer from the Sterile Field

- Transfer specimens from the sterile field in a manner that maintains the integrity of the specimen.
- Pass specimens off the sterile field as soon as possible.
- Specimens kept on the sterile field before transfer should be sequestered, identified, and monitored.
- Keep specimens moist until transfer from the sterile field and do not place them on dry, absorbent surfaces or materials.

22

22

Specimens

Guideline IV, Cont.

- Verify patient and specimen identification before transfer from the sterile field. Specimens transferred from the sterile field should be verbally identified by the surgeon and verified by the perioperative RN using a "**write down, read back**" technique.
- Use universal precautions and sterile technique when transferring specimens from the sterile field.
- Maintain the cellular structure of the specimen during the transfer process by not crushing, twisting, or otherwise damaging the integrity of the tissue.

23

Specimens

Guideline V

Specimen Containers

- Containment of the specimen must be completed in a manner that protects and secures the specimen and prevents exposure of health care personnel to blood, body fluids, or other potentially infectious materials.
- Obtain containers and collection devices needed for specimen management before the procedure.
- Containers must be leak proof and puncture resistant.
- Contain and label the specimen immediately after transfer from the sterile field.

24

Specimens Guideline VI Specimen Identification and Labeling

- Label specimens containers to communicate patient, specimen, preservative, and biohazard information.
  - **Patient sticker** (confirm correct patient) – write on the sticker the what the specimen is, including laterality if appropriate
  - If multiple specimens, **number them**; the numbers and identifiers **must match** pathology requisition and OpTime
  - If it is a "**frozen section**" write that on the sticker and the requisition
- Confirm patient identification using two unique identifiers – at BMC:
  - Inpatient = name and MR#
  - Outpatient = name and DOB

25

BMC Policy, Cont.

8. **Frozen Sections:**
   When the specimen is ready to be examined, the circulating nurse will call the Pathology Department staff (4-7039 or 4-5310). If the pathologist on-call needs to be paged #0784

   When the pathologist has arrived at the frozen section room, they will call into the respective Operating Room, and the circulator will send a perioperative assistant to deliver the pathology specimen to the frozen section room for intraoperative examination.

   The perioperative assistant will **hand the specimen to the pathologist and will await confirmation** that the specimen is labeled properly before leaving.

   If there are any discrepancies or questions about the specimen, the pathologist will call directly into the OR and speak to the surgeon.

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BMC Policy, Cont.

8. Frozen Sections, Cont.

   Frozen sections are **NOT** placed in formalin, but rather in a labeled specimen cup that is either empty or contains saline solution and must be accompanied by a paper pathology requisition.

   The pathologist calls the operating room and directly conveys the results to the surgeon. If the surgeon is not available, the pathologist will directly page the surgeon.

27

Specimens

Guideline VI, Cont.

- Specimen identification should be confirmed verbally between the surgeon and the perioperative RN circulator and documented accurately, legibly, and completely using a "**read back**" verification of the information provided for specimen labeling.
- Confirm and document the following during specimen identification:
  - Patient identifiers
  - Originating source of the specimen including laterality
  - Type of tissue
  - Clinical diagnosis
  - Additional pertinent information (suture tags, paints)

28

Specimens

Guideline VI, Cont.

- Specimens must be labeled to communicate chemical preservative and **biohazard information**.
  - Biohazard specimen bags – new to us
- Securely affix specimen identification labels to the container, not the lid.
- **Confirm** specimen identification and labeling with surgical team members during the **debriefing** at the end of the operative or other invasive procedure.
  - Visualize specimen is in container
  - Verify correct patient label on container and requisition
  - Verify the number and type of specimens are correct
  - Verify correct fixative
  - Confirm other pertinent information

29

Specimens

Guideline VII

Specimen Preservation

- Specimens must be preserved in a manner that protects the integrity of the specimen and prevents exposure of health care personnel to chemicals, blood, body fluids, or other potentially infectious materials.
- Confirm the use of preservatives or chemical additives for tissue preservation with the physician
- Formalin is a combustible liquid and should be dispensed and stored in an area other than the OR
  - **BMC yellow fire-proof boxes**

30

Specimens

Guideline VII, Cont.

- Personnel handling formalin must wear personal protective equipment including face and eye shields, gloves, and other protective garments.
  - Know where your eye wash stations are located
- Fully immerse specimens in fixative
- Alternatives to formalin may be used for tissue fixation or preservation.

31

What do we use here?

Fixative Agents Used at BMC

32

10% Formalin (color clear)



Use:

All specimens not requiring special study go into 10% formalin unless they are very large

- Specimen can be sent fresh and the lab will put it into 10% formalin when it arrives

Handling:

Wear PPE such as gloves and protective eyewear when handling container

Avoid breathing vapor

33

Normal Saline (color clear)



Use:

Place specimen in a small amount of saline or saline soaked Telfa - for fresh specimen going directly to the lab

- specimen should not be stored in saline for an extended period of time
- just enough to keep the tissue moist, the tissue should not be swimming in saline

Handling:

Use standard PPE

34

Bouin's Fixative (color yellow)



Use:

Used for special study on testes specimens and certain breast specimens

Handling:

Wear PPE such as gloves and protective eyewear when handling container

Avoid breathing vapor

35

RMPI-1640 (color pink)



Use:

Pink solution in small screw top vial

Used for flow cytometry, developed for the growth of human leukemia cells

Alert pathology when placing specimen in fridge

- **Time sensitive!**

Handling:

Wear PPE, such as gloves and protective eyewear, when handling container

Avoid breathing vapor

36

Cytology Collection Fluid (color pink)



Use:

In 50 ml tubes used only for fine needle aspirations and cytology study

- Contains alcohol and is always in a 50 ml plastic tube
- Labeled with its alcohol content
- Has green sticker that say "caution this is not RPMI"

Handling:

Wear PPE such as gloves and protective eyewear when handling container

Avoid breathing vapor

37

Paraformaldehyde (color clear)



Use:

Used by cardiac group for special specimen study using light microscopy

Handling:

Wear PPE such as gloves and protective eyewear when handling container
Store container in dry, cool, well ventilated area

38

Electron Microscopy Fixative (color clear)



Use:

For Electron Microscope special studies

Handling:

Wear PPE such as gloves and protective eyewear when handling container
Avoid breathing vapor

Please read carefully, the container is Labeled "em" for electron microscopy

39

Storage of Fixative / Transport Solutions

Fixative	Room temperature	Refrigerator	Color
10% Formalin	X		clear
Bouin's solution	X		yellow
Cytology Collection Fluid		X	pink
Electron Microscope & Paraformaldehyde fixative		X	clear
Normal Saline - Not a fixative, it's a transport solution	X		clear
RPMI -1640 - Not a fixative, it's a transport solution for flow cytometry		X	pink

40

Specimens Guideline VIII Specimen Transport

- Protect the integrity of the specimen
- Prevents exposure
- Maintains the confidentiality of protected patient information
- Clean secondary packaging to prevent contamination of during transport of specimens
  - Protect accompanying documents from contamination
- Verify patient and specimen information at each point of exchange

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Specimens Guideline VIII, Cont.

- Specimens that will not be transported immediately to the pathology laboratory must be temporarily stored in a manner that maintains specimen integrity for examination.
  - **Refrigerator**
- Devices intended for transport of specimens must be labeled to communicate chemical and **biohazard** information – **biohazard bags and tubes**
- Specimens must be transported in a manner that helps ensure **confidentiality** of personal health information and minimizes visibility of the specimen.

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BMC Policy, Cont.

7. The circulating nurse or procedural fellow is responsible for delivering specimens and the completed pathology requisition to the Department of **Pathology refrigerator**.

   When specimens are delivered to the pathology department refrigerator/drop off area the **log book/s** must be completed in its entirety.

   The nurse/procedural fellow initials the entry.

   Documentation of total number of containers submitted is essential.

- **Specimens not in fixatives should never be left in the refrigerator over the weekend**

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Specimens Guideline IX Policies and Procedures

- Policies and procedures for disposition of specimens should be established
  - Local, state, and federal regulations
- A pathology report should be generated for every specimen submitted to the pathologist for examination
- Develop policies and procedures to identify tissues or other specimens that require only gross identification or disposal

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BMC Pathology Exemptions

- Abdominoplasty
- Blepharoplasty
- Circumcision foreskin
- Dermabrasion
- Forehead lift liposuction
- Otoplasty
- Rhinoplasty
- Rhytidectomy (face lift)
- Odontectomy (teeth)
- Uvulectomy (uvula)
- Tissue from procedures considered cosmetic

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BMC Policy: Explants NOT required to send to Pathology…

…unless Attending Surgeon has clinical concerns:

- Intact ports
- Central lines
- Pacemakers / ICDs
- IUDs
- Stents
- Catheters
- Shunts
- Myringotomy tubes
- Tissue expanders / breast implants
- Intra-occular lenses (IOLs)

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Specimens Guideline X Documentation

- Policies and procedures and regulatory and accrediting agency requirements
- Include the following in specimen documentation:
  - patient ID
  - specimen ID
  - additional information pertinent to the specimen or source
  - pathology examination required
  - requests for special handling
  - date and time of specimen collection
  - physician identification and contact information
  - perioperative RN identification

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Specimens Guideline X, Cont.

- **Specimen requisition forms** and other relevant documentation should accompany the specimen, be secured to the container, and be protected from contamination.
- Complete documentation using standardized printed tools or electronic technology.
  - When handwriting is required, it should be legible.
- Verbal communication from the pathologist related to diagnosis or specific information about the specimen should be provided directly to the physician
  - If direct verbal communication between physicians is not possible, the communication should be received by the perioperative RN and documented in the patient's health record using a "read back" verification of the information provided

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BMC Policy, Cont.

5. The **pathology requisition** is completed including date and time out of the body, date and time into formalin, as well as clinical history or differential diagnosis.

   Patient Location, indicating OR or procedural room number and extension must be completed on all pathology requisitions.

   The physician verbally designates how the specimen is to be labeled and visually confirms the label on the specimen container and the pathology requisition with the circulating nurse during the pathology time out at the end of the procedure.

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BMC Policy, Cont.

6. **Pathology Time Out Verification**
   (yellow box on paper pathology requisition) –
   A pathology time-out **MUST** be performed at the end of the surgical procedure by the Attending physician and circulating nurse.

   - All information in the "Before Leaving OR" Universal Protocol – Operating Room must be completed before the circulating nurse and physician leave the room.
   - Additionally, the RN and MD will verify reconciliation of the specimens at the end of the case.
     - The Pathology Time Out Verification section of the pathology requisition will be completed for **frozen section** specimens using the "write down, read back" method of communication with the surgeon prior to the specimen leaving the OR to be delivered to pathology.

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Scenario for Consideration

At the recommendation of her physician after receiving mammography results, a 49-year-old patient undergoes bilateral breast biopsies.

The pathology report indicates that although the left biopsy is benign, the right breast biopsy is cancerous; additional treatment is recommended.

As a result of this diagnosis, the patient begins targeted radiation. Six months later, a scan reveals the breast cancer has spread and upon review of the initial diagnosis and diagnostic images, the surgeon discovers that the laterality of the original two specimens was incorrectly identified.

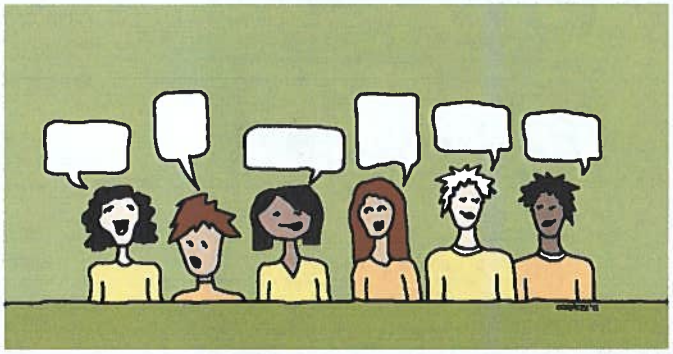
The patient therefore requires additional surgery and treatment.

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Discussion - Where are the Gaps?

