Rotation Goals
To manage the scope of critical care patients in a Medical-Surgical Intensive Care Unit
To become an effective Intensivist

I) Education Objectives

A) Patient Care
1) Fellows must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health.
   (a) Fellows must demonstrate competence in the practice of health promotion, disease prevention, diagnosis, care, and treatment of patients of each gender, from adolescence to old age, during health and all stages of illness;
      (i) Demonstrate caring and respectful behaviors when interacting with patients
      (ii) Gather essential and accurate information to evaluate patients with a variety of critical illnesses
         a. Obtain a comprehensive and accurate history of present illness for a variety of presentations of critical illness.
         b. In a comatose patient, the fellow should demonstrate the resourcefulness to utilize a number of information sources including patient’s family, friends and other health care providers.
         c. Identify historical facts that suggest an immediate threat to survival and be able to prioritize those needing immediate attention
         d. Demonstrate physical examination skills appropriate to the presentation
      (iii) Counsel and educate patients and their families
     (iv) Use information technology to support patient care decisions and patient education
     (v) Demonstrate an ability to work with a variety of health care professionals to provide patient-focused care
     (vi) Demonstrate effective communication through the informed consent process for minor procedures
2) Fellows must demonstrate competence in the prevention, evaluation and management of:
   (a) acute lung injury, including radiation, inhalation, and trauma;
   (b) acute metabolic disturbances, including over dosages and intoxication syndromes;
   (c) anaphylaxis and acute allergic reactions in the critical care unit;
   (d) cardiovascular diseases in the critical care unit;
   (e) circulatory failure;
   (f) detection and prevention of iatrogenic and nosocomial problems in critical care medicine;
   (g) diffuse interstitial lung disease;
   (h) disorders of the pleura and the mediastinum;
   (i) end of life issues and palliative care;
(j) hypertensive emergencies;
(k) iatrogenic respiratory diseases, including drug-induced disease;
(l) immunosuppressed conditions in the critical care unit;
(m) metabolic, nutritional and endocrine effects in critical illness,
(n) hematologic and coagulation disorders associated with critical illness;
(o) multi-organ system failure;
(p) obstructive lung diseases, including asthma, bronchitis, emphysema, and bronchiectasis;
(q) occupational and environmental lung diseases;
(r) perioperative critically-ill patients, including hemodynamic and ventilatory support;
(s) psychosocial and emotional effects of critical illness on patients and their families;
(t) pulmonary embolism and pulmonary embolic disease;
(u) pulmonary manifestations of systemic diseases, including collagen vascular disease and diseases that are primary in other organs;
(v) pulmonary vascular disease, including primary and secondary pulmonary hypertension and the vasculitis and pulmonary hemorrhage syndromes;
(w) renal disorders in the critical care unit, including electrolyte and acid-base disturbance and acute renal failure;
(x) respiratory failure, including the acute respiratory distress syndrome, acute and chronic respiratory failure in obstructive lung diseases, and neuromuscular respiratory drive disorders;
(y) sepsis and sepsis syndrome;
(z) severe organ dysfunction resulting in critical illness to include disorders of the gastrointestinal, neurologic, endocrine,
(aa) hematologic, musculoskeletal, and immune systems as well as infections and malignancies;
(bb) shock syndromes;
(cc) Sleep-disordered breathing; and,
(dd) the use of paralytic agents and sedative and analgesic drugs in the critical care unit.

3) Fellows must demonstrate competence in interpreting data derived from various bedside devices commonly employed to monitor patients, and data from laboratory studies related to sputum, bronchopulmonary secretions, pleural fluid;

4) Fellows must demonstrate competence in:
   (a) airway management;
      (i) Establishment of airway
      (ii) Maintenance of an open airway in a non-intubated, unconscious patient
      (iii) Ventilation by bag and mask
      (iv) Oral and/or nasotracheal intubation
   (b) the use of a variety of positive pressure ventilatory modes, including:
      (i) initiation and maintenance of ventilatory support;
      (ii) respiratory care techniques; and
      (iii) withdrawal of mechanical ventilatory support
   (c) the use of reservoir masks and continuous positive airway pressure masks for delivery of supplemental oxygen, humidifiers, nebulizers, and incentive spirometry;
   (d) flexible fiber-optic bronchoscopy procedures, including those where endobronchial and transbronchial biopsies, and transbronchial needle
aspiration are performed (each fellow must perform a minimum of 100 such procedures);
(e) diagnostic and therapeutic procedures, including paracentesis, lumbar puncture, thoracentesis, endotracheal intubation, and related procedures;
(f) use of chest tubes and drainage systems;
(g) insertion of arterial, central venous, and pulmonary artery balloon flotation catheters;
(h) Calibration, operation and interpretation of data from bedside hemodynamic monitoring systems;
(i) insertion of operation of bedside hemodynamic monitoring systems;
(j) emergency cardioversion;
(k) interpretation of intracranial pressure monitoring and transcranial Doppler data;
(l) nutritional support;
(m) use of ultrasound techniques to perform thoracentesis and place intravascular and intracavitary tubes and catheters; and,
(n) use of transcutaneous pacemakers.

5) Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence and clinical judgment specifically required for the diagnosis and treatment of critical illness
(a) Interpret an electrocardiogram and other appropriate laboratory tests that demand immediate attention.
(b) Integrate the interpretation of radiographic tests related to pulmonary diseases including chest roentgenograms, computed axial tomography (CT) scans, ventilation/perfusion studies and CT angiograms to provide a therapeutic plan for the patient.

6) Utilize ultrasonography at the bedside to optimize diagnosis and patient safety
(a) Body ultrasonography is an adjunct to physical exam and should be used when possible to increase diagnostic acumen
(b) Ultrasonography at the bedside should be used in real time to guide invasive procedures such as placement of central venous catheters, arterial catheters, thoracentesis and paracentesis

7) Develop and carry out patient management plans in association with the supervising physician
(a) Apply the skills listed above to provide or confirm a clear and concise resident admission note and assist the resident in the assessment and in developing a therapeutic plan.

8) Evaluation methods for this competency:
(a) Attending evaluation
(b) Associate ratings from residents, students and ICU nurses
(c) Chart stimulated recall sessions

B) Medical Knowledge
1) Demonstrate an investigatory and analytic thinking approach to clinical situations by applying an evidence-based medicine principles
2) Demonstrate a fundamental knowledge of the care of critical care medicine patients
3) Fellows must demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social behavioral sciences, as well as the application of this knowledge to patient care. Fellows:
(a) must demonstrate knowledge of the scientific method of problem solving, and evidence-based decision making
(b) must demonstrate knowledge of indications, contraindications, limitations, complications, techniques, and interpretation of results of those diagnostic and therapeutic procedures integral to the discipline, including the appropriate indication for and use of screening tests/procedures, and
(c) must demonstrate knowledge in the indications, contraindications and complications of placement of percutaneous tracheostomies
(d) must demonstrate knowledge of:
   (i) imaging techniques commonly employed in the evaluation of patients with pulmonary disease or critical illness, including the use of ultrasound;
   (ii) pericardiocentesis;
   (iii) percutaneous needle biopsies
   (iv) renal replacement therapy;
   (v) pulmonary function tests to assess respiratory mechanics and gas exchange, including spirometry, flow volume studies, lung volumes, diffusing capacity, arterial blood gas analysis, exercise studies, and interpretation of the results of bronchoprovocation testing using methacholine or histamine;
   (vi) pharmacokinetics, pharmacodynamics, and drug metabolism and excretion in critical illness;
   (vii) principles and techniques of administration and management of a MICU;
   (viii) ethical, economic, and legal aspects of critical illness;
   (ix) recognition and management of the critically-ill from disasters, including those caused by chemical and biological agents; and,
   (x) the psychosocial and emotional effects of critical illness on patients and their families.

4) Evaluation methods for this competency
   (a) Attending evaluation
   (b) Chart-stimulated recall sessions

C) Practice-based Learning and Improvement

1) Fellow must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning

2) Fellow must demonstrate the ability to investigate and evaluate their care of patients, to appraise and assimilate scientific evidence, and to continuously improve patient care based on constant self-evaluation and life-long learning

3) Fellows are expected to develop skills and habits to be able to meet the following goals.
   (a) identify strengths, deficiencies, and limits in one's knowledge and expertise;
   (b) Set learning and improvement goals;
   (c) identify and perform appropriate learning activities;
   (d) systematically analyze practice, using quality improvement methods, and implement changes with the goal of practice improvement;
   (e) incorporate formative evaluation feedback into daily practice;
   (f) locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems;
   (g) use information technology to optimize learning;
   (h) participate in the education of patients, families, students, fellows and other health professionals; and,
(i) obtain procedure-specific informed consent by competently educating patients about rationale, technique, and complications of procedures

4) Evaluation methods for this competency
(a) Attending evaluation
(b) Chart stimulated recall session

D) Interpersonal and Communication Skills
1) Create and sustain a therapeutic and ethically sound relationship with patients
2) Demonstrate effective listening skills
3) Elicit and provide information using effective nonverbal, explanatory, questioning and writing skills
4) Fellows must demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals.

