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The critical care environment can be an exciting and rewarding place to learn. You have the opportunity to help care for the sickest patients in the region, which affords experiences that will assist you in improving patient care in the future no matter what area of medicine you work in. However, for many people the ICU is unfamiliar and has the potential to be daunting and overwhelming especially at first. This handbook is intended to help reduce unfamiliarity and assist you in transitioning into the care team.

The critical care section is committed to making your rotation a valuable educational experience through a combination of intensive clinical exposure and structured teaching modules delivered in a collegial and open environment.

Welcome and enjoy the next few weeks!

Sincerely,

Dr. Faisal Siddiqui
MD FRCPC - Anesthesia
PGME Critical Care Program Director
University of Manitoba

Dr. Adam Andreiw
MD FRCPC - Anesthesia
Rotation Director Critical Care
University of Manitoba

Dr. Allan Garland
MD ABIM - Internal Medicine
Co-head Section of Critical Care
University of Manitoba

Dr. Bojan Paunovic
MD FRCPC - Internal Medicine
Co-head Section of Critical Care
University of Manitoba

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**HANDBOOK GOALS**

- Provide basic information about the ICUs you need to know before starting your rotation
- Ensure you are familiar with the objectives for an ICU rotation
- Outline the expectations we have for your performance
- Provide suggestions for ICU learning resources
- Remind you to be familiar with the specific objectives your program has for your ICU rotation

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**FEEDBACK**

This manual will not improve unless you point out mistakes, omissions and inconsistencies. So please take the time to provide us with creative criticism.

Send feedback on this manual and the rotation to Dr. Andreiw at: adamandreiw@gmail.com
We expect that you will have:

- logged into D2L/UofM Learn to review the orientation materials and pre-reading
- read this Critical Care handbook
- read the goals and objectives for ICU rotations (see link to right)
- reviewed ACLS
- reviewed and noted your ICU on-call schedule
- access and training in the use of EPR, eChart, IMPAX and DI Viewer

Goals and Objectives (G+O):

Each residency program has G+O for your time in ICU, please consult them so you know what your program expects. The Critical Care Section has outlined the following G+O based on the current CANMeds domains. The final evaluation at the end of the rotation is based upon them. *See the link on right for details.

Know your schedule:

Unless you are listed in the day-off column on your schedule you are expected to be in the ICU for that day. Minimum days off are four in a four week rotation, plus any STAT days that occur during your rotation.

Your academic time is not considered time off.
ORIENTATION - The Units

The WHRA has a number of ICUs spread across Winnipeg. They are intended to accommodate patients requiring high intensity care and monitoring from across the province and occasionally from catchment areas in Nunavut and north-west Ontario. Depending on the medical needs of the patients, transport from one ICU to another may sometimes be required and this is coordinated by the attending physician. Currently HSC, SBGH, and the Grace hospital are active teaching sites. Each of the units have a section further in this handbook that include further details specific for your rotation in that unit.

Health Sciences Center Medical Intensive Care Unit (HSC MICU)
Located in Ann Thomas building - Third Floor
This is a 15 bed closed unit in the tertiary care hospital that includes the province’s designated trauma centre, neurosurgical, kidney, burn, and bone marrow transplant programs.
The rotation in the HSC MICU is designed to allow residents to encounter patients with tertiary care medical problems requiring ICU admission. Residents may also encounter surgical patients as surgical patients will occasionally be admitted to the MICU and cared for by the MICU team.

Common problems encountered include:
-cardiorespiratory failure
-immunocompromised patients
-multi-organ dysfunction syndrome (MODS)
-patients with: hepatic failure, poisoning, post cardiac arrest, and septic shock

The unit has full invasive monitoring capabilities, access to Continuous Renal Replacement Therapy (CRRT) machines, invasive and non-invasive ventilation capability, Intra-aortic Ballon Pump (IABP) support and Intra-cranial Pressure (ICP) monitoring. The residents see consults from the hospital wards and the Emergency Department. Transfers who require tertiary care will be accepted from peripheral hospitals by the attending physician. Staff in this unit is responsible for responding to CODE BLUE calls within the HSC complex.

Health Sciences Center Surgical Intensive Care Unit (HSC SICU)
Located in Ann Thomas building - Second Floor
This is a 12 bed semi-open unit. It is considered semi-open because the surgeon remains the physician of record; however, all orders must be approved by the ICU team prior to implementation. The rotation in the HSC SICU is designed to allow residents to encounter pre and post-operative surgical patients.

The SICU is the only intensive care unit for:
-Trauma patients and spinal cord injury
-Neurosurgery patients, trauma and non-trauma (SAH)
-Major burn patients
-Thoracic Surgery patients
-Complex hepato-biliary surgery
-Intra-peritoneal chemotherapy
-Major plastics reconstructive procedures post cancer surgery

In addition 75% of emergent and elective vascular surgery admissions in the province are to SICU. Other patient populations include: non-trauma general surgery; ENT/Oral Surgery (especially with complex airway issues); urology; plastic surgery; gynecology and post-partum patients.
ORIENTATION - The Units

The unit has full invasive monitoring capabilities, access to CRRT machines, invasive and non-invasive ventilation capability, IABP support, central venous cooling/warming and ICP monitoring. The residents see consults from the hospital wards, PACU (Post-Anesthesia Care Unit), operating rooms, and the Emergency Department. At times the unit staff will care for more than 12 patients as ICU patients may be accommodated in the PACU.

St. Boniface Hospital Intensive Care Medical Surgical (SBH ICMS)
Located in SBGH 2E
This is a 10-11 bed unit in the non-trauma tertiary care hospital in Winnipeg. Beds in the unit are loaned to the Coronary Care Unit team for single system heart patients who require full ICU support. The rotation in the ICMS at St. Boniface is designed to allow residents to encounter a broad range of patients with tertiary care medical and surgical issues who require ICU admission, and enable the resident to develop the knowledge, skills, and attitude necessary to meet the goals and objectives established for rotating residents.

Common problems encountered include: cardiorespiratory failure; post cardiac arrest patients; poisoning; septic, cardiogenic and hypovolemic shock; high-risk general and vascular surgery patients; high-risk patients from other surgical services (Acute Care Surgical Service, Obstetrics and Gynecology, Urology, and Otolaryngology); and patients with multiorgan system failure/dysfunction.

The unit has full invasive monitoring capabilities, access to CRRT machines, invasive and non-invasive ventilation capability and IABP support.

This unit is also the designated unit for Venous-Venous ExtraCorporeal Membrane Oxygenation (vv-ECMO) for severe respiratory failure patients in Winnipeg.

In addition, St. Boniface is the main site for the Cardiac Sciences Program and at times the unit will accommodate post-op cardiac surgery patients requiring prolonged ICU care. The residents see consults from the hospital wards, PACU and the Emergency Department. Transfers who require tertiary care will be accepted from peripheral hospitals by the ICU attending.

Grace Hospital Intensive Care Unit
Located on main floor
This is an 8 bed unit in one of the four community hospitals in Winnipeg (the other ICUs in the community hospitals are Concordia, Seven-Oaks, and the Victoria hospital). The rotation in the Grace ICU is designed to allow residents to encounter a broad range of patients with non-tertiary care medical and surgical issues who require ICU admission, and enable the resident to develop the knowledge, skills, and attitude necessary to meet the goals and objectives established for rotating residents. Common problems encountered include: cardiorespiratory failure; post cardiac arrest patients; poisoning; septic, cardiogenic and hypovolemic shock; high-risk general surgery patients (ACSS); high-risk patients from other surgical services (Orthopedics and Urology).

The unit has full invasive monitoring capabilities, invasive and non-invasive ventilation capability but does not provide CRRT or IABP.
Caring for critically ill patients is a team effort. For you to function in the ICU it is vital you begin to know the other people working in the ICU and understand their important roles in patient care.

**Staff Attendings**
The Critical Care Section is a division of the Department of Internal Medicine. However, the attending staff is made up of members from multiple departments including: Surgery, Emergency Medicine, Anesthesia, Chest Medicine and General Internal Medicine.

The Critical Care attendings take call for one week at a time (Monday – Sunday) and are ultimately responsible for clinical care in the units. They are all very approachable so feel free to ask questions, and you should be comfortable calling or paging us at any time (day or night) for any issues you have.

The HSC MICU has two ICU attending physicians assigned for the week. The two attending physicians ("A" and "B") divide the work in the unit between them and alternate covering nights.

The HSC SICU and SBH ICMS have a primary physician ("A") who cover every day but second attending physician ("B") starts at 1600h on Tuesday, Thursday, and Saturday and covers as the attending physician until 0800h the following morning. This allows the primary attending some “out of unit” time.

The Community ICUs have one attending covering the whole week. There are also regularly scheduled House Medical Officers (HMOs) and Physician and Clinical assistants (PA / CA) that provide in-house coverage.

**Critical Care Residents (Fellows)**
The “fellows” are in the Critical Care residency program, which is a two-year Royal College subspecialty program. They are advanced trainees from Anesthesia, Medicine, Emergency Medicine, Surgery, or Cardiac Surgery and many have already achieved Royal College certification in their base specialty. Fellows are responsible for coordinating patient care, supervising junior house staff and are themselves supervised by the attendings. They will have a large role in your educational experience in the unit and will review all patients and new admissions with you. They will also teach and supervise procedures such as arterial and central catheters, chest tubes, and intubations.

**House Medical Officers (HMOs)**
HMO is a term to describe physicians who provide care to patients but do not function at the same level as the attending physician. There are many different classifications of HMO’s but in ICU the two most common are:

1- A fully licensed physician who enjoys providing care to patients in the ICU because it enhances other aspects of their practice. Some HMOs in this group have many years of experience providing care to patients in ICU;

2- A resident who has completed, at minimum, one rotation in ICU as part of their training program who desires additional educational experience in the unit. In some units the term resident replacement is used to describe these HMOs.

Based on the above it is clear that some HMOs are extremely capable in a critical care environment and can act as a resource that greatly enhances your educational experience in ICU. Conversely,
some HMOs (resident replacement type) may function as a teammate or co-worker who has slightly more (or on perhaps slightly less) experience than residents rotating through ICU.

On-call with an HMO you should volunteer to be the primary call person for patient care questions and consults. If you have sufficient knowledge and experience to attempt a procedure without direct supervision of the HMO (i.e. you are confident that you do not need the HMO at the bedside supervising) then you should inform the HMO of your skill set and discuss the safest plan to handle on-call procedures. However, there are clinical situations in ICU when the most competent person who is immediately available needs to take over the management of a patient. In these situations, especially with the HMO’s in #1 above, it is important that you defer to their experience to ensuring safe and timely patient care. If there are any questions about the roles and responsibilities of the HMOs and residents, please ask the attending you are working with to clarify.

Nursing

Nurse Managers
Each unit has a nurse in charge responsible for overall clinical care in the unit. At HSC the title is Director of Patient Care. At St. Boniface the title is Program Team Manager (PTM). They are approachable and are responsible for nurse staffing and day to day operations of the unit.

Nurses
Each patient will have a bedside nurse. One Clinical Resource Nurse (CRN) is scheduled every shift to coordinate patient care, admissions and assist with nursing issues during the shift. Our nurses are highly trained, and many have been working in ICU for years - they have an extensive knowledge base and clinical experience. If a nurse tells you they are worried about a patient – believe them. Experience and intuition count for a lot! Most patients will have 1:1 nurse ratio but occasionally due to staffing issues a nurse will double cover patients. The CRN will coordinate the nurse coverage but be aware that this can take some time to arrange so let the nursing staff know ASAP when you become aware of an admission coming to your unit.

*Note: nurses are not allowed to take verbal orders from a physician unless in an emergency/Code Blue situation. Please write/enter your orders as soon as possible. If you write or enter an order that you want to happen quickly make sure that you inform the bedside nurse caring for the patient.

Respiratory Therapists (RTs)
The RTs coordinate the ventilatory care of our patients. RT’s are the primary people who should be adjusting the ventilators for patients in the ICU other than fellows/attendings.

Junior house staff should not attempt to adjust ventilators themselves!
The RTs also will be a valuable resource in many urgent situations during your rotation. They will often be aware of deteriorating patients on the wards and can assist in many ways including: drawing ABGs, preparation for intubation, and providing bag mask ventilation (BMV) during codes.
ORIENTATION - The Team

Pharmacists
HSC units are supported by a satellite pharmacy which prepares and delivers doses of medications to the bedside for nurses to administer. At HSC, SBGH and the Grace a pharmacist will attend morning rounds and can help to answer your questions about medications, dosage and dosage adjustments in renal failure, etc.

Dietician
They will help with ensuring the proper enteral or parenteral nutrition. They will be present for morning rounds during the week and can help with orders for feeding the patients. Weekday TPN orders are filled out by the dietician, on weekends this will need to be done by the ICU house staff team.