- Questions?
- Comments?



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References

- *Guidelines for Perioperative Practice.* (2020). Denver, CO: AORN, Inc.

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Sterile / Aseptic Technique

Review of standards of care of the perioperative patient

BOSTON MEDICAL CENTER

1

Sterile / Aseptic Technique

What are the updated Guidelines?

Covering a sterile field

1. Vigilance & Communication
2. Cover set up when not to be soon used
3. Surgical Conscience

2

It starts with us...

AORN Recommended Practice (RP):

- The perioperative setting is a **controlled environment** that is designed to minimize the risk of infection during operative and other invasive procedures

In addition to environmental controls, the **work practices** of perioperative personnel are essential for preventing contamination of the sterile field

Wearing clean surgical attire that has been laundered by a health care-accredited laundry facility, wearing a clean surgical mask, and performing hand hygiene are all work practices that may prevent contamination of the sterile field

3

Sterile Technique Guideline I

Before preparing a sterile field, perioperative personnel should implement practices to prevent contamination of the sterile field

- Clean surgical attire (laundered by healthcare accredited facility) and head covering
- Mask (fully covering mouth and nose) when sterile supplies are open
- Hand hygiene before opening sterile supplies

4

Sterile Technique Guideline II

Perioperative personnel should use sterile technique when donning and wearing sterile gowns, gloves, and surgical helmet systems

- Select gown by anticipated degree of exposure (barrier level 1 – 4, see next slide)
- May wear surgical helmet system when splashes, spray, splatter, or droplets of blood or other potentially infectious materials may be generated and facial contamination can be reasonably anticipated
  - Provides more protected coverage
- PPE is critical in orthopedic and trauma procedures that present a higher risk for exposure
- Some studies recommended helmet systems for procedures using hydrosurgical debridement devices

5

AAMI Liquid Barrier Performance Classification Levels

Table 1
Gown Liquid Barrier Performance Class

Barrier Level[1]	Anticipated Risk of Exposure (eg, fluid amount, splash risk, pressure on the gown)[2]
Level 1	Minimal
Level 2	Low
Level 3	Moderate
Level 4	High

References

1. ANSI/AAMI PB70:2012. Liquid Barrier Performance and Classification of Protective Apparel and Drapes Intended for Use in Health Care Facilities. *Arlington. VA: Association for the Advancement of Medical Instrumentation: 2012.*

2. AAMI TIR11:2005. Selection and Use of Protective Apparel and Surgical Drapes in Health Care Facilities. *Arlington, VA: Association for the Advancement of Medical Instrumentation: 2005.*

6

Sterile Technique Guideline II, Cont.

- When donning the sterile gown without assistance
  - Away from the sterile field
- The parts of the gown that should be considered sterile include:
  - The front of a sterile gown from the chest to the level of the sterile field and
  - The gowns sleeves from the cuff to 2 inches above the elbow, circumferentially
- Scrubbed team members should wear two pairs of sterile surgical gloves (ie, double glove). When two pairs of gloves are worn, a perforation indicator system should be used

7

Sterile Technique Guideline II, Cont.

- Surgical gloves worn during invasive surgical procedures **should** be changed
  - Every 90 – 150 minutes
  - When a visible defect or perforation is noted or when a suspected or actual perforation
  - Immediately after direct contact with methyl methacrylate
  - After touching optic eye pieces on the operative microscope
  - After touching a fluoroscopy machine
  - **After touching a surgical helmet system hood or visor**
  - when suspected or actual contamination occurs
- Surgical gloves worn during invasive surgical procedures **may** be changed
  - After draping
  - After handling heavy, sharp instruments or manipulation of rough edges of bone
  - Before handling implants

8

Sterile Technique Guideline II, Cont.

- Perioperative personnel should use sterile technique in accordance with the manufacturer's IFU when donning and wearing surgical helmet systems:
  - Don the unsterile helmet and a surgical mask before performing surgical hand antisepsis
  - Don the sterile visor hood or toga that covers the unsterile helmet before donning the sterile gown and gloves
  - The mask may be removed in accordance with the manufacturer's IFU during donning of the sterile visor hood or toga
  - The fan in the unsterile helmet should be turned on after gowning is completed
  - **Gloves should be changed during the procedure after touching the surgical helmet system hood or visor**

9

Sterile Technique Guideline III

A sterile field should be prepared for patients undergoing operative or other invasive procedures

- The sterile field should be prepared as close as possible to the time of use
- Opened for only one patient at a time
- The sterile field should be prepared in the OR or procedure room where it will be used and should not be moved
- For procedures that involve different wound classifications (ie, clean, clean-contaminated, contaminated, dirty), sterile fields and instrumentation should be kept separate and not used interchangeably on the cleaner wound
- Isolation technique should be used during:
  - Bowel surgery and
  - Procedures involving resection of metastatic tumors

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Isolation Technique Should Include…

- Organizing the sterile field in a manner that minimizes the risk of sterile field exposure to intestinal tract bacteria or cancerous cells from metastatic tumor excisions
- Initiating isolation technique immediately before resection of the bowel or metastatic tumor and concluding when the resection or anastomosis is complete
- No longer using instruments or items that had contact with the inside of the bowel lumen after it has been closed or that were used for metastatic tumor excision
- Removing contaminated instruments and items from the sterile field or placing them in a separate area that will not be touched by members of the sterile team
- Changing surgical gloves and changing gown when soiled
- Covering existing sterile drapes with new sterile drapes
- Using clean instruments to close the wound after anastomosis or resection
- Use of a **wound protector** for procedures that enter GI or biliary tract

11

11

Isolation technique using either a single sterile field or a dual sterile field

Table 2
Isolation Technique for Single and Dual Sterile Fields

Single Sterile Field	Dual Sterile Fields
Prepare 1 sterile field for the procedure and closure.	Prepare 1 sterile field for the procedure. Prepare and cover a 2nd sterile field for the closure.
Before transection of the bowel or metastatic tumor excision, place a wound protector or clean sterile towels around the surgical site.	
Segregate all contaminated instruments and other items that have contacted the bowel lumen or metastatic tumor to a designated area (eg, Mayo stand, basin).	Not applicable
Refrain from touching the sterile back table while the bowel is open or metastatic tumor excision is in progress.	Not applicable
When the anastomosis/resection is complete, remove the contaminated instruments, wound protector, towel drapes, and any other potentially contaminated items (eg, electrosurgical pencil, suction, light handles) from the surgical site and place them in a separate area of the sterile field that will not be touched during closing.	When the anastomosis/resection is complete, remove the contaminated instruments, wound protector, towel drapes, and any other potentially contaminated items (eg, electrosurgical pencil, suction, light handles) from the surgical site and place them on the sterile field used during the procedure that will not be touched during closing.
Irrigate the wound and initiate accounting procedures.	
Announce the change to clean closure.	
Have one scrubbed team member remain at the sterile field while all other team members change gloves. Gowns may also be changed. The scrubbed team member who remained at the sterile field should remove the moist counted sponges or towels, then change gloves when the other team members are back at the sterile field.	
Apply sterile light handles.	
Apply sterile drapes to cover the existing drapes, which may be soiled with bowel contents or may have been in contact with the metastatic tumor tissue.	
Secure a sterile electrosurgical pencil and suction to the field.	
Proceed with wound closure using only sterile instrumentation and items.	Proceed with wound closure using only sterile instrumentation and items from the sterile field for the closure.

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Sterile Technique

Guideline IV

Sterile drapes should be used to establish a sterile field

- Sterile drapes should be placed on the patient, furniture, and equipment in the sterile field in a manner that prevents contamination of the sterile field:
  - Handled as little as possible, not moved once positioned
  - Placed not leaning over unsterile areas
  - Cuff shield sterilely gloved hands
  - From the surgical site outward
  - Unsterile equipment that will be positioned immediately adjacent to the sterile field should also be covered by a sterile drape
  - Large equipment (eg, microscopes, robotic arms, C-arm fluoroscopy unit) should be draped as close as possible to the time of use and in accordance with the drape manufacturer's IFU

13

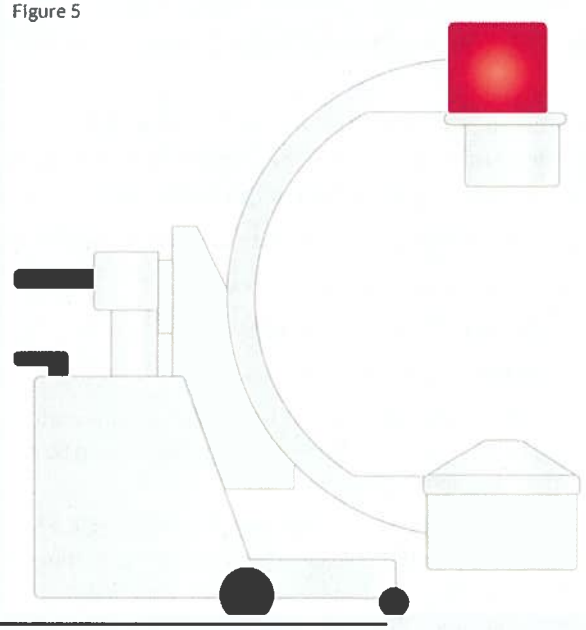
Sterile Technique

Guideline IV, Cont.

- Surgical equipment (eg, tubing, cables) used on the sterile field should be secured to the sterile field with nonperforating devices
- Only the top surface of the sterile drape should be considered sterile. Items that fall below the level of the sterile field should be considered contaminated
- When a C-arm is moved into lateral position:
  - The upper portion of a C-arm drape should be considered contaminated
  - The sterile drape below the level of the OR bed should not to be brought up into the sterile field

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Figure 5



C-Arm Drape Contamination

Researchers found bacterial contamination was greatest at the top and upper front of the receiver.

Illustration by Colleen Ladny.

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15

Sterile Technique

Guideline IV, Cont.

- Adhesive incise drapes <u>without antimicrobial</u> properties should not be used.
  Iodophor-impregnated adhesive incise drapes may be used in accordance with the manufacturer's IFU, unless contraindicated by a patient's allergy to iodine

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Sterile Technique Guideline V

Sterile items that are introduced to the sterile field should be opened, dispensed, and transferred by methods that maintain the sterility and integrity of the item and the sterile field

- Sterile items should be introduced to the sterile field as close as possible to the time of use
- To reduce the risk of contamination, it is best to have the item available and ready to open when it is needed rather than to open the item (eg, implant, medication, non-emergent suture, dressing) hours before use
  - Also reduces waste
- Leaving implants in sterile packaging until as close to the moment of implantation as possible reduces the risk of contamination through exposure to the OR environment and increased handling

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Event Related Sterility

- Sterility maintenance that is not based on expiration dating
- Related to factors like:
  - Packaging
  - Storage
  - Transport
  - Handling
  - Environmental conditions
  - ***Exposure to airborne contaminants***

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Sterile Technique Guideline V, Cont.

- Immediately before presenting items to the sterile field, perioperative personnel should inspect sterile items for:
  - Sterility of the contents, as noted on the packaging
  - The expiration date, when applicable
  - Package integrity
  - Product integrity (eg, discoloration or particulate formation in medications and solutions)
  - Verification that the external chemical indicators have changed to the correct color, indicating that the parameters for sterilization have been met
- Items that have an expiration date should not be used after the date has passed

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Sterile Technique GuidelineV, Cont.

- Items should be delivered to the sterile field in a manner that prevents unsterile objects or unscrubbed team members from leaning or reaching over the sterile field
- Sterile items should be presented directly to the scrubbed team member or placed securely on the sterile field
  - Heavy or sharp items should be presented directly to a scrubbed team member or opened on a separate clean, dry surface

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20

Sterile Technique Guideline V, Cont.

