



Reduction of Drug Waste

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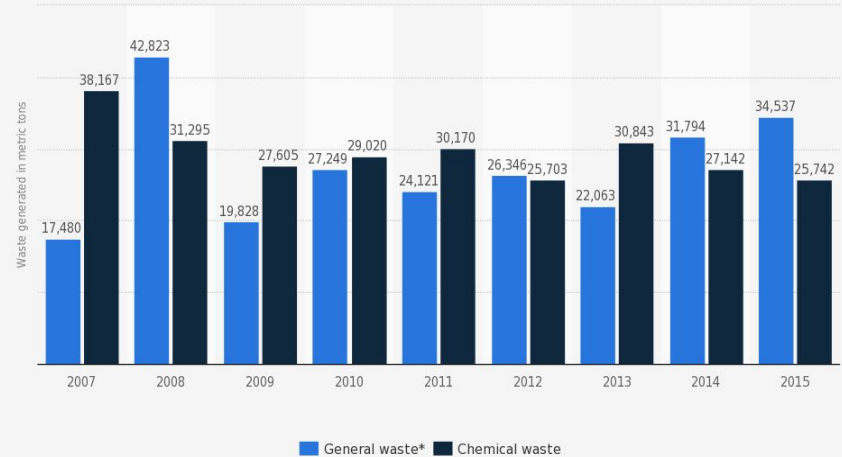
Project Goal

Our goal is to research and investigate the impact of drug waste protocols in Massachusetts and look broadly into other states at their legislations around this issue.

Project Objective

To investigate stakeholders involved with preventable drug waste, explore legislation, and propose recommendations.

Waste generated by pharmaceutical company Roche from 2007 to 2015 (in metric tons)



Source:
Roche
© Statista 2016

Additional Information:
Worldwide

statista

(Snyder, 2016)

Presentation Road Map

Background:

- Environmental Impact
- Economical Impact

Methods:

- Interviews
- Review of Legislation

Findings/Recommendations:

- Findings
- Recommendations

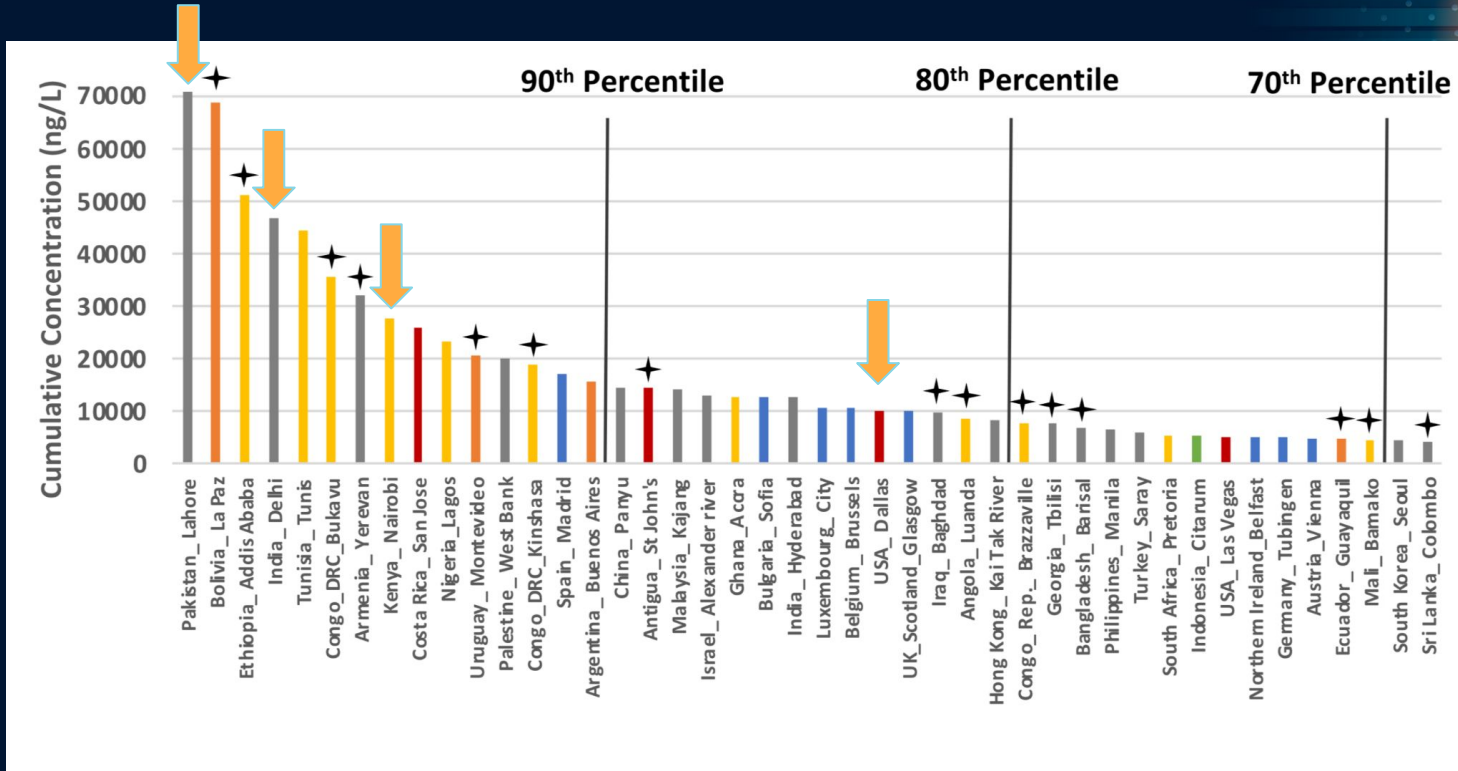
(PNAS, 2022)