Physiotherapists and Occupational therapists (PT/OT)
PT is vitally important in helping with chest physiotherapy, range of motion and early mobilization for our patients. From the start of an ICU admission thought should be given to the plan for mobilization as complications from skin breakdown and weakness impart a heavy burden of morbidity. OT is less commonly involved at the ICU stage of a patients admission but occasionally they will become involved. OT assists with planning for rehabilitation and discharge for patients.

Social workers (SW)
Complex social issues often affect many of the patients admitted to ICU and it is helpful to get SW involved early in the care of a patient and their families. Nursing often will identify these issues and consult SW, but you should also be screening for issues that can directly impact medical care.

Health Care Aides
(AKA nursing assistants or unit assistants)
They assist with the physical aspects of care in the intensive care unit. They usually perform chest compressions at a Code Blue and can be very helpful in getting equipment and cleaning/restocking.

Unit Clerk
Process the orders and organize the requisitions for testing. You can help by writing clearly when writing orders and quickly completing any requisitions that must be completed by physicians. Please ensure that you let the ward clerk know when you have paged someone and what patient the call refers to. The unit clerk can page the consulting service for you, but our philosophy is that there should be direct physician to physician communication about consults on our ICU patients to ensure that we get an answer to the question we are asking.
ORIENTATION - Your First Day

On your first day you are expected to arrive at 7:30am to meet the outgoing team member(s) who was on-call overnight, get patient assignments and meet the other members for your team for the upcoming rotation. The CRN will then physically orient you to the environment of the ICU including all the major areas and expectations for conduct of rounds and admissions and discharges.

On the afternoon of the first day of your rotation (except period 1) you will be excused from the unit to attend a Code Blue simulation session in the Clinical Learning Simulation Facility (CLSF) from 1300h to 1500h. The CLSF is located in the basement of the Brodie Centre at the HSC site. During this session all residents assigned to Critical Care for the period will have an opportunity to participate in simulated Code Blue sessions using a high fidelity patient simulator, real Code Blue equipment, with actual staff assisting you. The sessions are designed to introduce you to the concepts of Crisis Resource Management and leadership during Code Blues. It is a great opportunity to learn and get feedback about running a Code Blue.

Day-to-Day

Arrive in the unit with enough time to review and examine all your patients

Morning multidisciplinary rounds start at 09:00h and you are expected to have reviewed and examined your patients before rounds. Therefore, you should arrive in the unit with sufficient time to find out what happened overnight and co-ordinate how the patients will be divided for the day. You should know the relevant events overnight, and be aware of laboratory results for rounds. During rounds the focus is on reviewing the major patient problems, and developing a care plan for the day. You should provide a brief summary of the patient and events overnight then the nurse will give a systems based report. After the nursing report you are to present the current patient issues and plan for each. One of the other team members should fill out the daily goals sheet outlining what needs to be accomplished for the day, while another member be prepared to enter any orders or consults that are decided on during rounds. Ideally, the overnight resident’s patients are to be reviewed first to try and get them relieved of clinical duties by the end of their duty hours. However if there is a patient with pressing issues they should be dealt with first to expedite appropriate patient care. The on-call resident is then free to leave after all their patients have been seen, the team will then continue rounding on the remaining patients. The patients presented by the post-call resident should be divided up by the other team members so that one of the team is committed to follow-up of that patient for the day. Once rounds is finished the team should do a formal review of current imaging with x-rays read and presented to the team and attending for practice on interpreting CXRs.

After morning rounds you now are free to begin follow-up on the care of the patients you are following. Check that tests and consults ordered during rounds are organized and proper paperwork has been filled out. Consults should be initiated over the phone by one of the team directly and ensure you document when and to whom you spoke on the consult. Be prepared to answer questions about the patient and if you are unclear why the consult is needed or what the question is then clarify with the team before you call.

Once the the plans for your patients are setup then you can focus on note writing. Every patient in the
unit should have a note every day. If this is going to be a problem discuss the issue with your ICU attending or the ICU fellow. Try to ensure that families are updated daily.

In the afternoon there are sign-out rounds that generally start at 1600h, but can be later on busy days. The goal of these rounds is to update the team, and especially to ensure that the on-call physician understands the issues and concerns for the night. Often the goals set on morning rounds can be examined and new goals might be set for the next 12-16 hours. Some calls maybe covered by HMOs who are not as familiar with the patients in the unit as they are not on regular service. In this situation the afternoon sign over should be more detailed to ensure a complete understanding of the issues that need addressing.

When you are on-call plan on a ‘tuck-in rounds’ around 21-22:00 hours with the CRN. After that is complete some attendings prefer you contact them directly for an update on the status of the patients and get feedback on any need for changes for your plans. This phone call, should not prevent you from contacting them if there is any deterioration overnight.

At this time you can order the CXRs for the patients that need them for the next morning. Consider the utility of a spontaneous breathing trial (SBT) in the morning for appropriate patients.

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**Summary: Daily responsibilities**

Get sign-over from post-call resident

Ensure all patients have resident assigned

Pre-round on your patients

Daily physical exam on each patient (at least once per day)

Attend teaching sessions

Round presentation and plan

Daily note

Communication with patient and family for daily ‘updates’

Followup on patient goals for the day

Sign-over issues to on-call resident

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**Rounds Format**

**Resident:** Gives summary of patient and events overnight

**Nurse:** Gives systems presentation

**RT:** Ventilation and respiratory presentation for patients with mechanical ventilation

**Resident:** Present problem list and management plan for each issue

- do not repeat nursing presentation

**Team:** Focuses on presentations - enters orders and consults during rounds
Teaching opportunities can take many forms during your ICU rotation. The most beneficial will be those that involve direct patient contact and care but discussions during rounds, and bedside clinical exam and teaching should also be a regular aspect of the day. Questions should be asked during rounds if you are uncertain about something as discussions regarding management are often the best teaching moments. Take advantage of the expertise and experience of the ICU team you are working with. For example, the bedside nurse will be happy to talk to you about the continuous renal replacement machine, and can take you through the transducers and cardiac output measurements; the respiratory therapist can show you the ventilators and discuss ventilator settings and modes with you. Dieticians are happy to go over the available enteral/parental feeds and can discuss how they calculate the calories a patient requires. Pharmacists assigned to ICU have extensive knowledge of the pharmacology of the drugs, drug monitoring, and antibiotic use. They are happy to share their knowledge with you when asked.

The ICU attending and fellows will also make time to do sit down teaching sessions during the week (8am Tuesday/Wednesday/Friday). On Thursdays of the rotation there are tele-linked ICU case rounds presented by the fellows and attendings. These are MANDATORY to attend unless you are post call, or if clinical load in the unit prevents your attendance.

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<td>*IM grand rounds</td>
<td>*Surg grand rounds</td>
<td>18-20:00 Critical Care Journal Club *Date and site vary watch for posted details</td>
<td>13-15:00 Code Blue Sim (your first day)</td>
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<td>13-14:00 Case rounds *except first Thursday of rotation</td>
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All units have computers with internet access and you can access the library services of the University of Manitoba from the ICU.

WIFI is accessible in the units at HSC.

The Critical Care residency program provides a “Week at a glance” update of events and sessions for the residents in the program. These are usually posted in the units. Rotating residents are welcome to attend journal club or other lectures in this series if they wish.

You are expected to attend your academic half-day and should expect to be able to leave the ICU in time to allow for transport to where you need to be. Please ensure that the team and attending are aware of your absence especially if your academic time is in the am to allow for division of patient care. Ensure you sign over care of patients and issues for follow-up before you leave the unit.
ORIENTATION - Code Blue Response

The residents in the HSC MICU and the SBH ICMS are responsible for responding to ADULT Code Blues in the hospital. A code pager should be carried by the on-call resident day and night and they are responsible for responding to codes when it goes off. When no residents are available the attending will be responsible for code blues.

The Code Blue team consists of the ICU resident, two ICU nurses, an ICU unit assistant and an RT.

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In both hospitals you do not have to attend to Code Blue calls in Emergency as the Emergency physicians run those and call ICU if needed (usually to admit a resuscitated patient). At St. Boniface, Code Blue calls in the ASPER centre are covered by a separate team based in the cardiac surgical ICU (ICCS).

Your primary responsibility at a Code Blue is to be the team leader. Ideally you should try to remain “hands off” and delegate tasks to others. If you have to become involved in a task try to delegate leadership to someone else who can then coordinate the code while you are “task involved”. Remember that part of the Code Blue leader’s responsibility is to do a quick post event debriefing (what went well, what could be done better, did we have any equipment problems, etc.) and ensure the Code Blue record is correct and completed (including the quality assurance part of the record).

Recent changes in the WRHA have resulted in more liberal criteria for calling a Code Blue. Some patients might be pre-arrest and some might just be sick and need additional resources. Assess these patients urgently - do not hesitate to call for help from the ICU fellow or attending physician. Remember your ABCs and always stabilize the patient above all. If the patient is not that sick, and there are no ABC issues, then arrange to have the physicians from the admitting service take over so you can return to the ICU. If you encounter “political issues” then involve your ICU attending as soon as possible.

If a patient needs ICU admission after a Code Blue the ICU charge nurse must be informed as soon as possible so a bed can be prepared (include contact precautions, drugs needed, and if patient is on mechanical ventilation). The ICU attending should also know about the admission of a patient to the unit. If you are encountering difficulties in getting a patient into the unit then involve your ICU attending immediately.

In some situations codes will be called on people not admitted to the hospital (ie: visitors). In these circumstances contact the emergency department and make arrangements to transport the patient urgently to the ED. If the non-admitted person is requiring CPR treat this situation as if the person had arrested on the street and needs urgent transport to the hospital (ie: get the person on a stretcher and do CPR while transporting to the ED).
ORIENTATION - Code Blue Response

Code Blue Response in Community Hospital Settings:

Outside of the Teaching hospitals, all code blues are managed by the ER physician as medical team leader, and the nursing component is completed with ICU nursing staff. Given the limited manpower resources (often single ER physician coverage for entire hospital), we would like you to attend code blue calls if you are not involved in direct patient care activities. Upon arrival, the Medical Team Leader and yourself can discuss you taking over or helping in another fashion. There should be clear communication amongst the team as to who is Team Leader.

Code Blue cart at SBGH
ORIENTATION - Consults

If you are called to assess a patient on the floor or in the Emergency Department the first thing to do is to see the patient (not read the chart or say that you have “no beds!”). Remember your ABCs (Airway, Breathing, and Circulation) and always stabilize the patient as your first priority. If the patient needs immediate admission contact the Charge Nurse and ICU fellow/attending before moving the patient to the unit. If there are airway or respiratory issues, call for an RT if one is not already present. If you need more help with managing the airway or if there are difficulties or complexities call the ICU fellow or attending immediately. In cases of difficulty with intubation, or warning signs of a difficult intubation and impending loss of airway or ventilation it may be appropriate to call an “Anesthesia 25”.

In general, when you see a patient in consult for ICU you should try to place the patient into one of three categories:

Admit to ICU:
These patients have issues that require urgent admission to the unit. If there are resuscitative measures (intubation, fluid bolus, antibiotic administration etc.) needed then get them started as soon as possible, especially if there may be a delay accessing an ICU bed. Some of these patients will be stable and appropriate for transfer to a community ICU. If so, this will be arranged by the attending physician.

Borderline:
These patients may not have to come to the unit right now and there are some things you could do (fluid resuscitation, antibiotics etc.) that could help make them better. Borderline patients MUST be discussed with your attending immediately after you have completed your assessment. Normally a patient should only remain borderline for no more than 4-6 hours, after that they should either be admitted or be stable enough to remain on the ward or in the ED.

Consult:
This patient is stable and their needs can be met on the ward or in ED and does not need ICU admission. You will leave some suggestions for the team who asked you to see the patient. If a patient falls into this category then you MUST discuss the consult with the ICU fellow/attending immediately after you have completed your assessment, and then write a note indicating your suggestions and documenting your discussion with the ICU attending/fellow. If your discussion was with the fellow, the fellow should inform the attending about the consult and the plan.
ORIENTATION - Procedures

Each resident has a different comfort and experience level with the various invasive procedures that may be required in the course of clinical care. It should be a goal of the rotation to have some hands on experience with all of the possible procedures but discuss your own personal goals and limitations with your ICU fellow/attending at the start of the rotation. If you believe the patient may need a procedure discuss with the ICU fellow/attending beforehand. When you are about to start ensure they are aware, in case of complication.

For central line placement, US guidance is expected and all units have an US machine. It should not be lent out to another service without the consent of the ICU attending. If you are not familiar with the machine ask the ICU fellow/attending to orient you to it. Ensure you have completed the on-line US course.

