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**Session:** A52 Critical Care: Beyond The Lungs - Non-Pulmonary Critical Care

**Abstract Presentation Time:** Sunday, May 20, 11:15 a.m. PST

**Location:** San Diego Convention Center, Area D (Hall A-B2, Ground Level)

**Inpatient Opioid Use and Insufficient Weaning Pre-discharge May Increase Outpatient Opioid Prescription Use**

ATS 2018, San Diego, CA – Patients who receive an opioid for most of their hospital stay and patients who are still taking an opioid within 12 hours of being discharged from the hospital appear more likely to fill a prescription for opioids within 90 days of leaving the hospital, according to new research presented at the ATS 2018 International Conference.

According to the University of Pittsburgh School of Medicine scientists who conducted the study, theirs is the first large-scale evaluation of the impact of in-hospital opioid prescribing on post-discharge opioid use.

“Most previous studies of opioid use in health care have focused on the outpatient setting,” said lead study author Jason Kennedy, MS, research project manager in Pitt’s Department of Critical Care Medicine. “But opioids are often introduced during hospitalization. That’s something clinicians can control, so we looked at inpatient prescription of these drugs to identify targets that may reduce opioid use once patients are out of the hospital.”

The researchers analyzed the medical records of 357,413 non-obstetrical adults hospitalized between 2010 and 2014 at 12 University of Pittsburgh Medical Center (UPMC) hospitals in

southwestern Pennsylvania. The region is one of the areas of the country where opioid addiction is a major public health problem. The researchers focused on the 192,240 patients who had not received an opioid in the year prior to their hospitalization – otherwise known as “opioid naïve” patients.

Nearly half (48 percent) of these patients received an opioid while hospitalized. After discharge, those patients receiving hospital opioids were more than twice as likely to report outpatient opioid use within 90-days (8.4 percent vs. 4.1 percent).

The study also found that:

- Those who took an opioid for more than three-quarters of their hospital stay were 32 percent more likely than those who took an opioid for less than one-fourth of their stay to be prescribed an opioid within 90 days of leaving the hospital.
- Those who used an opioid within 12 hours of discharge were twice as likely as those who stopped taking an opioid more than 24 hours before discharge to be prescribed an opioid within 90 days of leaving the hospital.
- 33 percent received an opioid during the 24 hours prior to discharge from the hospital.
- 20 percent of those receiving opioids in the ICU received intravenous opioids on transfer to the medical ward.

The findings suggest some inpatient interventions that might reduce opioid use in outpatient settings, Mr. Kennedy said.

“Reducing use of opiates near the end of a hospital stay, especially in the 24 hours before discharge, may reduce outpatient prescription of opioids,” he said. “And weaning ICU patients off of intravenous opioids, the most potent way of administering these pain killers, before transitioning them to the medical ward may also help reduce outpatient usage.”

Further study, ideally with randomized, controlled trials, would be necessary to provide definitive guidance to doctors and other health care providers, he added.

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## Abstract 16954

### Patterns of Inpatient, Intensive Care, and Post-Discharge Opioid Prescribing to Opioid-Naïve Patients in a Large Health System

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**Background:** Opioid use disorders are a major public health problem. While opioid overuse is strongly linked to outpatient prescribing, less is known about the patterns of opioid prescribing to previously opioid-naïve hospitalized patients and the association between inpatient opioid administration and subsequent outpatient opioid use.

**Methods:** We linked electronic health records with outpatient data for encounters at 12 hospitals in a large health system in southwestern Pennsylvania (2010-2014). We included non-obstetric, inpatient encounters who were opioid-naïve for 12 months prior to hospitalization and had >1 outpatient visit in the 12 months before and after admission. We describe inpatient opioid use by location, timing, duration, and excluded immediate perioperative use (eg. within 24 hrs). We used Poisson regression to identify factors associated with greater inpatient opioid use and logistic regression to examine the relationship between inpatient opioid use and subsequent outpatient use within 90 days of discharge, adjusted for *a priori* confounders.

**Results:** Among 357,413 inpatient, non-obstetric encounters, 192,240 (54%) were opioid naïve for 12-months prior to hospitalization, and one-half (N=93,193, 48%) received opioids during hospitalization (Figure 1). Opioids were more common in surgical encounters than medical (64% vs. 42%,  $p<0.01$ ). Factors independently associated with inpatient opioid use included older age ( $p<0.01$ ), prior benzodiazepine use ( $p<0.01$ ), and comorbid behavioral health and pain conditions ( $p<0.01$  for all). The median time to first opioid use was 24 [8-33] hrs, and the initial

dose was more frequently administered in the medical ward than ICU or emergency department (39% vs. 10% or 14%, respectively,  $p < 0.01$ ). Of those receiving opioids in the ICU, 20% received intravenous opioids on transition to the ward. During the 24 hrs prior to discharge, one-third received an opioid. Once discharged, 11,760 of 192,240 (6%) received opioids within 90 days (Figure 1), with greater risk-adjusted odds among those with inpatient exposure (OR=2.04, 95%CI: 1.81, 2.31).

Other factors independently associated with outpatient use included <12 opioid-free-hours prior to discharge (aOR=2.06, 95%CI: 1.81, 2.35,  $p < 0.01$ ) and a greater proportion of stay using opioids (aOR=1.32, 95%CI: 1.17, 1.49, for 76-100% vs. <25% of stay covered with opioids) (Figure 1).

**Conclusions:** In a large health system, opioids were administered to one-half of previously-naïve patients and were associated with a two-fold increase in subsequent outpatient use within 90 days of discharge. Specific patterns of inpatient opioid use during care transitions and proximate to discharge may be appropriate targets for interventions to reduce subsequent outpatient use.

**Figure 1:** Proportion (%) of all opioid naïve encounters with inpatient opiate or non-opiate painkiller use by quarter (panel A). Proportion of inpatient encounters with use during 90d after discharge, stratified by inpatient use (panel B). Risk-adjusted association of inpatient opiate use factors with outpatient use within 90d (panel C).

