AHRQ Grant Final Progress Report

Prescription Opioid Use Trajectories and Risk Factors Associated with Opioid-Related Hospitalizations in Older Adults
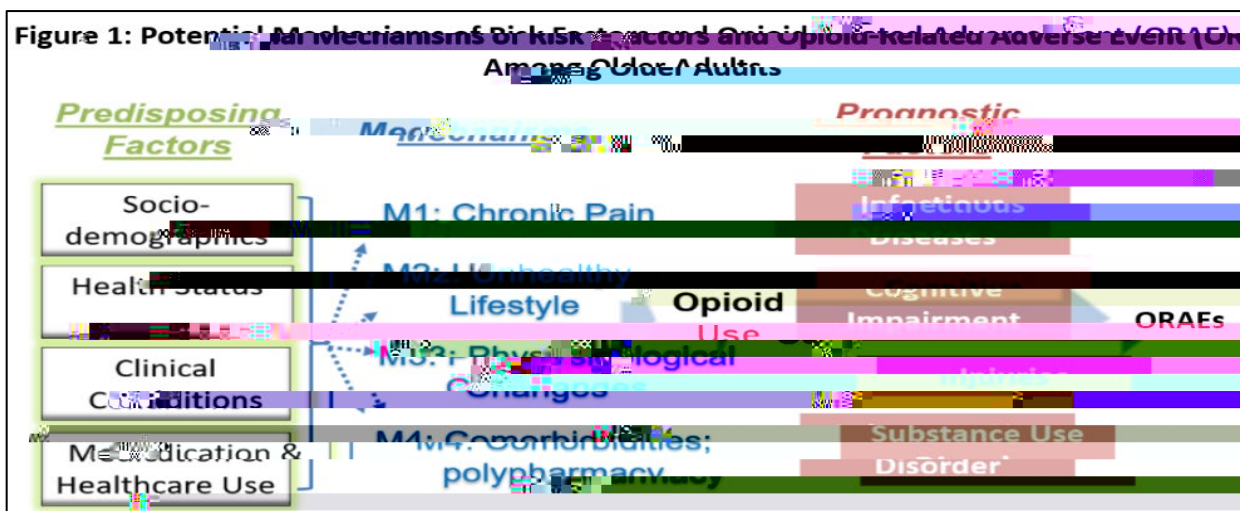
Structured Abstract

Purpose

The objective of this study is to assess high-risk prescription opioid use patterns and risk factors associated with ORAEs that required inpatient or outpatient care among older adults with CNCP. To achieve the objective, the project team employed secondary data analysis of a random sample of Medicare benefi

access prescription opioids. Given the increasing transparency of prescription opioid access in Prescription Drug Monitoring Programs and other initiatives to reduce access to prescription opioids, early refills or multiple provider criteria may have decreasing utility in identifying high-risk users. Further more, the only existing elderly studies evaluated opioid use cross-sectionally limiting assessments of the progression of opioid use to adverse opioid outcomes.[13-] Understanding prescription opioid use trajectories is important for the identification and intervention of high-risk groups. In Aim 1, the project focused on a longitudinal assessment of opioid utilization to identify trajectories from opioid initiation to high-risk use and manifestation of ORAEs in older adults.

Understanding other elderly-specific factors associated with ORAEs is increasingly important given the increasingly restricted access to prescription opioids. Ongoing research shows an increasing proportion of older patients who were newly diagnosed with OUD or OD had no opioid prescription in the year before the diagnosis[1] and received a prescribed opioid dose of less than 90-mg morphine equivalents daily or from fewer than two providers.[17] The project findings raise a question about what other factors may predispose older adults to opioid-related hospitalizations. The scarce literature on older adults reports several risk factors of chronic opioid use or opioid misuse and

Figure 1: Potential Mechanisms of Risk Factors and Opioid-related Adverse Event (ORAE) Among Older Adults

These include sociodemographic factors (younger old age >- @, female, white, rural areas, low income, and low education), poor physical and mental health, history of substance use and abuse, and severe pain condition.

The project team will examine the roles of these predisposing and prognostic factors in relation to the risk for ORAEs in older adults under Aim 2.

Methods

Study Design For both Aims 1 and 2, the project team conducted a nested case-control study in a cohort of older-aged ≥65 years-old Medicare beneficiaries with CNCP who initiated prescription opioids assembled from a January 1, 2011, to December 31, 2018. The project team used the nested case-control study because it allowed for (1) including all identified ORAE cases - i.e., the outcome of interest - which are relatively rare among older adults compared with younger populations, and (2) studying the association between prescription opioid use - i.e., exposure - and risk for ORAEs by flexibly modeling the exposure at varying proximities to the event date.