Sterile prep and draping is expected (for arterial lines as well). Proper positioning and preparation of the patient will help to make the procedure go smoothly, as well as make it more comfortable for you. Ask your ICU fellow/attending to orient you to the types of lines and indications for them, they will be happy to do so.

Help is always only a phone call away. For an emergency intubation start with the ICU fellow/attending, and in the middle of the night both teaching hospitals have in-house anesthesia residents and attendings who can respond if called (however an Anesthesia 25 should only be called for imminent airway issues). If time permits, the ICU attending will return to the hospital to assist you. You should be calling your attending before involving the anesthesia service in non-emergency situations.

For emergent chest tubes contact your attending or one of the acute surgical services (ACSS at SBGH or Gold surgery at HSC) for assistance as they may be more readily available.

*NOTE: The ICU fellow/attending physicians and nursing staff in the units have a duty to intervene if any of these standards are not being followed.
ORIENTATION - Diagnostic Imaging

Imaging is an integral part of the care of ICU patients but can also represent risk as it can involve transport and/or a percutaneous poke. When considering ordering imaging tests ensure you factor in the risk of IV contrast and assess eligibility for the procedure (ie: contraindications for MRI).

Look for issues that may delay or hamper imaging for the patient. Some of the following are common impediments:
- discuss reversing coagulopathy with the interventionalist and ensure orders are in for same with enough time to be accomplished
- appropriate sedation orders for transport and exam
- plan for accompanying patient if there is concern regarding stability
- assess ability to tolerate procedure (ie: airway or respiratory issues)
- some contrast exams need an ACF IV (this can be tricky in patients with difficult IV access and will require planning)
- if needed let the interventionalist know the best time to obtain consent (ie: let family know that we are considering doing the imaging/procedure and coordinate with them to allow proper informed consent with the interventionalist)

CXR

In an effort to reduce unnecessary radiation exposure, costs, and unnecessary patient lifts/interventions the default is NO ROUTINE daily CXRs. The resident should discuss who needs an early morning CXR with the attending at evening sign out rounds and the required radiographs for the next morning should be ordered at that time.

*NOTE: Reasons for performing CXRs are to be clearly specified on the request.

Rules for Procedures

1) If you have not succeeded with a procedure after three attempts you MUST discuss with the ICU attending/fellow or get help from another physician BEFORE continuing the procedure.

2) Central line insertions MUST meet the following standards:
   • Hand hygiene before procedure
   • Use of chlorhexidine with alcohol for skin preparation
   • Line inserter must wear hat, mask, gloves and gown
   • Sterile drape should cover most of the patient (feet/toes can be exposed if rest of patient is covered)
   • Post procedure note completed and radiograph reviewed if ordered. The procedure MUST be documented using the WRHA central line insertion checklist (see Appendix).

3) If you are in process of intubating a patient and cannot keep the oxygen saturation over 90% Anesthesia MUST be called unless the ICU attending/fellow is present.
When am I expected to be in the ICU?
With the exception of your specified days off you should plan to be working in the ICU. Generally the schedulers will schedule a total of 4 days off during each four week rotation (following the weekend rules as per PARIM contract). These 4 days will be listed on the call schedule, if you find that you cannot identify your days off please contact the scheduler listed further in this document for clarification. On-call days will include a typical work day plus the overnight call in hospital. After presenting events overnight and the patients you are caring for you will be freed of clinical duties. Ensuring this is done in as timely a fashion as possible will be a daily goal for the team.

Can I go to my program academic day?
You will be relieved of clinical duties to attend the academic events of your program on the day of the week that the program has designated. Program directors from all programs have provided us with ONE day they wish to protect for you. If your program splits events into several days we do our best (providing the academic partial days do not occur before 0900h) but may not be able to accommodate more than one. Your program director is aware of this. If your program has a special event on a non-standard day we cannot always accommodate your attendance and, if we do, we will use one of your days off to accommodate (within PARIM contract). Adequate notice may help us find a way to facilitate events.

An attempt is made to ensure that residents will not be put on call prior to their academic day more than TWICE during a 28 day rotation. This applies only to programs that have a single day identified during the week. If you are on call prior to your academic day then you may leave at 0900h the next morning to attend your academic sessions. If you are on call the evening/night of your academic day we expect you to come to ICU as soon as the session is completed and no later than 5PM.

The unit is full. What do I do?
Good news. This is not your problem. The attending on call, ICU fellow and charge nurse will worry about beds and nurses. You just have to worry about patient care. You DO still have to see consults if someone requests an ICU assessment regardless of bed availability. See the patient and if they need ICU admission call your ICU attending and let them work on the problem. They may be able to transfer patients to another ICU, spill into recovery room space, or go over census for the

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**Indications for CXR:**

- On admission to the intensive care unit
- Post intubation
- Suspected pneumothorax
- New central venous catheter (subclavian or internal jugular) see the back of the Central line checklist for indications for radiographs
- New other invasive devices (i.e. SBFT or NG that will have medications/food given)
- Deterioration in respiratory/cardiac function (including deterioration in oxygenation, increasing airway pressures, etc.)
- Looking for free air under diaphragm
unit. Communicate with the charge nurse for the unit so they are aware of the patient and can help with plans. You may have to do some work to get a patient ready to be transferred or deal with one more patient than you had before. Feel free to ask for help from the fellow/attending if the workload is excessive in these circumstances.

Somebody from out of town is phoning to get their patient admitted to your ICU?
Good news again! This is also not your problem. If you are working in MICU or ICMS then get the caller to contact the ICU attending/fellow to discuss the patient. You should not be handling these calls. You should try to facilitate your attending contacting this physician: get his/her name, contact number, where they are, and then get your attending to contact them. If the call is about a trauma or surgical patient at another site then the appropriate surgical service at your site should be involved. The SICU at HSC does not directly admit patients from outside HSC unless the patient has been accepted by an HSC surgical service. However, the SICU Attending will determine if the call should be directed to a surgical service. If you receive an outside call, do not discuss the case, do not take a history, and do not discuss number of beds available - give the physician the information needed to quickly contact the ICU attending.

Somebody from in town is phoning to see “if you have beds”
Still not your problem and you should quickly refer the caller to your ICU attending. If the call is coming from an non-ICU physician at a Winnipeg hospital the caller should be requested to call the ICU attending at their own site first.

Patient safety concerns?
You should immediately discuss any patient safety concerns with your ICU attending and the charge nurse in the unit. If you become aware of a critical incident you should report this incident to the WRHA. There is a “hotline” for this purpose – 204-788-8222.

Problems/ concerns/ things not going well?
Your first discussion should be with the ICU attending who is working that week. If this cannot resolve your issue, or if the attending is part of the issue, please contact the medical director of the ICU you are working in. We will do our best to help you with any concerns that develop during your rotation.
All of the unit directors can be reached via hospital paging at any time. If they are away, someone is assigned to cover for them (see Contacts page).

Who makes the schedule?
*See Contacts page for information on schedulers*
The schedule is made under the supervision of the medical director of the unit. All the directors have administrative assistants who handle most of the scheduling. The unit medical director is ultimately responsible for the schedule and should be contacted if you have issues you cannot resolve with the administrative assistant. The current resident contract allows up to 7 calls during a 28 day rotation.
The administrative assistant will send out an email asking for scheduling requests for the rotation about 4-6 weeks before the beginning of the rotation. This email will be sent to your postgraduate email address assigned by the university. If you do not receive this email, please
ORIENTATION - FAQs

contact the administrator 4 weeks before your rotation AT THE LATEST. Late requests will not be accommodated. Your program should have provided dates of special events for your program (ie exams, conferences, etc…) but as a precaution you should remind the scheduler to reduce the risk of conflicts in the schedule.

We will try to accommodate your requests but cannot always meet everyone’s requests and maintain a fair and balanced schedule for the other physicians participating in the rotation. In general academic requests will be prioritized over personal preferences for weekends off. We abide by the PARIM contract regarding call unless there are mutually agreeable (to resident and to Unit Director) deviations.

Stats/Holidays/Conferences?
STATS from other rotations cannot be used during an ICU rotation. During an ICU rotation you will receive the STAT off or another scheduled day off on top of the 4 PARIM required days off per rotation.

We don’t allow holidays during your ICU rotation. These need to be taken during rotations that are in your base program.

We also do not give extra days off to attend conferences as this limits your ICU exposure.

You may request to attend a conference while assigned to ICU however we need:
1) Adequate notice- minimum of 8 weeks
2) Support from your program that this conference time is important for your academic progress

In these circumstances we MIGHT be able to work something out, however we will do it by first using your scheduled days off (4 plus applicable stats) to accommodate the conference request. This could result in you having no weekends off during the 28 day rotation. If you need more than four days off to attend the conference then we can only grant the leave if you are prepared to provide an extra night of call coverage.

This process has been outlined to all program directors and was approved by the Post Graduate Dean's office.

Unable to come into work?
If you become ill or have an unexpected emergency which affects your ability to work in the ICU you should immediately contact the ICU attending or the ICU fellow. It is NOT appropriate to phone the unit ward clerk, a rotating resident colleague, or the nursing staff in these circumstances.

Evaluation?
Yes, absolutely! We will complete your resident assessment at the midpoint and end of the rotation with input from the attendings, ICU fellow, and ICU nursing staff. The attendings do a group evaluation of you, and the attending you worked with during the last complete week of the rotation is responsible for coordinating the evaluation, discussing it in person with you, and ensuring that the forms are completed. Input from the nursing staff and ICU fellow are considered when the attendings do the evaluation.

You will have an opportunity to evaluate the unit you worked in; the attending physicians you worked with; and the ICU fellow you worked with. These evaluations are important and we trust you will “complete the loop” and fill them out. They are used to improve the rotation and the experience for
ORIENTATION - FAQs

those who will come after. Results are kept anonymous so please be candid in your evaluation of the rotation and the teachers. We cannot improve if problems are not brought to our attention.
Nosocomial infections contribute to ICU morbidity and mortality. What can you do? First - hand washing is the most important preventative step. Wash your hands or use alcohol sanitizer before/after every patient encounter.

Use sterile precautions for all procedures. This includes gown/mask/gloves and a large sterile field for procedures such as central lines and chest tubes. There is a checklist form for central line insertion. USE it in cooperation with the nurse assisting you, and follow the checklist when inserting lines in the unit.

All units have a line cart which stocks all the supplies needed to correctly insert a central line. Look at the back of the checklist form, as the indications for post procedural radiographs are outlined. The checklist form goes into the chart and is your progress note documenting the procedure (except at SBGH where a note in EPR is also required).

Chlorhexidine is the skin prep of choice for prevention of catheter related infections (use povidone in patients with chlorhexidine allergy).

Patients with resistant organisms or transmissible infections will be isolated (MRSA/VRE, ESBL and C. difficile).

Pay attention to isolation precautions - they are not just for nurses!!

*Note - protect yourself. Masks/gloves/gowns and visors should be worn for all procedures. Please protect yourself and staff/patients by following universal precautions.

There is a focus on hand washing in the ICU - it is extremely important to minimize infection and patient cross-contamination. Your compliance with hand washing is very important to help reduce the spread of resistance.
EQUIPMENT

ULTRASOUND (US)
All the teaching ICUs have at least one US with probes for line insertion and a phased array probe. These US machines are intended for use only in the ICU and should be kept secure and clean at all times. The unit should be plugged in while not in use. Do not take the US out of the ICU without informing the attending, fellow or charge nurse. Do NOT lend the US to another service without permission of the ICU attending.
When using the US machine please focus on the following:
- avoid as much as possible getting it soiled with blood or secretions
- treat the probes carefully, especially avoid dropping them as they are easily broken and replacing them is very costly
- wipe it down with caviwipes on all surfaces except the screen. At a minimum wipe the probe end with a caviwipe and request that the unit assistant do a terminal clean on it
- the current US machine at SBGH ICMS has a few other cautions please ensure to get an orientation to this machine from the equipment manager when you are on that unit

LINE CART
All the teaching ICUs have a dedicated line cart that can be moved to the bedside to reduce setup times. Please do not move the cart into patient rooms or bedside if isolation precautions are in place as the materials in the cart would be contaminated. Once you have taken the needed materials please ensure that the UAs are aware if supplies are running low on the cart so it can be restocked.

INTUBATION BUNDLE
The RTs have pre-packaged intubation equipment that includes all you need to secure a routine airway. A laryngoscope with a MAC blade (3 or 4) is standard and ETTs are usually styletted as a routine. In Winnipeg no between size ETTs are available for adult sized airways (ie: 5, 6, 7, 8, 9), if needed paediatric tubes can be made available and come in half sizes (however you will need to ask ahead of time as they are not normally in the kit).

GLIDESCOPE
Available in all the ICUs. The RT will be familiar with the setup of the glidescope and can assist you in its use but you should have the ICU attending or fellow demonstrate setup and use as well as its limitations before needing to use it in an urgent situation.