Drug waste negatively impacts the environment

Drugs Enter the Water System

Hurt the Environment

Waste Protocols



The cost of medical treatment has increased

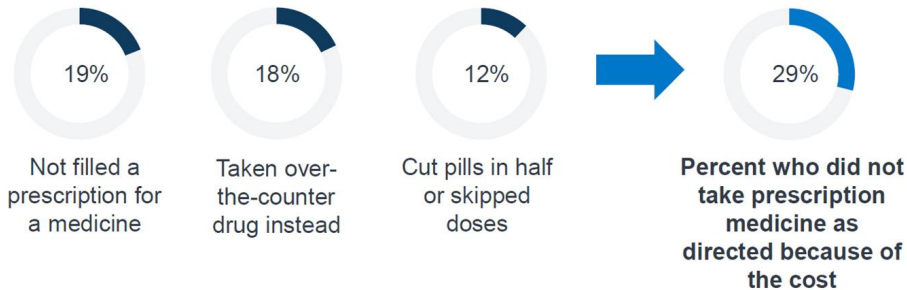
Unhealthy Society

Innovations in Medicine

Higher Cost

Three In Ten Say They Haven't Taken Their Medicine As Prescribed Due To Costs

Percent who say they have done the following in the past 12 months because of the cost:



SOURCE: KFF Health Tracking Poll (conducted February 14-24, 2019). See topline for full question wording and response options.

KFF
HENRY J. KAISER
FAMILY FOUNDATION



(KHN, 2019)

(The Commonwealth Fund, 2017)

Methodology



Investigation of stakeholders involved with preventable drug waste

Interviews



(Beran, 2021)

Stakeholders:

Stakeholder:	Amount:	Objective:
Nurses	5	To find the effects and causes of drug waste in ICUs and hospitals.
Pharmacists	4	To find causes and solutions to drug waste.
Patients	1	To find the effect of drug waste on the economy and community.
SIRUM (Company)	1	To find solutions to drug waste.
Government Officials	3	To find legislation and solutions regarding drug waste.

Exploration of legislation on drug waste

Interviews



(Castillo, 2019)

Legislation Review

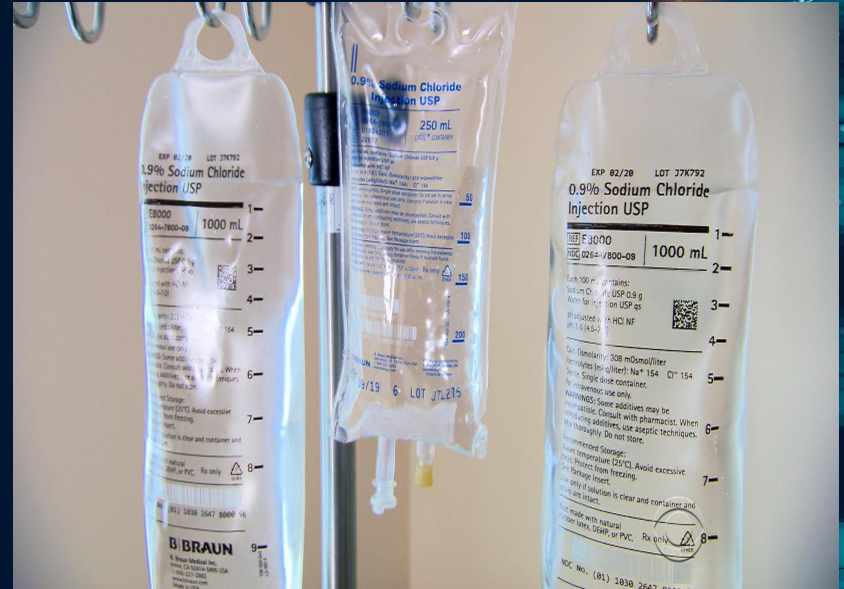


Findings



Findings:

