# DECREASES IN POTENTIALLY AVOIDABLE EMERGENCY VISITS AMONG CHILDREN AND **ADULTS BETWEEN MARCH 2019 AND SEPTEMBER 2021** DIANA VASCONES, MPH, LAURA NASUTI, MPH, PhD, DAVID AUERBACH, PhD

## INTRODUCTION

Although the emergency department (ED) is an essential site of care for many emergencies, historically, around 30-40% of ED visits in Massachusetts are classified as potentially avoidable visits that could more effectively be cared for in another clinical setting, such as primary care. During the first six months of the COVID-19 pandemic, the number of ED visits dropped by 34% compared to the same six-month period a year prior, and ED visits remained down from

2019 levels by 12% in 2021, even as other types of care began to return to close to pre-pandemic levels. Given that potentially avoidable ED visits are a measure of efficient health care system use, the Massachusetts Health Policy Commission (HPC) sought to examine differences in potentially avoidable ED visits prior to and during the COVID-19 pandemic in Massachusetts.

#### OBJECTIVES

In this study, the HPC sought to examine:

- Changes in the number of potentially avoidable ED visits in Massachusetts between March 2019 and September 2021, for the overall population as well as by age group;
- Changes within potentially avoidable ED visits by evaluating differences in the number of these visits for high volume primary diagnosis codes (e.g., cough, low back pain) by age group

**STUDY DESIGN** 

To examine changes in avoidable ED use, the HPC evaluated ED visits in Massachusetts between March 16, 2019 and September 15, 2021 using the Center for Health Information and Analysis (CHIA) Acute Hospital Case Mix Emergency Department Database. Employing a step-down methodology to create exclusive categories, the HPC categorized ED visits as related to behavioral health (BH), COVID-19, injury, or as potentially avoidable. BH visits were identified using the Clinical Classifications Software Refined (CCSR), MBD001 to MBD034. COVID-19 visits were identified as those visits with a primary or secondary U07.1 ICD-10 diagnosis code. Injury and potentially avoidable visits were identified using a modified version of the "patched" Billings algorithm.<sup>1</sup> To improve classification rate, diagnosis codes unclassified by the "patched" Billings algorithm were sequentially truncated and shortened codes were re-classified using the same algorithm. "All other" ED visits were those visits



which were not classified as related to BH, COVID-19, injury, or as potentially avoidable. Once ED visits were categorized, high volume primary diagnosis codes among potentially avoidable ED visits were determined using visit volume between March 2019 and March 2020. The top five primary diagnosis codes for potentially avoidable ED visits by visit volume were identified for children aged 0-17, adults aged 18-64, and adults aged 65+. In the following results, the number of ED visits is evaluated for the periods of March 16th to September 15th of each year between 2019 and 2021.

To examine whether care may have shifted between sites, the HPC examined E&M visits between 2018 and 2020 among commercially-insured patients with full coverage using the CHIA All-Payer Claims Database v10.0. E&M visits were classified using Healthcare Common Procedure Coding System (HCPCS) codes 99201-99205, 99211-99215, and 99281-99285. Sites of care were identified using a combination of Centers for Medicare and Medicaid Services (CMS) Place of Service codes, Health Care Cost Institute (HCCI) Service Categories, and HCSPCS/Current Procedural Terminology (CPT) codes. BH, therapy, and counseling-related E&M visits were identified using CCSR MBD001-MBD034 and HCSPCS codes 99401-99412 and 90832-908308, respectively, and excluded.



Changes in the number of evaluation and management (E&M) visits by site of care between 2018 and 2020, to determine whether care may have shifted between sites of care (e.g., from the ED to telehealth or urgent care).

sits	• Emergent, primary care treatable visits
re needed, preventable s re needed, not voidable visits	<ul> <li>Alcohol or substance-related visits</li> <li>Altered mental status-related visits</li> <li>Visits unclassified by algorithm</li> </ul>

When comparing the six-month period of March 16 to September 15, 2021 to the corresponding six-month period in 2019, there was a 12% decline in all ED visits, including declines in visits for BH (13%), injury (17%), and all other reasons (6%) (Figure 1).

The decline in potentially avoidable ED visits between these periods (17%) was notable, with additional differences in declines by age group (**Table 1**). Children experienced the greatest decline in potentially avoidable ED visits between 2019 and 2021 (31%). Although visits among adults were still lower in 2021, the decline was less among adults aged 18-64 (16%) and those aged 65+ (7%).

