INTRODUCTION
To function optimally, health care systems require data and the information that can be derived from it. Informatics brings together the people, data and technology to study, organize and communicate information in meaningful ways. Informatics that is focused on clinical practice, health care delivery and patient care plans is known as clinical informatics.

Clinical informatics is concerned with the optimal use of information, aided by the use of technology, to improve:
- Individual health
- Patient care
- Patient safety
- Public health
- Biomedical research

Informatics touches the work of all clinicians, whether they’re accessing data in the EHR, interacting with decision support tools or analyzing medical images.

ELECTRONIC HEALTH RECORD (EHR)
Research has shown that incomplete and illegible paper-based medical records lead to medical errors, suboptimal quality of care and non-adherence to evidence-based practices. The use of the EHR has transformed health care delivery, and with today’s technology, accurate data can now be shared between multiple physicians, other health care professionals and health care institutions. The information that can be extracted from EHRs is a powerful tool for continuous quality improvement and positive health outcomes.

USING CLINICAL DATA
Informatics can be used to answer questions or inform decisions on any component of the health care system that can be described by data. Physicians can analyze data to look for ways to:

- Improve overall health care quality
- Increase productivity
- Reduce/prevent medical errors
- Reduce costs
- Increase administrative efficiencies
- Improve real-time communication between physicians and other health care professionals
- Improve patient outcomes
- Strengthen patient-physician relationships
WHERE DOES THE DATA COME FROM?

Data can be found throughout the health system:

<table>
<thead>
<tr>
<th>Electronic Health Record (EHR)</th>
<th>Computerized Provider Order Entry (CPOE)</th>
<th>Personal Health Record (PHR)</th>
<th>Wearable medical devices</th>
<th>Bed management systems</th>
<th>Health Information Exchange (HIE)</th>
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<tbody>
<tr>
<td>The systematized collection of patient and population health and clinical data.</td>
<td>An electronic system for medication ordering.</td>
<td>The patient-controlled component of the health record.</td>
<td>Provide medical monitoring or support over a prolonged period of time.</td>
<td>An application that tracks the distribution and availability of beds and monitors all associated data available from the services connected to the bed.</td>
<td>The exchange of information across the boundaries of health care organizations within a region, community or system or the organizations that facilitate those exchanges.</td>
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EVIDENCE BASED MEDICINE & CLINICAL INFORMATICS

Evidence based medicine (EBM) helps clinicians to stay current, uses real-time data to help make care decisions and ultimately helps to improve quality of care and patient outcomes. The practice of EBM uses these steps:

<table>
<thead>
<tr>
<th>STEP 1: ASK a critical question</th>
<th>Example: What is the best approach to screening for heart disease?</th>
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<tr>
<td>STEP 2: ACQUIRE the best evidence</td>
<td>Quality evidence is identified as being peer-reviewed and unbiased.</td>
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<td>STEP 3: APPRAISE the evidence</td>
<td>Ensure that you are utilizing the best available evidence and that it’s applicable to the population and the question.</td>
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<td>STEP 4: APPLY the evidence</td>
<td>Apply the evidence to patient care and daily clinical practices once it passes the appraisal step.</td>
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<td>STEP 5: ASSESS your performance</td>
<td>Did the new evidence improve patient outcomes?</td>
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QUESTIONS TO ASK:

- Can you recall a situation in which your clinical decisions or treatment plan relied heavily upon clinical data?
- What do you think are some of the challenges facing the world of clinical informatics?
- How might you improve the accuracy of your data entry into an electronic health record?
- In what ways do you see clinical informatics impacting how you provide health care?