- Medications and sterile solutions (eg, normal saline) should be:
  - Transferred to the sterile field as close to the time of use as possible
  - Transferred in a slow, controlled manner using sterile transfer devices (eg, sterile vial spike, filter straw, plastic catheter) unless packaged for sterile delivery to the sterile field
  - Transferred into a receptacle that is placed near the sterile table's edge or is held by a scrubbed team member
  - Verified and labeled immediately after transfer
    - Medication vial stoppers should not be removed from vials for the purpose of pouring medications unless they are specifically designed for removal and pouring by the manufacturer
    - Medications or sterile solutions in containers should only be poured from the container once, and the cap should not be replaced. Any remaining fluids in the opened container should be discarded at the end of the procedure

21

Sterile Technique Guideline VI

The sterile field should be continually maintained

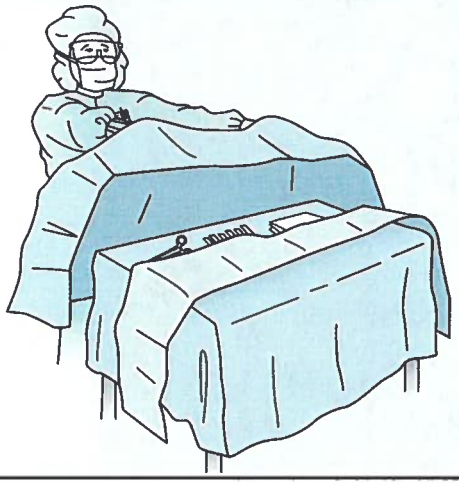
- Contamination of the sterile field and potential breaks in sterile technique should be monitored for and immediately corrected
- NEW - The sterile field should be covered if it will not be used immediately (eg, procedural delay, sterile field for closure, multiple tables) or during periods of increased activity (eg, pre-incision, repositioning).

  If the sterile field is in use, the portion of the sterile field that will not be immediately used (eg, implants, instruments not in use) may be covered
  - The sterile field should be covered with a sterile drape in a manner that allows the cover to be removed without compromising the sterility of the table
  - The sterile field may be covered with a sterile drape designed for this purpose or by the sterile two-"cuffed"-drape method described as follows:

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Covering a Sterile Field

The first drape should be placed horizontally over the table or other area to be covered, with the cuff at or just beyond the halfway point. The second drape should be placed from the opposite side of the table and the cuff positioned so that it completely covers the cuff of the first drape



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Monitoring of Covered Sterile Tables

Measures for preventing contamination to *covered* sterile fields include:

- A communication process for notifying personnel where a covered sterile table is located
- Limiting traffic in locations with covered sterile tables, or
- Direct observation

Two-"Cuffed"-Drape Method of Table Covering



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Covering a Sterile Field; Removing the Covering Drapes

- The drapes should be removed by placing the hands within the cuff of the top drape and lifting the drape up and away from the table and toward the person removing the drape. The second drape should be removed from the opposite side in the same manner
- An interdisciplinary team that includes an infection preventionist should develop and implement measures to minimize risk of contamination to covered sterile fields.
  Measures may include:
  - Posting a sign notifying personnel that a covered sterile field is in the room,
  - Limiting traffic in the OR or procedure room with covered sterile field, or
  - Directly observing the covered sterile field

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Sterile Technique Guideline VI, Cont.

- Heater-cooler devices should be positioned away from the sterile field, and the airflow exhaust of the equipment should be directed away from the sterile field
- When using intraoperative debridement devices with irrigation (ie, hydrosurgery, pulse lavage, low-frequency ultrasonic debridement) on open, infected wounds, perioperative personnel should implement interventions to minimize personnel exposure to potentially infectious materials and reduce contamination of the sterile field.
  Interventions may include:
  - Wearing PPE
  - Wearing a surgical helmet system
  - Covering the active hand piece with a clear sterile drape

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Sterile Technique

Guideline VII

Personnel should move within or around a sterile field in a manner that prevents contamination of the sterile field

- Scrubbed team members should:
  - Remain close to the sterile field and touch only sterile items
  - Keep hands and arms above waist level at all times
  - Not fold arms with hands in axillary area
  - Not turn backs to the field
- Unscrubbed team members should:
  - Face the sterile field on approach
  - Not walk between sterile fields or scrubbed persons
  - Not reach over an uncovered sterile field
  - Stay as far back from the sterile field and scrubbed persons as possible

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Sterile Technique

Guideline VII, Cont.

- Nonessential conversations should be limited in the presence of a sterile field.
  - Unnecessary noise and distraction
  - Increases microorganisms - respiratory droplets
- Doors to the operative or invasive procedure room should be kept closed as much as possible except during the entry and exit of patients, required personnel, and necessary equipment.
  - Increases OR environmental contamination
  - Reduces positive pressure in OR room
- The number and movement of individuals in an operative or invasive procedure room should be kept to a minimum.
  - More people, more activity = more bacterial shedding

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Sterile Technique

Guideline VIII

Perioperative personnel should participate in quality assurance and performance improvement activities that are consistent with the health care organization's plan to improve understanding of and compliance with the principles and processes of sterile technique

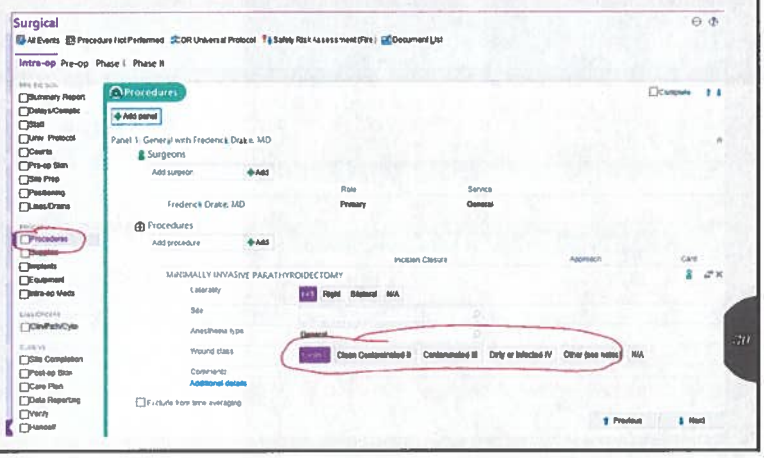
- If a patient develops an SSI, an interdisciplinary team that includes an infection preventionist should evaluate sterile technique practices that may have contributed to the development of the infection, including
  - Intra-op delays
  - Adherence to surgical attire policies
  - Performance of hand hygiene & hand scrub
  - Routine glove changes
  - Isolation technique & wound protector
  - Medications & solutions
  - Door openings and associated reasons
  - Number of personnel in the room and their roles – movement within room
  - Use of table covering, etc...

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Sterile Technique

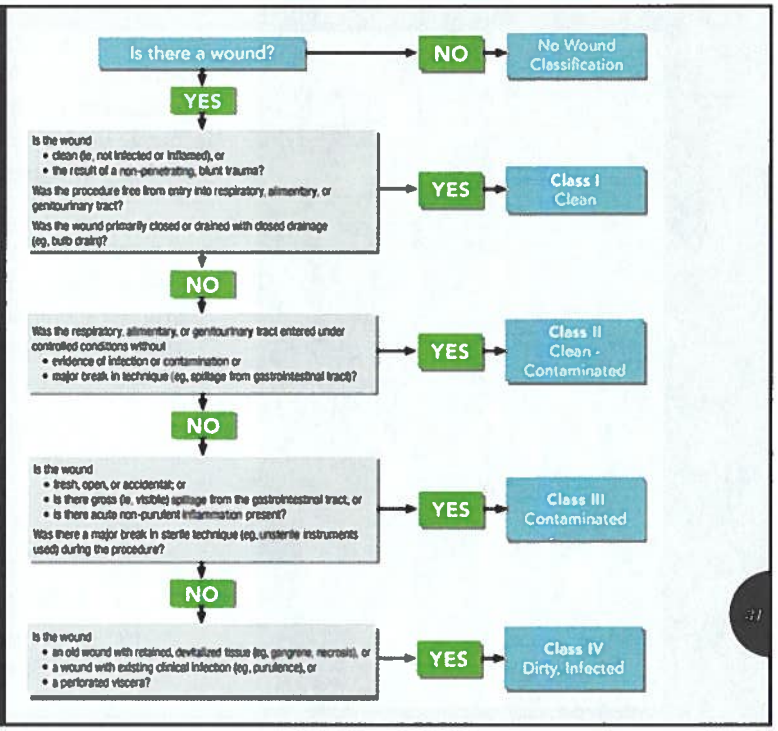
Guideline VIII, Cont.

- Significant or major breaks in sterile technique that are not immediately corrected should be documented or reported per organizational policy
  - Clear and concise documentation is essential
  - Consider documentation of change of wound classification
    - Do you know how to do that? In the Procedure section



30

AORN Surgical Wound Classification Decision Tree



31

If a tree falls in the woods…

Surgical Conscience

- Identifying and addressing a breach in sterile technique (or other safety practice) even when no one else notices it
- Consider if it were someone you love on the OR table
- It takes a team:
  - Watch each other's backs (cross-monitoring)
  - Give, and be open to, feedback

32

True story:

Surgeon: Did someone fart?

Silence

Surgeon: I need to know if someone farted. I may have perforated bowel.

Med student: I farted



33

Discussion - Where are the Gaps?

- Covering a field
- Facial hair
- Note re: gowns and AAMI levels of protection
  - We don't stock level 1 (min protection)
  - Level 2, separate on shelf (green tag/neck) – lowest level of protection we have, considering omitting from BMC stock
  - Level 3, in packs (purple tag/neck)
  - Level 4, in packs (blue tag/neck) – highest level of protection (impermeability) but can be hot to wear
- Mask/gown wearing in some cases?
- Isolation Technique?

34

References re: mask use

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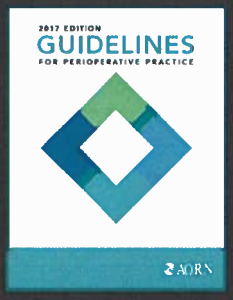
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- Some slides are taken from the webinar Sterile Technique: The Little Things Can Make a Big Difference, presented November 13, 2018. To listen to the webinar, visit https://www.aorn.org/education/individuals/education-webinars/recorded-webinars.
- Illustrations - *Kurt Jones, Graphic Designer, AORN, Production and Design Services*

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36



BMC Surgical Wound Classification

BOSTON MEDICAL CENTER

1

Objectives

- Define categories for surgical wound classification
- Improve classification of surgical wounds
- Identify importance of correct wound classification
- Document wound classifications appropriately
- Communicate with attending surgeon as to the correct wound classification, per the BMC's Universal Protocol (i.e. *Before Leaving the OR* section)

2

What is the surgical wound classification?

