

# Adoption of Mobile Technology in Anesthesia Workflows: A Quantitative and Qualitative Analysis

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## INTRODUCTION

- Electronic medical records (EMRs) as assessed through desktop-based applications are widely available and utilized
- Mobile-based EMRs offer convenient access to information regarding patient investigation status and conditions<sup>1</sup>
  - e.g. Haiku (Epic's mobile application for providers)
- Within the field of anesthesiology, mobile-based EMRs can serve as:
  - Anesthesia information management systems
  - Patient handoff guides
- Present study focuses on exploring the **usage of and barriers to** mobile-based EMRs within the anesthesia workflow

## METHODS

- Retrospective case-control study at Vanderbilt University Medical Center (VUMC).
- Population: All clinical providers within the Department of Anesthesiology at VUMC.
  - Controls (Mobile EMR Adopters):** Providers who have logged onto Haiku within past 30 days.
  - Cases (Mobile EMR Non-Adopters):** Providers who have not logged into Haiku within past 30 days.
- Quantitative Analysis**
  - Data: user role, National Provider Identifier (NPI), SmartTool usage (SmartPhrases, SmartTexts, SmartSets), recent Haiku application usage
  - NPI used to query NPPES NPI Registry for provider gender and NPI enumeration date
  - SmartTool usage extracted to generate score from 0 to 4 to serve as proxy for technology savviness
  - Multivariate logistic regression fitted
- Qualitative Analysis**
  - 16 item questionnaire adapted from existing, validated instrument, using modified Delphi method<sup>2</sup>
  - Questionnaire distributed to non-adopters between April and May 2021
  - Frequency distribution of responses analyzed

## RESULTS

Table 1. Logistic Regression Fit Parameters

	Reference Category	Odds Ratio (95% CI)	p-value
<b>Provider Role</b>			
Resident	Attending	3.554 (1.301, 9.709)	0.013
CRNA		2.060 (1.104, 3.845)	0.023
<b>Gender</b>			
Female	Male	1.145 (0.686, 1.909)	0.605
<b>Years in Practice</b>			
5-10 years	0-5 years	0.570 (0.255, 1.276)	0.172
10-15 years		0.496 (0.232, 1.062)	0.071
15+ years		0.730 (0.243, 2.189)	0.574
<b>SmartTool Usage</b>		1.119 (0.812, 1.541)	0.491

- 490 clinical providers. 107 Student Registered Nurse Anesthetists excluded.
  - 88 physicians (24%)
  - 72 residents (20%)
  - 202 Certified Registered Nurse Anesthetists (CRNA; 56%)
- 266 have recently used Haiku (73.5%). 55 have not used Haiku within past 30 days (15.2%). 41 have never used Haiku (11.3%).
- Questionnaire Highlights
  - Response rate 25.2%
  - 59% disagreed that Haiku would improve job performance
  - 56% were worried about draining phone battery
  - 56% were worried about having VUMC applications on personal phone
  - 63% would use Haiku if provided a smartphone

## CONCLUSION

- Provider characteristics including resident or CRNA role increase likelihood of mobile EMR use
- Non-adopters do not believe that mobile EMR use would increase job performance
- Institutionally provisioned devices are likely to increase use of mobile EMR within anesthesia workflow

## REFERENCES

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