

Clinical Informatics Curriculum

Medical Student Elective
Madigan Healthcare System

Description of Rotation or Educational Experience

Clinical Informatics is an elective rotation for medical students. During this four week rotation, medical students will rotate through the Clinical Informatics Department. The students will interact with the clinical systems, business intelligence, development, hardware and training divisions. During this rotation, the student will work one on one with the Clinical Informatics Fellowship Director, one or more Fellows and one or more members of the Clinical Informatics Division.

There is normally no outpatient component to this rotation, but an outpatient experience could potentially be arranged within one of the three primary care clinics (IMC, FMC or Pediatrics) at the request of the rotating student or as a requirement of the medical school.

Attendance is mandatory at the departmental and Fellowship meetings, and Clinical Informatics will be the student's place of duty during the duty day. Overnight call or weekend coverage is not required.

Rotational Goals

- During the clinical informatics rotation, students are expected to learn the following:
 - What Clinical Informatics is and is not
 - The basics of business intelligence
 - The basics of effective Health IT training
 - The difference between various Health IT lifecycle processes
 - Foundations of Health IT management
 - Basics of change management and its importance to Health IT outcomes
 - The basics of the Health IT systems used by DoD and how to apply that knowledge to patient care
 - The basics of Clinical Decision Support
 - Basic knowledge of MHS GENESIS and JLV

Patient Care

Goal

As stated, there is no requirement for direct patient care within the elective rotation schedule. If the students do desire a patient care experience, or if it is required by the medical school, it will be performed within one of the primary care clinics (IMC, FMC, Pediatrics) by prior arrangement. The following specifications apply.

Students must be able to provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health. Students are expected to:

Competencies

- Gather accurate and essential information in the performance of history and physical examinations based on chief complaints.
- Exhibit caring and respectful behavior towards patients and their families.
- Use informed decision making to develop and carry out patient management plans.

Objectives

- The student will demonstrate the ability to take relevant clinical data and formulate a thorough differential diagnosis and treatment plan and discuss appropriate preventive care recommendations with patients, as measured by a staff chart review and end-of-rotation global competency evaluation.
- This is expected to meet the performance standards consistent with their level of training.

- Assessment will be performed by the faculty within one of the primary care departments.

Clinical Informatics Knowledge

Goal

Students must demonstrate knowledge of the domain represented by Clinical Informatics and why it is important to patient care. Students are expected to:

Competencies

- Demonstrate knowledge of the difference between Clinical Informatics and other Information Management domains.
- Demonstrate an understanding of business intelligence and how it can be applied to the clinical arena.
- Demonstrate an understanding of why both effective training and clinical workflow analysis are critical to the successful implementation of Health IT systems.
- Demonstrate an understanding of information systems lifecycle processes and methodologies, such as Waterfall, Agile, COOP/DR, governance, portfolio management and IV&V.
- Demonstrate an understanding of how Health IT systems should be managed.
- Demonstrate an understanding of change management and how it applies to Health IT systems
- Demonstrate an understanding of MHS GENESIS (Cerner Millennium), PACS (Synapse®), the Joint Legacy Viewer (JLV) and other Health IT systems used by DoD
- Demonstrate a basic understanding of Clinical Decision Support and how that can be applied to patient care
- Demonstrate a basic ability to use Dragon Naturally Speaking, AsUType, and other supporting applications

Objectives

- The student will demonstrate knowledge of the above competencies by verbal assessment/interaction with the Fellowship Director or his designee (a Senior Fellow).

Practice- Based Learning and Improvement

Goal

Students must demonstrate the ability to investigate and evaluate their core knowledge of and competencies within Clinical Informatics based on feedback from others and self-evaluation. Students are expected to develop skills and habits to be able to:

Competencies

- Identify strengths, deficiencies and limits in one's knowledge and expertise.
- Use information technology to optimize learning.