#### Table 1: Number of potentially avoidable ED visits by age group and percent change relative to same period in 2019

Age group	2019	2020	2021	Percent change, 2019 to 2020	Percent change, 2019 to 2021
0 - 17	89,016	29,608	61,215	-67%	-31%
18 - 64	313,733	211,778	265,094	-32%	-16%
65 +	76,640	51,454	71,037	-33%	-7%

For potentially avoidable ED visit diagnoses among children, the most common diagnoses in 2019 had been for infection/illness-related diagnoses (Figure 2). From 2019 to 2021 four of the most common conditions saw declines: acute upper respiratory infections (8%), fever (22%), vomiting (31%), and pharyngitis (44%). However, visits for cough increased by 11% between 2019 and 2021. Notably, while there were 12,872 potentially avoidable ED visits among children for influenza between September 16, 2019 and March 15, 2020, there were fewer than 50 visits for influenza among children during the corresponding period between September 16, 2020 and March 15, 2021.

For higher volume potentially avoidable ED visit diagnoses among adults, visits also declined for infection/illness-related diagnoses between 2019 and 2021, as did visits for diagnoses potentially related to chronic conditions or other disease (**Figure 3**). Among adults aged 18-64, potentially avoidable ED visits declined for headache (9%), low back pain (21%), nausea with vomiting (4%), and dizziness and giddiness (7%) between 2019 and 2021, as well as for acute upper respiratory infections (34%). Among adults aged 65+, potentially avoidable ED visits declined for urinary tract infections (16%), low back pain (11%), essential hypertension (6%), and epistaxis (16%), though visits slightly increased for dizziness and giddiness (3%).

Between 2018 and 2020, the number of E&M visits per 1,000 member months declined by 11%. By 2020, fewer E&M visits occurred in the office, hospital outpatient department (HOPD), and ED settings while more occurred in urgent care centers and via telehealth (**Figure 4**). While the decline was greatest for E&M visits occurring in office and HOPD settings (38% and 40%, respectively), the decline in E&M visits occurring in the ED was also marked (25%). Accompanying these declines were increases in E&M visits occurring in urgent care centers and via telehealth (23% and 51,448%, respectively).

#### RESULTS



Figure 1: Number of ED visits by visit category and percent change relative to

Figure 2: Number of potentially avoidable ED visits for children aged 0-17 for top primary diagnoses (excluding influenza) between March 2019 and March 2020 and percent change relative to same period in 2019



Figure 3: Number of potentially avoidable ED visits for adults aged 18-64 for top five primary diagnoses between March 2019 and March 2020 and percent change relative to same period in 2019



Figure 4: Number of evaluation and management (E&M) visits per 1,000 member months by site type and year for commercially-insured patients, 2018 to 2020









## CONCLUSIONS

These findings highlight changes in ED use in Massachusetts during the COVID-19 pandemic among individuals of all ages. Overall, the number of ED visits in 2021 increased from 2020 levels but remained below 2019 levels. While there were declines between 2019 and 2021 in all types of ED visits, large declines occurred for potentially avoidable ED visits, with children experiencing the greatest decline in potentially avoidable ED visits relative to other age groups. Declines in potentially avoidable ED visits for non-communicable diseases (e.g., headache, urinary tract infections) could indicate shifting of care from the ED to other settings (e.g., urgent care, primary care) or postponed care seeking. Declines in potentially avoidable ED visits for communicable diseases (e.g., acute upper respiratory infections, influenza) and related symptoms could additionally indicate reduced transmission of non-COVID-19 communicable diseases. While these findings also highlight a decrease in E&M visits occurring in the office, HOPD and ED settings accompanied by an increase in E&M visits occurring in urgent care centers and via telehealth, additional investigation is warranted to further quantify shifting of care during these time periods, and whether these shifts persist over time.

#### **POLICY IMPLICATIONS**

Many employer groups, providers, and payers have attempted to reduce use of the ED for non-emergency visits. The COVID-19 pandemic resulted in a sharp decline in all ED visits with an even larger drop in potentially avoidable ED visits. These findings suggest an opportunity to divert non-emergency visits to other care settings.

#### CONTACT

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