Safety protocols can lead to excessive drug waste



Findings:

Dropbox areas and Cactus devices can be improved



Findings:

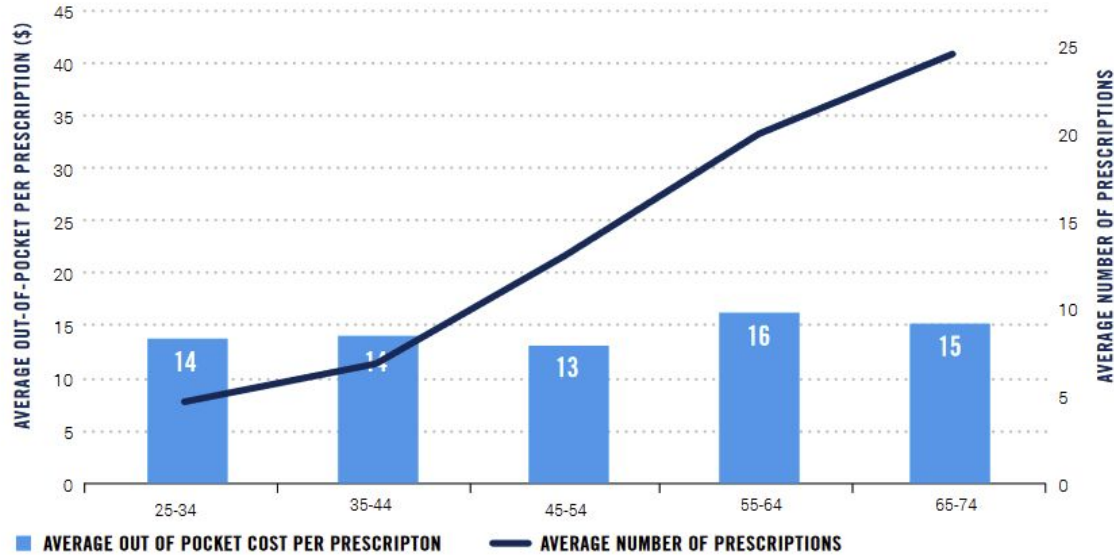
Medication often expires before it can be utilized



Findings:

A culture of overmedication has led to excessive waste

FIGURE 6. THE AGE-BASED PRESCRIPTION ESCALATOR IS DRIVEN MAINLY BY RISING UTILIZATION, NOT HIGHER PRICES



Source: MEPS

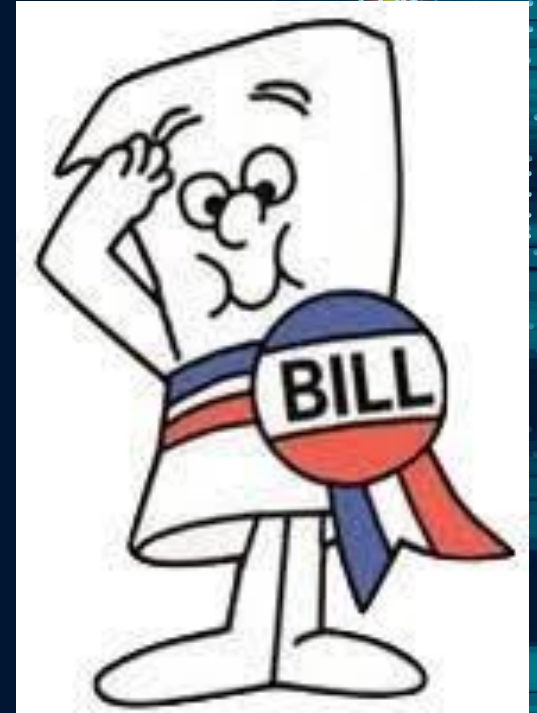
Findings:

Diversion is an overlooked aspect of drug waste



Findings:

Legislation regarding drug waste fails to cover the issue



Recommendations



Variables to Consider:

Safety of patients is paramount

Cost of pharmaceuticals

Effects on Diversion

Treatment of Patients



Recommendations:

Deprescribing to solve overmedication



Recommendations:

Public Awareness of Disposal Sites



Recommendations:

