

Implementation of Electronic Health Records in the First Professional Year

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Objective

To implement electronic health records (EHRs) into various courses in the first-year didactic course work of a new integrated curriculum at an established pharmacy program.

Background

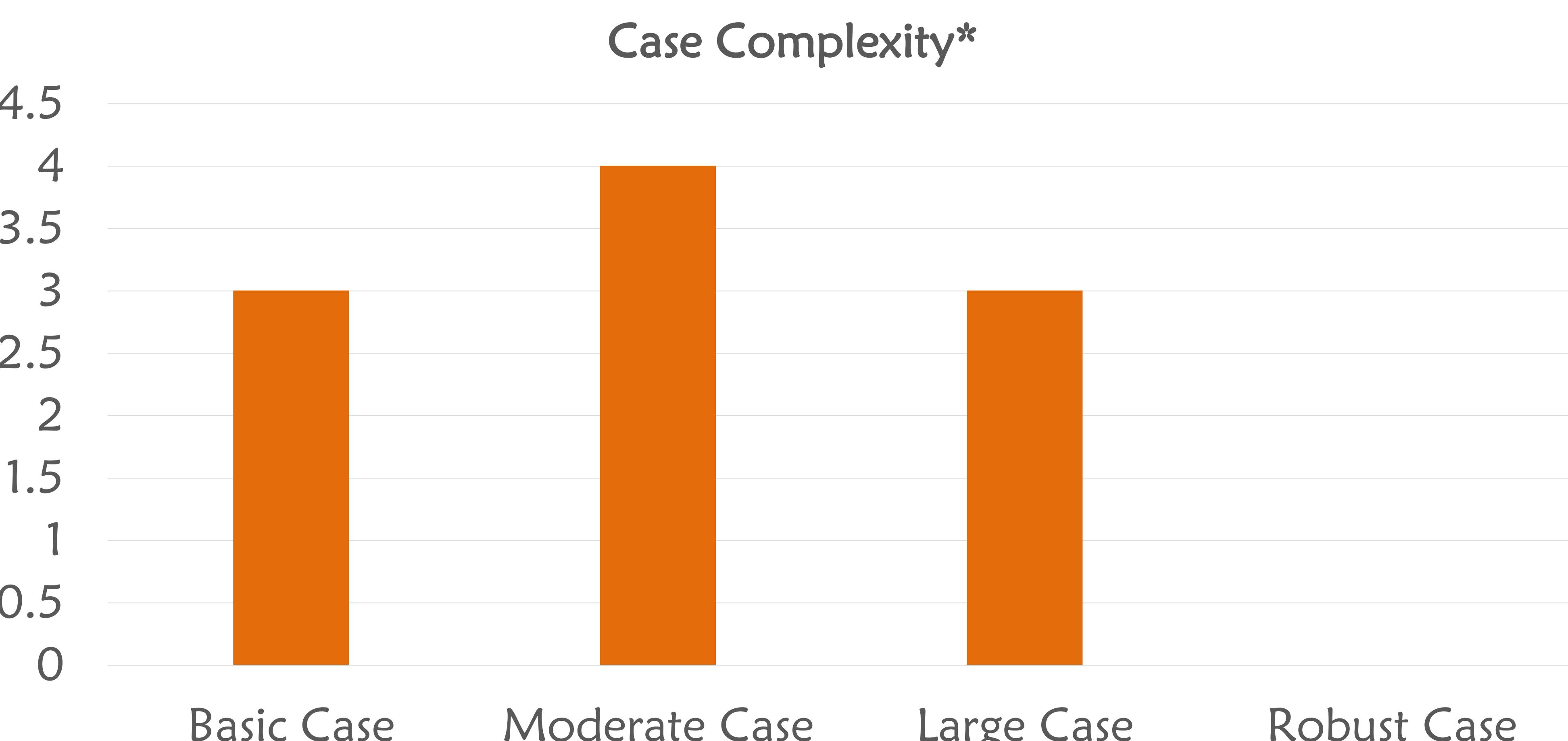
Fall Semester	Spring Semester
Pharmacy Seminar I	Pharmacy Seminar II
Biomedical Foundations I & II	Integrated Pharmacotherapy <i>Infection & Immunity</i> <i>Endocrinology</i>
US Health Care	Literature Evaluation I & II
Pharmacy Practice Skills I & II	Pharmacy Practice Skills III & IV
Personal/Professional Development I & II	Personal/Professional Development III & IV
Pharmaceutics, Pharmacokinetics & Calculations I & II	Pharmaceutics, Pharmacokinetics, & Calculations III & IV
Principles of EBM	

Methods

The use of a teaching focused EHR (Neehr Perfect®) was implemented in various courses in the first professional year of a new pharmacy curriculum in order to longitudinally impart the skills of identifying relevant patient information and making clinically-sound recommendations. Courses which used an EHR include Pharmacy Practice Skills courses, Introduction to Evidence-Based Medicine, and Integrated Pharmacotherapy. The implementation plan includes the development of 8 individual patient cases with escalating degrees of complexity. Data regarding faculty involvement, time of use, complexity/difficulty of cases, and disease states covered were gathered. Descriptive data are provided.

Results

Faculty trained	6
Average faculty training time	0.5 hours
Courses which used EHRs	4 (Pharmacy Practice Skills x 10 & Evidence-Based Medicine x 1)
Number of patients created	17
Class sessions using EHRs	11 sessions
Average time to create patient (range)	~1.2 hour (0.5 – 3 hours)



*Basic case: “1 clinical problem”, Moderate case: “2-3 clinical problems”, Large Case “4 or more clinical problems”, Robust case: “multiple problems occurring over patients entire course of stay”

Disease States

Diabetes
Hypertension
Dyslipidemia
Urinary tract infection
Skin and soft tissue infection
Community-acquired pneumonia
Hypothyroidism
Acute kidney injury
Pharmacy calculations

The total cost of adopting the EHR was \$10,920 for the 104 P1 students enrolled in the 2017-2018 year. This is equivalent to \$6.17 per student for each patient case experience. The total faculty time spent creating cases, including training, was 20 hours (approximately 3 hours per faculty member).

Discussion

- The use of an EHR within a PharmD program can provide a well-rounded clinical experience even for first-year student pharmacists, but the cost may be prohibitive for some programs.
- Ensuring the program is utilized appropriately and extensively within the curriculum aids in justifying the cost.
- The utilization of academic EHRs is likely more beneficial when it coincides with courses that focus on therapeutics.
- However, further implementation into courses involving ethics, drug safety, and laboratory values are other ways to increase utilization of the program.
- Utilization in other courses may also increase student buy-in within courses that are not focused intensely on pharmacotherapy.
- Our experience implementing EHRs in the skills lab proved to be minimally prohibited by faculty time commitment in creating cases and resulted in a wide variety of patient-case experiences.
- Implementing EHR cases with faculty members who are eager to learn new technology aided in the success of this initiative.

Implications

EHRs can be extensively utilized in a skills course within the first professional year of a pharmacy curriculum. With further experience, they may be more utilized in other courses.