# Study from a Pediatric Emergency Department in Boston on the Impact of the Places Not Meant for Human Habitation Policy on Visits Due to Homelessness


## ABSTRACT

**Title:**
Pediatric emergency department visits for homelessness after shelter eligibility policy change: an interrupted time series analysis

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**Purpose:**
Family homelessness in the U.S. is a growing problem, with one in thirty children homeless annually. Massachusetts is the only "right to shelter" state in the U.S., where eligible families cannot be denied placement. In December 2012, a policy was implemented which requires families to prove risk of homelessness by spending a night in a place "not fit for human habitation," including the emergency department (ED), to qualify for emergency assistance shelter. The aim of this study is to analyze the frequency and hospital costs of ED visits by homeless children presenting because of homelessness, before and after this policy.

**Methods:**
This is a retrospective cohort study of ED visits to an urban children's hospital by homeless children from March 2010 to February 2016. We included all children 0-18 years old for whom homelessness was a presenting complaint or affected disposition. We excluded children already housed in a homeless shelter at the time of the ED visit. A natural language processing tool was used to identify cases by searching for key terms in the electronic medical records. Identified records were manually reviewed to determine if they met inclusion/exclusion criteria. We calculated frequencies of visits and demographics. We conducted an interrupted time series analysis to compare rates of homeless children per 1,000 ED visits before and after implementation of the policy in December 2012. We reviewed payment data for each record as a measure of cost to the healthcare system.

**Results:**
During the study period there were 312 ED visits for homelessness; 94% were after the 2012 policy (Figure 1). The median age was 3.2 years. The overall rate of visits for homelessness per month increased over 6 times from the pre- to the post-policy period (IRR 6.5, 95% CI 2.10, 20.24) (Figure 2). And although the number of homeless children in Massachusetts did increase over the study period, this increase does not explain the significant increase in the number of children presenting to the ED for homelessness. During the 2010-2011 school year, there were 14,247 homeless children in Massachusetts, as counted by the annual school-based McKinney Vento survey. During the 2014-2015 school year (the last school year for which we have full ED data), there were 19,515 homeless children in the state. Over the school years in the study period, the number of homeless children in Massachusetts increased by 1.37 times, while the number of homeless children in the ED increased by 13.2 times. Sixty-five percent of children after 2012 had no medical complaint, compared to 32% before 2012 (IRR 2.06, 95% CI 1.06, 4.02). The median ED length of stay increased from 6 hours (range 3-17) to 13 hours (range 1-97) between the pre- and post- period. These visits cost $173,950 (inflation adjusted to 2016 dollars): $17,264 before the policy and $156,686 afterwards. Ninety percent of payments ($156,062) were made by state-based insurance plans. In the pre-period, 20.3% of payments were for patients with no medical complaint. In the period after the statute, 60.2% of payments were for patients with no medical complaint. These payments, for visits with no medical complaint, amounted to $97,479- nearly $94,000 of which was after the 2012 statute. Eighty-seven percent of payments ($150,204) were made by state-based insurance plans. And while private insurance payments only increased 1.85 times in the post- period compared to the pre-period, payments by MassHealth and state-based managed care organizations increased 12.73

and 30.73 times, respectively. These costs averaged $566 per ED visit, nearly 5 times more than a night in emergency shelter.

Figure Title: Total number of ED visits for homelessness by year before and after policy change

Figure Caption: Light blue 2016 data are extrapolated based on data from January and February 2016