Adjustment of Safety Protocols

SAFELY DISPOSE OF UNUSED MEDICINE

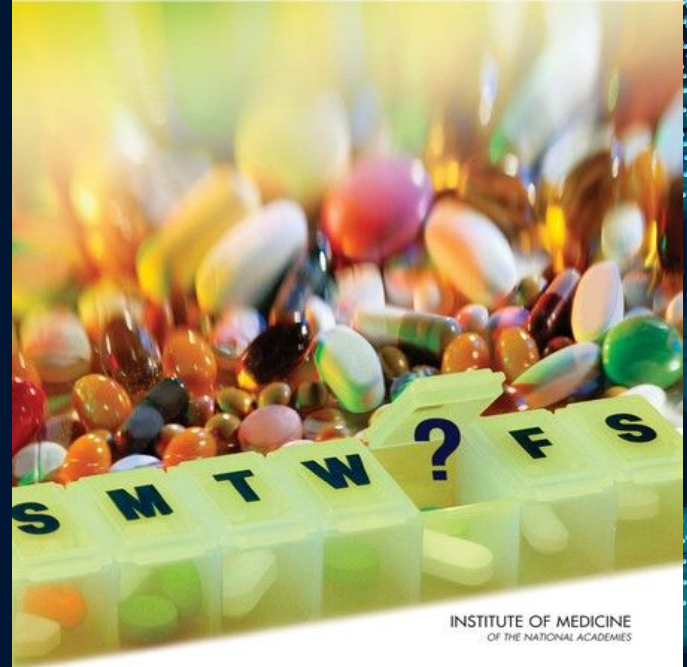


 **U.S. FOOD & DRUG
ADMINISTRATION**



THE FUTURE OF DRUG SAFETY

PROMOTING AND PROTECTING THE HEALTH OF THE PUBLIC



INSTITUTE OF MEDICINE
OF THE NATIONAL ACADEMIES

Recommendations:

Creating an environment for drug reuse companies



Recommendations:

Implementation of Dose Banding

Band Range (mg)			Band Dose (mg)	Variance (percent)	
From \geq	To (A) <	To (B) \leq		Below	Above
2.30	2.50	2.49	2.4	4	-4
2.50	2.70	2.69	2.6	4	-4
2.70	2.90	2.89	2.8	4	-3
2.90	3.10	3.09	3	4	-3
3.10	3.30	3.29	3.2	3	-3
3.30	3.50	3.49	3.4	3	-3
3.50	3.79	3.78	3.6	3	-5
3.79	4.20	4.19	4	5	-5
4.20	4.60	4.59	4.4	5	-4
4.60	5.00	4.99	4.8	4	-4
5.00	5.40	5.39	5.2	4	-4
5.40	5.80	5.79	5.6	4	-3
5.80	6.20	6.19	6	4	-3
6.20	6.60	6.59	6.4	3	-3
6.60	7.00	6.99	6.8	3	-3
7.00	7.59	7.58	7.2	3	-5
7.59	8.39	8.38	8	5	-5
8.39	9.19	9.18	8.8	5	-4
9.19	10.18	10.17	9.6	4	-6
10.18	11.38	11.37	10.8	6	-5
11.38	12.59	12.58	12	5	-5
12.59	13.98	13.97	13.2	5	-6
13.98	15.58	15.57	14.8	6	-5
15.58	17.18	17.17	16.4	5	-5
17.18	18.97	18.96	18	5	-5
18.97	20.98	20.97	20	5	-5
20.98	22.98	22.97	22	5	-4

