Effect of Drug Disposal Kits and Fact Sheets on Elimination of Leftover Prescription Opioids: The DISPOSE Multi-Arm Randomized Controlled Trial

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Introduction

Misuse of unused prescription opioids has contributed to escalating rates of overdose in children and teens and served as an initial exposure among many of the more than 2 million Americans who suffer from opioid use disorder.[1-3] Despite recent decreases in opioid prescribing, leftover prescription opioids in homes remain a significant health risk.[4] Disposal of unused opioids can limit availability of these medications for misuse. One way to encourage home opioid disposal is to provide drug disposal kits when prescriptions are filled. However, limited evidence exists as to whether these kits increase the likelihood of drug disposal when opioids are no longer required to treat pain. The objective of this study was to determine the impact of providing a drug disposal kit and/or fact sheet describing safe home opioid disposal techniques at the time of medication pick up on rates of leftover opioid disposal.

Methods

Individuals who filled a prescription for immediate release opioids with ≤ 7 days' supply for either themselves or a family member at a Johns Hopkins Health System outpatient pharmacy during June and July 2019 were randomized to one of three study arms:

- Control group - received their prescription with no opioid disposal information
- Fact Sheet Group - received their prescription and an informational handout detailing methods recommended by the Food and Drug Administration to properly dispose of leftover opioids
- Drug Disposal Kit Group - received their prescription, the fact sheet and a drug disposal kit containing a packet of DisposeRx and instructions on its use

Subjects were contacted via telephone 3 and/or 6 weeks after picking up their opioid prescription and questioned regarding prescription opioid use, storage, and disposal after surgery using a previously tested standardized survey.

Primary outcome: safe disposal of leftover prescription opioids using a FDA-approved method by 6 weeks after prescription pick up among subjects who had stopped opioid therapy

Secondary outcome: opioid disposal by any means

Statistical Analysis: Chi-squared tests were used in unadjusted comparisons of primary and secondary outcomes. P values <0.05 are considered statistically significant.

Baseline Characteristics of Eligible Individuals

	Control Group No. (%)	Fact Sheet Group No. (%)	Drug Disposal Kit Group No. (%)
Characteristic	(n = 141)	(n = 188)	(n = 170)
Patient age, y			
Mean (SD)	42.9 (19.9)	36.8 (23.0)	36.8 (20.6)
Median (IQR)	43.0 (27.0-59.0)	35.0 (17.0-56.5)	34.5 (22.0-53.0)
Female	83 (59)	91 (48)	95 (56)
Race/ethnicity			
White	48 (34)	61 (32)	55 (32)
Black	24 (17)	28 (15)	25 (15)
Other	15 (11)	18 (10)	17 (10)
Not reported	54 (38)	81 (43)	73 (43)
Prescriber credentials			
MD	68 (48)	79 (42)	87 (51)
PA	23 (16)	33 (18)	16 (9)
NP	15 (11)	26 (14)	12 (7)
Other	1 (1)	1 (1)	0 (0)
Not reported	34 (24)	49 (26)	55 (32)
Opioid prescriptions, no.			
One	141 (100)	186 (99)	168 (99)
Two	0 (0)	2 (1)	2 (1)
Opioid prescribed			
Oxycodone	123 (87)	160 (84)	151 (88)
Hydrocodone	0 (0)	8 (4)	2 (1)
Hydromorphone	12 (9)	8 (4)	8 (5)
Codeine	2 (1)	0 (0)	2 (1)
Tramadol	4 (3)	14 (7)	9 (5)

Results

499 subjects were randomized of whom 344 completed therapy, reported outcomes and were included in the primary analysis. 90 (26%) were <22 years of age.

No significant differences in opioid disposal were observed between subjects who were provided with the drug disposal kit and fact sheet or the fact sheet alone (8% [8/99] vs 10% [11/110], respectively; 95% confidence interval [CI], 0.34 to 1.91).

No difference in safe disposal was observed when comparing the control group (7% [6/89]) to either the drug disposal kit group (95% CI, 0.37 to 2.81) or the fact sheet group (95% CI, 0.48 to 3.27).

Outcomes Among Individuals Receiving an Opioid Prescription Randomized to a Drug Disposal Kit, Fact Sheet, or Control

	Control Group, No. (%)	Fact Sheet Group, No. (%)	Drug Disposal Kit Group, No. (%)	Between-group Differences (95% CI)[a]		
				Fact sheet vs. control	Drug disposal kit vs. control	Drug disposal kit vs. fact sheet
Outcome	(n = 105)	(n = 125)	(n = 114)			
Safe Opioid Disposal (Primary Outcome)						
Therapy completers	6 (7)	10 (9)	10 (10)	2 (-5 to 10)	3 (-5 to 11)	1 (-7 to 9)
All individuals	6 (6)	10 (8)	10 (9)	2 (-4 to 9)	3 (-4 to 10)	1 (-6 to 8)
Any Opioid Disposal (Secondary Outcome)						
Therapy completers	15 (17)	21 (19)	15 (15)	2 (-8 to 13)	-2 (-12 to 9)	-4 (-14 to 6)
All individuals	15 (14)	21 (17)	15 (13)	3 (-7 to 12)	-1 (-10 to 8)	-4 (-13 to 5)
Safe Storage of Opioids	7 (8)	15 (14)	8 (8)	6 (-3 to 15)	0 (-8 to 8)	-6 (-14 to 3)
Completion of Therapy	89 (85)	110 (88)	99 (87)	3 (-6 to 12)	2 (-7 to 11)	-1 (-10 to 7)

*Unadjusted between-group comparisons of percentages; *P* Value >0.05 for all differences

Conclusions

Provision of drug disposal kits did not increase rates of unused opioid disposal when compared to provision of a fact sheet alone or no intervention.

Passive provision of educational handouts or drug disposal kits at the time of prescription pickup may not produce meaningful changes in behavior. These findings suggest a need for investigation of active interventions.

References

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