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## Safe Disposal of Unused Pharmaceuticals in Vermont

Sarah E. Sherman

*Larner College of Medicine*

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# Don't Dump that Drug! Safe Disposal of Unused Pharmaceuticals

Sarah Sherman, MS3

Family Medicine Clerkship, Feb-Mar 2020

Colchester Family Practice

Mentor: Alicia Jacobs, MD

# Problem identification & description of need

- As much as 60% of prescribed drugs may be taken incorrectly or not taken at all
  - Over half of those who abuse prescription drugs obtain them from a friend or relative, often directly from the medicine cabinet
  - Leftover medications may be accidentally ingested by children, pets or vulnerable adults
  - Unused antibiotics contribute to antibiotic resistance; patients may think it prudent to save them "just in case"
  - Drugs that are flushed down the toilet or thrown in the garbage eventually pose environmental hazards
- There is an overarching need to educate patients and providers about safe medication disposal, ideally at the time of prescription. This is especially true for opioids.
  - While there is general public awareness of drug take back events, there may be less utilization of ongoing resources such as pharmacies, police departments, and free mail in programs.

# Public Health Costs

- Cost for drugs placed into the returns network is roughly 1% of total pharmaceutical spending
- In 2018, Vermonters filled approximately 6.89 million prescriptions at retail pharmacies across the state
- Prescription medications accounted for 11.4% of healthcare expenditures in Vermont in 2014
- According to the DEA, 9.9 million Americans misused prescription drugs in 2018
- The percentage of Vermonters 12+ with substance use disorders is consistently higher than the national average (10.1% vs 7.3%)
- There is a relative lack of accessible data regarding the cost of drug take back programs, but a case study in Alameda county, CA estimated annual costs at \$300,000; pharmaceutical industry reps suggested it could exceed \$1 million

# Community Perspective

- "Wastewater treatment facilities just weren't designed to filter out the kinds of pharmaceutical waste we're seeing . . . the point of prescription in the primary care setting represents a great opportunity to address this issue, which isn't discussed enough." -- Christine Vatovec, PhD, Rubenstein School of Environment and Natural Resources, College of Medicine, University of Vermont
- "We try to emphasize collection of opioids using the prescription mail back program, not necessarily every prescription . . . we have been collecting data, but it has not been targeted to the county or town level yet." -- Alexander Homkey, VT Department of Health
- "We have had a permanent receptacle for drug take back since September [2019] . . . I will reach out to the Health Department to make sure we are on the list of permanent drop off sites." -- Chief Douglas Allen, Colchester PD

# Intervention and Methodology

- A simple one-page flyer was drafted to summarize local and national drug disposal resources. This mainly utilized government websites such as the Vermont Department of Health and the United States Drug Enforcement Agency (DEA). This was placed in visible patient areas in the Colchester Family Medicine clinic.
- Communicated with members of the community in addition to providers and experts in the field of environmental science as it pertains to prescription drugs.
- Searched literature for studies of prescription drug accumulation and observed/theorized environmental effects.

# Results

- Presented the one-page flyer to staff and patients
- Patients reported being able to understand the flyer reasonably well, many had been wondering what to do with medications they had accumulated
- Well received by staff, who provided additional recommendations: there is a lack of similar infrastructure for the disposal of sharps such as lancets and needles primarily used in diabetes care. They also expressed a desire to see more programs that can accept donated unused medications.

# Evaluation of effectiveness & Limitations

- It is theoretically easy & inexpensive to collect data from drug take back programs pre- and post-intervention; preliminary data from VT's mail program can be further stratified
  - Could consider survey of patients to assess which pharmaceuticals accumulate and why
  - Long term analysis of active pharmaceutical compounds in wastewater
- This issue is difficult to quantify by its nature; can't track every single prescription beyond the office
  - Drug take back locations are not always accessible
  - Integrating this discussion into routine care could add to the already considerable list of requirements
  - This intervention is only a "downstream" approach; continue to improve efforts to choose wisely when prescribing medications



# Recommendations for future interventions

- Increase awareness, availability and utilization of drug take back programs; could entail wider distribution of educational materials, financial incentives for participating organizations
- Encourage choosing wisely when prescribing medications, and when possible talk to patients about what to do with unused prescriptions; additional education targeted at providers
- Support research efforts to quantify and characterize active pharmaceutical compounds in the environment to elucidate what effects they may have on individual & public health

# References

Dangi-Garimella, Surabhi. (2016, May 4). *Safe Disposal of Prescription Medications Faces a Cost Barrier*. American Journal of Managed Care. <https://www.ajmc.com/newsroom/safe-disposal-of-prescription-medications-the-cost-barrier>

Daughton, Christian. (2003). Cradle-to-Cradle Stewardship of Drugs for Minimizing Their Environmental Disposition While Promoting Human Health. *Environmental Health Perspectives* 111(5): 757-774. DOI: [10.1289/ehp.5947](https://doi.org/10.1289/ehp.5947)

Kaiser Family Foundation. (2020, February 28). *Health Costs & Budgets*. Kaiser Family Foundation. <https://www.kff.org/state-category/health-costs-budgets/health-expenditures-by-state-of-residence/>

Ruhoy, Ilene and Daughton, Christian. (2008). Beyond the Medicine Cabinet: An Analysis of where and why Medications Accumulate. *Environment International* 34(8), 1157-1169. DOI: [10.1016/j.envint.2008.05.002](https://doi.org/10.1016/j.envint.2008.05.002)

United States Drug Enforcement Administration. *Take Back Day*. National Drug Take Back Day. <https://takebackday.dea.gov/>

Vermont Department of Health. (2020, February 19). *Vermont's Prescription Drug Disposal System*. Vermont Department of Health. <https://www.healthvermont.gov/alcohol-drugs/services/prescription-drug-disposal>

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