- A method that is used by the surgical team for determining the extent of microbial contamination of a surgical wound
- Helps in determining the probability of an infection developing at the surgical site
- Assists the surgeon in determining the use of preoperative antimicrobial prophylaxis
- Based on the guidelines issued by the CDC in 1985, which is an adaptation of the American College of Surgeons wound classification design (Zinn, 2012)

3

Clean (Class I) Wounds

- An uninfected surgical wound in which there is no inflammation encountered
- The respiratory, alimentary, genital or uninfected urinary tracts are not entered
- Wounds are primarily closed
- If a drain is used, it will be a closed-wound drainage system (JP drain, hemovac drain)
- If criteria is met, surgical incisional wounds that are made after a non-penetrating trauma (i.e., blunt) are included in this category
- Risk of infection: 2% or lower

4

Examples of Clean (Class I) Wounds

- Open reduction
- Internal fixation of a closed fracture
- Craniotomy for tumor
- Breast biopsy
- Abdominoplasty
- Total joint replacements
- Arthroscopy
- Ophthalmologic procedures
- Lap band procedure
- Hernia repair
- Open-heart surgery

5

Clean/Contaminated (Class II) Wounds

- A surgical wound in which the respiratory, alimentary, genital, or urinary tracts are entered under controlled conditions - without unusual contamination
- Surgical procedures that involve the biliary tract, appendix, vagina and oropharynx are Class II wounds as long as an no infectious process encountered and no major break in aseptic techniques occurred
- If an open drain (Penrose) is used it should be classified as a Class II wound because open drains increase the risk of surgical site infections
- Risk of infection: 5% to 15%

6

Examples of Clean/Contaminated (Class II) Wounds

- Laparoscopic cholecystectomy without bile spillage
- Vaginal or abdominal hysterectomy
- Hemorrhoidectomy
- Colectomy (laparoscopic or open)
- Gastric bypass without spillage
- TURP
- Cystoscopy
- Laparoscopic procedures that require the use of a uterine manipulator
- Oral surgery/dental procedures
- Diagnostic & Operative Hysteroscopy
- Non-perforated Appendectomy
- Thoracotomy
- Whipple

7

Contaminated (Class III) Wounds

- Open, fresh, accidental wounds (less than 4 hours old)
- Major breaks in sterile technique or gross spillage from the GI tract
- Incisions with acute, non-purulent inflammation
- Risk of infection: greater than 15%

8

Example of Contaminated (Class III) Wounds

- Laparoscopic cholecystectomy with bile spillage
- ORIF of an open fracture less than 4 hours old
- Appendectomy for acute inflammation
- A penetrating abdominal trauma involving bowel
- Gunshot wound to the abdomen
- Diverticulitis

9

Dirty/Infected (Class IV) Wounds

- Old, traumatic wounds with retained or devitalized tissue (greater than 4 hours old)
- Wounds that involve existing clinical infections or perforated viscera
- This class indicates that the organisms causing a post-op surgical site infection were present in the wound prior to the surgical procedure
- Risk of infection: greater than 30%

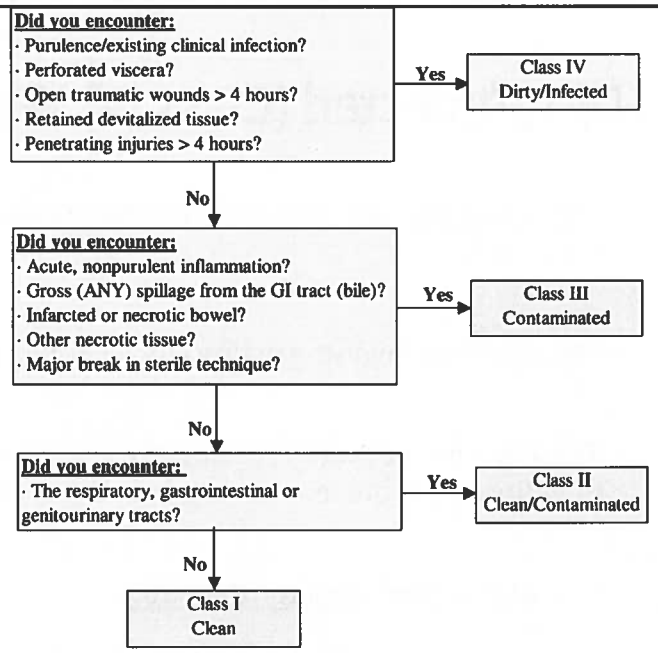
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Examples of Dirty/Infected (Class IV) Wounds

- Amputation for wet gangrene (devitalized tissue present and microbial load is greater)
- I &D of an infected wound
- Appendectomy with perforation or ruptured appendix
- Dental extraction with abscess
- Open fracture greater than 4 hours
- Myringotomy with active otitis media

11

Wound Classification Algorithm



12

The Gold Standard

- This wound classification system is considered the gold standard
- Clinical judgment should be used when there is ambiguity in classifying a wound
- Contact the infection control nurse with any questions
- The surgeon should be making the wound classification determination along with the circulating nurse per the Universal Protocol

13

Surgical Site Surveillance

- Wounds classified according to wound class
- The lower the wound class, the lower the expected incidence of SSI
- Rates of SSI being sent to CDC and DPH and benchmarked against other Mass Hospitals (Public Scorecard)
- Inaccurate wound classification can lead to artificially elevated rates of SSI

14

Documentation of Wound Classification

- Enter the Procedure screen in the OpTime navigator
- Change the pre-selected (usual) Wound class as appropriate
- Add a comment if you would like to explain the revision



15

References

Zinn, J. (2012). Surgical wound classification: Communication is needed for accuracy. *AORN,* 95, 274-278.

Zinn, J. and Swofford, V. (2014). Quality-improvement initiative: Classifying and documenting surgical wounds. *Wound Care Advisor,* 3, 32-38.

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BOSTON MEDICAL CENTER

Fire Safety in the Operating Room

Best Practices to Keep Our Patients Safe

1

Objectives

The learner will:

- Identify the three components of the fire triangle
- Identify standard fire risk prevention interventions
- Identify high risk fire prevention interventions
- Describe use of the Safety (Fire) Risk Assessment in surgery
- Describe specific risks and prevention interventions related to use of light sources in surgery

2

Fire in the OR - Statistics

AORN reports there are 200 - 240 surgical fires per year:

- 44% on head, neck, or upper chest
- 26% elsewhere on the patient
- 21% in the airway
- 8% elsewhere in the patient

- 20 to 30 are serious and result in disfiguring or disabling injuries
- 1 to 2 are fatal

3

Fire Triangle in the OR

For a fire to occur, three things need to be present:

1. A fuel,
2. An ignition source, and
3. An oxygen source (oxidizer, includes room air)



- In the OR, these three things are present on a regular basis, for almost every case
- Each periop team member has influence and control over some of these items in varying degrees
- The entire team has a responsibility to assess risk, communicate, plan, and intervene
- The Safety Risk Assessment (Fire) is completed during the Universal Protocol

4

Ignition Sources in the OR

Ignition Sources:
- Electrosurgical unit (ESU)
- Power tools
- Laser
- Fiber-optic light

Interventions:
- Inspect cords and plugs for integrity, remove from service if broken
- Return electrode ("Bovie" pad) on large muscle mass close to the surgical site
- ESU pencil in holster when not in use
- Moisten drapes or place wet absorbent towels/sponges in close proximity to the ESU active electrode (pencil), around the surgical site
- Keep tip clean
- Activate only in close proximity to target tissue
- Do not use to enter the bowel when it is distended with gas
- Use lowest acceptable power setting for the ESU
- Have appropriate fire extinguisher available & saline on field
- Only the person controlling the laser beam activates the laser
- Inspect light cables for integrity before use and keep off or in STAND-BY mode while not in active use, etc.

5

Oxidizer Sources in the OR

Oxidizer Sources:
- Oxygen
- Oxygen-Enriched Environment
- Nitrous Oxide

Interventions:
- Tent drapes to allow for free air flow
- Keep the Oxygen (O_2) percentage as low as possible
- Use and adhesive incise drape
- Evacuate the surgical smoke from small or enclosed spaces
- Inform the surgeon of an open O_2 source
- Stop (or decrease) supplemental O_2 or nitrous before and during use of an ignition source
- Turn off the O_2 at the end of each procedure
- During head, face, neck and upper chest surgery:
  - Do NOT use open delivery of 100% O_2
  - Intubate or use LMA if supplemental oxygen needed

6

Fuel Sources in the OR

Fuel Sources:

- People (patient and staff)
- Hair / head coverings
- Alcohol based skin preps
- Drapes
- Gowns / shoe covers
- Towels / linens
- Sponges / dressings / tapes

Interventions:

- Clip hair at the prep site - very extended dry time (60 minutes) for alcohol-based prep to dry in hair
- Prevent pooling of prep solutions - use minimal amount needed for site
- Remove prep-soaked linen and tuck towels
- Allow skin prep agent to dry and fumes to dissipate before draping
- Remove left-over prep solution from the area, place in plastic bag with saturated tuck towels away from the field
- Use moist towels around the surgical site (especially when using a laser)
- During throat surgery, use moist throat packing
- Use water-based ointment (NOT oil-based) in facial hair and other hair near the surgical site

7

OR Fires - The Joint Commission Reports...

More than half of the fires/burns sentinel events reported to The Joint Commission (TJC) since 2019 were associated with surgical or invasive procedures, and nearly 15% of those peri-procedural incidents were related to light sources.

8

How the Light Source Can Cause a Burn

Laparoscopic, thoracoscopic and arthroscopic surgery require an illumination system to provide visualization of the enclosed body cavity or joint

Instrument of component malfunction can lead to excessive heat generation and result in patient burns

9

Illumination Components

- Light Sources:
  - Provide different quality of light and differnet temperatures
  - Have safety mechanisms to minimize the heat generated by the light source
    - Heat filters
    - Fans
    - Cable connectors (disperse heat)
- Light Cables:
  - Fiberoptic
  - Gel filled - capable of transmitting 30% more light = more heat = more hazardous

10

High Temperatures May Be Produced If:

- Any of the heat minimizing devices fail within the light source
- The light source of cable is defective
- Different connectors or components are used
  - Different brands
  - 10mm cable used with 5mm scope
  - 5mm connection used instead of a 10mm one
- Detached light cables resting on surgical drapes - even momentarily
  - May not even generate smoke or fire

11

Safety Interventions

- All surgical team members must have education on safe scope handling
- Do not turn on the light source before the cable is connected to the scope
- If the cable is disconnected from the scope during surgery, hold the cable away from the drapes or place it on a moist towel
- Keep illuminated cords away from drapes, patients' skin, personnels' skin, and any flammable material
- Connect the correct size light source to the correct scope
- Inspect all instruments and equipment before use to ensure the equipment is in good working order

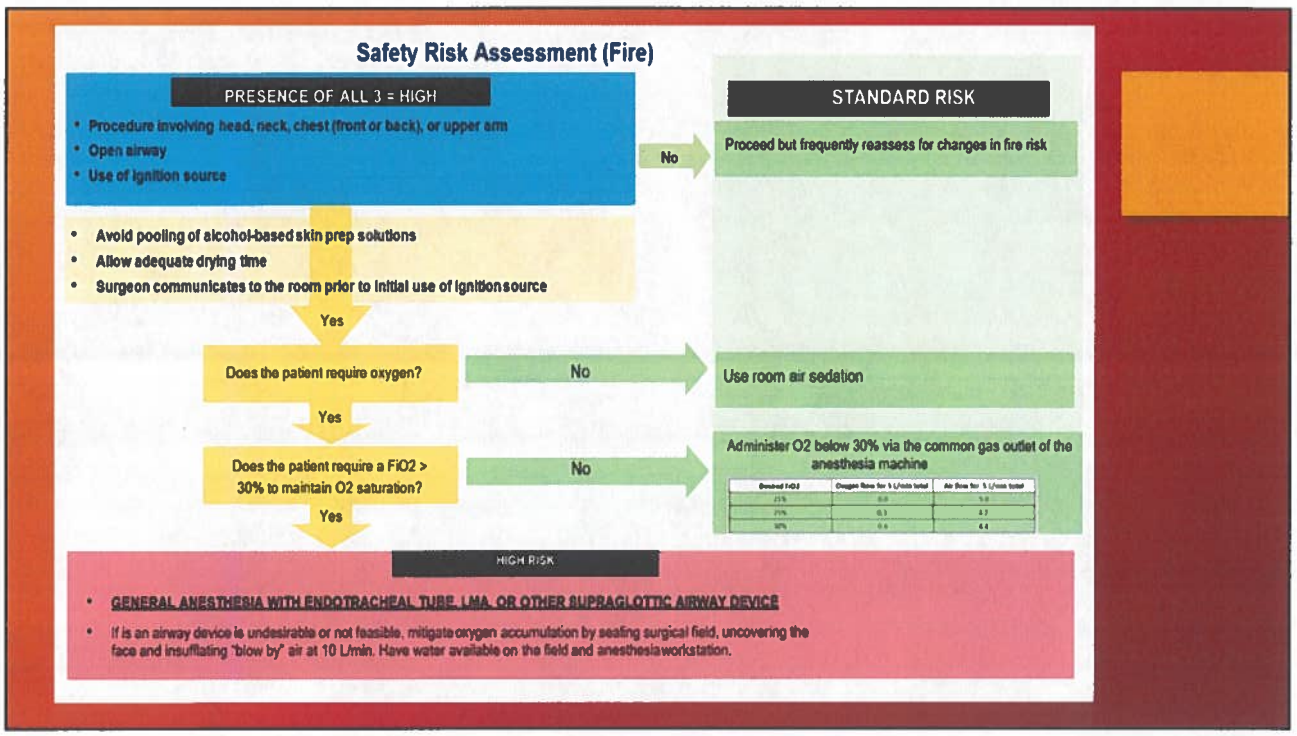
12

Safety (Fire) Risk Assessment

- During the Universal Protocol - first column, with the Attendings present
  - *Do not say the word "fire" in front of awake patient, use the words "Safety Assessment"
  - All team members participate
- **The Highest Risk** is the presence of these three risk factors:
  1. Head, neck, chest (front of back) or upper arm procedures
  2. Open airway
  3. Use of ignition source

If alcohol-based skin prep is used, assure adequate clipping and adequate dry time!