Special Thanks

Representative Mary Keefe

Ms. Abigail Ware

Professor Laura Roberts

Professor Michael Elmes



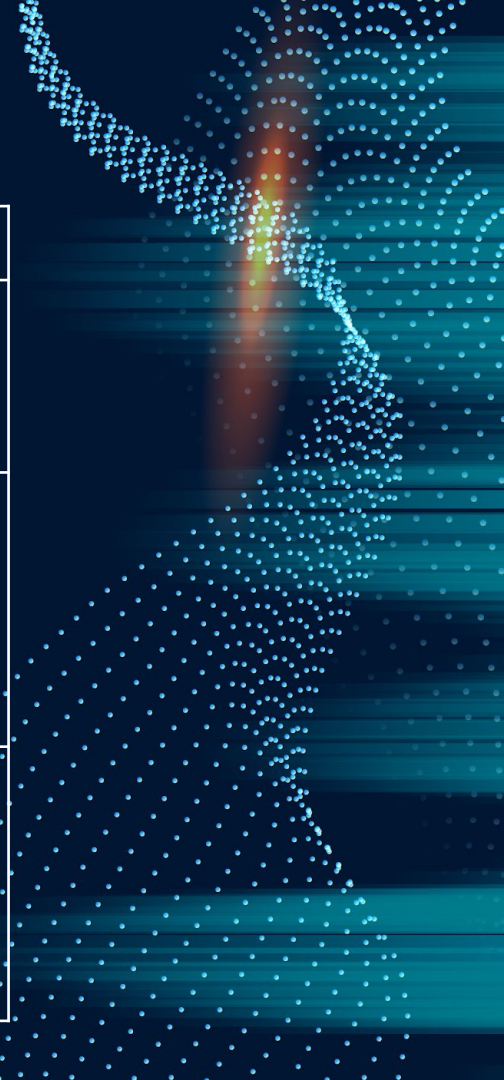
Conclusion

Questions?

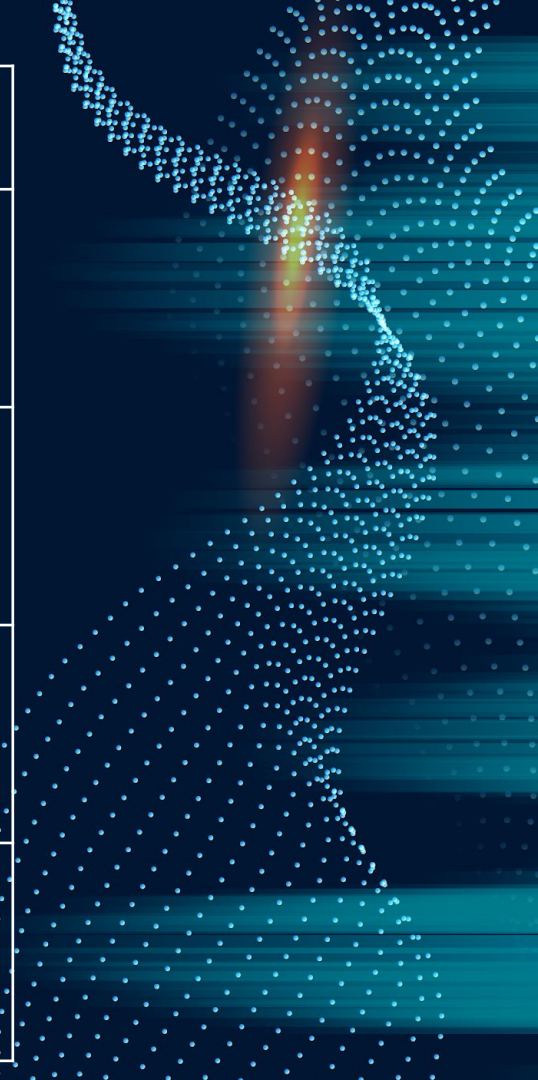
Comments?

Legislation Information:

Title	Origin	Information Covered	End Result
Prescription Drug Pricing Reduction Act of 2020	FEDERAL	Requires drug manufacturers to issue rebates to the CMS for discarded amounts of certain single-dose drugs covered under Medicare	In Committee
An Act Relative to Substance Use, Treatment, Education, and Prevention	MA	Any pharmaceutical product manufacturer selling or distributing a covered drug to consumers in the commonwealth shall operate a drug stewardship program approved by the department	Enacted
Senate Bill S7605	NY	Requires a personal use pharmaceutical disposal system be provided at the time of dispensing an opioid prescription at no cost to the ultimate user of such prescribed opioid.	In Committee



Title	Origin	Information Covered	End Result
Section 90004 of the Infrastructure Investment and Jobs Act, (REFUND Act)	FEDERAL	Requires manufacturers to provide a refund to CMS for specific discarded amounts from a refundable single-dose container or single-use package drugs.	Enacted
Discarded Drugs and Biologicals – JW Modifier and JZ Modifier Policy	CMS	Contains a description of the JW and JZ modifier and how it is used to follow section 90004 of the Infrastructure Investment and Jobs Act	Policy
H.B. 2088 86(R)	TX	Requires that all pharmacists who dispense Schedule II controlled substances provide written notice on the safe disposal of controlled substances	Enacted
“Dose Banding” Guidance for Industry	FDA	Provides guidance on dose banding within the United States. Provides guidance only. It does not have the force and effect of law and is not meant to bind the public in any way	Guidance



Title	Origin	Information Covered	End Result
National dose banding tables	NHS	Provides an example of dose banding for our project and how it could be implemented	Policy
New Hampshire Pharmacy Laws & Rules	NH	Includes all rules in New Hampshire regarding expiration dates and how it relates to samaritan laws.	Laws



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