

## Missed Screening for Adverse Social Determinants of Health and Emergency Department Utilization



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### INTRODUCTION

Although adverse social determinants of health are associated with poorer health outcomes and are highly prevalent in emergency department (ED) patients, many screening efforts have only been in primary care settings.<sup>1,2</sup> Primary care-based screening may exacerbate disparities as patients with barriers to accessing primary care never receive resources. We therefore sought to describe the demographic characteristics and ED utilization of Medicaid patients who were missed by a primary care screening program.

### METHODS

We conducted a retrospective cohort study using data from a large Medicaid accountable care organization in Massachusetts. Patients were eligible if they had at least 11 months of enrollment between February 2019 and February 2020 during the initial adverse social determinants of health screening period.<sup>3</sup>

We linked 2 data sources: (1) primary care adverse social determinants of health questionnaire and (2) Medicaid accountable care organization claims data. Patients could screen positive for adverse social determinants of health by affirming a risk (social risk) or by asking for information (social need). Data on demographics (age, sex, race, ethnicity, and primary language) were acquired from the electronic medical record system. Eligible primary care provider visits were defined as a visit to an in-system primary care provider who participated in screening (Appendix E1, available at <http://www.annemergmed.com>). Patients were defined as “screened” if they partially completed at least 1 screen during the study period and as “missed screening” if they had no completed screens, regardless of their visit status or reason for not having completed the screening (eg, refusal vs not being offered). For members with more than 1 screen during the study period, we used the most positive screening result.

We described ED utilization during the study period for patients by screening status using Stata SE 15.1 (StataCorp). The study was determined to be exempt by the Mass General Brigham Institutional Review Board.

### RESULTS

There were 77,524 Medicaid accountable care organization members in the study cohort; 38,370 (49%) adults (aged 18 to 65 years), 27,848 (36%) children (aged 5 to 17 years), and 11,304 (15%) infants/toddlers (aged 0 to 4 years) (Table). In the cohort, 43,199 (56%) were female. Twenty-nine thousand three hundred sixteen (38%) were non-Hispanic White, 6,556 (8%) were non-Hispanic Black, and 23,916 (31%) were Hispanic. Sixty-one thousand four hundred twelve (79%) reported a primary language of English, and 10,320 (13%) reported Spanish. A total of 59,803 (77%) had a visit to a primary care provider providing screening.

In the cohort, 26,771 (35%) of 77,524 accountable care organization members were screened and 50,753 (65%) of 77,524 were missed. Of the missed patients, 16,267 (32%) had no documented visit to a screening primary care provider.

Of those who missed screening (n=50,753), 10,005 (37%) of 26,745 adults and 7,160 (30%) of 24,007 children had an ED visit; 5,461 adult visits and 2,355 pediatric visits were to in-system EDs (Figure). Among adults and children who used an in-system ED, 60% (7,816 of 13,038) were missed in primary care screening. Rates of ED visits before and after eligible primary care provider visits by screening status are shown in Table E1 (available at <http://www.annemergmed.com>).

### DISCUSSION

In this cohort, 34% of individuals with missed primary care adverse social determinants of health screening presented to an ED during the 1-year study period, with 15% presenting to an ED within the health system. Although drawn from the early implementation process, these data suggest that improved attention to screening implementation in clinics is needed and that an ED-inclusive strategy may provide the opportunity to capture patients who were missed.

Limitations include the inclusion of only consistently enrolled Medicaid members and the fact that screening rates may have improved over time. Although the screening rates in this cohort are similar to those in other studies,<sup>4</sup> there is potential misclassification.<sup>5</sup> For example, 1,455 patients were screened without an eligible visit, suggesting that some primary care providers were using screening that we did not capture. Additionally, we are unable to identify visits to primary care providers who were not screening.