13



14

Interventions - Frequently Re-assess Risk

Standard Risk

- Avoid pooling of alcohol
- Remove saturated tuck towels
- Adequate clipping
- Allow adequate dry time
- Surgeon communicates prior to initial use of ignition source
- Always have irrigation on sterile field if ignition source will be used
- Protect all heat sources

High Risk

Anesthesia will consider:

- Room air for sedation
- Administering O_2 <30%
- Closed circuit airway device
- Uncover patient's face
- Have water available on anesthesia work station
- Discuss "sealing" the surgical field (i.e. with ioban)

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Please Reach Out With Questions !

Donna.amado@bmc.org

16

References

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BOSTON MEDICAL CENTER

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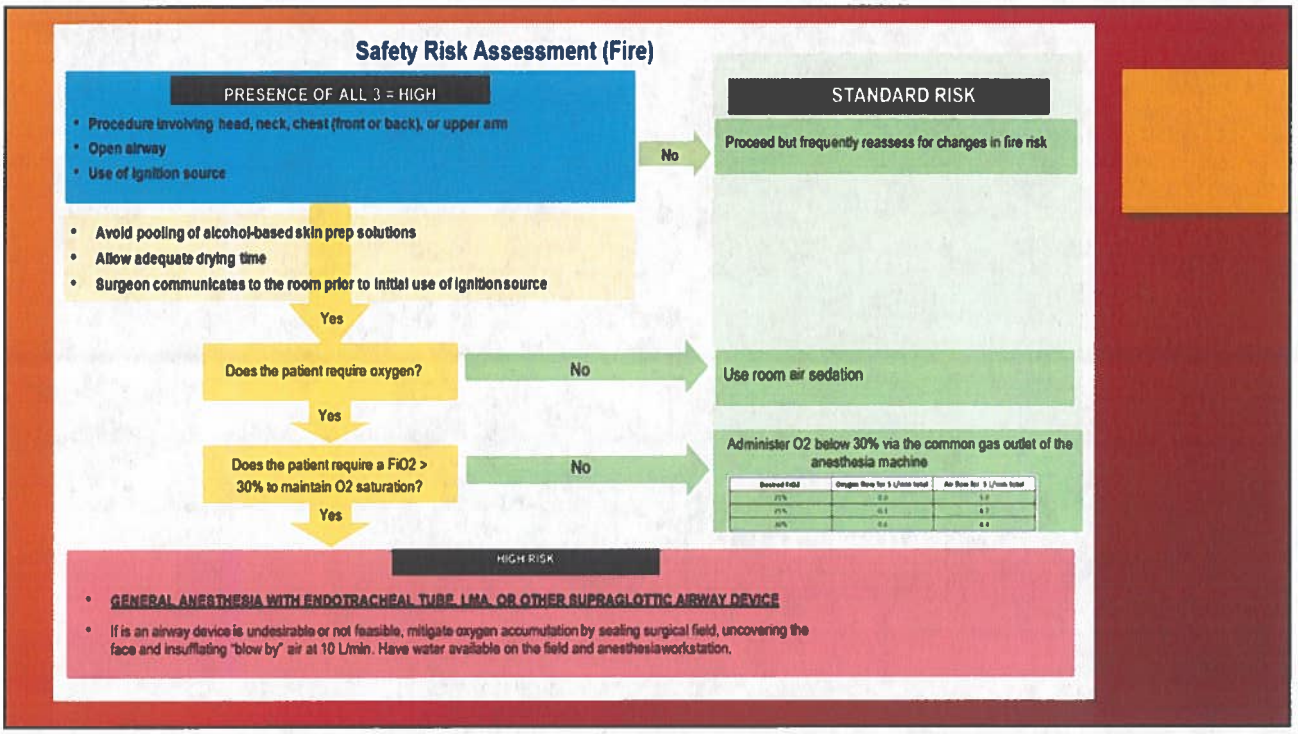
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Policy #:	03.60.000
Issued:	January 2009
Reviewed/ Revised:	1/2009, 9/2011, 9/2014, 12/2015, 6/2016, 3/2017, 1/2018, 8/2018, 9/2018, 12/2021, 9/2022, 5/2025
Section:	Clinical Care/Patient Rights

Universal Protocol (Time Out)

Purpose:

To describe Boston Medical Center's (BMC) "Time Out" requirements for all invasive procedures, regardless of the location within the hospital or ambulatory site where the procedure is to be performed.

Policy Statement:

BMC recognizes that pre-procedure verification is an ongoing process throughout the continuum of care, beginning with the decision to perform a procedure, up to and including the final pause just before the start of the procedure.

Prior to the start of any invasive procedure, BMC staff will verify that the correct patient has entered the operating room/procedure room, the correct procedure is to be performed, the correct site/side/level/multiple structures (if applicable) have been identified and marked, the availability of correct implant/tissue and any special equipment or special requirements needed for the procedure, and the existence of written documentation of informed consent.

Application:

All invasive procedures performed at BMC in the operating room, procedure room or at patient bedside.

Exception:

Life threatening emergencies where performing a Time Out may jeopardize patient survival or outcome.

Procedure:

Before entering the Operating Room, Procedure Room or at Patient Bedside

1. PATIENT VERIFICATION (Correct Patient)

1.1. Verification of correct person, procedure and the correct site/side/level/multiple structures (if applicable) should occur:

1.1.1. at the time the surgery/procedure is scheduled,

1.1.2. at the time of admission to the facility, and

1.1.3. at any time the responsibility for care of patients is transferred to another caregiver.

1.2. Verification of the correct patient includes:

1.2.1. Asking the patient his/her two unique patient identifiers (see below)

1.2.2. Comparing the BMC I.D. band with a document with the name and medical record number (See *Policy #03.33.000 - Patient Identification*)

Location	Patient Identifier Examples
Inpatient Observation Unit Emergency Department	Patient's full name and medical record number
Outpatient Outpatient Procedural Areas	Patient's full name and date of birth
Home Care Patient	Patient's full name and address

Examples of Patient Identification

Proper Patient Identification	Improper Patient Identification
What is your full name?	Is your name Jane Doe?
What is your date of birth?	Were you born 1/1/1911?
What is your address?	Is your address 1 Boston Medical Center Place?

1.3. **Note:** If a patient regularly uses another name that is different from their legal name, the name regularly used may appear in the medical record in quotes and ALL CAPS next to the legal name (i.e.: Optime, Francine "PETER"; Johnson, Donald "DONNA"; Smith, Mary "REBECCA"; Lopez, Michael "JAMES"). A patient's legal name will be typed on their patient identification band.

The regularly used name (the portion in caps and quotes in the medical record) is not considered part of the legal name and therefore only the legal name should be used for the purposes of identifying the patient during a Time Out verification. If the names on a patient's medical record and the typed identification band match, except for the regularly used name, then there is a match.

If necessary, explain to the patient that efforts will be made to address them by their regularly used name, but that their legal name must be used in the clinical setting for identity verification purposes related to a "Time Out" prior to a procedure for patient safety and policy compliance.

2. CONSENT

2.1. Incompetent Adult/ Minor Patient - In the case of an incompetent adult or minor patient, the verification of identification and confirmation that the informed consent process has been satisfactorily completed and consents signed is conducted with the patient's legal surrogate, consistent with BMC Policy 03.02.000, Patient Consent

2.2. The attending physician and attending anesthesiologist (if applicable) must verify that the consent forms are complete and signed, consistent with BMC Policy 03.02.000, Patient Consent.

2.3. When there are multiple physicians involved in a procedure for surgical patients, each physician is responsible for his or her own informed consent. The attending physician of record is responsible for informing the nursing staff of his/her designation as the physician of record.

2.4. No patient will enter the operating room/procedure room without documentation of written informed consent as described above.

3. SITE VERIFICATION (MARKING THE SITE)

3.1. **Marking Exceptions:**

3.1.1. When laterality or multiple levels do not exist

3.1.2. Teeth – indicate operative tooth name(s) on documentation and mark the operative tooth or teeth on dental radiographs or a dental diagram

3.1.3. In urology cases, Extracorporeal Shock Wave Lithotripsy (ESWL) and cystoscopy cases involving laterality (ureteroscopy, retrograde or stent placement) the site will be marked with the attending surgeon's initials on the ipsilateral (same side) hand where it will remain visible after positioning

3.2. The words "right" or "left" must be spelled out in entirety on the OR/procedure schedule and consent form.

3.3. The attending physician will identify the appropriate site/side/level /multiple structures (if applicable) through review of the medical record, radiologic and other studies, and physical examination of the patient.

3.4. The site/side/level/multiple structure (if applicable) must be marked prior to the administration of narcotics/sedation or any type of anesthesia, including nerve blocks for intraoperative or postoperative analgesia.

3.5. The procedure site is marked by an attending physician or other provider who is privileged or permitted by the hospital to perform the intended surgical or non-surgical invasive procedure.

3.6. The attending physician must mark the site/procedure site/level/multiple structures (if applicable) with the patient before the patient enters the operating room/procedure room or at the bedside where the potential for wrong site procedure exists. The patient confirms the site verification to the extent possible. Interpreter services are used when necessary. Minimally invasive and natural orifice access procedures where approach is not directly adjacent to target organ(s) will be marked and laterality noted (example: initials and left kidney visible after draping for laparoscopic left nephrectomy) at the site of first incision.

3.7. The attending physician will mark the site with a skin-marking pen (no stickers) by placing his or her initials (capital letters) with or without a line representing the incision on the correct site/side/level/multiple structures (if applicable) of the surgery.

3.7.1. If the physician's initials spell NO, he/she should write the first four letters of his/her last name.

3.7.2. Do not use the letter "X"

3.8. The patient or authorized representative should be involved in the marking of the procedure site to the extent possible. The mark should be made so it is sufficiently permanent to remain visible after completion of the skin prep including patients with pigmented skin. For premature infants/neonates, use a special neonatal marker since the traditional skin-marking pen for adults may cause a permanent tattoo. If the patient has marked him/herself, the team should explain to the patient the need for verification and re-marking.

3.9. The attending physician initials with or without a line representing the incision must be clearly visible in the field once the patient is prepped and draped. An incision will not be made if the initials are not clearly visible in the field. If the initials are not visible after the skin prep and draping, the site must be re-verified and re-marked prior to continuing. This may involve removing the drapes if necessary.

3.10. Spine surgery/procedure requires a two-stage marking process:

3.10.1. Preoperative skin marking must be done on the patient's skin at the level of the procedure (for example, cervical, thoracic, lumbar)

3.10.1.1. The skin mark indicates anterior vs. posterior and right vs. left.

3.10.1.2. Before the surgery/procedure, the attending surgeon checks the patient's records, consent form, all relevant documents, and radiologic studies, and confirms the operative/procedure site with the patient.

3.10.1.3. The pre-op registered nurse will confirm that the site is marked with the attending surgeon's/proceduralist's initials before the patient is moved into the operating/procedure room.

3.10.1.4. The circulating nurse compares the patient's site marking of planned procedure to documentation on the consent form.

3.10.2. Special intraoperative radiographic techniques with immovable markers are used for locating the exact vertebral level.

3.10.2.1. The attending physician is responsible for reviewing all films used during the procedure and will confirm that the films have been properly labeled with the patient's name.