5) Fellows are expected to:
   (a) communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds;
   (b) communicate effectively with physicians, other health professionals, and health related agencies;
   (c) work effectively as a member or leader of a health care team or other professional group;
   (d) act in a consultative role to other physicians and health professionals; and,
   (e) maintain comprehensive, timely, and legible medical records, if applicable.

6) Evaluation methods for this competency
(a) Attending evaluation
(b) Evaluations from ICU nurses, non physician providers and members of the multidisciplinary team

E) Professionalism
1) Fellows must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles
2) Fellows are expected to:
   (a) compassion, integrity, and respect for others;
   (b) responsiveness to patient needs that supersedes self-interest;
   (c) respect for patient privacy and autonomy;
   (d) accountability to patients, society and the profession;
   (e) sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation;
   (f) high standards of ethical behavior, including maintaining appropriate professional boundaries and relationships with other physicians and other health care team members, and avoiding conflicts of interest; and,
   (g) a commitment to lifelong learning, and an attitude of caring derived from humanistic and professional values.
3) Demonstrate a commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent and business practices
4) Evaluation methods for this competency
(a) Attending evaluation
(b) Evaluations from ICU nurses, non physician providers and members of the multidisciplinary team

F) Systems-based Practice
1) Fellows must demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care.
2) Understand how their patient care and other professional practices affect other health care professionals, the health care organization, and the larger society
3) Advocate for quality patient care and assist patients in dealing with system complexities
4) Fellows are expected to:
   (a) work effectively in various health care delivery settings and systems relevant to their clinical specialty;
   (b) coordinate patient care within the health care system relevant to their clinical specialty;
   (c) incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population based care as appropriate;
   (d) advocate for quality patient care and optimal patient care systems;
   (e) participate in identifying system errors and implementing potential systems solutions;
   (f) acquire the skills to organize, administer, and direct a critical care unit; and,
   (g) acquire the skills to organize, administer and direct are respiratory therapy section
5) Evaluation methods for this competency
   (a) Attending evaluation
   (b) Evaluations from ICU nurses, non physician providers and members of the multidisciplinary team

II) Teaching Methods

A) Clinical experience
1) Evaluate and manage all patients assigned to both CCM teams in the ICU (Red and White) overnight from 7 pm to 7 am.
   (a) The Night Fellow cares for all patients admitted to the Nebraska Medical Center Adult Intensive Care Units during the nights they are on-call and any patients transferred to their care. The CCM Red team cares for all Cardiovascular Surgery, Cardiology and Vascular Surgery patients admitted to the ICU. The CCM White team cares for all Neurosurgery and Neurology patients admitted to the ICU. The resident on-call will see all admissions and review these with the night fellow. The night fellow will be responsible for checking out all new patients in the morning to the fellow on the receiving service, CCM Red or CCM White.
2) Write or confirm a significant event note is written by the resident for any critical care patients on the CCM service who experience a change in condition overnight.
   (a) The fellow should inform the referring service (within 1 hour?) for any surgical patients experience a significant event overnight.
3) Perform those ICU procedures expected of an intensivist, e.g.; chest tube placement, central line and arterial line placement, and intubation for mechanical ventilation
(a) All invasive procedures require documentation in the medical record of procedural preparations including the consent process, confirmation that appropriate preparations have been made (including a Time Out), findings and complications.
(b) Perform all bronchoscopic procedures on patients on the CCM service.

B) Clinical Teaching
1) Critique presentation of clinical findings by the resident following each admission or transfer
2) Review ICU patient management with the resident following checkout rounds by the late-call (daytime) fellow.

C) Performance Feedback
1) Fellow and CCM attending physician will review these goals and objectives at the beginning of the rotation
2) CCM attending physician will provide ad hoc feedback on a regular basis
3) Fellow and the program director (or designee, e.g. CCM attending physician) will meet and provide written and verbal feedback at the completion of the rotation.

