



FOR RELEASE:

Embargoed Until May 16, 2016, 11:15 a.m. PDT

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PRESS CONFERENCE: Monday, May 16, 2016, 11:15 a.m. (Alcove E, Level 3, West Building)

Session: C95 Outstanding Epidemiology and Health Services Research in Critical Care

Tuesday, May 17, 2016, 2:15 p.m.–2:30 p.m.

Location: Room 3003/3005 (West Building, Level 3), MOSCONE CENTER

ICUs Strained by Increased Volume and a Near Doubling of Opioid-Related Deaths

Rising numbers signal a critical need to augment prevention efforts.

ATS 2016, SAN FRANCISCO — National trends in opioid related overdoses are being felt across every part of the medical system, including the country's intensive care units. ICU admissions related to opioid overdoses are steadily increasing, and opioid overdose-related ICU deaths have nearly doubled since 2009. New research from Boston's Beth Israel Deaconess Medical Center, University of Chicago, and Vizient, Inc., presented at the ATS 2016 International Conference shows the strain America's opioid crisis is putting on ICUs and the critical care teams who care for these patients and calls attention to efforts needed to meet the demands of this expanding population.

The research team analyzed patient data from Vizient, Inc. that included 28 million hospital discharges over a seven year period. The results showed a 42 percent increase in hospital discharges for opioid overdoses since 2009. This increase, along with the rise in opioid-related deaths, "affected different parts of the country in different ways," the authors wrote.

"Pennsylvania and North Carolina have nearly doubled the number of ICU discharges for opioid overdose in the past seven years," said lead investigator, Jennifer Stevens, MD, The Center for Healthcare Delivery Science at Beth Israel Deaconess Medical Center. "This suggests that there may be an opportunity for hospitals and communities in these states to get ahead of the critical

care needs of this population and to help first-line responders prevent future admissions to the ICU.”

Dr. Stevens, who is also a critical care physician, says the sobering numbers highlighted by this research study are a warning signal. Despite the availability of treatment facilities and the widespread use of a medication called Naloxone that can reverse the effects of overdose, ICUs are seeing a rise in admissions of very sick overdose patients. For example, these patients are 30 percent more likely to need acute dialysis, and have contributed to an increased healthcare cost of 46 percent over the last 7 years.

“Hospitals that are seeing rising volumes of overdose and opioid-dependent admissions can help by increasing training for clinicians in addiction management, and by working to devise strategies that support patients and families in the hospital, and as they transition loved ones from the critical care environment to outpatient addiction treatment,” said co-author Michael Howell, MD, MPH, Chief Quality Officer, University of Chicago Medicine. “Greater national funding to support community efforts that help survivors and improve resources for patients and families is essential for these efforts to move forward and succeed.”

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Abstract 8080

The Critical Care Crisis of Opioid Overdoses in the U.S.

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Abstract Body

Rationale: Heroin and prescription drug overdoses have rapidly risen in recent years; heroin-related deaths increased nearly 300% between 2002 and 2013 based on recent CDC data (*MMWR*, 2015; 64(26): 719-724). We hypothesized that the critical care needs of these patients would also increase over a recent 5-year period and that these patients would be at higher risk of harm than other critically ill patients.

Methods: We analyzed data for discharges from Vizient, Inc Clinical Data Base/Resource ManagerTM for patients aged ≥ 18 years between 2011 and 2015. Data were grouped at the level of year for analysis. ICU status was determined by individual accommodation code. We defined opioid-related overdoses using ICD-9-CM codes 965.00, 965.01, 965.02, 965.09, E850.0, E850.1, or E850.2, as these codes have been previously validated (*PLOS ONE*, 2013; 8(2):

e54496). We described annual rates of opioid overdose-related hospital and ICU admissions. We also compared rates of opioid overdose-related in-hospital deaths among all hospitalizations and ICU admissions. The likelihood of death among all ICU opioid overdose-related admissions was compared with all other ICU admissions.

Results: Data were available for a total of 272 hospitals, ranging from 208 hospitals in 2011 to 262 in 2014. The final cohort included 17.6 million adult admissions, of whom 3.0 million (17%) required ICU care. Of these, 41,369 admissions were opioid overdose-related. The incidence of opioid overdose-related hospital admissions and ICU admissions both increased between 2011 and 2015. The in-hospital mortality among opioid overdose-related hospital admissions increased by 64%, from 3.1% in 2011 to 5.1% in 2015 (Figure 1). Among ICU patients with opioid overdose-related admissions, mortality increased from 6.4% in 2011 to 11.4% in 2015. Compared to ICU admissions overall, in-hospital deaths from opioid overdose-related admissions almost doubled, from 3.7 opioid overdose-related deaths per 10,000 ICU admissions in 2011 to 7.3 in 2015, a 97% increase.

Conclusions: The national trends in opioid-related overdoses are seen in the rising ICU admissions and mortality among this population in the past 5 years. More research is needed to understand the rapidly shifting critical care needs of the opioid-dependent patient population to mitigate risk of excessive morbidity and mortality.

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