CHEST TUBES (CT)
MICU and SICU have a procedure cart with supplies for inserting chest tubes. Inform the nurses that you plan on inserting a chest tube and they will set-up a Pleur-x drainage system. If you are using a pig-tail CT then you will need an adapter to connect the pig-tail with the drainage system.
If you plan on getting a sample of the pleural fluid for culture and chemistry then have sterile sample bottles and a 60cc syringe gathered ahead of time to take the appropriate sample volume at the time of puncture.
As with all procedures ensure your familiarity with it and that your attending and/ or fellow are aware that it is happening. As previously noted if it is after hours and you do not have immediate back-up and an emergent CT is warranted then please contact an acute surgical service specific to your location.

SUPPLY ROOMS
Almost all the material and equipment you will need for procedures should be found in the supply rooms in your unit. You should be oriented to the location and accessibility of the room during your first day on service.
## CONTACTS

### PGME Critical Care Program Director
Dr. Faisal Siddiqui
fssiddiqui@gmail.com
Phone: (204) 787-3112

### Rotation Director
Dr. Adam Andreiw
adamandreiw@gmail.com
Phone: (204) 229-8816

### MICU
Christopher Roque
croque@gsc.mb.ca
Phone: (204) 787-3112
Fax: (204) 787-3069

### Unit Medical Director - MICU
Dr. Bojan Paunovic
bpaunovic@hsc.mb.ca
Phone: (204) 787-2071

### SICU
Amanda Tomes
atomes@exchange.hsc.mb.ca
Phone: (204) 787-1485
Fax: (204) 787-8548

### Unit Medical Director - SICU
Dr. Faisal Siddiqui
fssiddiqui@gmail.com
Phone: (204) 787-3112

### ICMS
Tanya Dunn
tdunn@sbgh.mb.ca
Phone: (204) 235-3840
Fax: (204) 235-3546

### Unit Medical Director - ICMS
Dr. Gregg Eschun
GESCHUN@sbgh.mb.ca
Phone: (204) 235-3915

### Grace
Erva Ritson
eritson@ghh.mb.ca
Phone: (204) 837-0588
Fax: (204) 831-0029

### Unit Medical Director - Grace
Dave Easton
dweaston@shaw.ca
Phone: (204) 230-2173
ADVICE FOR ICU SURVIVAL

1. **Ask for help!** Never hesitate to ask for help or advice. If you are unsure what to do, if you are feeling overwhelmed, or if you just need some reassurance - ask.

2. **Communicate**: Make sure you let the fellow/attending know about all admissions to the unit, and about any patients who are deteriorating. A general rule: if you aren’t sure if you should call - you should call (any time - day or night). Another general rule: if the bedside nurse or Charge Nurse wonders out loud if you would like to call the fellow or attending - take the hint and call!
   - Let the Charge Nurse know about any patient that you are assessing for admission. They will help to organize the admission to the unit.
   - Let the admitting surgical service know when there are significant changes in their patients.
   - Talk with the nurse at the bedside about the patient and address any questions or concerns. Talk to the nurse about new orders and avoid verbal orders.
   - Talk with your patients and their families every day. Try to provide a brief update for families every day - this is so important when our patients are critically ill.
   - Talk directly with the radiologist or radiology resident when organizing scans and ultrasounds.

3. **Teamwork**: We are a team. We work together. The Critical Care team includes the physicians, nurses, respiratory therapists, pharmacy, physiotherapy, and dietary. As a team we can provide exemplary patient care - individually we are only one piece of the system. Respect this.

4. **Wash your hands!** Nosocomial infections increase morbidity and mortality. Gown, glove, and mask to prevent transmission of resistant organisms.

5. **Efficient rounds**: Try to be concise and problem based in your presentations. Have a plan but don't be afraid to be wrong as your attending and fellow are responsible to make sure the plan is reasonable. For discussion about patients that are not yours help out by writing orders, filling out consults and req’s, and contacting the consulted service. If this is done consistently then rounds will be quicker and more effective.

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**FASTHUG**

- **Feeding**: Patients should have nutrition ordered within 24-48 hours (if no contraindications)
- **Analgesia**: Ensure adequate pain control for your patients. (see CPOT assessment in appendix)
- **Sedation**: Use the RASS scale (at the bedside) as a guide for sedation. Consider stopping continuous infusions of sedation daily in order to reassess your patient neurologically and reassess their need for sedation.
- **Thromboembolic prophylaxis**: Prophylaxis with heparin (or sequential compression devices when heparin is contraindicated) is required for all patients.
- **Head of bed up 30 degrees**: This is a low-tech, low cost way to decrease the risk of ventilator-associated pneumonia in intubated patients (by decreasing aspiration of small amounts of secretions past the cuff of the endotracheal tube).
- **Ulcer prophylaxis**: Patients who are intubated and/or coagulopathic are at risk of stress ulcers/gastritis. They should receive ranitidine prophylaxis (IV or po) or a Proton Pump inhibitor.
- **Glucose control**: Studies show control of blood sugar levels decreases the risk of postoperative infection and may improve outcome. Discuss glucose targets with your ICU fellow/attending.


6. Our patients need a **FAST HUG** at least once per day.

7. Each day come in early enough to see your patients. You should try to see each of your patients briefly (on the order of ten minutes) immediately after rounds. Use this time to ensure diagnostic tests are arranged, write consults, review orders etc. You can then go back and review each of your patients more thoroughly and write your notes. This
helps to avoid the situation where it is 3 in the afternoon and you haven’t had a chance to see a patient or haven’t organized the CT scan yet, etc..

8. When you are on call round with the Charge Nurse at least once in the evening. This will help to answer questions at the bedside, make you more familiar with the individual patients, and identify problems and concerns early.

9. Your notes should not be a list of numbers/lab data and vital signs. Try to write a note that documents the patient problems, and highlights the thoughts of the team and the plans. ‘Tell the story’. Write brief update notes frequently to document any changes in the patient and therapy. Procedure notes are required for all procedures (and unsuccessful attempts). If you talked to the family you should document the meeting.

10. Once a patient has been identified as ready for transfer ensure orders are de-intensified and nursing care levels made appropriate for the target destination. Have the transfer note written as soon as possible to avoid it being a hold up to transfer, and to avoid it needing to be written by a resident not as familiar with the case.
ORIENTATION - ICU Individual Unit descriptions and details

WELCOME TO MICU

UNIT INFORMATION

• MICU is a 15 bed unit.
• The MICU phone number is 787-3711/3712
• The CRN/Charge Nurse has a phone 75041
• The on-call physician phones are 77977/77978
• MICU is a closed unit with 4 isolation cubes to accommodate negative pressure isolation (i.e. T.B., meningitis).
• The 3 bed CCU is adjacent to the MICU but under the direction of the Cardiologist on call. MICU residents are expected to respond to 25s and Code Blues.
• The IICU is also adjacent to MICU and the ICU residents are expected to also cover code blues and 25 at that location as well.

ADMISSIONS

• The Attending M.D. must be notified of any consults and admissions.
• Calls from outside the hospital and province are handled by the Attending Physician.
• Once the admission has been accepted by the Attending the resident/Attending will notify the Charge Nurse who will coordinate the admission with the resident and or the ward.
• In order to admit in a timely manner it is helpful if the resident informs the Charge Nurse of any issues such as the need for isolation or a bariatric bed, as well as any drugs that might be needed and if there is a need for urgent intubation, etc.
• Please discuss with patient or family and then complete the ACP form and document a justification for the status.
• Complete a medication reconciliation form, which should have been included with the admission paperwork.
• Bed Borrowing for Urgent HD – an ICU bed can be borrowed by the nephrologist on call for emergent dialysis with the following conditions:
  • The MICU attending is informed and agrees
  • The patient requires no monitoring or treatment modalities available only in ICU ie rhythm monitoring or vasopressors
  • The nephrologist is responsible for the patient not the ER physician
  • No ICU nurse is required to care for patient
  • Otherwise ICU must be formally consulted to assume the care of the patient.

TRANSFERS OUT

In Hospital

• It will be decided in rounds if the patient is ready for transfer.
• A transfer order is then written.
• The resident will write a Transfer Note
• The Medicine Bed Doctor is notified by the ICU Attending.
• The Bed Doctor will assign an Attending on the ward.
• The resident will notify the service Attending and house staff about the impending transfer and provide a sign over to them.
ORIENTATION - ICU Individual Unit descriptions and details

- The resident will then inform the bedside nurse that all parties have been notified and the nurse will then proceed to arrange the transfer.
- If the patient is from Oncology (D6) the Oncologist on for the ward will be called to accept the patient.

TO ANOTHER WRHA ICU

- The Attending will arrange the transfer with the Attending at the receiving unit.
- Once the transfer has been confirmed a Discharge Summary/Med rec will be written by the resident and the CRN/Charge Nurse will arrange the transfer.

TO ANOTHER HOSPITAL OUTSIDE WRHA

- The receiving hospital will arrange the transfer back to the hospital. As usual a discharge summary and medication reconciliation must be completed prior to transfer.

Death

- A Death Summary is written by the Resident.
- An Autopsy is discussed with the family or preferred claimant by the Attending and/or resident regardless of whether the death is reportable.

Code Blue

- MICU responds to all Code Blue calls in the centre, Rehabilitation and Respiratory Hospitals including the underground parkade, Women’s, Psychiatry, Thorlakson Building, Cancer Care and all connecting tunnels.
  - The team does not respond to calls in the ED unless specifically called.
  - If the Code is successful and the patient is not an in-patient, they will be taken to the ED
  - Inform the emergency room physician prior to transport, ideally during the code to allow them time to prepare for the patient.

Forms

- The Daily Goal Sheet is completed in morning rounds and then there is follow up on sign out rounds.
- The Central Line Checklist is to be filled out on every patient who has a central line placed and kept in the patient's chart. Each Central Line inserted requires a new checklist.
- A Discharge Summary is required for all patients who leave the unit, including those who are deceased.
- IPN - there must be daily documentation. Procedure notes and any relevant information involving the patient and or families.
- Advanced Care Plan should be addressed during ICU admission.
- Ordersets - use them
ORIENTATION - ICU Individual Unit descriptions and details

Other Information

Equipment in the Unit:  Vessel Finder
                      Ultrasound Machine
                      Glidescope
                      Bladder Scanner

• These are found in the Procedure Room – JJ322 and the key is with the CRN/Charge Nurse.
• There are 2 Line Carts, 2 Respiratory Cars with supplies for intubation located at both ends of the unit.
• There is also a cart for Chest Tube Insertion with appropriate supplies.
• In the back of the Unit (CCU area) there is also a Pacemaker Cart with supplies for the insertion of Temporary Pacemakers.
• The main Code Blue Cart is at the entrance to MICU with 2 small Code Blue Carts near the Pxyis Machine in MICU and Code Blue Cart in CCU behind the Pxyis Machine.
• There is a clean supply room where you will find extra sterile gowns, drapes, dressings etc.
• In the hallway between MICU and leading to the Procedure Room you will find extra supplies of central lines, EET tubes, guide wires etc.
• There is a CRN/Charge Nurse on each 12 hour shift who works with Attendings, Residents and nursing staff to insure good communication and safe patient care.
WELCOME TO SICU
MANITOBA’S TERTIARY TRAUMA AND ACUTE CARE SURGERY UNIT

UNIT INFORMATION

- The SICU is a 12 bed unit located on JJ2 Ann Thomas Building
- The SICU phone number is 787-3396 and 787-1337.
- The on-call SICU physicians have their own phones/pagers;
- The charge nurse carries a phone and the number is located on the SICU whiteboard.
- The SICU is a semi-closed unit. Specifically a patient cannot be admitted to SICU unless under the care of a surgeon/Ob-Gyn as the SICU Attending should not admit patients under their name. Once admitted all orders must be approved by the SICU Team. Consults from the operating room are frequent and in most cases the SICU is more appropriate than MICU. However, just because a patient is having surgery that does not mean the surgeon will be the physician of record postoperatively. The most common example is renal transplant patients; surgeons do the procedure but the patient is under the care of a nephrologist. In this situation, the MICU is the appropriate unit for these patients
- SICU residents are expected to respond to code blue and code 25’s in SICU. They are also expected to respond to code blue and code 25’s if requested by MICU. This will likely only occur if two/three codes occur simultaneously.

ADMISSIONS

- The SICU Attending must be notified of any/all consults and admissions.
- Calls from outside the hospital and/or province are handled by the SICU Attending Physician. Do not discuss the number of beds available and do not discuss the patient information, tell the person to page the SICU Attending.
- When an admission has been accepted by the Attending the resident and/or Attending will notify the Charge Nurse who will coordinate the admission with the resident.
- In order to admit in a timely manner it is helpful if the resident informs the Charge Nurse of any issues such as the need for isolation or a bariatric bed, as well as any drugs that might be needed and if there is a need for urgent intubation, etc.
- BED BORROWING FOR URGENT HD – an ICU bed can be borrowed by the nephrologist on call for emergent dialysis with the following conditions: The SICU attending is informed and agrees, the patient requires no monitoring or treatment modalities available only in ICU and does not require the SICU nurse to provide care. Finally, the nephrologist is responsible for the patient. If these criteria are not met SICU must be formally consulted to assume the care of the patient.