D) Self-Learning
1) The fellow is expected to read the primary literature to gather evidence in regards to current CCM problems
2) The fellow is expected to complete any readings assigned by the program director
   (a) Read the appropriate material from a Critical Care Medicine source covering airway management, central line placement, hemodynamic monitoring and sedation and paralysis.

III) Responsibilities
A) Fellow
1) First Year
   (a) The first year fellows rotate on this service for one month according to the rotation schedule
   (b) Responsibilities include all on-call responsibilities for the service including supervision of the resident on-call.
   (c) First year fellows must notify the CCM Attending of any admissions or transfers within one hour

2) Second Year
   (a) Each second year fellow rotates on this service for 6 weeks according to the rotation schedule
   (b) Responsibilities include all on-call responsibilities for the service noted below including supervision of the resident on-call.
   (c) Performance should reflect completion of the first year of fellowship
      (i) Competencies listed for first year fellows should be solid
   (d) Second year fellows should notify the CCM Attending of any admissions or transfers within one hour

3) Third Year
   (a) Each third year fellow rotates on this service for 6 weeks according to the rotation schedule
(b) Responsibilities include all on-call responsibilities for the service noted below including supervision of the resident on-call.
(c) Performance should reflect completion of the first year of fellowship  
   (i) Competencies listed for second year fellows should be solid
(d) Third year fellows must notify the CCM Attending of any admissions or transfers within one to two hours

B) Critical Care Medicine Attending
   1) Review these goals and objectives with the fellow at the start of the rotation along with any other expectations
   2) Provide direct or indirect supervision as appropriate for procedures performed by the fellow
   3) Provide instruction in the evaluation and management of CCM patients
   4) Be available to cover for the fellow when he/she is unavailable to supervise the residents on the service.
   5) The attending should be available for indirect supervision within 30 minutes of notification and should be able to come to the bedside for direct supervision or arrange coverage for that supervision within a reasonable time if requested by the fellow or if the acuity of the patient’s illness requires their presence.
   6) Each new admission to the service should be seen by the attending within 24 hours and preferably within 16 hours of admission.
   7) Complete a written evaluation and provide verbal feedback at the completion of the rotation

C) Service
   1) On Call Responsibility

      (a) Availability - Be available, in house, from 7:00 pm to 7:00 am
          (i) It is recommended that the fellow arrive in the ICU at the appointed time to evaluate the patients and attend to problems.
          (ii) For unstable or decompensating patients it is imperative that the resident, fellow and attending be readily available to come to the bedside so that the highest quality of care can be delivered.
          (iii) Be available when on-call, within five minutes, to respond to ICU staff (residents, nurses and/or respiratory care practitioners) regarding care for CCM patients
              (i) If there is a disagreement regarding patient care, between the resident on-call and the fellow on-call, the fellow must assess the patient personally and inform the attending on-call. The attending may be required to assess the patient personally to arbitrate the disagreement.
      (b) Check-out - The On-Call fellow will receive a check-out report on each patient on the service from the fellow going off-call and will give an updated check-out report to the fellows coming on-call the following morning.
      (c) Admissions - New patients to the service that are seen after-hours should be seen promptly by the resident who will, after making a quick assessment, call the fellow.
          (i) The CCM resident will see all new admissions and transfers to the service and call the fellow
          (ii) Fellows are expected to personally evaluate all new admissions or transfers to the CCM teams.
(iii) New admissions or urgent consults to the Pulmonary Consult service after hours will be seen by the Pulmonary resident on call or will need to be seen by the Pulmonary fellow if there is no resident on-call

(d) **Transfers** - The fellow is responsible for patient movement onto and off of the service.

(i) The fellow should receive all requests for transfer to the CCM team
   (i) The fellow may not refuse transfers to the team; if the fellow has questions about appropriateness of or stability for transfer the attending physician should be called to discuss this with the referring physician
   (ii) The fellow should assign patients to the residents to maintain intra-team balance and to triage specific service patients to the appropriate CCM team in the am.

(ii) The fellow is responsible for making sure that an appropriate handoff is made for patients transferring off of the service
   (i) The fellow is responsible for knowing which patients are priority transfers if an ICU bed is needed in times of high census
   (ii) The fellow must confirm that the resident caring for a patient transferring off of the service has called the receiving team and provided an adequate checkout
      a. The fellow will need to make the checkout call if the resident needs to leave due to work hour limitations; this responsibility cannot be delegated to another resident.

