MASSACHUSETTS HEALTH POLICY COMMISSION

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HPC DATAPOINTS

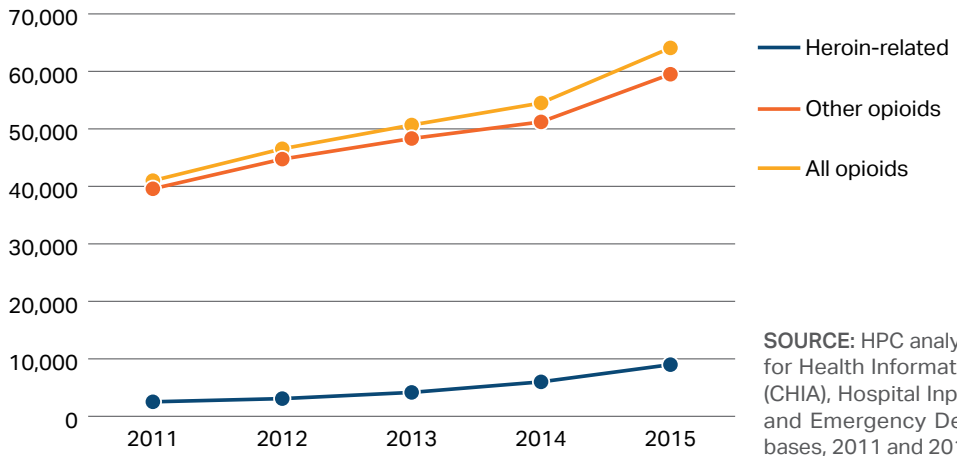
The growing opioid epidemic in Massachusetts hospitals

Like many states across the country, Massachusetts is facing a growing epidemic of opioid addiction and overdose deaths. From 2000 to 2015, the opioid-related death rate in Massachusetts quadrupled, and by 2015 it was twice the national average. As previously reported in the Massachusetts Health Policy Commission's (HPC's) 2016 Opioid Use Disorder and Cost Trends reports, this epidemic significantly impacts the health care system as the number of patients seeking opioid-related care and treatment at Massachusetts hospitals is rapidly increasing. In 2014, Massachusetts had the highest rate of opioid-related emergency department (ED) visits in the U.S. and the second highest rate of opioid-related inpatient stays.

Later this summer, the HPC will publish a chartpack updating the data from the 2016 Opioid Use Disorder Report in order to better understand the impact of the epidemic on the health care system from 2011 to 2015. While the initial report focused on opioid-related hospital inpatient discharges, the new chartpack includes ED visits as well. Below are some highlights from this upcoming chartpack.

From 2011 to 2015, the number of opioid-related hospital (ED and inpatient) discharges in Massachusetts increased substantially. Heroin-related discharges grew 256%, while all other opioid-related discharges grew 50%.[1] The largest annual growth rate during this time period occurred between 2014 and 2015 when the number of opioid-related hospital discharges grew 18%.

Number of opioid-related hospital discharges, 2011-2015[2]



