

# Student perceptions and confidence pre and post EHR implementation in an institution based pharmacy skills lab

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## Background

As of 2015, 95% of all eligible and critical access hospitals participating in CMS electronic health record (EHR) incentive programs have demonstrated meaningful use of health IT.<sup>1</sup> The growing use EHR technology in hospital settings reinforces the need for EHR exposure as an essential component of a practice ready graduating pharmacy student. The Accreditation Council for Pharmacy Education (ACPE) 2016 standards stress the importance of graduating practice ready pharmacists.<sup>2</sup> Unfortunately, many advanced pharmacy practice experiences (APPEs) for students, limits their access to hospital-based EHRs. In particular, students are not provided the opportunity to directly process medication orders as a pharmacist in the health-systems setting. Therefore, it is incumbent upon pharmacy schools to provide this education.

## Objectives

To measure student confidence regarding inpatient medication order processing after implementation of EHR technology. To measure student perception of EHR technology to facilitate data collection for SOAP note writing.

## Methods

Pre and post implementation surveys were administered during regular class time to second year (P2) doctor of pharmacy students enrolled in the institution-based skills laboratory course, and responses were paired. Survey items were grouped into four sections including: background information, confidence in order processing skills, confidence in data collection for the purpose of writing a SOAP note and opinions regarding EHR technology. Confidence and opinion questions were evaluated on a 5 point Likert scale. Open ended questions were used for course improvements. Statistical significance was measured by the Wilcoxon signed-rank test.

### Survey Questions

#### Rate your confidence in the following areas:

Selecting the correct patient in the EHR  
Identifying drug-drug interactions  
Identifying duplicate therapy  
Detecting drug allergies  
Resolving range orders

#### Rate your confidence in the following areas:

The ability to locate SUBJECTIVE information in the EHR  
The ability to locate OBJECTIVE information in the EHR  
The ability to write a SOAP note

#### Rate your confidence in the following areas:

The EHR is an important part of pharmacy education  
The EHR will prepare me for IPPE and APPE rotations  
I would like to see the use of the EHR continue in future years

## Results

Pre and post-survey paired data was available for 108 students. The majority of students had retail experience (75.8%) and 55.6% of students had no prior exposure to EHR technology. There was a statistically significant difference in student confidence regarding inpatient medication ordering skills ( $p < 0.0001$ ). There was also a statistically significant difference in student confidence regarding the ability to collect information to write a SOAP note ( $p < 0.0001$ ). Approximately one-third of students either somewhat agree or strongly agreed that the EHR technology should continue in future years (28.7%, 29.6% respectively)

**Table 1: Student Confidence in Medication Order Processing Pre and Post EHR Implementation**

		Likert Scale 1 – Least Confident	2	3	4	Likert Scale – Most Confident	P value
1 – Selecting the correct patient	Pre %	14.2	16	17	25.5	27.4	$p < 0.0001$
	Post %	0.93	0.93	4.63	9.26	84.3	
2 – Identifying a clinically relevant drug-drug interaction	Pre %	28	39.3	25.2	5.61	1.87	$p < 0.0001$
	Post %	13.1	20.5	36.4	20.5	9.35	
3 – Identifying duplicate therapy	Pre %	21.6	29	32.7	14	2.8	$p < 0.0001$
	Post %	8.41	13.1	29.9	33.6	15	
4 – Detecting a drug allergy	Pre %	21.5	29.9	27.1	18.7	2.8	$p < 0.0001$
	Post %	2.8	3.74	16.8	33.6	43	
5 – Resolving range orders	Pre %	46.7	31.8	13.1	5.51	2.8	$p < 0.0001$
	Post %	6.54	6.54	23.4	33.6	29.9	

**Table 2: Student Confidence in writing SOAP notes Pre and Post EHR Implementation**

		Likert Scale 1 – Least Confident	2	3	4	Likert Scale – Most Confident	P value
The ability to collect subjective information	Pre %	23.1	20.4	31.5	22.2	2.78	$p < 0.0001$
	Post %	7.48	14	27.1	29.9	21.5	
The ability to collect objective information	Pre %	22.2	21.3	25.9	24.1	5.56	$p < 0.0001$
	Post %	6.54	7.48	21.5	35.5	29	
The ability to write a SOAP note	Pre %	13	29.5	42.5	13.9	0.93	$p < 0.0002$
	Post %	12.3	11.3	38.7	29.2	8.49	

## Conclusions

Exposure to EHR technology improved student confidence in their ability to process inpatient medication orders and collect relevant information for writing a SOAP note. These findings support the continued use of an EHR platform in skills-based activities.

## References

- Office of the National Coordinator for Health Information Technology. 'Hospitals Participating in the CMS EHR Incentive Programs,' Health IT Quick-Stat #45. [dashboards.healthit.gov/quickstats/pages/FIG-Hospitals-EHR-Incentive-Programs.php](https://www.healthit.gov/quickstats/pages/FIG-Hospitals-EHR-Incentive-Programs.php). February 2016.
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