TRANSFERS OUT
ORIENTATION - ICU Individual Unit descriptions and details

• All transfers out are decided by the SICU Attending and a transfer order needs to be written. The patient is always transferred out under the surgeon of record. You should notify the service that their patient is leaving SICU unless they have written a note indicating patient is ready for transfer to ward/stepdown. If the surgeon of record or their resident objects to transfer, they must contact the SICU Attending. This is not your problem. There are two exceptional transfer situations:
  • Transfers to other hospitals will be arranged by the SICU Attending. Once the transfer has been confirmed a Discharge Summary will be written by the resident and the CRN/Charge Nurse will arrange the transfer.
  • Transfers to IICU require the resident to write a transfer summary and the patient is transferred to the IICU Attending.

DEATH

• An Autopsy is discussed with the family or preferred claimant by the Attending and/or resident regardless of whether the death is reportable to the OCME. Residents may complete the first page of the death certificate indicating the patient died, however, they must never complete the 2nd page outlining the cause of death.

FORMS

• The Daily Goal Sheet is completed in morning rounds and then there is follow up on sign out rounds.
• The Central Line Checklist is to be filled out on every patient who has a central line placed and kept in the patient’s chart. Each Central Line inserted requires a new checklist.
• Residents are not responsible for discharge summaries or death summaries. They are responsible for transfer outside of hospital or IICU.
• IPN - there must be daily documentation by the SICU team on all patients. This includes a system review, procedure notes and any relevant information involving the patient and or families. Advanced Care Plan should be addressed during ICU admission but should be done in conjunction with the Surgery team.

EQUIPMENT AND SUPPLIES

• Most of the equipment and supplies are located in card access rooms and/or locked doors. Staff will assist you in obtaining these items. The exception is the ultrasound machine that is located within the center of the unit and must not leave the unit without the permission of the SICU Attending.

CALLROOMS

• SICU has two call rooms located in the MICU space (the east side of MICU).
ORIENTATION - ICU Individual Unit descriptions and details

WELCOME TO ICMS

UNIT INFORMATION

• The ICMS phone number is 204-237-2825 / 204-237-2826
• ICMS is a 10-11 bed unit combined Medical and Surgical Tertiary Care. There is an ability to flex to 11 depending upon staffing. ICMS provides tertiary level ICU care to all SBH patients and to the Region in general. Patients requiring Veno-Veno ECMO for respiratory support will in general be transferred to ICMS for care
• There is a CRN/Charge Nurse on each 12 hour shift who works with Attendings, Residents and nursing staff to insure good communication and safe patient care.
• There are multiple portable phones available for resident use.
• The “Code Blue” pagers are located within the unit and must be returned at end of shift. Clipped to these pagers are swipe cards that allow access to all clinical areas within SBH.
• ICMS is a “closed” unit. Surgical patients admitted will be managed jointly by ICMS and the primary surgical service.
• All patient documentation is done in the Electronic Patient Record (EPR). All residents must be familiar with EPR prior to start of your rotation.
• The Health Issue Manager needs to be kept current and updated daily within each patient’s EPR. This is a crucial aspect of the EPR.
• There are specific “Critical Care” order sets within the EPR for ICU admissions. These include orders for sepsis, delirium, targeted therapeutic cooling and admissions.
• Wi-Fi is available within the unit.
• ALL residents are expected to strictly conform to WRHA Hand Hygiene policies.

ADMISSIONS

• The Attending M.D. must be notified of any consults and admissions.
• Calls from outside the hospital and province are handled by the Attending Physician.
• Once the admission has been accepted by the Attending the resident/Attending will notify the CRN/Charge Nurse who will coordinate the admission with the resident and the ward.
• In order to admit in a timely manner it is helpful if the resident informs the CRN/Charge Nurse of any issues such as the need for isolation or a bariatric bed, as well as any drugs that might be needed and if there is a need for urgent intubation, etc.
• Please complete the ACP form and document a justification for the status. This can be found in the EPR.
• Complete a medication reconciliation form, which should have been included with the admission paperwork. (Med Rec is currently not in practice at ICMS but will be soon).
• Bed Borrowing for Urgent HD – an ICU bed can be borrowed by the nephrologist on call for emergent dialysis with the following conditions:
• The ICMS attending is informed and agrees
• The patient requires no monitoring or treatment modalities available only in ICU ie rhythm monitoring or vasopressors
• The nephrologist is responsible for the patient not the ER physician
• Otherwise ICU must be formally consulted to assume the care of the patient.

TRANSFERS OUT

In Hospital

• It will be decided in rounds if the patient is ready for transfer.
• An order is written in the EPR and the Medicine Bed Physician is notified by the ICMS Attending if there are less than two available beds in the ICMS.
• The Bed Doctor will assign an Attending on the ward.
• The resident will then write a Transfer Summary within the EPR and notify the receiving Attending and their resident.
• The resident will then inform the bedside nurse that all parties have been notified and the nurse will then proceed to arrange the transfer.
• If the patient is from Acute Care Surgery the Surgeon on for the day will be called to accept the patient.

TO ANOTHER WRHA ICU

• The Attending will arrange the transfer with the Attending at the receiving unit.
• Once the transfer has been confirmed a Discharge Summary will be written by the resident and the CRN/Charge Nurse will arrange the transfer.

TO ANOTHER HOSPITAL OUTSIDE WRHA

• The receiving hospital will arrange the transfer back to the hospital. As usual a discharge summary including active and prn medication must be completed within the EPR.

Death

• The attending physician will be noticed of all deaths within the ICMS.
• An Autopsy is discussed with the family or preferred claimant by the Attending and/or resident regardless of whether the death is reportable.

Code Blue

• ICMS responds to all Code Blue calls in the SBH except ICCS, ED, Cardiac Cath Lab, Coronary Care Unit and the OR. The ICMS team DOES respond to “Code Blue” in the bronchoscopy suite locate in OR hallway however.
• The team does not respond to calls in the OR or Emergency unless specifically called.
• If the patient is an in-patient, they will be taken to the ED. Inform the emergency room physician prior to transport, ideally during the code to allow them time to prepare for the patient.
Forms

- The Daily Goal Sheet is completed in morning rounds and then there is follow up on sign out rounds.
- The Central Line Checklist is to be filled out on every patient who has a central line placed and kept in the patient’s chart. Each Central Line inserted requires a new checklist.
- A Discharge Summary is required for all patients who leave the unit, including those who are deceased.
- EPR there must be daily documentation. This includes procedure notes and any relevant information involving the patient and or families.
- The Health Issue Manager in the EPR MUST be updated daily to reflect the onset of new clinical problems and resolution as appropriate.
- Advanced Care Plan should be addressed during ICU admission.

Other Information

Equipment in the Unit: Ultrasound Machine
Glidescope
Bladder Scanner

- These are found in the locked side room but are readily available.
- There is one Line Cart, 3 Code Blue carts and a Respiratory Cart with supplies for intubation.
- There is also a cart for Chest Tube Insertion with appropriate supplies. Most such chest tubes are small “pig-tail” type tubes. There is also a Pacemaker Cart with supplies for the insertion of Temporary Pacemakers. These supplies can be found in the cupboards located centrally within ICMS.

• There is a clean supply room where you will find extra sterile gowns, drapes, dressings etc.
APPENDIX - MAPS

http://www.hsc.mb.ca/files/mapHSCCampus.pdf

At HSC SICU and MICU are in the Ann Thomas Building (2nd and 3rd floors respectively)
APPENDIX - MAPS


At HSC SICU and MICU are in the Ann Thomas Building (2nd and 3rd floors respectively)

You will be here
APPENDIX - MAPS

http://www.sbgh.mb.ca/findingUs/campusMap2D.html

At SBGH the ICMS unit is on the second floor of the E wing.
APPENDIX

ORDER SET EXAMPLES

File on website

Download here

The following pages are samples of the order sets that you will need to be familiar with during your rotations.

Each unit however has their own versions so be aware that there may be differences.

With the implementation of the EPR there will be a migration of order sets into electronic versions as well. Currently only SBGH has transitioned to EPR.
Admitting Orders for Intensive Care Unit (ICU) Patients

These orders are to be used as a guideline to support clinical judgement and professional practice standards. Drug allergies and contraindications must be considered when initiating these orders. See reverse for important considerations.

Orders are automatically activated. If not in agreement, cross out and initial. □ Orders are activated if checked.

### Allergies:

<table>
<thead>
<tr>
<th>MEDICATION ORDERS</th>
<th>GENERAL ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IV Solutions</strong></td>
<td>Admit to ICU under Dr. ____________________</td>
</tr>
<tr>
<td>Rate: _________ mL/hr with solution:</td>
<td>Diagnosis: ____________________</td>
</tr>
<tr>
<td>□ Normal Saline</td>
<td>□ Advance Care Plan Form Completed;</td>
</tr>
<tr>
<td>□ D5W½NS</td>
<td>Advance Care Plan Status: □ Resuscitation □ Medical Care</td>
</tr>
<tr>
<td>□ Ringer’s Lactate</td>
<td>□ Admission Medication Reconciliation Order form Completed</td>
</tr>
<tr>
<td>□ Other: __________</td>
<td>Nursing Care and Monitoring Orders</td>
</tr>
<tr>
<td><strong>Venous Thromboembolism (VTE) Prophylaxis</strong></td>
<td>Document Height _______ and Weight _______ on admission</td>
</tr>
<tr>
<td>All Critical care patients should be considered for VTE prophylaxis</td>
<td>□ Weigh daily</td>
</tr>
<tr>
<td>□ Dalteparin</td>
<td>□ Continuously monitor ECG, respiratory rate and oxygen saturation.</td>
</tr>
<tr>
<td>□ 5000 Units subcut daily (usual dose)</td>
<td>Record vital signs a minimum of q1h.</td>
</tr>
<tr>
<td>□ 2500 Units subcut daily (if body weight less than 40 kg)</td>
<td>□ Document pain score q4h and as needed</td>
</tr>
<tr>
<td>□ 7500 Units subcut daily (if BMI greater than 40 kg/m²)</td>
<td>Target Pain Score: __________ (suggested less than 3)</td>
</tr>
<tr>
<td>□ Heparin (if CrCl less than 10 mL/min and on dialysis)</td>
<td>□ Document Confusion Assessment Method - ICU</td>
</tr>
<tr>
<td>□ 5000 Units subcut q12h</td>
<td>(CAM-ICU) assessment q12h and as needed (goal - negative)</td>
</tr>
<tr>
<td>□ 5000 Units subcut q8h</td>
<td>(If CAM positive consider activating WRHA Critical Care Delirium Order Set)</td>
</tr>
<tr>
<td>□ Sequential Compression Device</td>
<td>□ Braden Score completed on admission and weekly</td>
</tr>
<tr>
<td>□ No VTE prophylaxis - Reason: ____________________</td>
<td>□ Insert Foley with urometer; hourly intake and output</td>
</tr>
<tr>
<td><strong>Medications for Constipation and Nausea</strong></td>
<td>□ Capillary blood glucose q6h for 48 hours then reassess.</td>
</tr>
<tr>
<td>□ Docusate Sodium 100 mg PO/NG/OG q12h (hold if diarrhea present)</td>
<td>Goal glucose __________</td>
</tr>
<tr>
<td>□ Sennosides a and b 8.6 to 17.2 mg PO/NG/OG daily as needed for Constipation</td>
<td>Nutritional Therapy</td>
</tr>
<tr>
<td>□ Glycerin (adult strength) supp 1 PR daily as needed for Constipation</td>
<td>All patients should have nutrition assessed within 24 hours of ICU admission</td>
</tr>
<tr>
<td>□ Bisacodyl supp 10 mg PR daily as needed for Constipation</td>
<td>□ Diet Order</td>
</tr>
<tr>
<td>□ Metoclopramide __________ mg IV every __________ hours as needed for nausea (usual dose 10 mg every 6 hours in normal renal function)</td>
<td>□ Dietitian consult</td>
</tr>
<tr>
<td><strong>Medications for Analgesia and Sleep</strong></td>
<td>Activity Orders</td>
</tr>
<tr>
<td>□ Acetaminophen __________ mg (usual dose 325 – 975 mg)</td>
<td>Unless contraindications exist, all patients should be mobilized as per WRHA Mobility Protocol</td>
</tr>
<tr>
<td>PO/NG/OG/PR every 4 hours as needed for pain or fever (maximum of 4 g/day from all sources)</td>
<td>□ Follow WRHA Mobility Protocol (Criteria on reverse)</td>
</tr>
<tr>
<td>□ FentaNYL __________ mcg IV q 10 minutes as needed for goal pain score (suggested dose: 12.5 - 50 mcg)</td>
<td>□ Do not Follow WRHA Mobility Protocol</td>
</tr>
<tr>
<td>□ HydroMORPHONE __________ mg IV q 15 minutes as needed for goal pain score (suggested dose: 0.25 - 2 mg)</td>
<td>Reason: ____________________</td>
</tr>
<tr>
<td>□ Zopiclone __________ mg PO/NG/OG at bedtime as needed for sleep (Suggested dose: 7.5 - 15 mg, Use lower doses in the elderly, Caution using if CAM-ICU positive)</td>
<td>□ Activity as Tolerated or □ Activity Restrictions: ____________________</td>
</tr>
<tr>
<td>□ Oxycodone __________ mg PO/NG/OG at bedtime as needed for sleep</td>
<td>□ Physiotherapy Consult</td>
</tr>
</tbody>
</table>

| Physician Signature ____________________ | RN Initial ____________________ |
| Print Name ____________________ | Transcriber Initial ____________________ |

Date: __________ Time: __________ 24 HOUR

☐ ORDERS FAXED TO PHARMACY

Date: __________ Time: __________ 24 HOUR

Initials: ____________________
Pain Scores

Numerical Pain Score  *(For verbal, responsive patients. Score out of 10.)*

Patients rate pain on a scale from 0 - 10, 0 being no pain and 10 being the worst pain imaginable.

