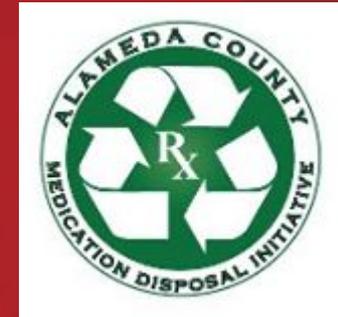




# WEST VIRGINIA INTEGRATED BEHAVIORAL HEALTH CONFERENCE

## Bay Area Medication Disposal Studies: 2009 & 2013: Understanding these Inventories of Post- Consumer Pharmaceutical Waste

*Dr. Joel Kreisberg, Teleosis Institute*



# San Francisco Medicine Waste Characterization Study 2013



# San Francisco Medicine Waste Characterization Study

**TABLE 1. Total Items Inventoried**

Total items* in sample	3193
Total number of collection sites in inventoried sample	23
Total weight	472 lbs

\* An item represents a container of one type of medication, like a pill bottle or a bottle of liquid medication. An item also represents groupings of identical loose pills returned without their original container.



# San Francisco Medicine Waste Characterization Study

**TABLE 2. Sample Size**

Total pounds inventoried	472 lbs
Total pounds collected during first year	17,142 lbs
Total pounds collected to date	20,218 lbs
Size of sample in relation to first year collection	2.7%



# San Francisco Medicine Waste Characterization Study

**TABLE 3. Packaging by Weight**

	Total Pounds	% of Total
Total weight inventoried	472.0 lbs	
Packaging	79.6 lbs	16.8%
Weight of pharmaceuticals	392.4 lbs	83.2%



# San Francisco Medicine Waste Characterization Study

**TABLE 4. Non-Pharmaceutical Items Returned**

	Item	% of Total
Total items in sample	3193	
Total items unidentifiable as a pharmaceutical product	165	5%
Total items identified as a pharmaceutical product	3028	95%





# San Francisco Medicine Waste Characterization Study

**TABLE 6. Most Common Individual Medications Returned by Active Ingredient(s)**

Total items identified as a pharmaceutical product	3028	
Total items unidentifiable by active ingredient	328	10.8%
Total items identified by active ingredient	2700	89.2%
Total unique individual medications identified	534	

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	<b>Items</b>	<b>% of total</b>
Testosterone	90	3.3%
Sevelamer carbonate	71	2.6%
Ibuprofen	67	2.5%
Acetaminophen	57	2.1%
Albuterol sulfate	53	2.0%
Ipratropium bromide and albuterol sulfate	44	1.6%
Budesonide	40	1.5%
Triamcinolone acetonide	38	1.4%
Acetaminophen and hydrocodone bitartrate	35	1.3%
Furosemide	35	1.3%

# San Francisco Medicine Waste Characterization Study

**TABLE 7. Most Common Medications Returned by Proprietary or Brand Name**

Total items identified as a pharmaceutical product	3028	
Total items unidentifiable by brand or proprietary name	477	15.8%
Total items identified as generic or by brand or proprietary name	2551	84.2%
Total different brand or proprietary names identified	551	
Generic drug items	1367	53.6%
Brand or proprietary name items	1184	46.4%
	<b>Items</b>	<b>% of total</b>
Renvela	70	5.9%
Testim 1%	65	5.5%
Levemir FlexPen	26	2.2%
Androgel	25	2.1%
PeriGuard Antimicrobial Protectant Barrier Cream	25	2.1%
Pulmicort Respules	15	1.3%
Lipitor	12	1.0%
Synthroid	12	1.0%
Tylenol Extra Strength	11	0.9%

# San Francisco Medicine Waste Characterization Study

**TABLE 8. Medications Returned by Therapeutic Class**

	Items	% of total
Total items identified as pharmaceutical products	3028	
Total items unidentifiable by therapeutic class	291	9.6%
Total items identified by therapeutic class	2737	90.4%
Therapeutic Class	Items	% of total
Central Nervous System Agents	476	17.4%
Cardiovascular Agents	305	11.4%
Respiratory Agents	304	11.1%
Psychotherapeutic Agents	285	10.4%
Hormones	261	9.5 %
Topical Agents	224	8.2%
Gastrointestinal Agents	205	7.5%
Metabolic Agents	196	7.2%
Anti-infectives	151	5.5%
Nutritional Products	124	4.5%
Miscellaneous Agents	109	4.0%
Coagulation Modifiers	89	3.3%
Anti-neoplastics	6	0.2%
Alternative Medicine	1	0.05%
Immunologic Agents	1	0.05%