Objectives

- The student will acquire, appraise, and apply information from the Informatics literature to expand and solidify their knowledge of Informatics and ability to apply that knowledge in "real-life" situations, which includes teaching others.

Systems Based Practice

Goal

Students must demonstrate an awareness of and responsiveness to the larger context and system of health care. Health IT and Informatics relate directly to patient care, care coordination, information sharing and health outcomes. Students are expected to:

Competencies

- Understand how Health IT should work effectively in various health care delivery settings and systems relevant to clinical care and their clinical specialty.
- Advocate for quality patient care and optimal patient care Health IT systems.

Objectives

- The student will understand the interaction of Health IT and Informatics within the larger system from their experience during this rotation.
- That understanding will be ascertained by verbal interactions with the Clinical Informatics staff, Fellowship Director and Fellows.

Professionalism

Goal

Students must demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles. Students are expected to demonstrate:

Competencies

- Consideration and respect for others...both internal and external customers.
- Respect for patient privacy and autonomy as it relates to Health IT systems.

Objectives

- The student will demonstrate respect, consideration, integrity, and responsiveness to customer needs that reflect what the student would desire if the situation were reversed.
- The student will demonstrate personal accountability for their education and profession by attending all required conferences, lectures, and discussions, as measured by a lecture attendance log and end-of-rotation verbal competency evaluation.

Interpersonal and Communication Skills

Goal

Students must demonstrate interpersonal and communication skills that result in the effective exchange of information and teaming with internal and external customers as well as professional associates. Students are expected to:

Competencies

- Communicate effectively with Health IT end users about Health IT systems and change management
- Communicate effectively with peers within the Clinical Informatics and Information Management Departments.
- Communicate effectively with senior leadership about Clinical Informatics and Health IT systems

Objectives

- The student will demonstrate effective communication with Health IT systems end users to help them understand the systems and employ effective change management, as measured by a multi-rater (360 degree) evaluation and direct observations of his/her interactions.
- The student will demonstrate effective communication with professional peers within the Clinical Informatics and Information Management Departments, as measured by a multi-rater (360 degree) evaluation and direct observations of his/her interactions.
- The student will demonstrate effective communication with senior leadership to help them understand Health IT systems and employ effective change management, as measured by a multi-rater (360 degree) evaluation and direct observations of his/her interactions.

Teaching Methods

1. Person-to-person practice-based education
 - a. Daily teaching by Clinical Informatics staff during and after internal and external customer interactions. All students will discuss the various aspects of the Clinical Informatics domain (training, workflow analysis, development, business intelligence, etc) with their assigned faculty during and after any internal or external customer interactions.

2. Didactic education sessions
 - a. Orientation: On the first day of the rotation, the transitional intern will receive an orientation by the Fellowship Director or assigned Fellow.
 - b. Reading Assignments: The student will be given articles and/or textbooks to review.
 - c. General Didactic Lectures: Frequently throughout the rotation, the Clinical Informatics staff (mostly the Fellowship Director and Fellows) will focus on general didactics lectures to ensure all foundational material is covered during the course of the rotation.

Assessment Method (Students)

- Students will be evaluated on ACGME core competencies using these methods:
 1. Daily: All students will be evaluated daily on their grasp of the Clinical Informatics domain staff or Fellows. Students should ask the Clinical Informatics staff or Fellow for direct feedback on their performance on a regular basis. Any deficiencies will be discussed with the Student early in the rotation to allow for corrections and improvement in understanding and ability to apply knowledge.
 2. Mid-Month Evaluation: On the first day of the rotation, students will be assigned a mid-rotation evaluation date and time scheduled for two weeks after the start of the rotation with the Fellowship Director or assigned Fellow. The Director or fellow will compile the feedback from other members of the Clinical Informatics Department and provide a summative performance evaluation verbally and in writing. During this meeting, the staff will provide a summary of the Student's strengths and areas needing improvement.
 3. Student Presentation: At the beginning of the rotation the students will select a Clinical Informatics topic to present to Clinical Informatics staff and Fellows at the completion of their rotation.
 4. End of Rotation Global Competency Evaluation: Students will receive an electronic evaluation of their performance through MyEvaluations at the end of each rotation. The faculty will evaluate Students on the ACGME CI core competencies by oral evaluation at the end of the rotation.