Critical Care Pain Observation Tool  *(For patients unable to give a numerical pain score. Score out of 8.)*

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Facial Expression</td>
<td>Relaxed, neutral</td>
</tr>
<tr>
<td>Body Movements</td>
<td>Absent of movements or normal position</td>
</tr>
<tr>
<td>Compliance with Ventilator</td>
<td>Tolerating ventilator</td>
</tr>
<tr>
<td>(only if intubated)</td>
<td>OR</td>
</tr>
<tr>
<td>Vocalization</td>
<td>Talking in normal tone or no sound</td>
</tr>
<tr>
<td>(only if extubated)</td>
<td></td>
</tr>
<tr>
<td>Muscle Tension</td>
<td>Relaxed</td>
</tr>
</tbody>
</table>

Richmond Agitation Sedation Scale (RASS) to assess Level of Sedation

- +4 Combative
- +3 Very Agitated
- +2 Agitated
- +1 Restless
- 0 Alert and Calm
- -1 Drowsy
- -2 Light Sedation
- -3 Moderate Sedation
- -4 Deep Sedation
- -5 Unarousable

Confusion Assessment Method for the ICU (CAM-ICU) for Delirium Screening

Step 1: Assess Level of Consciousness using RASS. Proceed with CAM-ICU Assessment if RASS greater than or equal to -3.

Step 2: Assess Content of Consciousness.

1. Feature 1: Acute change or fluctuating course of mental status

AND

2. Feature 2: Inattention

AND

3. Feature 3: Altered Level of Consciousness

OR

4. Feature 4: Disorganized Thinking

WRHA Early Mobility Protocol

<table>
<thead>
<tr>
<th>Level 1 (Unconscious)</th>
<th>Goals: Passive Range of Motion (ROM), Turns q2h.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2 (Awake)</td>
<td>Goals: Passive ROM, Turns q2h, Active Resistance, Sitting position. 3 Activity Events per day.</td>
</tr>
<tr>
<td>Level 3 (Awake, can move arms against gravity)</td>
<td>Goals: Turns q2h, Active resistance, Sitting on the edge of the bed. 3 Activity Events per day.</td>
</tr>
<tr>
<td>Level 4 (Awake, can move legs against gravity)</td>
<td>Goals: Turns q2h, Active resistance, Sitting on the edge of the bed, Active transfer to chair, Ambulaton in the unit. Three Activity Events per day.</td>
</tr>
</tbody>
</table>
These orders are to be used as a guideline to support clinical judgement and professional practice standards. Drug allergies and contraindications must be considered when initiating these orders. See reverse for important considerations.

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Drug Allergies:

### MEDICATION ORDERS

<table>
<thead>
<tr>
<th>Stress Ulcer Prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Ranitidine 50 mg IV q8h</td>
</tr>
<tr>
<td>□ Ranitidine 150 mg OG q12h</td>
</tr>
<tr>
<td>□ Esomeprazole 40 mg OG daily</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ventilator Associated Pneumonia Prophylaxis</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Chlorhexidine 0.12% solution 15 mL q12h coat then toothbrush over all the oral cavity surfaces</td>
</tr>
<tr>
<td>Discontinue chlorhexidine oral care after extubation</td>
</tr>
<tr>
<td>□ Oral care with Hydrogen peroxide 1.5% q4h in between chlorhexidine treatments</td>
</tr>
<tr>
<td>Discontinue hydrogen peroxide oral care following extubation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medications for Sedation</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Midazolam ______ mg IV q10min as needed for anxiety</td>
</tr>
<tr>
<td>(Suggested dose 1 - 2 mg)</td>
</tr>
<tr>
<td>□ Activate WRHA Critical Care Continuous Sedation and Analgesia Order Set</td>
</tr>
</tbody>
</table>

### GENERAL ORDERS

<table>
<thead>
<tr>
<th>Nursing Care and Monitoring Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Maintain head of the bed at 30 to 45° elevation</td>
</tr>
<tr>
<td>□ Reposition endotracheal tube and document cuff pressure measurement q12h (goal 20 - 30 cmH₂O)</td>
</tr>
<tr>
<td>□ Insert OG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nutritional Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Start Tube feeds: __________________ at ______ mL/hr</td>
</tr>
<tr>
<td>once OG position confirmed</td>
</tr>
<tr>
<td>□ Dietitian consult</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ventilator Orders</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Initial ventilator settings: ____________________________</td>
</tr>
<tr>
<td>□ Titrate FiO₂ to goal Oxygen saturation greater than ______ %</td>
</tr>
<tr>
<td>□ Titrate ventilator settings for a goal pH ________________</td>
</tr>
<tr>
<td>□ Acute Respiratory Distress Syndrome Protocol:</td>
</tr>
<tr>
<td>□ Use Protocol FiO₂/PEEP ladder</td>
</tr>
<tr>
<td>□ Physician directed PEEP. Start at PEEP ________________</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Daily Screen for Spontaneous Breathing Trial (SBT).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conduct SBT if patient meets criteria.</td>
</tr>
<tr>
<td>(Criteria and instructions listed on reverse page).</td>
</tr>
<tr>
<td>Ventilator setting for SBT is PSV 0/PEEP 5.</td>
</tr>
<tr>
<td>If alternative ventilator settings are to be used then list here:</td>
</tr>
<tr>
<td>□ CPAP ________ □ PSV ________</td>
</tr>
<tr>
<td>□ Hold tube feed for a maximum of one hour prior to extubation.</td>
</tr>
<tr>
<td>If OG in place then aspirate stomach contents prior to extubation</td>
</tr>
<tr>
<td>□ Increase ventilator support and/or oxygenation prior to early mobility activity event as needed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Laboratory Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>□ Post intubation Chest X-ray if not already done</td>
</tr>
<tr>
<td>□ Send ETT Secretions for Culture and Sensitivity</td>
</tr>
</tbody>
</table>

---

Physician Signature ____________________________  
Print Name ____________________________  
RN Initial ____________________________  
Transcriber Initial ____________________________  
ORDERS FAXED TO PHARMACY  
Transcriber Initial ____________________________  

Date: [ ] D [ ] M [ ] Y [ ] Y [ ] Y [ ] Y [ ] Y  
Time: [ ] 24 HOUR  

Date: [ ] D [ ] M [ ] Y [ ] Y [ ] Y [ ] Y [ ] Y  
Time: [ ] 24 HOUR  
Initials: ________
Rapid Shallow Breathing Index (RSBI) interpretation:
RSBI = RR/Vt (L)  
- less than 105 = 80 % Success
- greater than 105 = 95 % Failure

Spontaneous Breathing Trial (SBT) Algorithm

Does patient meet criteria for SBT?
To be assessed by RN and RT

Must meet all criteria to proceed
- Calm and cooperative (RASS 0 to -1)
- Hemodynamically stable (single agent at low dose is acceptable)
- PEEP less than 10 cmH₂O
- FiO₂ less than 0.6 with SpO₂ greater than 90%

YES

Conduct a 1-minute SBT
- Change ventilator settings to PSV 0/PEEP 5 cmH₂O with unchanged FiO₂
- After 1 minute, calculate RSBI:
  RSBI = RR/Vt (L)
  Less than 105 = 80% Success
  Greater than 105 = 95% Failure

Did patient pass the 1-minute SBT?

YES

Conduct a Full SBT for 30 to 60 Minutes
- Use ventilator settings listed above or alternative settings if ordered by the physician (e.g. PSV 5 - 10 or t-piece)
- Continuously reassess
- Calculate RSBI at SBT completion. Document SBT results on patient’s record

Did patient pass the SBT result?

YES

Discuss SBT Results and Extubation Plan with Medical Team
- Extubation should proceed within 30 minutes
- If extubation will be delayed, consider providing increased ventilator support to avoid fatigue

NO

Increase Ventilator Support and Discuss SBT Results with Medical Team
- Return patients to previous ventilator settings and titrate to patient comfort
- Discuss SBT results at rounds
- ICU team should assess patient for reversible reasons for ongoing respiratory failure

SBT Termination Criteria Include Any of the Following:
- Respiratory rate greater than 35/minute for greater than 5 minutes
- SpO₂ less than 90% for greater than 2 minutes
- Heart rate change 20% from baseline
- Blood Pressure change 20% from baseline
- Accessory muscle use
- Increased anxiety/diaphoresis
- Significant arrhythmias

If considered to have failed a 1-minute SBT, then return to previous ventilator settings. Medical Team should discuss barriers to liberation and re-evaluate in 24 hours.
WRHA Critical Care Continuous Sedation and Analgesia Order Set

These orders are to be used as a guideline to support clinical judgement and professional practice standards. Drug allergies and contraindications must be considered when initiating these orders. See reverse for important considerations.
☐ Orders are automatically activated. If not in agreement, cross out and initial. ☐ Orders are activated if checked.

Drug Allergies:

<table>
<thead>
<tr>
<th>MEDICATION ORDERS</th>
<th>GENERAL ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analgesia Management</strong> – (see criteria on reverse)</td>
<td><strong>Document Richmond Agitation Sedation Scale (RASS)</strong> Assessment q4h and as needed</td>
</tr>
<tr>
<td>☐ FentaNYL</td>
<td>☐ Target RASS Score: __________ (suggested 0 to -2)</td>
</tr>
<tr>
<td>☐ Intermittent: mcg IV q 10 mins as needed for goal pain score</td>
<td>☐ Document Pain Scale Assessment q4h and as needed</td>
</tr>
<tr>
<td></td>
<td>☐ Target Pain Score: __________ (suggested less than 3)</td>
</tr>
<tr>
<td></td>
<td>☐ Assess for Daily Awakening Trial (DAT) eligibility every morning. Conduct DAT if patient meets criteria</td>
</tr>
<tr>
<td></td>
<td>(Exclusion criteria and instructions are listed on reverse page):</td>
</tr>
<tr>
<td></td>
<td>If narcotic infusion is required for pain control, it is recommended that the narcotic infusion is not completely stopped. Therefore, during the DAT the narcotic infusion should instead be decreased to:</td>
</tr>
<tr>
<td></td>
<td>☐ 75% of previous narcotic infusion dose</td>
</tr>
<tr>
<td></td>
<td>☐ 50% of previous narcotic infusion dose</td>
</tr>
<tr>
<td></td>
<td>☐ 25% of previous narcotic infusion dose</td>
</tr>
<tr>
<td></td>
<td>☐ Do not screen for Daily Awakening Trial (reason needs to be stated and above DAT order should be crossed out)</td>
</tr>
<tr>
<td></td>
<td>Reason: __________</td>
</tr>
<tr>
<td></td>
<td>☐ For patients on Propofol: Check serum triglycerides levels now and then every 48 hours while on a continuous propofol infusion.</td>
</tr>
</tbody>
</table>

| **Sedation Management** – (see criteria on reverse) | |
| ☐ Midazolam | |
| ☐ Intermittent: mg IV q 10 mins as needed for anxiety (suggested 1 - 2 mg). Discontinue previous midazolam orders. |
| ☐ Continuous: Start at mg/hr IV (suggested 2 mg/hr) and titrate q 20 mins to goal RASS. Give bolus doses to achieve goal RASS and with each increase in infusion rate. Call physician if rate greater than __________ mg/hr. |
| ☐ Propofol | |
| ☐ Continuous: Start at mg/kg/hr IV and titrate to goal RASS. Maximum dose mg/kg/hr. (Suggested range 0.5 to 5 mg/kg/hr). Use bolus dosing of 10 - 30 mg IV q mins pm to achieve initial goal RASS. If oversedated, greater than 2 below RASS goal: Wean propofol dose by 0.5 mg/kg/hr every 10 mins until at goal RASS |
| ☐ If oversedated, greater than 2 below RASS goal, then hold midazolam and/or narcotic infusions and document RASS q1h. Once RASS is at goal, then restart infusions at ½ previous rate and document RASS q4h and as needed. |
| ☐ Consider Alternative/Adjunctive Sedative: | |
| ☐ Other: __________ |
| | |
| ☐ Other: __________ |
| | |

| **Consider Alternative/Adjunctive Analgesia:** | |
| ☐ Other: __________ | |
| | |
| ☐ Other: __________ | |
| | |

| **Physician Signature** _____________________________ | **RN Initial** _____________________________ |
| **Print Name** _____________________________ | **Transcriber Initial** _____________________________ |
| **Date:** D D M M Y Y Y Y **Time:** 24 HOUR | **Date:** D D M M Y Y Y Y **Time:** 24 HOUR **Initials:** ________ |