3.10.2.2. Intraoperative radiographic films will be taken to mark the exact vertebral level (site) for spine surgery.

3.10.2.3. The attending physician will ensure that his/her initials, or radiologic marker without initials, are visible after the patient has been prepped and draped. If marking is not visible after prepping and/or draping, all drapes must be removed and the entire site verification and marking process must begin again.

3.10.2.4. For non-contiguous surgical sites (separate incisions- i.e., cervical and lumbar same case), the process will be repeated for each subsequent site.

3.10.3. Do not mark any non-operative/procedure sites unless necessary for some other aspect of care.

3.10.4. If any verification process fails to identify the correct site/side/level/multiple structures (if applicable) all activities should be halted until verification is accurate.

3.10.5. If a competent patient refuses site verification, the surgery/procedure will not be performed.

In the Operating Room, Procedure Room or at Patient Bedside

4. OFFICIAL TIME OUT VERIFICATION

4.1. The official "Time Out" takes place in the operating room/procedure room or at the bedside where the procedure is being performed.

4.2. Immediately prior to the induction of any type of anesthesia, monitored anesthesia care (MAC), regional, general anesthesia, straight local, or sedation and analgesia, the official "Time Out" including safety risk assessment (fire) will be conducted. Procedures with no ignition source being used do not require a safety risk assessment (fire).

4.3. ***Operating Room and Procedure Rooms***

4.3.1. The operating room/procedure room circulating/procedure nurse will call, conduct, and coordinate the official "Time Out" for all cases with the attending physician and the attending anesthesiologist.[1]

4.3.1.1. Fellows with attending status in the OR can be involved in the Time Out. This does not include residents, medical students, physician assistants or nurse practitioners.

4.3.2. When multiple surgeons/proceduralists are involved in a procedure, the initiating surgeon/proceduralist may perform the initial Time Out. Prior to the next surgeon/proceduralist beginning his/her procedure, another official Time Out must be conducted. All surgeons/proceduralists do not have to be present for the initial Time Out.

4.3.2.1. Active participants include the attending physician, attending anesthesiologist[2], if applicable, and designated health care staff. These individuals perform the official "Time Out" and document.

4.3.2.2. All participants must actively participate - during Time Out other activities are suspended without compromising patient safety.

4.3.2.3. The Time Out documentation is only completed in Electronic Health Record (EHR) after the official Time Out is complete.

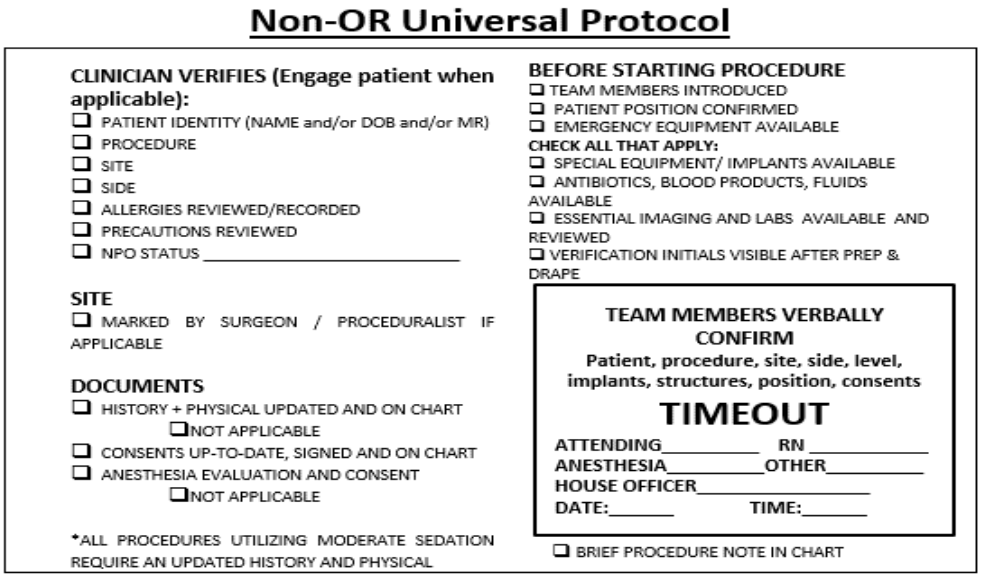
4.4. ***Non- OR Setting***

4.4.1. In non-OR setting (bedside procedures), the MD (proceduralist), RN, radiology technician, or respiratory therapist or other designated staff will call and conduct the official "Time Out". Active participants include the physician, licensed independent practitioner and/or house staff performing the procedure, anesthesiologist (if applicable) and designated health care staff. These individuals perform the official "Time Out" and initial the Time Out Documentation Sheet/Label or document in the Electronic Health Record. All participants must actively participate. During Time Out other activities are suspended without compromising patient safety. The Non-OR Universal Protocol Documentation Sticker is only signed after the official Time Out is complete.

4.4.2. The official documentation includes patient identification, surgical site verification and other initiatives that support safe surgical practice.

4.4.3. All participants must sign their initials on the Non-OR Universal Protocol documentation or document Time Out in the Electronic Health Record if available.

[1] Endoscopy Suite: The attending anesthesiologist and/or CRNA will be present during the Time Out.
[2] Endoscopy Suite: Active participants include; the attending anesthesiologist and/or CRNA.



Non-OR Universal Protocol

CLINICIAN VERIFIES (Engage patient when applicable):
- ❑ PATIENT IDENTITY (NAME and/or DOB and/or MR)
- ❑ PROCEDURE
- ❑ SITE
- ❑ SIDE
- ❑ ALLERGIES REVIEWED/RECORDED
- ❑ PRECAUTIONS REVIEWED
- ❑ NPO STATUS _____

SITE
- ❑ MARKED BY SURGEON / PROCEDURALIST IF APPLICABLE

DOCUMENTS
- ❑ HISTORY + PHYSICAL UPDATED AND ON CHART
  - ❑NOT APPLICABLE
- ❑ CONSENTS UP-TO-DATE, SIGNED AND ON CHART
- ❑ ANESTHESIA EVALUATION AND CONSENT
  - ❑NOT APPLICABLE

*ALL PROCEDURES UTILIZING MODERATE SEDATION REQUIRE AN UPDATED HISTORY AND PHYSICAL

BEFORE STARTING PROCEDURE
- ❑ TEAM MEMBERS INTRODUCED
- ❑ PATIENT POSITION CONFIRMED
- ❑ EMERGENCY EQUIPMENT AVAILABLE

CHECK ALL THAT APPLY:
- ❑ SPECIAL EQUIPMENT/ IMPLANTS AVAILABLE
- ❑ ANTIBIOTICS, BLOOD PRODUCTS, FLUIDS AVAILABLE
- ❑ ESSENTIAL IMAGING AND LABS AVAILABLE AND REVIEWED
- ❑ VERIFICATION INITIALS VISIBLE AFTER PREP & DRAPE

TEAM MEMBERS VERBALLY CONFIRM
Patient, procedure, site, side, level, implants, structures, position, consents

TIMEOUT

ATTENDING_____ **RN** _____
ANESTHESIA_____**OTHER**_____
HOUSE OFFICER_____
DATE:_____ **TIME:**_____

❑ BRIEF PROCEDURE NOTE IN CHART

5. FINAL PAUSE

5.1. A final verification is conducted immediately before making the incision or initiating the procedure. The proceduralist is responsible for calling, coordinating and conducting the Final Pause. The procedure will not start (no instruments will be passed onto the field) until there is confirmation the practitioner's initials can be seen on the field (after patient is prepped and draped) and when laterality exists.

Responsibility:
Nursing, Licensed Independent Practitioners, House Staff

Forms:
Non-OR Universal Protocol Sticker for Ambulatory/Bedside procedures (obtain through Materials Management)

Attachments:
(A) Universal Protocol - Operating Room/IPP
(B) Universal Protocol – PACU

Other Related Policies:
03.02.000 - Patient Consent
03.12.000 - Interpreter Services Department
03.33.000 - Patient Identification and Alert Bands

Initiated by: OR Executive Committee

Contributing Departments:
1) Radiology
2) Nursing
3) Endoscopy
4) Respiratory Therapy
5) Woman's Center
6) Patient Safety Risk Management
7) Regulatory Compliance
8) Interpreter Services

Universal Protocol- Operating Room

Upon Entering Operating/Procedure Room



Person conducting Universal Protocol (UP) requests all activity in the room come to a complete stop; confirms visually and verbally everyone is providing their full attention before initiating next portion of the UP.

1. **Are there contact precautions?**
2. **Introduce team members**
3. **Is the stretcher/table locked?**
4. **Are safety belts on?**
5. **Introduce patient *(confirm using name/DOB/MRN with consent, wrist band & Epic)***
6. **What procedure is being performed?**
   a. **Does this match the consent and what is in Epic? *(and imaging if applicable)*?**
   b. **Does laterality & site marking match consent and Epic?**
7. **Patient positioning?**
8. **How long is the case?**
9. **What special equipment/tissue/implants are needed?**
10. **Are there any high-risk retention items? *(bite block, vaginal or throat pack, eye shields)***
11. **Will fluoroscopy be used? *(if so, team must wear lead)***
12. **Are there blood loss concerns? *(if yes, do we need blood bank sample or cell saver?)***
13. **Is IV access adequate?**
14. **Is emergency equipment available?**
15. **What is the Fire Risk? *(over)***
16. **What is the Pulse Ox waveform and value?**
17. **Is there a difficult airway or other anesthesia concerns?**
18. **What are the temperature control measures?**
19. **What are the fluid plans?**
20. **Urinary catheter needed?**
21. **What is the prep and who will be applying it?**
22. **Are there any allergies?**
23. **What is the antibiotics plan?**
24. **Are all drugs & solutions labeled?**
25. **What is the VTE prophylaxis plan?**
26. **What is the blood pressure management plan?**
27. **Using neuromuscular blocking agents?**
28. **Any glucose control plans?**
29. **Any questions or concerns from the team?**

Please feel free to speak up during the case if you are concerned about something

Final Pause Prior to Incision



All activity in the room comes to a complete stop; visually and verbally confirm everyone is providing their full attention before initiating next portion of the UP.

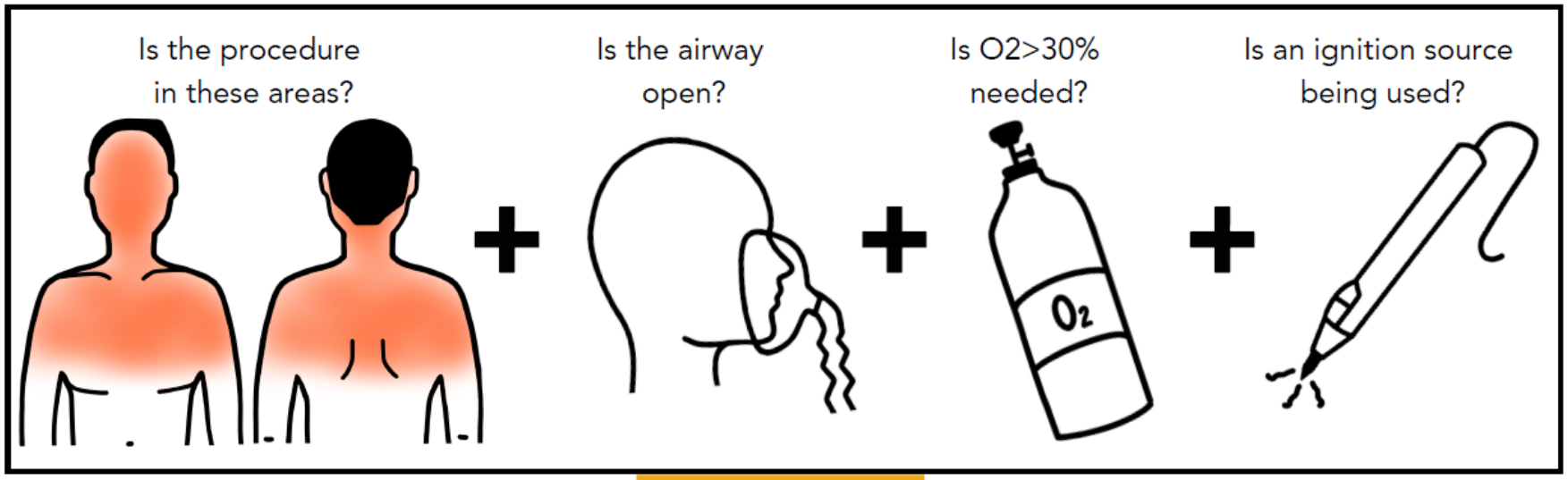
1. **Is Attending Surgeon present?**
2. **Does everyone concur about safe positioning and padding throughout the operation?**
3. **Is safety belt placed in the appropriate position? Are extremities secure?**
4. **Is site marking visible after prep and drape?**
5. **Were antibiotics given within 60 minutes of incision?**
6. **Any questions or concerns from the team?**

If Additional Surgeons: verify patient, procedure, site, laterality, level, position, implants, special equipment & consents

End of Procedure Debrief

1. **What is the recovery plan & location?**
2. **Have all temporary items been removed? *(bite block, throat pack, eye shield*)**
3. **Are all counts correct?**
4. **Have the Circulating Nurse & Surgeon reconciled specimens?**
5. **Surgeon confirms diagnosis, procedure, & Wound Classification**
6. **Any final concerns?**

Safety Risk Assessment (Fire)



Are ALL of these present?