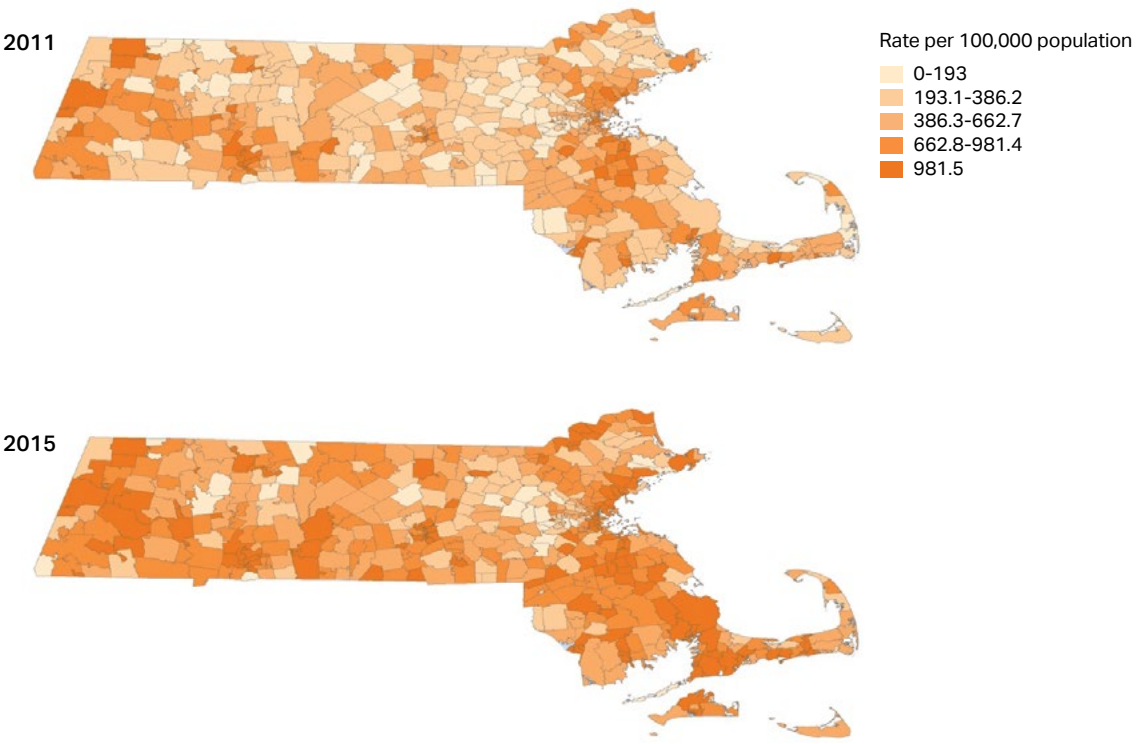
SOURCE: HPC analysis of the Center for Health Information and Analysis (CHIA), Hospital Inpatient Discharge and Emergency Department Databases, 2011 and 2015

Rate of change in opioid-related hospital discharges

Growth	Years	Heroin-related	Other opioids	All opioid-related
	2011-2012	22%	13%	14%
	2012-2013	35%	8%	9%
	2013-2014	44%	6%	8%
	2014-2015	50%	16%	18%
	2011-2015	**256%**	**50%**	**56%**

As shown in the map below, though some geographic variation exists in opioid-related hospital discharges, this epidemic has affected every region in the Commonwealth. Further, from 2011 to 2015, the rate of opioid-related hospital discharges grew in almost every zip code. By 2015, a much higher proportion of communities were in excess of 1,000 opioid-related discharges per 100,000 residents (1 per 100): 28% in 2015 compared to 11% in 2011. The interactive map on the HPC's website displays the rate of opioid-related hospital discharges by zip code and the hospital with the highest number of opioid-related discharges for residents in each zip code.

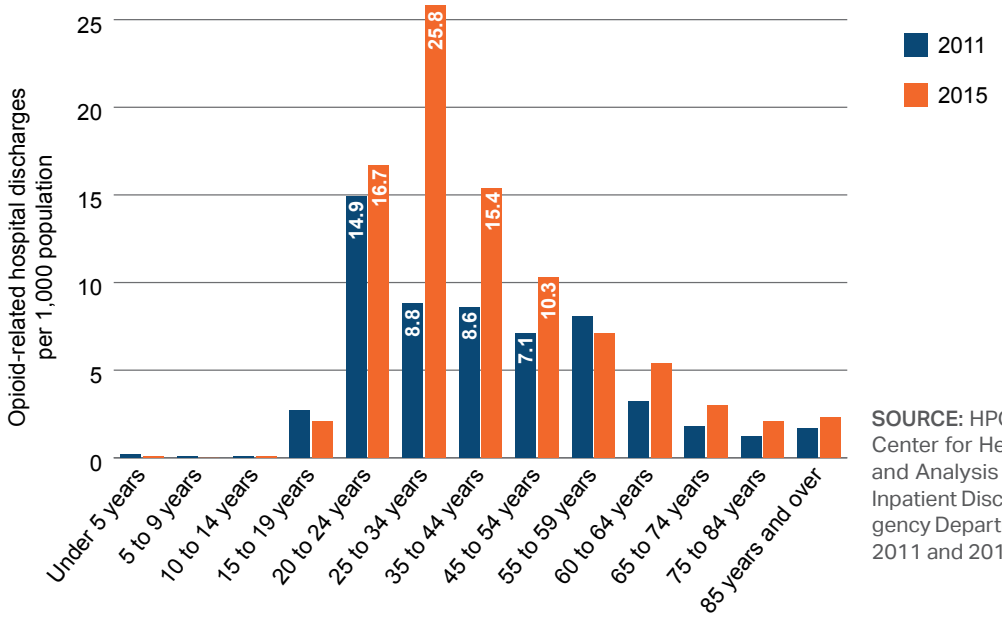
Opioid-related hospital discharges by patient zip code, 2011 and 2015