**FORM # NS01619 01/16**

**HEALTH RECORD FILING - ORDERS (WHITE)**

Page 1 of 1
WRHA ICU Sedative and Analgesia Algorithm

**Pain**

Is patient in pain?
- Use pain score to assess patient
- Set goal for analgesia

**Choice of Analgesic:**
- Consider non-opioid alternatives:
  - Acetaminophen
  - Non-steroidal anti-inflammatories
  - Local nerve blocks, epidurals
  - Other: Tricyclic antidepressants, gabapentin, clonidine

**Choosing an appropriate opioid:**
- Hemodynamically Stable: Fentanyl, Hydromorphone, Morphine
- Hemodynamically Unstable: Fentanyl
- Renal Impairment: Fentanyl, Hydromorphone

**Primary approach for pain:** bolus for pain control and if frequent boluses are required then start an infusion to sustain control

**Titrating off infusions:** The potential for opioid withdrawal should be considered for patients receiving high doses or seven (7) days of continuous therapy.

**Sedation**

Is patient agitated/anxious?
- Use RASS to assess patient
- Set goal for sedation

**Drug Selection:**
- Non-benzodiazepine sedative preferred

**TARGET:**
Richmond Agitation Sedation Scale (RASS): 0 to -3
RASS score to be performed at minimum every 4 hours when on continuous sedative infusions

**Delirium**

Is patient delirious?
- Use CAM to assess patient

**Non-Pharmacologic Treatments for Delirium:**
- Ensure Daily Awakening Trials conducted
- Continually reorient patient
- Perform early mobilization
- Promote effective sleep/awake cycles
- Perform timely removal of catheters/physical restraints
- Ensure the use of eyeglasses, magnifying lenses, and hearing aids
- Minimize noise/stimulation at night
- Minimize benzodiazepines for sedation

**TARGET:**
Confusion Assessment Method for the ICU (CAM-ICU)
CAM-ICU assessment to be performed on all patients at minimum every 12 hours

**Daily Awakening Algorithm**

Is the Patient eligible for Daily Awakening Trial (DAT)?
All patients on continuous sedative infusions should be assessed daily for DAT eligibility

**Exclusions:**
- Increased intracranial pressure
- Neuromuscular blockade
- Significant ventilator support needed, such as PEEP greater than 10 or FiO2 greater than 60%

**NO**
- Continue to hold sedation and monitor RASS scores as recommended above
- Assess and address pain and delirium
- If patient is still not awake after 6 hours of holding sedative infusions, consider decreasing opioid infusions further

Is the patient still sedated with RASS less than -1?
- Assess patient’s pain
- Titrate narcotics as needed to achieve desired pain score

**YES**
- Reassess goal daily
- Titrate and taper to maintain goal
- Perform daily awakening trial, if appropriate

Is the patient agitated with a RASS greater than 0 and/or experiencing increased respiratory distress?
- Assess and address pain and delirium
- Ensure appropriate ventilator settings for the patient’s more awake state
- Restart sedation at 50% of previous dose
- Use bolus dosing as needed to achieve desired RASS goal
- Formulate action plan on rounds for revised sedation strategy. Address delirium if present.
WRHA Critical Care Program
Delirium Order Set

These orders are to be used as a guideline to support clinical judgement and professional practice standards. Drug allergies and contraindications must be considered when initiating these orders. See reverse for important considerations.

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Drug Allergies:

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<thead>
<tr>
<th>MEDICATION ORDERS</th>
<th>GENERAL ORDERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute treatment for severe agitation:</strong></td>
<td>□ Document Confusion Assessment Method – ICU (CAM – ICU) q12h and as needed (goal – negative)</td>
</tr>
</tbody>
</table>
| [ ] Haloperidol ________ mg IV/IM q15 mins as needed for acute and severe delirium. (Suggested starting dose: 2 - 5 mg. Use lower doses in elderly) Maximum daily dose ________ mg/day (suggested maximum 35 mg/day) | □ Implement WRHA Policy 110.000.025 Restraints Minimization – Acute Care Facilities (Adult) 
Medication use as behaviour modification (e.g., Haloperidol as needed) is a chemical restraint |
| **Maintenance therapy for delirium:** | □ ECG now and in 48 hours (Antipsychotics can cause QT prolongation. Consider repeating ECG 48 hours after each dose increase) |
| (Pick one to start. Consider starting with lower doses in individuals greater than 65 years old) | The ICU healthcare team should discuss interventions to decrease the severity and duration of delirium. (See reverse page for detailed suggestions). Interventions include: |
| [ ] Haloperidol ________ mg PO/OG/NG q6h (suggested starting dose 2 - 5 mg; lower dose in elderly) | • Look for reversible causes of delirium |
| [ ] QUEtiapine ________ mg PO/OG/NG q12h to start (suggested starting dose 50 mg q12h; can increase daily by 50 mg q12h if as needed haloperidol given more than once in previous 24 hours. Maximum dose 200 mg q12h) Quetiapine is associated with high levels of sedation and a low risk of extrapyramidal symptoms. | • Minimize use of medications that cause delirium |
| □ OLANZapine ________ mg PO/OG/NG/Sublingual at hs (suggested starting doses 5 mg. Maximum dose of 20 mg/day). Olanzapine is associated with high levels of sedation, and low risk of hypotension and extrapyramidal symptoms. | • Remove all unnecessary indwelling lines |
| □ Add RisperiDONE ________ mg PO/OG/NG twice a day (suggested dose 1 - 3 mg twice a day. Maximum dose of 6 mg/day). Risperidone is associated with minimal sedation, the least amount of anticholinergic side-effects, and has the least potential for hyperglycemia. | • Promote wakefulness during the day and sleep at night |
| □ ClonIDine ________ mg PO/OG/NG q12h (suggested starting dose 0.05 mg q12h) Hold if patient is hypotensive or on vaspressors. | • Mobilize during the day |
| □ Other: ____________________________________________ | • Have familiar and comforting objects in patient room |

Adjunctive therapy for delirium:

□ Document Confusion Assessment Method – ICU (CAM – ICU) q12h and as needed (goal – negative)

□ Implement WRHA Policy 110.000.025 Restraints Minimization – Acute Care Facilities (Adult)

Medication use as behaviour modification (e.g., Haloperidol as needed) is a chemical restraint

□ ECG now and in 48 hours (Antipsychotics can cause QT prolongation. Consider repeating ECG 48 hours after each dose increase)

The ICU healthcare team should discuss interventions to decrease the severity and duration of delirium. (See reverse page for detailed suggestions). Interventions include:

• Look for reversible causes of delirium
• Minimize use of medications that cause delirium
• Remove all unnecessary indwelling lines
• Promote wakefulness during the day and sleep at night
• Mobilize during the day
• Have familiar and comforting objects in patient room
• Optimize sensory input (glasses, hearing aids if needed)
• Optimize communication in wakeful patients

Physician Signature ____________________________
Print Name _______________________________

Physician Signature ____________________________
Print Name _______________________________

□ ORDERS FAXED TO PHARMACY

Date: ____________ Time: ________ 24 HOUR

Date: ____________ Time: ________ 24 HOUR

Initials: ____________________________
Delirium Fact Sheet

Delirium is very common in ICU. Up to 2/3rds of all patients in ICU will get delirium, with the highest incidence of 80% in ventilated patients. Delirium is linked to a variety of poor outcome measures and is important to actively identify and treat. Priority for treatment should first be to assess for causes and risk factors, and modify these as much as possible. Medication use should follow the non-pharmacologic management when needed. The CAM-ICU assessment tool results should be documented q12h.

Reversible Causes

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Infection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain/Anxiety</td>
<td>Withdrawal Syndrome</td>
</tr>
<tr>
<td>Metabolic Derangements</td>
<td>Hypoxia</td>
</tr>
<tr>
<td>Stroke Syndromes</td>
<td>Environmental Disturbances</td>
</tr>
<tr>
<td>Poor Sleep</td>
<td></td>
</tr>
</tbody>
</table>

Non-Pharmacologic Interventions

Orientation
- Provide visual and hearing aides
- Encourage communication and orientation to day/time/location by nurses and family
- Have familiar objects from patient’s home in the room
- Attempt consistency in nursing staff
- Allow television during day with daily news
- Provide music

Environment
- Promote good sleep hygiene
- Lights off at night, on during the day
- Earplugs for patients at night
- Control excess noise (staff, equipment, visitors) at night
- Consider sleep aids (QUEtiapine)
- Ambulate or mobilize patients

Clinical Factors
- Maintain systolic blood pressure greater than 90 mmHg
- Maintain oxygen saturations greater than 90%
- Treat underlying metabolic derangements and infections
- Discontinue any unnecessary and potentially deliriogenic medications

Medications that can cause Delirium

Common agents to consider:

- Benzodiazepines
- Narcotics – lower risk.
  - Treatment of pain with appropriate therapy has been shown to decrease delirium
- Anticholinergic medications e.g.:
  - Dimenhydrinate (Gravol)
  - Diphenhydramine (Benadryl)
  - Oxybutynin (Ditropan)
  - Tolterodine (Detrol)
  - Amitriptyline (Elavil)
  - Paroxetine (Paxil)
  - Promethazine (Phenergan)
  - Prochlorperazine (Stemetil)
  - Metoclopramide (Maxeran)
- Antiparkinson meds e.g.: Levodopa/Carbidopa (Sinemet)
- Steroids
  - High concentrations of:
    - Anticonvulsants e.g. Phenytoin
    - Digoxin
    - Lithium

Confusion Assessment Method for the ICU (CAM-ICU)

Delirium Screening

Step 1: Assess Level of Consciousness using RASS. Proceed with CAM-ICU Assessment if RASS ≥ -3.

Step 2: Assess Content of Consciousness.

Feature 1: Acute change or fluctuating course of mental status
  AND
  Feature 2: Inattention
  AND
  Feature 3: Altered Level of Consciousness
  OR
  Feature 4: Disorganized Thinking
Targeted Temperature Management
Post Cardiac Arrest Order Set

These orders are to be used as a supplement to General ICU admission orders for Ventilated Patients.

These orders are to be used as a guideline to support clinical judgement and professional practice standards. Drug allergies and contraindications must be considered when initiating these orders. Orders are automatically activated. If not in agreement, cross out and initial. Orders are activated if checked.

**Medication Orders**

<table>
<thead>
<tr>
<th>DATE:</th>
<th>TIME:</th>
</tr>
</thead>
</table>

**Induction of Targeted Temperature:**

Begin cooling interventions after bolus doses of sedative/analgesic medication are given

- Infuse mL of refrigerated Lactated Ringers solution (suggested 30 mL/kg - max 2 L) as a bolus if temperature is above goal. If temperature is not dropping adequately during this phase, further bolus can be given after discussion with MD.
- Infuse cold fluid via a peripheral IV catheter

**Shivering Therapy:**

The following should be considered as adjuncts to shivering treatment and be used in an escalating fashion. Ensure adequate analgesia is provided.

- Acetaminophen 650 mg PO/NG q6h x 48 hours
- Meperidine 25 - 50 mg IV q 15 minutes as needed for shivering (max dose 300 mg in 24 hours, caution in renal failure)
- BusP/Rone 30 mg PO/NG/Og q8h as needed for shivering not responsive to narcotics/sedation
- Magnesium Sulfate 2 g IV over 20 minutes (Target serum Mg++ level of 1 - 1.2 mmol/L)
- Rocuronium mg IV bolus q30 minutes pm (suggested 0.2 - 0.6 mg/kg). Continuous sedation MUST be given if Rocuronium ordered.