NO → **Standard Risk**

YES → **High Risk**

Universal Protocol - IPP

Start of Operation

UPON ENTERING OPERATING ROOM

- DISCUSS PPE, PRECAUTIONS
- CONFIRM STRETCHER AND TABLE LOCKED FOR TRANSFER

ONCE PATIENT IS ON TABLE

PATIENT AND TEAM:

- APPLY SAFETY BELT(S)
- INTRODUCE PATIENT: CONFIRM NAME, DOB, AND MRN WITH LABELS AND WRISTBAND
- INTRODUCE ALL TEAM MEMBERS

OPERATION/PROCEDURE:

- CONFIRM OPERATION(S) AND DURATION
- CONFIRM LATERALITY AND SITE MARKING
- CONFIRM POSITION
- CONFIRM POST-OPERATIVE DESTINATION
- ANNOUNCE SPECIAL EQUIPMENT, PERSONNEL, STERILITY ISSUES, AND ITEMS AT RISK FOR RETENTION (BITE BLOCKS, THROAT PACKS, EYE SHIELDS, VAGINAL PACKS)
- EXPECTED BLOOD LOSS? BLOOD BANK SAMPLE OR CELL SAVER (IF APPLICABLE)?
- REVIEW IMAGING (IF APPLICABLE)

COMPLICATION PREVENTION:

- LIST ALLERGIES AND PRECAUTIONS
- IS EMERGENCY EQUIPMENT AVAILABLE?
- ASSESS SAFETY (FIRE) RISK (OVER)
- PULSE OXIMETRY WAVEFORM & VALUE?
- DIFFICULT AIRWAY, RISK OF ASPIRATION, PPE FOR INTUBATION, OTHER ANESTHESIA CONCERNS?
- LABEL ALL DRUGS and SOLUTIONS
- BETA-BLOCKER AND BP MANAGEMENT?
- VTE PROPHYLAXIS PLANS: HEPARIN, OTHER MEDICATIONS, BOOTS?
- ANTIBIOTIC PLANS?
- NEUROMUSCLAR BLOCKING AGENTS?
- GLUCOSE CONTROL PLANS?
- TEMPERATURE CONTROL MEASURES?
- FLUID PLANS?
- URINARY CATHETER PLANS? WHEN WAS LAST VOID? NO CATHETER IF POSSIBLE, ESPECIALLY IF OPERATION LESS THAN 4 HOURS

Before Incision

FINAL PAUSE

- STOP ALL ACTIVITY
- SURGEONS, NURSES/TECHS, AND ANESTHESIOLOGISTS CONCUR ABOUT SAFE POSITIONING AND PADDING THROUGHOUT THE OPERATION
- CONFIRM THAT TISSUE, IMPLANTS and SPECIAL DEVICES ARE AVAILABLE
- CONFIRM THAT PREP IS DRY
- CONFIRM SAFETY BELT PLACED IN THE APPROPRIATE SAFE POSITION
- IS SITE MARKING VISIBLE AFTER PREP AND DRAPE? RE-MARK SITE IF ORIGINAL MARK AND INITIALS ARE NO LONGER VISIBLE
- CONFIRM ANTIBIOTICS GIVEN BEFORE INCISION
- IS ATTENDING SURGEON PRESENT?
- DECIDE TIMING OF STAFF CHANGES
- ESTABLISH NEUTRAL ZONE
- RECORD INCISION TIME

TIMEOUT FOR ADDITIONAL SURGEONS

Review and verify patient, procedure, site, laterality, level, position, implants, special equipment, and consents

End of Operation

BEFORE SURGEON LEAVES ROOM

- PERFORM SPONGE, INSTRUMENT, AND NEEDLE COUNTS
- CONFIRM ALL TEMPORARY ITEMS ARE REMOVED (BITE BLOCKS, THROAT PACKS, EYE SHIELDS, VAGINAL PACKS)
- DEVISE PLANS FOR INCORRECT COUNTS (SEE FLIPCARD)
- CIRCULATING NURSE AND SURGEON RECONCILE SPECIMENS
- SURGEON CONFIRMS FINAL DIAGNOSIS, NAME OF OPERATION(S)/ PROCEDURE(S) AND WOUND CLASSIFICATION (FLIPCARD)
- ANNOUNCE “STEPS TO EXIT”
- ANESTHETIST ANNOUNCES EXTUBATION SO THAT OTHERS IN ROOM CAN WEAR PPE (e.g., N-95 masks), IF NECESSARY
- ANESTHETIST, NURSE and SURGEON REVIEW PLANS FOR RECOVERY
- DISCUSS PLANS FOR POST-OPERATIVE ANALGESIA, INCLUDING POSSIBLE NERVE BLOCK
- CALL POST-OP DESTINATION WITH PPE, PRECAUTIONS, AND EQUIPMENT NEEDS
- DEBRIEF RE: PATIENT, TEAM, AND/OR EQUIPMENT CHALLENGES

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IPP Safety Risk Assessment (Fire)

PRESENCE OF ALL 3 = HIGH

- Procedure involving head, neck, chest (front or back), or upper arm
- Open airway
- Use of ignition source

No → **STANDARD RISK**

Proceed but frequently reassess for changes in fire risk

- Avoid pooling of alcohol-based skin prep solutions
- Allow adequate drying time
- Surgeon communicates to the room prior to initial use of ignition source

Yes

Does the patient require oxygen?

No → Use room air sedation

Yes

Does the patient require a FiO2 > 30% to maintain O2 saturation?

No → Administer O2 below 30% via the common gas outlet of the anesthesia machine

Desired FiO2	Oxygen flow for 5 L/min total	Air flow for 5 L/min total
21%	0.0	5.0
25%	0.3	4.7
30%	0.6	4.4

Yes

HIGH RISK

- **GENERAL ANESTHESIA WITH ENDOTRACHEAL TUBE, LMA, OR OTHER SUPRAGLOTTIC AIRWAY DEVICE**
- If is an airway device is undesirable or not feasible, mitigate oxygen accumulation by sealing surgical field, uncovering the face and insufflating "blow by" air at 10 L/min. Have water available on the field and anesthesia workstation.

Universal Protocol - PACU

Pre-Operative	Post-Operative
PATIENT CHECK-IN	**UPON ARRIVAL**
☐ PATIENT STATES NAME AND D.O.B	☐ O_2 SATURATION/VS/TEMP
☐ PATIENT CONFIRMS ID BAND/CONSENT	☐ TEAM MEMBERS INTRODUCED
☐ PATIENT STATES PROCEDURE, SITE, SIDE	☐ O.R. NURSE/SURGEON REVIEW CONCERNS FOR RECOVERY
☐ PATIENT NAMES HIS/HER SURGEON	☐ EXPECTED DISPOSITION
☐ PATIENT ASKED WHEN THEY LAST ATE OR DRANK	
☐ DETERMINE NEED FOR INTERPRETER	**ANESTHESIA REPORT**
☐ ALLERGIES REVIEWED/RECORDED	☐ ALLERGIES VERBALIZED
☐ VERIFY WITH O.R. BOARD	☐ PATIENT HISTORY
☐ SITE MARKED, IF APPLICABLE, AND CONFIRMED	☐ LAST O.R. VITAL SIGNS
☐ H&P UPDATED AND IN CHART	☐ DRUGS ADMINISTERED
☐ CONSENT UP TO DATE/SIGNED	☐ URINE OUTPUT/BLOOD LOSS
☐ ANESTHESIA PREOP/CONSENT DONE	☐ FLUID/BLOOD PRODUCTS
☐ ANESTHESIA VERIFY/DOCUMENT ASA STATUS	
☐ ANTIBIOTIC ORDERED, IF APPLICABLE	**PRIOR TO FINAL SIGN OUT**
☐ VTE PROPHYLAXIS, IF APPLICABLE	☐ PROCEDURE NOTE IN CHART
☐ PRECAUTIONS IDENTIFIED	☐ ANESTHESIA DRUG/DISCHARGE ORDERS
☐ PREOP RN/CIRCULATOR HANDOFF	☐ NEED FOR CONSULTS/X-RAYS/LABS
☐ IMPLANTS, SPECIAL EQUIPMENT, BLOOD AND TISSUE AVAILABLE, IF APPLICABLE	☐ POST ANESTHESIA PROGRESS NOTE
☐ DETERMINE POTENTIAL NEED FOR UNIT BED	☐ TIMING OF ANTIBIOTICS, IF APPLICABLE
☐ CONFIRM B BLOCKER USAGE AND DOCUMENT, IF APPLICABLE	☐ FINAL DISCHARGE DISPOSITION
☐ STEROID PROTOCOL, IF APPLICABLE	
☐ SIGN AND RELEASE MEDS TO BED ORDER	

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Policy #:	03.95.000
Issued:	May 2011
Reviewed/ Revised:	2/2013, 5/2016, 3/2020, 6/2020, 10/2023
Section:	Clinical Care

Massive Transfusion Protocol (MTP)

Purpose:
To define the guidelines for activation of a Massive Transfusion Protocol (MTP) in patients who are actively bleeding.

Policy Statement:
Anytime a patient is actively bleeding and their transfusion requirement exceeds 3 units of packed red blood cells (PRBCs) in one hour a MTP activation should be considered. This policy outlines the criteria and method for activation in the Emergency Department (ED), Labor and Delivery (L&D), Operating Room (OR), and Surgical Intensive Care Unit (SICU)/ Medical Intensive Care Unit (MICU), as well as the criteria for deactivation, the appropriate clinical tests to monitor, and the process for review of an MTP.

Application:
This policy applies to patients 15 years or older that meet clinical criteria.

Exceptions:
Pediatric patients younger than 15 years old.
Any adult patient who does not meet clinical criteria.

Procedure:
The MTP may only be activated by an attending physician.

The criteria for activation of the MTP is severe, active, uncontrolled, life threatening hemorrhage.

a. Examples of clinical scenarios that increase risk of need for massive transfusion include: uncontrolled trauma, axillary, neck, or groin bleeding, uncontrolled bleeding secondary to large soft tissue injuries, proximal amputation or mangled extremity, clinical signs of coagulopathy, and obstetrical hemorrhage.
b. A number of risk factors for massive transfusion upon hospital admission have been identified. In patient with serious injuries, these include:
    1) Systolic blood pressure <90mm Hg
    2) Heart rate > 120 bpm
    3) pH < 7.25
    4) INR level > 1.4

The MTP may only be deactivated by an attending physician by calling the Blood Bank (4-4141) and should be deactivated if the patient expires, physiological criteria normalize or there is no evidence of surgical bleeding.