SOURCE: HPC analysis of the Center for Health Information and Analysis (CHIA), Hospital Inpatient Discharge and Emergency Department Databases, 2011 and 2015

There was also variation in the number of opioid-related hospital discharges by age. Some age groups experienced declines in their rate of opioid-related hospital discharges between 2011 and 2015. For example, children aged 19 and under had a 23% decrease and adults between the ages of 55 and 59 had a 12% decrease. However, opioid-related hospital discharges among young adults increased substantially. From 2011 to 2015 there was a 12% increase in opioid-related discharges among patients ages 20 to 24, a 78% increase among patients ages 35 to 44 and a striking 192% increase among patients ages 25 to 34. Despite accounting for only 34% of the Commonwealth's population in 2015, patients between the ages of 20 to 44 comprised 70% of opioid-related hospital discharges.

Opioid-related hospital discharges, by age group, 2011 and 2015



SOURCE: HPC analysis of the Center for Health Information and Analysis (CHIA), Hospital Inpatient Discharge and Emergency Department Databases, 2011 and 2015

Since many opioid-related overdose deaths occur at younger ages, the impact on life expectancy is particularly pronounced. In 2015, life expectancy in the US dropped for the first time in decades. While there are many causes, including rising rates of diabetes and obesity, drug overdoses accounted for a substantial portion of the decline. In Massachusetts, residents lost 60,000 years of life due to poisonings in 2015 (most of which are opioid-related)[3], when measured by years of potential life lost before age 75.[4] The number of years of life lost due to poisonings was larger than from heart disease and any category other than cancer and unintentional injuries.

The data presented here, and in the forthcoming chartpack, demonstrate the growing need for improvements in the health care system, including access to coordinated mental health and substance use disorder treatment. HPC has previously outlined several care delivery reform recommendations, including that the Commonwealth increase access to and effectiveness of evidence-based opioid use disorder treatment by integrating pharmacologic interventions into medical care.

Endnotes

1 Opioid-related discharges were identified using ICD-9 diagnosis codes designated by the Agency for Healthcare Research and Quality within the United States Department of Health and Human Services. Discharges with opioid-related diagnosis codes, primary or otherwise, were included in this analysis. These opioid-related diagnosis codes include: 304.00-304.03 (opioid type dependence), 304.70-304.73 (combinations of opioid type drug with any other drug dependence), 305.50-305.53 (nondependent opioid abuse), 965.00 965.01, and 965.09 (poisoning by heroin, opium (alkaloids), and related narcotics), E850.0 and E850.2 (accidental poisoning by other opiates and related narcotics), E935.0 and E935.2 (heroin and other opiates causing adverse effects in therapeutic use). As with all analyses dependent on ICD-9 codes, provider coding may not always accurately reflect the patient's clinical condition. In particular, heroin-related codes are considered specific, but not necessarily sensitive. For example, some hospitals may only use heroin-related codes for cases of poisoning/overdose. As a result, some heroin abuse/dependence is likely captured in the "other opioids" category. Furthermore, some non-heroin-related opioid cases are likely captured in the "heroin-related" category. The heroin-related and other opioid categories are not mutually exclusive, but the "all opioid" category only counts each discharge once.

2 From 2011 to 2014 the Center for Health Information and Analysis databases included only the patient's first 15 diagnosis codes. However, in 2015, all patient diagnosis codes were included. An additional 1,300 inpatient stays with an 'other opioid' diagnosis were counted in 2015 due the expansion of diagnoses codes available in the data, while less than 11 additional patients with heroin diagnoses were counted. The data presented here is based on the patient's first 15 diagnosis codes.

3 Poisonings were identified using ICD-10 T36-T50, of which opioid overdoses are a main contributor.

4 Years of potential life lost (YPLL) or potential years of life lost (PYLL), is based on an estimate of the average years a person would have lived if he or she had not died prematurely. It is, therefore, a measure of premature mortality. Years of potential life lost analysis includes ages 0-75.

The Massachusetts Health Policy Commission, an independent state agency, strives to advance a more transparent, accountable, and innovative health care system through its independent policy leadership and investment programs.

HPC DataPoints is a series of online briefs that spotlight new research and data findings relevant to the HPC's mission to drive down the cost of health care. It showcases brief overviews and interactive graphics on relevant health policy topics. The analysis underlying these briefs is conducted by staff on the HPC's Research and Cost Trends team. To view all HPC DataPoints, visit our website.