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A RANDOMIZED CONTROLLED TRIAL OF A CITYWIDE EMERGENCY DEPARTMENT CARE COORDINATION PROGRAM TO REDUCE PRESCRIPTION OPIOID RELATED EMERGENCY DEPARTMENT VISITS

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Abstract—Background: Increasing prescription overdose deaths have demonstrated the need for safer emergency department (ED) prescribing practices for patients who are frequent ED users. **Objectives:** We hypothesized that the care of frequent ED users would improve using a citywide care coordination program combined with an ED care coordination information system, as measured by fewer ED visits by and decreased controlled substance prescribing to these patients. **Methods:** We conducted a multisite randomized controlled trial (RCT) across all EDs in a metropolitan area; 165 patients with the most ED visits for complaints of pain were randomized. For the treatment arm, drivers of ED use were identified by medical record review. Patients and their primary care

providers were contacted by phone. Each patient was discussed at a community multidisciplinary meeting where recommendations for ED care were formed. The ED care recommendations were stored in an ED information exchange system that faxed them to the treating ED provider when the patient presented to the ED. The control arm was subjected to treatment as usual. **Results:** The intervention arm experienced a 34% decrease (incident rate ratios = 0.66, $p < 0.001$; 95% confidence interval 0.57–0.78) in ED visits and an 80% decrease (odds ratio = 0.21, $p = 0.001$) in the odds of receiving an opioid prescription from the ED relative to the control group. Declines of 43.7%, 53.1%, 52.9%, and 53.1% were observed in the treatment group for morphine milligram equivalents, controlled substance pills, prescriptions, and prescribers, respectively. **Conclusion:** This RCT showed the effectiveness of a citywide ED care coordination program in reducing ED visits and controlled substance prescribing. © 2016 The Author(s). Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

All authors report no conflict of interest except Darin Neven and Becky Grohs. Darin Neven reports owning a medical practice performing ED care coordination that was created after completion of this clinical trial, and Becky Grohs reports working for this practice as the clinical director. Darin Neven also reports being the medical director for the nonprofit Alliance Consistent Care Program and the nonprofit Providence Consistent Care Program. Becky Grohs reports being the program coordinator for the nonprofit Alliance Consistent Care Program.

Keywords—frequent ED users; ED care coordination; prescription opioid abuse; prescription drug monitoring program; opioid prescribing

An increase in overdose deaths related to opioid analgesics over the past 15 years has amplified the importance of safely managing prescription opioid medications prescribed by all physicians, including those who practice in emergency departments (EDs). Pain is the most common reason people seek care in EDs (1). Among all adult ED patients with pain-related complaints, approximately 43% are administered an opioid analgesic, and 26% receive a discharge prescription for an opioid during a pain-related ED visit (2). Roughly one in five prescriptions written by emergency medicine practitioners is for an opioid analgesic (3). ED providers find it difficult to balance effective pain treatment against risk for addiction and overdose (4).

Designed and outfitted for the rapid treatment of acute conditions, the ED lacks the resources for management of chronic pain (5). Such management is difficult in a setting of brief patient–physician interactions, with little or no access to primary care medical records, with small amounts of useful data buried within a voluminous electronic health record that is too lengthy and ill-formatted to efficiently and fully search, and with little training in the treatment of chronic pain or addiction. As a result, the care coordination process tends to break down when patients seek treatment for chronic pain in the ED. Moreover, the lack of timely, accurate information leads to difficulty in appropriately limiting controlled-substance prescribing in the ED. This incomplete substance abuse history makes it very challenging to discuss chemical dependency treatment with appropriate patients. These gaps make it possible for patients with drug addiction to use the ED to obtain controlled prescription drugs (6).

Of particular concern in this context is a small subset of patients who use the ED frequently. It has been reported that 3% to 4% of patients account for up to 20% of total ED visits (7). Frequent ED users are a particularly difficult population to treat appropriately due to a lack of consistently implemented ED treatment plans, which are routinely employed in the primary care setting. Patients who frequent the ED are more likely to have complex problems, be socially and economically disadvantaged, covered by Medicaid or Medicare, have comorbid psychiatric and substance abuse conditions, be in overall poor health, and have made frequent outpatient clinic visits (8,9). Some ED visitors go to multiple EDs in their communities to obtain prescriptions for drugs prone to abuse, a behavior known as “drug seeking” (10). Many efforts, such as statewide prescription monitoring programs, patient alert lists, and a non-narcotic protocol in the ED, have been implemented with unclear effect on ED opioid prescribing practices (11–13).

ED-specific care coordination programs are a novel strategy that seems to be effective at assisting frequent users with obtaining the appropriate level of care in the

appropriate setting (14). Care coordination programs represent a client-centered, assessment-based, interdisciplinary approach to integrating health care and social support services wherein the individual’s needs and preferences are assessed, a care plan for ED treatment is developed, and services are managed and monitored by an identified case manager following evidence-based standards of care. ED care coordination programs that do not operate in all area EDs are not effective at deterring patients from frequenting nonparticipating EDs, and their outcomes are skewed (14).

In 2006, Providence Sacred Heart Medical Center and Children’s Hospital in Spokane, WA, established a city-wide care coordination program, Consistent Care (CC), to offer ED providers at all metropolitan hospitals real-time ED treatment plans for patients at risk for using the ED to obtain prescription analgesics for inappropriate use. A pre-post analysis of a convenience sample of CC patients revealed a significant reduction in ED visits and indicated that the program was cost saving from the hospital’s perspective (15). Although these results were encouraging, a more rigorous evaluation of this program in a new community was needed, one that also evaluated the program’s impact on controlled-substance prescribing.

We conducted a multisite, randomized controlled trial (RCT) of the effectiveness of an information-exchange-assisted citywide ED care coordination program for the management of frequent ED users exhibiting opioid-prescription-seeking behavior in the Tri-Cities area of south-central Washington, 135 miles southwest of Spokane. We sought to determine if the intervention decreased participants’ frequency of ED visits, the controlled-substance-prescribing practices of ED clinicians located at the study sites, and the number of controlled substance prescriptions frequent users received from all providers in the state relative to a treatment-as-usual (TAU) control. If the intervention is shown to be effective, it might provide a management approach that can be implemented in cities nationwide. Such care coordination might ultimately reduce morbidity and mortality risks associated with prescription opioids and reduce related health care expenditures.

METHODS

Study Design and Setting

We utilized a multisite, RCT design. The study took place at three hospital-based EDs located in a region composed of three contiguous cities with a total population of 242,000. The number of combined yearly ED visits for these hospitals was approximately 112,000. The trial included all EDs in the metropolitan area. Each ED was operated independently in separate health care systems.

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