Including the ED in a population-health screening strategy may help to avoid exclusion, and patients are supportive of ED-based screening.<sup>6</sup> To do so, efficient and

**Table.** Demographic characteristics of members stratified by screening status (eg, missed vs screened).

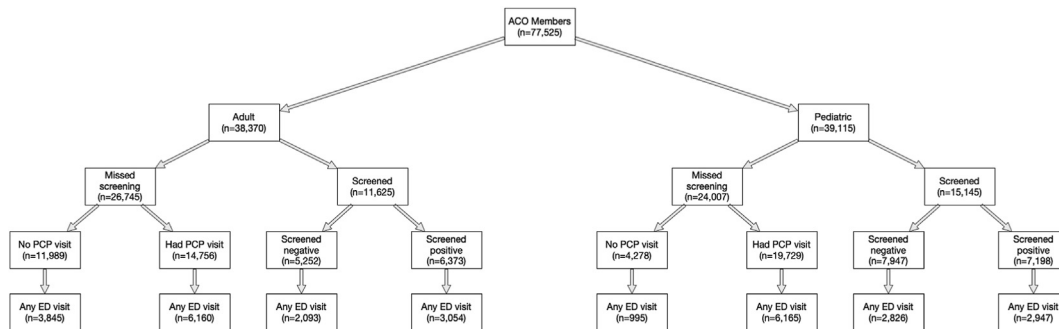
Characteristics	Missed Screening				Screened		
	Overall (All Members)	Missed Overall	No PCP Visit	PCP Visit and Not Screened	Screened Overall	Screened Negative (No Social Risk or Need Present)	Screened Positive (Social Risk or Need Present)
<b>Total, n (%)</b>	77,524	50,753 (65)	16,267 (32)	34,486 (68)	26,771 (35)	13,199 (49)	13,572 (51)
<b>Age categories, n (col %)</b>							
0-4 y	11,304 (15)	5,518 (11)	624 (4)	4,894 (14)	5,786 (22)	2,852 (22)	2,934 (22)
5-17 y	27,848 (36)	18,489 (36)	3,654 (22)	14,835 (43)	9,359 (35)	5,095 (39)	4,264 (31)
18-65 y	38,370 (49)	26,745 (53)	11,989 (74)	14,756 (43)	11,625 (43)	5,252 (40)	6,373 (47)
<b>Sex, n (col %)</b>							
Female	43,199 (56)	27,915 (55)	8,668 (53)	19,247 (56)	15,284 (57)	7,441 (56)	7,843 (58)
Male	34,324 (44)	22,837 (45)	7,598 (47)	15,239 (44)	11,487 (43)	5,758 (44)	5,729 (42)
Missing	1	0	1	0	0	0	0
<b>Race/ethnicity, n (col %)</b>							
Non-Hispanic White	29,316 (38)	19,297 (38)	6,509 (40)	12,788 (37)	10,019 (37)	5,477 (42)	4,542 (33)
Non-Hispanic Black	6,556 (8)	4,164 (8)	1,390 (9)	2,774 (8)	2,392 (9)	980 (7)	1,412 (10)
Hispanic	23,916 (31)	14,986 (30)	4,389 (27)	10,597 (31)	8,930 (33)	3,855 (29)	5,075 (37)
Non-Hispanic other	2,633 (3)	1,662 (3)	470 (3)	1,192 (3)	971 (4)	501 (4)	470 (3)
Non-Hispanic unknown	3,355 (4)	2,152 (4)	648 (4)	1,504 (4)	1,203 (4)	586 (4)	617 (5)
Missing	11,748 (15)	8,492 (17)	2,861 (18)	5,631 (16)	3,256 (12)	1,800 (14)	1,456 (11)
<b>Language preference, n (col %)</b>							
English	61,412 (79)	40,036 (79)	13,184 (81)	26,852 (78)	21,376 (80)	10,800 (82)	10,576 (78)
Spanish	10,320 (13)	6,525 (13)	1,497 (9)	5,028 (15)	3,795 (14)	1,596 (12)	2,199 (16)
Other	3,152 (4)	2,030 (4)	484 (3)	1,546 (5)	1,122 (4)	530 (4)	592 (4)
Missing	2,640 (3)	2,162 (4)	1,102 (7)	1,060 (3)	478 (2)	273 (2)	205 (2)

PCP, Primary care provider.

effective ED strategies are needed, potentially including multilingual screening tools sent to patients’ own devices and asynchronous navigation provided after an ED visit.

Approximately half of ED visits were to EDs outside of our health care system, suggesting that tools to allow data sharing between health systems would help to enhance screening and

improve connection with resources. These could include electronic medical record alerts for patients who have missed screening or have positive screening results that have not yet been addressed. Accountable care organizations should consider incentivizing ED-inclusive screening pathways to reduce inequities, although rates of ED utilization were



**Figure.** ED utilization by screening status. ACO, Accountable Care Organization.

similar regardless of screening status, suggesting that screening alone is insufficient to reduce ED utilization.

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