(iii) If there is a priority transfer out of the ICU after regular duty hours, the fellow must be notified by the resident on-call.

(e) **Supervision of the Resident On-call** - Supervise the evaluation and management including mechanical ventilation of each patient admitted to the CCM service and confirm appropriate documentation.

(i) The fellow is responsible for supervision of care by the resident, and emphasis should be placed upon direct supervision when diagnosis, treatment or patient stability is unclear.

(ii) Review all the primary findings for each new admission such as the physical exam, laboratory, consultations and x-ray studies with the Residents and/or Students. As the designee of the CCM Attending, the fellow will be expected to initiate discussion and decisions regarding patient care, especially for new or unstable patients, or those for whom an early decision is required for patient care (e.g. orders for extubation following completion of a successful spontaneous breathing trial)

(iii) The fellow must expedite intervention if necessary and help the residents and students think through the reasoning behind the plan.

(iv) Communicate with patients and families about diagnoses and prognoses on an ongoing basis.

(f) **Patient Care** – The fellow must expedite intervention if necessary and help the residents and students think through the reasoning behind the plan.

(i) The fellow should take on the role of directing evening work rounds with the resident.

(ii) Briefly review all of the patients who are on the service with the nurses, and house officers. This can be accomplished by asking the lead nurse if there are any pressing issues in their unit. They may be able to provide an early warning of developing clinical problems.
(iii) The fellow should have in depth knowledge regarding the daily assessment and plan for each patient and considering discussing these plans with the patients’ nurse and the on-call resident. The third year fellow should act as a junior attending and is expected to formulate a reasonable plan and review it with the Attending if necessary prior to implementation.

(iv) Communicate with patients and families about diagnoses and prognoses on an ongoing basis.

(g) Procedures – Demonstrate competency in all medical and invasive procedures performed on this rotation

(i) Supervise all resident procedures done on the CCM service

(ii) Perform or directly supervise all invasive procedures and make sure that a time out is taken and documented. These include but are not limited to intubation, arterial line placement, central line catheter placement, chest tube placement and pulmonary artery catheter placement. If for some reason the fellow is not able to perform these duties, they must alert the Attending so that the Attending can come to supervise or arrange a surrogate. All bronchoscopies, chest tube placements and pulmonary artery catheter placements must be performed with the faculty in attendance at the bedside. The fellow must enter a note for all procedures they perform. When a pulmonary artery catheter is placed, the fellow is responsible for entering a procedure note that includes all pertinent pulmonary artery catheter data from the procedure. All notes and forms must be timed and dated. The fellow needs to document all procedures performed or supervised in their procedure log on New Innovations.

(iii) Obtain informed consent for all fellow-level procedures, eg bronchoscopy, chest tube thoracostomy, etc. and arrange for any ancillary support for the procedure.

(i) All fellow-level procedures require direct supervision by faculty

(h) Notification of the Attending – New admissions and transfers should be called to the attending as noted above in Responsibilities.

(i) Alert the CCM Attending within 1 hour about any changes in patients who are critically ill, for all deaths and for any potential problems with staff or with interactions with patients and their families.

(ii) Alert the attending physician about patients who qualify for ongoing research protocols and participate in ongoing trials when possible.

(iii) For patients referred to the CCM service by other services, the resident or staff physician for that service must be informed of any critical changes in their patients at the earliest convenience and any deaths of their patients.

2) Vacation

(a) No extended vacation time may be taken during this rotation. The fellow may request up to 4 days off but must arrange coverage. This coverage will require approval by the CCM attending, the supervisor of the fellow providing the coverage and the Program Director.

(b) Emergency leave may be requested after discussion with the Program Director or surrogate (CCM attending physician)
IV) Method of Evaluation

A) Formative

1) The Critical Care Medicine Attendings should give feedback throughout the rotation.
2) The program director will prepare a written evaluation of the fellow at the conclusion of the rotation.
   (a) This evaluation will assess the six general competencies as outlined by the ACGME and on the form provided.
   (b) The fellow should review the assessment personally. This is best done in the presence of the program director or designee.
3) At the conclusion of the fellow’s service period, he/she should complete an evaluation form assessing the quality of the rotation.

V) Readings

A) Readings are from the ATS Reading List found at:
   (a) http://www.thoracic.org/sections/career-development/fellows-and-fellowships/ats-reading-list-intro.html