The "Virtual Practice":
Educational Applications of Electronic Medical Record Systems

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Introduction

Appropriate use of electronic medical record (EMR) systems can improve the quality of health care and support cost-conscious, evidence-based practice. Well-designed EMR systems are powerful tools for gathering, organizing and communicating massive amounts of information from paper-based records into searchable databases to support effective, efficient, timely, safe, equitable, patient-centered care. Despite these benefits, only 3-5% of physicians use even basic automated record systems. We are adapting a commercially available EMR system to create a Web-based "virtual practice" (VP) populated with simulated patients as a tool for health professions educators to teach facts, concepts, principles and skills needed for high-quality patient care, while assessing student competencies in an error-free environment. Meanwhile, as students use the EMR to learn, they learn to use the EMR as a routine and preferred instrument for providing, documenting, coordinating and assessing care, thereby easing the culture shift to new information technology.

What is the "Virtual Practice"?

The VP is a health professions educational innovation that employs a prototype EMR system (Logician, General Electric Medical Systems) containing a set of "virtual patients". Students demonstrate their knowledge and skills by gathering data, using decision support tools, generating assessments and providing care, alone or in multidisciplinary teams, to individuals or populations to reinforce curricular content and demonstrate emerging competencies.

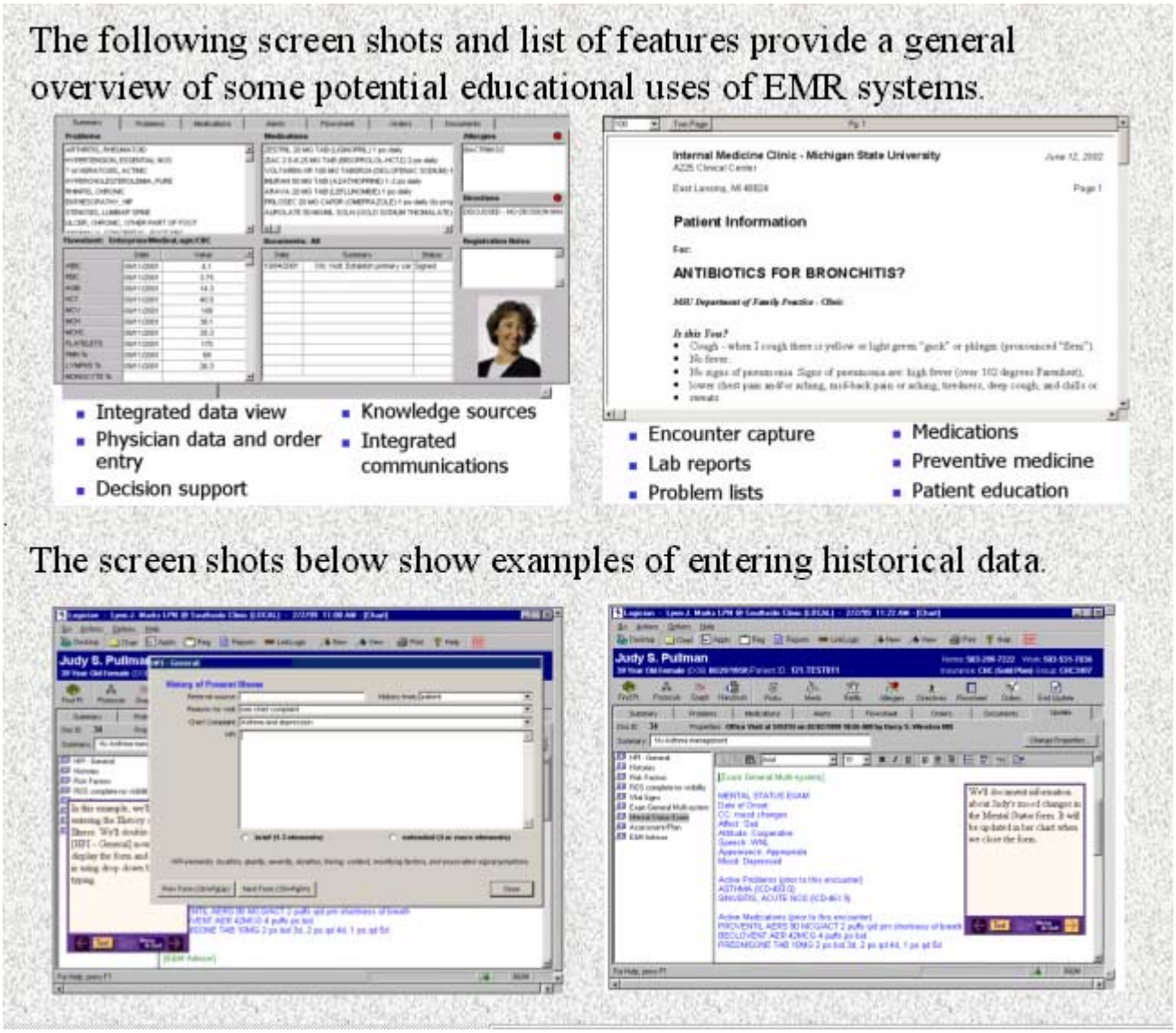
Implementation

The VP will consist of a hardware and software infrastructure, "virtual patient" data, and links to curricular elements, information resources and decision support tools. Student interact with simulated patients, other training colleagues and instructors. Pilot implementation is planned for Fall 2002.

Integration with Handheld Computing Technology

The Logician EMR can also be adapted for use on a handheld computer, along with electronic textbooks, calculators and decision support tools to give students rapid access to information resources.

EMR Features



Handheld Computing

These are examples of information resources and decision support tools that can be used along with Logician handheld computers. Students will need instruction and experience to use these tools effectively for patient care.

Pilot Projects Planned

2002-2003:
Advanced Medicine Clerkship - Year 4

Clinical Skills – Year 2

2003-2004:
Problem-based Learning cases – Year 2
Core clerkships – Year 3

Conclusions

Implementing the VP will allow application of basic science concepts and clinical skills training to the care of virtual patients in error-free clinical settings. Query of the VP patient data warehouse will allow us to develop performance reports that allow us to document emerging competencies of individual students, teach principles of practice-based learning and improvement, and inform future curricular innovations to promote health care that is effective, safe, timely, patient-centered, efficient and equitable.