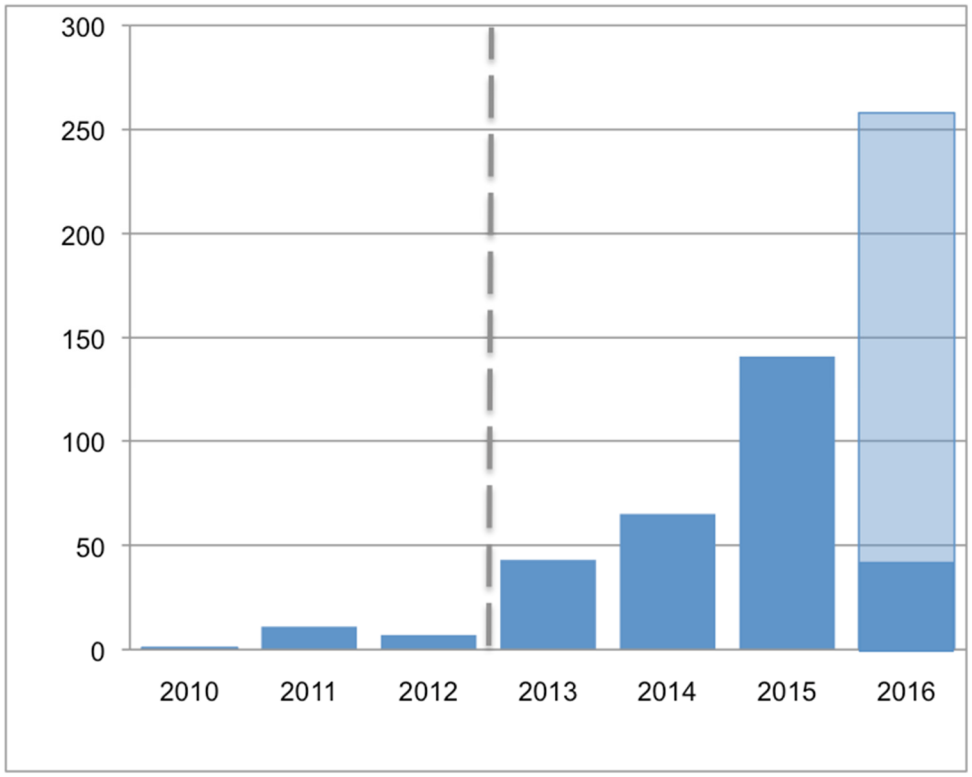
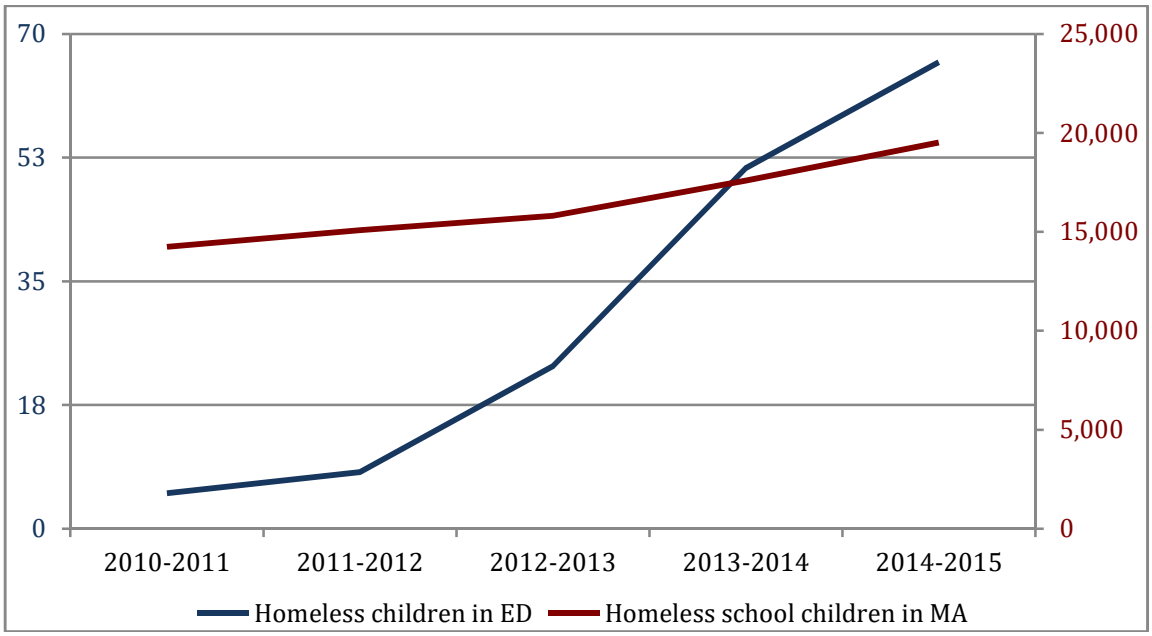


Figure Title: Monthly rate of ED visits for homelessness before and after policy change

Figure Caption: Rate adjusted for monthly ED volume


Figure Title: Number of homeless children in ED compared to number of homeless children in MA

Figure Caption: Blue line indicates visits for homelessness (left y-axis), red line indicates homeless children in MA (right y-axis)



**Conclusion:**
These findings suggest a policy changing Massachusetts' emergency assistance shelter eligibility increased the number of children presenting to the ED for homelessness, with substantial associated costs to the healthcare system. The cost of this allocation of healthcare resources should be taken into account when evaluating policies to address and alleviate family homelessness.