Assessment Method (Program Evaluation)

- Anonymous Student Feedback: Students will anonymously evaluate both the **rotation** and at least one **faculty** member using MyEvaluations after each rotation. Additional faculty evaluations can be requested by the Students if they worked with other faculty. Evaluations are used to improve the rotation and program.
- Attainment of Competence: The success of the rotation as an educational experience will also be judged on the Student's attainment of competence. Changes in the rotation will result from either new needs of the learners (an ongoing needs assessment by the program) or failure of students to attain competence of the rotation specific objectives.

Level of Supervision

- The Student is supervised by a staff physician (Fellowship Director or Fellow) at all times, though patient care is not provided within the Clinical Informatics Department.

Educational Resources

- Madigan medical library: Online references are available <https://portal.wrmc.amedd.army.mil/mamc/erd/MEDLIB/> using Student laptops or any hospital computer.
- Clinical Informatics library: Print references are available from the Clinical Informatics Department at any time during the rotation to check out and use at home.
- Online Clinical Informatics Textbook: A Clinical Informatics Web-based textbook is available via Dropbox to the student's personal e-mail address. An electronic version of the text will eventually be available from the MAMC Medical Library to check out and read during the rotation.
- Clinical Informatics online resources: ACGME Clinical Informatics core competencies and other online references are available via the Clinical Informatics Fellowship section of the USAFP Web site (www.usafp.org) and from either the Program Director or Program Coordinator

Student Documentation Responsibilities

- Orientation Checklist: Meet with the Fellowship Director or designated Fellow on the first day of the rotation to review the goals and objectives and receive a rotation orientation. Return the orientation checklist at the mid-cycle evaluation and at the end of the rotation to ensure all topics have been covered.
- Duty Hour Sheet: Complete the MyEvaluations duty hour questionnaire and DMHRSi worksheet as outlined in the program handbook.

Rotation Schedule

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0800-1200: CI	0800-1200: CI	0800-1200: CI	0800-1200: CI	0800-1200: CI
1300-1630: CI	1300-1630: CI	1300-1630: CI	1300-1630: CI	1300-1630: CI

Orientation Checklist CI Student Rotation

STAFF SECTION:

At the beginning of the rotation, the student met with the designated staff and received an orientation to the rotation and curriculum. The checked items below were discussed.

- The student was oriented to the layout of the department. The protocols and organization of the department were discussed.
- The student was introduced to the team who he or she will be working with during the rotation.
- The student was introduced to staff and administrators who can assist with any needs during the rotation.
- The goals and objectives of the curriculum were discussed with the student and all questions were answered about the rotation.
- The student was given an opportunity to shadow all the staff and observe assignments.
- I have chosen the days below that I plan to meet with the student for mid-rotation feedback in two weeks, and end of the rotation feedback at the conclusion of the rotation. At that time, I will give the student feedback and highlight positive areas and areas needing improvement. I will also complete all evaluation forms which will be forwarded to the medical student's school officials as required.

- Mid-rotation feedback: Date- _____ Time- _____
- End of rotation feedback: Date- _____ Time- _____

Printed name of staff physician

Signature of staff physician

Date

STUDENT SECTION:

I have received my orientation to the rotation and curriculum and know my date and time to meet with the designated staff for my mid-rotation and end of rotation feedback. I will return this completed form signed by the staff and myself to the CI Program Coordinator to be forwarded to my medical school NLT 3 working days after the start of the rotation. If I did not receive an orientation or scheduled meeting times due to fault that was not my own, I will report this to my medical school within the 3 days.

Printed name of student

Signature of student

Date