# San Francisco Medicine Waste Characterization Study

**TABLE 9. Most Common Medications Returned by Manufacturer or Distributor**

Total items identified as pharmaceutical products	3028	
Total items unidentifiable by manufacturer or distributor	535	17.7%
Total items identified by manufacturer or distributor	2493	82.3%
Total number of manufacturers or distributors identified	274	
	<b>Items</b>	<b>% of total</b>
Teva	194	7.8%
Mylan	104	4.2%
Watson	85	3.4%
Genzyme	71	2.8%
Sandoz	68	2.7%
Pfizer	66	2.6%
Auxilium	65	2.6%
Eon	63	2.5%
McNeil	58	2.3%
Abbott	56	2.2%
Qualitest	56	2.2%



# San Francisco Medicine Waste Characterization Study

**TABLE 10. Medications Returned by DEA Designation**

Total items identified as a pharmaceutical product	3028	
Total items unidentifiable as controlled or non-controlled	255	8.4%
Total items identified as controlled or non-controlled	2773	91.6%
<hr/>		
	<b>Items</b>	<b>%</b>
<hr/>		
Non-controlled substances	2451	88.4%
Controlled substances	322	11.6%



# San Francisco Medicine Waste Characterization Study

TABLE 11. Medications Returned by Dosage Form

Total items identified as pharmaceutical products	3028	100%
	<b>Items</b>	<b>% of total</b>
Pills, tablets, capsules	1983	65.5%
Liquid, solutions, suspensions, syrups, lotions	409	13.5%
Ointment, paste, creams	297	9.8%
Powder	132	4.4%
Injectables	96	3.2%
Aerosols	54	1.7%
Suppositories	20	0.7%
Inhalers	18	0.6%
Patch	14	0.5%
Miscellaneous	5	0.2%



# Take Back Locations

<u>Category of Take-back Sites</u>	<u>Sites</u>	<u>% of Total</u>
• <i>2009 Bay Area</i>		
– Pharmacies	62	49.2%
– Law Enforcement Agencies	27	21.4%
– Household Hazardous Waste	9	7.1%
– Medical Clinics	7	5.5%
– Fire Stations*	7	5.5%
– Government Offices	7	4.7%
– Hospitals	3	2.4%
– Other Medical Facilities	2	1.6%
– Dental Offices	2	1.6%
• <i>2013 San Francisco</i>		
– Pharmacies	13	
– Police Stations	10	





# Pounds Collected by County

2009 County	# of Sites	Total Pounds in a year
– Santa Clara	25	18,746
– San Mateo	16	17,778
– Contra Costa	10	8,813
– Sonoma	28	5,377
– Alameda	18	3,991
– Marin	26	2,941
– San Francisco	3	1,967
– Solano	0	671*
– Napa	0	80*
• Total Collected		60,364 lbs
• 2013		
– San Francisco	23	17,142



# Percent of Medications by Weight

- Palo Alto Sample 2009

– Medication weight (lbs)	571	85.6%
– Packaging by lbs	104	15.4%

- San Francisco Sample 2013

– Medication weight (lbs)	392	83.2%
– Packaging by lbs	80	16.8%



# Medications Returned by Availability

- 2009 Bay Area
  - Prescription Medication 64.6%
  - Over-the-counter Medication 25.4%
  - Nutritional Supplement 10%
- 2013 San Francisco
  - Prescription medications 71.9%
  - Over-the-counter medications 23.2%
  - Nutritional supplements 4.9%



# Most Common Medications Returned

- 2009
  - Albuterol 6.4%
  - Acetaminophen 5.5%
  - Ipratropium 5.2%
  - Ibuprofen 1.9%
  - Aspirin 1.5%
  - Multi-vitamin\* 1.4%
- 2013
  - Testosterone 3.3%
  - Sevelamer carbonate 2.6%
  - Ibuprofen 2.5%
  - Acetaminophen 2.1%
  - Albuterol sulfate 2.0%
  - Ipratropium bromide and albuterol sulfate 1.6%





## Safe Medication Disposal Ordinance

Sponsored by the MEDS (Medication Education Disposal Safety) Coalition and Alameda County Supervisor Nate Miley

Join us in protecting our families and environment

Alameda County Board of Supervisors  
2nd Reading & Final Vote on the  
Proposed Ordinance  
Tuesday, July 24, 2012 11:00 AM

1221 Oak Street, 5th Floor Board Chambers  
Oakland, CA 94612



District 1 Supervisor, Scott Haggerty (510) 272-6601  
District 3 Supervisor, Wilma Chan (510) 272-6693  
District 5 Supervisor, Keith Carson (510) 272-6695

District 2 Supervisor, Richard Valle (510) 272-6692  
District 4 Supervisor, Nate Miley (510) 272-6694

Go to <http://www.change.org/petitions/pass-the-safe-medication-disposal-ordinance> to sign the petition and learn what you can do to help!



@AlCoSafeMeds



Alameda County Safe Meds



# References

- Kreisberg, 2013, *San Francisco Medicine Waste Characterization Study*, Teleosis Institute
- Kreisberg, Ruhoy, Cheng, (2010) *Bay Area Medication Disposal Study 2009*, Teleosis Institute





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