**Sedation/Analgesia:**

- Activate WRHA Critical Care Continuous Sedation and Analgesia Order Set
  - Note: Propofol is the suggested agent. Propofol does not provide analgesia, consider fentanyl as adjunct. Goal RASS during cooling is suggested to be -3 to -5.

**Vasopressor Therapy:**

- Norepinephrine mcg/kg/min IV
  - Suggested dose 0.01 to 0.3 mcg/kg/min
  - Titrated to a goal MAP greater of mmHg
- Vasopressin units/hour IV
  - Suggested dose 2.4 units/hour
- Other

**Laboratory Investigation:**

- CBC/Na/K/Cr/TCO2/glucose/Mg/PO4/Urea/Cr/AST/ALT/ALP/GGT/CK/troponin/INR on admission
- ECG on admission and in 24 hours
- Capillary blood glucose monitoring q4h and as needed. Goal glucose is 5 - 10 mmol/L.
- Na, K, Cl, Mg, PO4 q8h x 24 hours

**Ventilation Orders:**

- Activate WRHA Critical Care Order Set for Ventilated Patients
- Set humidifier to non-invasive OR use HME
- Target PCO2 35 - 45 mmHg
- Target PaO2 less than 100 mmHg or Oxygen Saturation of 94 - 98% using minimal FiO2 (Elevated PaO2 may be harmful)

**Rewarming Phase**

- Discontinue cooling 28 hours after initiation of TTM. Begin passive rewarming over the next 8 hours at a rate of 0.2 - 0.3 degrees per hour. Do not exceed 37°C.
- When 36 hours have elapsed from the time cooling was started, stop or aggressively taper sedation.
- Temperature should be controlled and not allowed to go over 37.5°C for an additional 36 hours after cooling phase completed. Active cooling measures may be needed to achieve this. The cooling device may need to be used to facilitate this.

**Orders Faxed to Pharmacy**

Transcribed by: ____________________________

**Important Times to Document**

<table>
<thead>
<tr>
<th>Return of Spontaneous Circulation Time:</th>
<th>Date:</th>
<th>Time:</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Time Cooling Started:</th>
<th>Date:</th>
<th>Time:</th>
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</table>

<table>
<thead>
<tr>
<th>Rewarming Starts 28 hours Later at Time:</th>
<th>Date:</th>
<th>Time:</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>TTM ends 36 hours after Start at Time:</th>
<th>Date:</th>
<th>Time:</th>
</tr>
</thead>
</table>

**Orders Activated if checked**

**Orders Faxed to Pharmacy**
Septic Shock
Standard Orders for
Adult ICU Patients (older than 16 years)

Initiating this order sheet indicates the patient is in septic shock.
All of the following criteria must be met for diagnosis of septic shock.

Criteria for Septic Shock (please check all that apply. All elements required for septic shock diagnosis):

1. □ Documented or suspected infection specify suspected site(s).

2. □ Persistent/recurrent hypotension (not resolved with 500 mL saline or equivalent over 15 - 30 min).
   Time/date first documentation of hypotension ____________________________

3. □ No clear alternate explanation for hypotension. Hypotension is a systolic blood pressure less than or equal to 90 mmHg, a mean arterial pressure (MAP) less than or equal to 70, or a drop in systolic blood pressure of 40 mmHg.

- Broad spectrum antimicrobial therapy must be started within 30 minutes of the onset of hypotension (or diagnosis of septic shock). Required cultures should always be drawn before antimicrobial administration. However, antimicrobial administration is the priority: therefore inability to obtain cultures must not delay antimicrobial (i.e. antibiotic) therapy.
- Broad spectrum therapy should be closely assessed for de-escalation no later than 48 - 72 hours after initiation, assuming isolation of a pathogen or clinical improvement.
- For serious penicillin/cephalosporin allergies (anaphylaxis, urticaria, angioneurotic edema), substitute Levofloxacin, Vancomycin, and either Clindamycin or MetroNIDAZOLE.
- Nosocomial septic shock in patients who have had prolonged courses of therapy with Piperacillin/Tazobactam should be treated with Meropenem in place of Piperacillin/Tazobactam in the initial empiric regimen.

The Bundle of Interventions for
Initial Treatment of Septic Shock includes:
- Serum Lactate Measured
- Blood Cultures Obtained Prior to Antibiotic Administration
- Broad-Spectrum Antibiotics within one hour
- Treat Hypotension and/or Elevated Lactate with Fluids
- Use Vasopressors for Ongoing Hypotension
- Maintain Adequate Central Venous Pressure
- Maintain Adequate Central Venous Oxygen Saturation

ABBREVIATIONS
- ABG - Arterial Blood Gas
- ALT - Alanine Transaminase
- AST - Aspartate Transaminase
- BP - Blood Pressure
- C & S - Culture and Sensitivity
- CBC - Complete Blood Count
- CK - Creatine Kinase
- CrCl - Creatinine Clearance
- CVP - Central Venous Pressure
- ETT - Endotracheal Tube
- g - Grams
- ICU - Intensive Care Unit
- INR - International Normalized Ratio
- IV - Intravenous
- kg - Kilograms
- LDH - Lactate Dehydrogenase
- MAP - Mean Arterial Pressure
- mg - Milligrams
- mL - Milliliters
- mmHg - Millimeters of Mercury
- MRSA - Methicillin-resistant Staphylococcus aureus
- NS - Normal Saline
- PTT - Partial Thromboplastin Time
- SBP - Systolic Blood Pressure
- q___h - Every ___ hours
ADVANCE CARE PLANNING
GOALS OF CARE

Refer to WRHA Advance Care Planning Policy # 110.000.200
prior to completing this form

Is there an existing Health Care Directive? □ No □ Yes
(if yes, it shall guide further discussions as an indication of the Patient/Client/Resident's wishes at the time of writing)

Advance Care Planning (ACP) is the overall process of dialogue, knowledge sharing and informed decision making that needs to occur at any time when future or potential life threatening illness treatment options and Goals of Care are being considered or revisited. This form is used to record agreed upon Goals of Care reached through full and complete ACP discussions with the Patient/Resident/Client and/or Substitute Decision Maker about the nature of the individual's current condition, prognosis, treatment/procedural/investigation options, and expected benefits or burdens of those options.

GOALS OF CARE (Check the box that best describes the Patient/Resident/Client Goals of Care)

□ C = Comfort Care - Goals of Care and interventions are directed at maximal comfort, symptom control and maintenance of quality of life excluding attempted resuscitation.

□ M = Medical Care - Goals of Care and interventions are for care and control of the Patient/Resident/Client condition. The Consensus is that the Patient/Resident/Client may benefit from, and is accepting of, any appropriate investigations/interventions that can be offered excluding attempted resuscitation.

□ R = Resuscitation – Goals of Care and interventions are for care and control of the Patient/Resident/Client condition. The Consensus is that the Patient/Resident/Client may benefit from, and is accepting of, any appropriate investigations/interventions that can be offered including attempted resuscitation.

If the required care is not available in current location or setting, does the Patient/Resident/Client want to be transferred to alternate facility? □ No □ Yes

Indicate all individuals who participated in Goals of Care discussion(s) by checking appropriate box(es).

□ Patient/Resident/Client Print Name: ________________________________

□ Family Member(s) Print Name(s): ________________________________

□ Substitute Decision Maker Print Name(s): ________________________________

□ Health Care Provider(s) Print Name(s): ________________________________

Document details of the Patient/Resident/Client specific instructions or wishes and/or details of discussion with the individuals indicated above. (Refer to dateline of Progress Note entry if more space is required):

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Name & Designation of Health Care Provider: ________________________________
Signature of Health Care Provider: ________________________________
(Physician’s signature is required when patient is a client of the Public Trustee)

The Goals of Care were reviewed with the Patient/Resident/Client and/or Substitute Decision Maker and no change to the form is required.

Name & Designation of Health Care Provider: ________________________________
Signature of Health Care Provider: ________________________________
(Physician’s signature is required when patient is a client of the Public Trustee)

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Signature of Health Care Provider: ________________________________
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If review results in any changes to the Patient/Resident/Client Goals of Care, a new form must be completed.

PROVIDE COPY OF COMPLETED FORM TO PATIENT/RESIDENT/CLIENT OR SUBSTITUTE DECISION MAKER

FORM # NS00344 09/11 HEALTH RECORD COPY - CORE DIVIDER 1 (PINK)
See Reverse Side for French Translation
PHYSICIAN’S ORDER SHEET

MASSIVE TRANSFUSION PROTOCOL ORDER SET

Intended for use in patients 16 years of age or greater

Activation of Massive Transfusion Protocol is limited to the following areas:
- Adult Emergency
- Adult OR
- Adult PACU
- Adult SICU
- Adult MICU
- Women’s Labour and Delivery
- Women’s OR
- Women’s PACU

These orders are to be used as a guideline and do not replace sound clinical judgment and professional practice standards.

- Standard orders. If not in agreement with an order, cross out and initial.
- Requires a check (✓) for activation.

Criteria for activating the Massive Transfusion Protocol:
- Transfusion of greater than or equal to 4 red blood cell units within 1 hour when ongoing substantial need is anticipated

1. □ Activate Massive Transfusion Protocol order set
2. □ Paging will inform Transfusion Medicine Physician on call that the Massive Transfusion Protocol has been activated
3. □ Reverse anticoagulation if the patient is systemically anticoagulated
   (See Appendix II for specific drugs and doses)
4. □ Transfuse the first Massive Transfusion Pack
   (It will be available from hospital blood bank in two separate components):
   - 5 units red blood cells, will be ready within 15 minutes
   - 1000 mL frozen plasma, will be ready within 40 minutes

5. IF ADDITIONAL PRODUCTS ARE NECESSARY IN THE FIRST PACK, PLEASE ORDER THESE BELOW:
   - _______ dose(s) of adult pooled platelets
     Consider platelet transfusion if the patient is known to be thrombocytopenic (less than 50 x 10^9/L) or if platelet dysfunction is suspected (e.g. patient on clopidogrel, IIb/IIIa inhibitors or post cardiopulmonary bypass)
     (Usual practice is 1 adult dose)
   - _______ mL of frozen plasma
     (Consider additional plasma if initial INR is greater than 2.0 or coagulopathy is highly suspected)
     (Usual dose is 15 mL/kg or 1000 - 1500 mL)
6. □ Tranexamic acid ______ mg (usual 1000 mg) IV bolus over ______ minutes (usual 10 minutes), then ______ mg/hr (usual 125 mg/hr) IV for ______ hours (usual 8 hrs)

PHYSICIAN’S SIGNATURE: ____________________________ MD

PRINTED NAME: ____________________________ MD

GENERIC EQUIVALENT AUTHORIZED: ____________________________

PAGE 1 OF 2
PHYSICIAN'S ORDER SHEET

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Women's Labour and Delivery, Women's OR, Women’s PACU

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These orders are to be used as a guideline and do not replace sound clinical judgment and professional practice standards.
Patient allergy and contraindications must be considered when completing these orders.

[ ] Standard orders. If not in agreement with an order, cross out and initial.
[ ] Requires a check (✓) for activation.

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 Goals of Therapy (not orders)

a. Achieve haemostasis - EARLY surgical intervention or mechanical means to stop bleeding are STRONGLY recommended. Blood components are only supportive.
b. Adequate blood volume replacement (Central venous pressure greater than 6 mmHg and systolic pressure greater than 90 mmHg or mean blood pressure greater than 60 mmHg)
c. Maintain tissue oxygenation (provide supplemental oxygen; consider intubation)
d. Prevent acidosis and hypothermia (Maintain pH greater than 7.3 and normothermia)
e. Prevent coagulopathy (goal INR is less than or equal to 1.4)

Recommendations for ORDERING BLOOD COMPONENTS (not orders)

Red Blood Cells
- Advised to maintain haemoglobin 80 - 100 g/L in the face of ongoing bleeding
- Consider haemoglobin greater than 90 g/L if there is evidence of myocardial ischaemia

Platelet transfusion
- Maintain platelets greater than 50 x10^9/L (greater than 100 in the setting of intracranial or intraocular bleeding)
- Consider empiric platelet transfusion if platelet dysfunction is suspected

Frozen Plasma
- Maintain INR less than 1.4
- Transfuse 10 - 15 mL/kg (1000 - 1500 mL)
- Anticipate further needs based on ongoing losses as it can take up to 60 minutes to order, thaw and administer frozen plasma

Cryoprecipitate
- Frozen plasma is the fluid of choice to correct coagulopathy in severe bleeding
- Cryoprecipitate is RARELY necessary due to the presence of multiple factor deficits
- If the fibrinogen is less than 1.0 g/L but the INR is greater than 1.5 then consider plasma to correct multiple factor deficiencies

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