During the MTP, the following should be monitored immediately upon activation and every hour until the MTP is deactivated:

1. CBC
2. INR/PTT
3. Fibrinogen
4. ABG
5. Ionized calcium

Activation: No Type and Cross Sample in Blood Bank
For ER use of Haemobank Refrigerator, see section 2

1. All non-ER areas and Haemobank Downtime

a) Activation of MTP by attending physician.
b) Designee/recording nurse records time of activation on chart and notifies Blood Bank at **4-4141.**
    (1) Include patient name, MRN, birth sex and attending physician name
c) Tranexamic acid (TXA) can be ordered for trauma patients > 15 years of age, > 40 kg and < 8 hours from injury, and the pharmacy will provide.
d) Blood Bank calls designee/recording nurse when Box 1 is ready for pickup.
e) Designee picks up Box 1 from Blood Bank and delivers Emergency Release form signed by MTP activating physician.
    (1) All Boxes consist of:
        i. 4 units PRBC's (type O)
        ii. 4 units thawed plasma (type A)
        iii. 1 unit of single donor platelets
f) Specimen is drawn in pink top tube and delivered to Blood Bank (**Station: 211**) in separate bag.
    (1) Include patient name, MRN and two signatures
g) Blood Bank performs type and cross on pink top tube specimen.
h) Designee picks up Box 2 from Blood Bank.
    (1) If type and cross is complete, Box 2 is type-specific
    (2) If type and cross is incomplete, Box 2 is type O PRBC and A thawed plasma
i) Specimen is drawn in white top tube.
j) Designee sends white top tube to Blood Bank (**Station: 211**).
k) Blood Bank performs type on white top tube specimen.
l) When 1 box leaves the Blood Bank, they will immediately set up the next box. Units will be type specific or type compatible as testing allows.
m) Communication between Blood Bank and designee/recording nurse continues until patient is moved or MTP is deactivated by attending physician. Call deactivation to Blood Bank ASAP

2. HaemoBank Use: (Emergency Room Use Only)

a) Retrieving units for use:
    (1) Person retrieving unit(s) of blood will scan in Point of Care ID card
    (2) Select a Product – **click** one: "Red Cells" or "Whole Blood"
    (3) **Scan** the patient's MRN (EPIC facesheet label)

(4) Verify the patient information. If correct **click** "Yes" button.
(5) Select the patient's age and birth sex.
(6) The HaemoBank door will unlock and the correct tray will backlight.
   i. **Open** the HaemoBank door,
   ii. **Slide** the tray forward,
   iii. **Remove** the unit,
   iv. **Close** the tray,
   v. **Close** the HaemoBank door.
(7) **Scan** the unit barcode label under the kiosk.
(8) BloodTrack label will print. Affix the label to the unit.
(9) Click the "Yes" button if the label printed, otherwise click the "No" button.
(10) At "Do you want more emergency Red Cells" select "Yes" then it repeats at step #6.
(11) If Red Cells were removed, repeat steps 1-10 to retrieve 2 Plasma.

b) Returning Units: Units must be returned within 20 minutes
(1) At the HaemoBank kiosk, **scan** your barcoded user ID card.
(2) Select Action – **click** the "Putting In" button.
(3) **Scan** the unit barcode label (upper left hand quadrant, identifier starts with "W").
(4) The HaemoBank door will unlock and the correct tray will backlight.
   i. **Open** the HaemoBank door,
   ii. **Slide** the tray forward,
   iii. **Place** the unit in the tray
   iv. **Close** the tray.
   v. **Close** the HaemoBank door.
(5) If another unit will be returned, repeat from step #3.

c) USE OF FRIDGE
(1) When the door is opened and units removed (or returned) the blood bank is automatically notified by the system.
(2) Maximum of 1 Trauma Pack (2 RBC & 2 FFP) or 2 Whole bloods may be used per patient. If further units are required the ER MUST call the Blood Bank and order Emergency Release as described in number 1 of the Downtime section.
(3) In all cases, the ER should consider the use of the fridge as the first box of blood for any patient. They must CALL the blood bank for more units and come pick them up as described below AND follow all specimen requirements as listed in sections D-G in section 1 above.
(4) Returned blood will automatically be quarantined and cannot be used by nursing until a member of the blood bank staff reviews the unit.
(5) It is not possible for the Haemobank refrigerator to be resupplied 24/7. If too many units are used (or removed and returned) the ER will need to call the blood bank as described in the Downtime section for ALL emergency release units.
(6) A physician's order for Emergency Release must be placed in EPIC. This will be the electronic signature for the emergency release.

(7) All steps in the process must be followed for regulatory purposes. Failure to finish the complete removal and documentation of units on a regular basis, will require the Blood Bank to pull refrigerator access from offending users

NOTE:
(1) If the location of the patient changes, ED staff is responsible for communicating MTP status during verbal report. If the patient is moved to the OR, OR staff must contact the Blood Bank. If the patient is moved to the ICU, ICU staff must contact the Blood Bank.
(2) Per Blood Bank protocol, until the white top tube is received for type verification, non-type specific blood products will be released.

Activation: Type and Cross Complete

1. Activation of MTP by attending physician.
2. Designee from requesting service calls the Blood Bank at **4-4141** and records activation time in record.
    a. Include patient name, MRN, sex and attending physician name
3. For adult (> 15 years of age, > 40 kg) trauma patients < 8 hours from injury, tranexamic acid (TXA) can be ordered and the pharmacy will provide.
4. Runner from requesting area picks up Box 1 from Blood Bank and delivers Emergency Release form to be signed by MTP activating physician.
    a. All boxes consist of:
        i. 4 units PRBC's (type specific)
        ii. 4 units thawed plasma (type specific)
        iii. 1 unit of single donor platelets
5. All subsequent boxes will have the same contents and will be set up as soon as the previous box has left the blood bank. .
6. Communication between Blood Bank and requesting area continues until patient is moved or MTP is deactivated by attending physician. Call deactivation to the Blood Bank ASAP.

NOTE:
If the location of the patient changes, requesting area staff is responsible for communicating MTP status during verbal report. If the patient is moved to the ICU, ICU staff must contact the Blood Bank.

Responsibility:
Attending Physician, Anesthesia, Nursing, Blood Bank, ED, L&D and OR staff

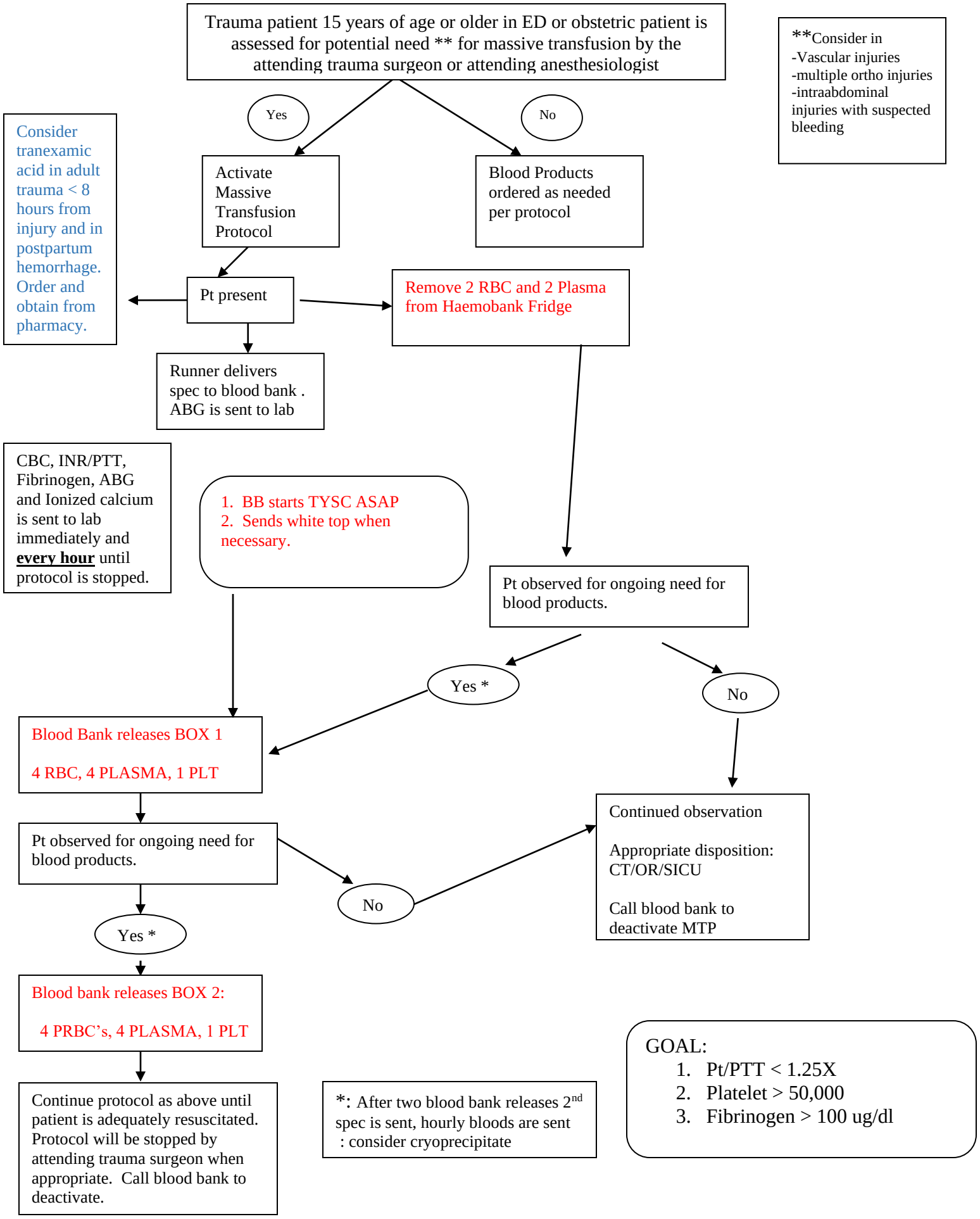
Other Related Policies:
None

References:
Relevant Contacts:
TRAUMA BAY 1: 4-4152 OR: 4-4116
TRAUMA BAY 2: 4-4148 **BLOOD BANK: 4-4141**
TRAUMA BAY 3 (PEDI): 4-7766 ED SATELLITE PHARMACY 4-5609
LABOR AND DELIVERY: 4-4364
MENINO PHARMACY 4-7687

Contributing Departments:

1. Anesthesiology
2. Operating Room
3. Surgical ICU
4. Obstetrics
5. Blood Bank
6. Nursing
7. Emergency Medicine
8. Pharmacy

Initiated by: Trauma Surgery, Obstetrics


Trauma patient 15 years of age or older in ED or obstetric patient is assessed for potential need ** for massive transfusion by the attending trauma surgeon or attending anesthesiologist
**Consider in -Vascular injuries -multiple ortho injuries -intraabdominal injuries with suspected bleeding
Yes
No
Activate Massive Transfusion Protocol
Blood Products ordered as needed per protocol
Consider tranexamic acid in adult trauma < 8 hours from injury and in postpartum hemorrhage. Order and obtain from pharmacy.
Pt present
Remove 2 RBC and 2 Plasma from Haemobank Fridge
Runner delivers spec to blood bank . ABG is sent to lab
CBC, INR/PTT, Fibrinogen, ABG and Ionized calcium is sent to lab immediately and every hour until protocol is stopped.
1. BB starts TYSC ASAP
2. Sends white top when necessary.
Pt observed for ongoing need for blood products.
Yes *
No
Blood Bank releases BOX 1
4 RBC, 4 PLASMA, 1 PLT
Pt observed for ongoing need for blood products.
No
Continued observation
Appropriate disposition: CT/OR/SICU
Call blood bank to deactivate MTP
Yes *
Blood bank releases BOX 2:
4 PRBC's, 4 PLASMA, 1 PLT
Continue protocol as above until patient is adequately resuscitated. Protocol will be stopped by attending trauma surgeon when appropriate. Call blood bank to deactivate.
*: After two blood bank releases 2nd spec is sent, hourly bloods are sent : consider cryoprecipitate
GOAL:
1. Pt/PTT < 1.25X
2. Platelet > 50,000
3. Fibrinogen > 100 ug/dl