

Salutation: *	Dr.
First Name: *	Samir
Last Name: *	Gupta
Clinic/Company: *	St. Michael's Hospital
Role: *	Respirologist
Phone Number *	
Email Address: *	<input type="text"/>

Type: *	Concurrent Session
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Salutation: *	Dr.
First Name: *	Samir
Last Name: *	Gupta
Role: *	Respirologist/Scientist
How long have you been using an EMR? *	>10 years

Salutation:	Ms.
First Name:	Courtney
Last Name:	Price
Role:	Research Assistant
How long have you been using an EMR?	Approx. 3 years

Salutation:

First Name:

Last Name:

Role:

How long have you been using an EMR?

Who is your target audience? *

Advanced EMR Users

Abstract Title: *

The Electronic Asthma Management System (eAMS):
Effects of a New EMR Tool for Asthma Care

Learning Objectives: *

Understand the impact of an EMR-integrated decision support system [The Electronic Asthma Management System (eAMS)] on asthma management

Understand actual patient and clinician uptake of such a system

Consider barriers/facilitators to use of, and satisfaction with such a system

Abstract: *

INTRODUCTION: Asthma is the 3rd most common chronic disease, affecting 2.4 million Canadians. Although most patients can achieve good asthma control with evidence-based management, there are large care gaps in key asthma management practices. These include: assessing asthma control at each clinical visit, adjusting medications according to asthma control, and providing patients with a written asthma action plan (AAP) (a personalized self-management and education tool). To support clinicians in delivering evidence-based asthma care, we built an electronic medical record-integrated computerized clinical decision support system (CCDSS) – the Electronic Asthma Management System (eAMS). The eAMS uses patient information collected through a clinic waiting room tablet questionnaire to produce real-time, evidence-based, EMR-integrated point-of-care recommendations for clinicians. System features include: patient control status notification upon chart opening, rule-based decision support engine based on current Canadian asthma guidelines, automatic generation of an AAP, automated chart note for documentation, and automated message to MRP summarizing events.

OBJECTIVE: To measure the impact of (eAMS) on adherence to key asthma management practices in primary care, and assess clinicians' satisfaction with and perceptions of the system.

METHODS: We conducted a prospective interventional interrupted time series (ITS) analysis of the impact of the eAMS over 1 year, compared to usual care in the prior year. An electronic practice audit was completed, including visits of asthma patients ≥ 16 years old under 26 providers across 3 Ontario primary care teams (2 academic; 1 non-academic). Our primary outcome was the biweekly proportion of patients who received/reviewed an AAP. We also assessed the proportion of visits in which practitioners determined asthma control using symptom-based criteria and escalated controller therapy.

RESULTS: There were 830 patients (72.5% female; age 45.9 ± 17.4 years) in the baseline period and 890 (71.0% female; age 47.3 ± 17.2 years) in the eAMS period. The biweekly rate of AAP receipt among asthma patients increased from 0% of eligible patients prior to the eAMS to 20% ($p < 0.01$). Asthma control assessment improved from 173/3497 (4.9%) to 849/3062 (27.7%) visits ($p < 0.01$). Controller medication escalations remained similar [109/3547 visits (3.1%) vs. 113/3432 visits (3.3%) ($p = 0.65$)]. Among patients in the eAMS period, 25% had a discussion with their physician regarding asthma medication adherence.

Patients completed the tablet questionnaire in 847/3011 (28.1%) eligible visits, and clinicians accessed the CCDSS in 204/1049 (19.4%) possible instances. Decision support was opened more often in the non-academic site, 88/265 (33.2%) than the academic sites, 116/784 (15.0%) ($p < 0.01$). Among visits where the decision support was opened, clinicians agreed with eAMS baseline recommendations 94.1% of the time (192/204), and produced an action plan for their patients 60.3% of the time (123/204). The mean System Usability Scale (SUS) score for the CCDSS was 66.2 ± 16.5 (out of 100).

CONCLUSIONS: eAMS improves asthma control assessment and AAP provision in practice, but does not impact asthma medication prescriptions. This occurred despite relatively low patient and provider uptake. Future studies should focus on system improvements and workflow optimization to improve usability, and assess its impact on patient outcomes.