As shown in Figure 2, the project team first select a cohort of older adults who were aged ≥65 years; were diagnosed with CNCP; had continuous Medicare enrollment; had no diagnosed ORAE outcome; and had no cancer, palliative care, or hospice care during the 12 months before the date of opioid initiation, the cohort entry date. Then, the project team followed patients from the cohort entry date until the earliest date of ORAE outcome, a cancer diagnosis, receipt of palliative or hospice care, death, Medicare disenrollment, or study end on 12/31/2018.

For Aim 1, the project team identified a cohort of 380,272 eligible patients who initiated an opioid prescription and who had no ORAE outcomes diagnosed during the 12 months before the cohort entry - i.e., baseline with mean±SD age [ ] years; [ ]% female and [ ]% white. Of the cohort, [ ] patients developed ORAEs - i.e., cases - yielding an incidence rate of 7.17 per 1000 person-years. Of the [ ] ORAE cases [ ] had the encounter within the first [ ] months after prescription opioid initiation, and 1,273 [ ] had no prescription opioid [ ] months [ ] ORAE diagnosis. This resulted in 3,103 cases with a [ ]-month follow-

benzodiazepines, non-benzodiazepines, anticonvulsants, antidepressants, antipsychotics, and anxiolytics in the   months before the event date for cases or matched date for

Opioid misuse or dependence (ICD-9)

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Covariates

Results

Aim 1 : Examine trajectories of prescription opioid use and their association with ORAEs after opioid initiation among opioid-naïve Medicare older adults.

Principal F indi ngs

Among 3,103 cases and 3,103 controls, four prescribed opioid dose trajectories during the months before the incident ORAE diagnosis or matched date emerged: gradual dose discontinuation from ≥ to ; gradual dose increase from 0 to >3 ; daily MME

Variables	Cases vs. matched controls				
	Unadjusted		P	Adjusted[2] OR	P
	OR	95% CI	value		95% CI	value

	Cases vs. matched controls			
Variables	Unadjusted	P	Adjusted[2] OR	P
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Chronic pain diagnosis [3]				
Musculoskeletal pain (Yes vs no)	-	<0.001	1.21 (1.02-	
Neuropathic pain (Yes vs no)	-	<0.001	-	<0.001
Idiopathic pain (Yes vs no)	- 2.80)	<0.001	- 1.87)	<0.001
Clinical conditions				
Mental health conditions (Yes vs no)	-	<0.001	1.19 (1.03-	
Diabetes (Yes vs no)	-		0.88 (0.77- 1.01)	
Cardiovascular disease (Yes vs no)	-	<0.001	(1.02- 1.33)	0.028
Hypertension (Yes vs no)	- 1.30)		- 1.17)	0.973
Pulmonary condition (Yes vs no)	1.33 (1.20-	<0.001	1.08 (0.93-	
Kidney disease (Yes vs no)	-	<0.001	1.31 (1.12-	<0.001
Gastrointestinal disorder (Yes vs no)	-	<0.001	- 1.28)	
Respiratory infections (Yes vs no)	-			

Variables	Cases vs. matched controls			
	Unadjusted	P	Adjusted[2] OR	P
	2 5	& , 9 D O X H	& ,	9 D O X H
Infections from nonsterile opioid injection (Yes vs no)	1.21 (1.02-	0.032	0.91 (0.73-1.12)	
Medication u tilization				
Polypharmacy (Yes vs no)	-	<0.001	-1.17)	
Healthcare ut ilization				
Any hospital stay (Yes vs no)	-	<0.001	-1.13)	
Any ED visit (Yes vs no/TT1 12 T1.Tw [(ED vin07s]TJ65.320015>]TJ ET Q q 253.08 530.64 92 Tm (-)				

Aim 2: (x amine the extent to which elderly-specific predisposing and prognostic factors are associated with risk for ORAEs after opioid initiation among opioid-naïve Medicare older adults.

Principal fin dings for pre disposing factors (clinical conditions and polypharmacy) and Uisk for ORAEs: The project team found that older patients with mental health
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Conclusions for Aim 2:

- x Mental health conditions, cardiovascular diseases, and kidney disease after prescription opioid therapy were significant predisposing factors of ORAEs.

- x Newly diagnosed injury, respiratory infection, and infection due to nonsterile opioid injection after opioid initiation wHUH associated with subsequent increased risk of ORAEs.

Project Implication s: In this sample of older patients who are Medicare beneficiaries with CNCP, findings from Aims 1 and 2 may have the following implications:

- x The CDC-recommended 90 mg/day MME high-risk opioid dose threshold may not sufficiently detect older patients at risk for ORAEs JLYHWRQW\RI25$(FDVHV received prescribed opioid doses at or above this threshold, as observed in this project.

- x We recommend that additional studies that collect illicit opioid use among older adults are needed to clarify the safe dose threshold of prescribed opioids for older adults, particularly during the new era of increasingly restricted access to prescription opioids.

- x Older adults with receipt of opioid duplications, chronic opioid use, and concurrent use of opioids and CNS medications were at increased risk for ORAEs and should be closely monitored.

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List of Publications and Products

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