



# San Francisco Bay Area **GreenPharm** **Coalition** Project Summary



## Partners

THE SAN FRANCISCO FOUNDATION

*The Community Foundation of the Bay Area*

**TAKEAWAY™**  
ENVIRONMENTAL RETURN SYSTEM

**Johnson & Johnson**

**BAY AREA POLLUTION  
PREVENTION GROUP**  
A Committee of Bay Area Clean Water Agencies

**COMMPRE**  
COMMUNITY PREVENTION  
OF ALCOHOL-RELATED PROBLEMS

## Steering Committee

- **Dean Caudle**  
Environmental Health and Safety Coordinator, Kaiser Permanente, Santa Clara
- **Mark Harvey**  
Director of Operations, EXP Pharmaceutical Services Corp.
- **Joel Kreisberg**  
Executive Director, Teleosis Institute
- **Jack McGurk**  
President & CEO, Systems Improvement Initiators, Inc.
- **Karin North**  
Associate Engineer, City of Palo Alto

## About the GreenPharm Coalition

In 2009 the Teleosis Institute launched the GreenPharm Coalition as a proactive multi-stakeholder, voluntary stewardship program to reduce pharmaceutical pollution in the San Francisco Bay Area. The collaboration builds working relationships with primary stakeholders involved in the delivery and disposal of pharmaceuticals. By engaging Bay Area stakeholders in discussions about pharmaceutical pollution in the environment, improper disposal of consumer's unused pharmaceuticals, over supply and over prescribing practices, and patient safety issues, the GreenPharm Coalition is creating regional solutions that minimize accumulations of unused pharmaceuticals. Teleosis Institute is the convener and catalyst for creating and promoting initiatives within this coalition.

## GreenPharm Coalition Goals

The Coalition's goal is zero pharmaceutical waste in people's homes and in the environment. This requires reducing the quantities of unused pharmaceuticals accumulating in homes and healthcare facilities, as well as after-market disposal. This is effectively achieved by engaging all the primary stakeholder communities in health care, as well as educating pharmacists, physicians, dentists, veterinarians, nurses, and allied health care staff to the benefits of a zero waste constraint.

- Build local collaborative action to help reduce exposures to waste pharmaceuticals.
- Help communities gain an understanding of all the major sources of pharmaceutical exposure.
- Work with communities to set priorities for risk reduction activities.
- Create self-sustaining, community based partnerships that will continue to improve the local environment.

### Primary Stakeholders

- Hospitals
- Hospice
- Long-term Care Facilities
- Primary Care Clinics
- Pharmacies
- Veterinary Facilities

### Secondary Stakeholders

- Regional and local governmental agencies
- Local utility agencies
- Environmental and public health agencies
- Professional associations
- Pharmaceutical manufacturers
- Medical waste transporters



## 2009 Accomplishments

### Hospital Workshops

**Navigating Pharmaceutical Waste Management in Medical Facilities** educated hospital environmental quality staff about the current regulations regarding proper handling of pharmaceutical waste in hospitals. Three workshops were offered in Northern California, with over 100 people in attendance, plus the program was broadcast for Southern California stakeholders. Featured speakers included Charlotte Smith R.PH, Jack McGurk, and Dr. Joel Kreisberg DC. This workshop was offered in partnership with the Bay Area Pollution Prevention Group, a regional water quality board. March, 2009.

### Webinars

- **Paul Kelley**, Biomedical Engineering Manager of Washington Hospital Healthcare System in Fremont, outlined his model program of consumer take-back sites in the hospital system. May, 2009.
- **Catherine Zimmer** of Minnesota Technical Assistance Program discussed reducing the pharmaceutical footprint by auditing use patterns to reduce oversupply. June, 2009.
- **Daniel Caldwell**, Principal Environmental Toxicologist for the Worldwide, Environment, Health, and Safety Department of Johnson & Johnson, offered the manufacturing perspective as to the necessary focus on reducing waste as a more effective solution than take-back programs. August, 2009.
- **Ilene Ruhoy**, MD, Institute for Environmental Medicine, Touro University Nevada, shared her outstanding research on the accumulations of unused pharmaceuticals in the coroners' office. September, 2009.

### Hospice Pilot Program

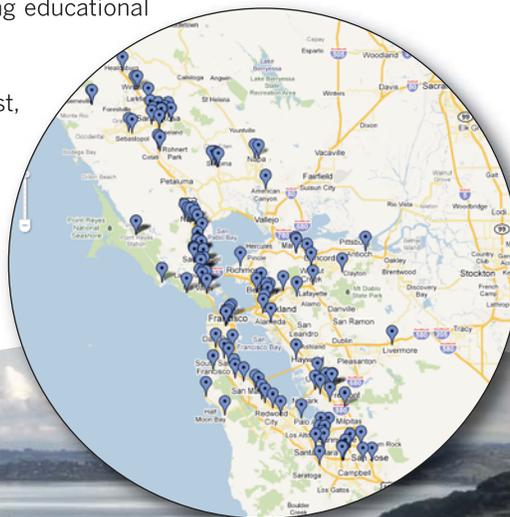
In fall of 2009, **Roundtable on Pharmaceutical Waste in Hospice Care** was offered in San Francisco at the EPA Region 9 building. Twenty participants were in attendance, including representatives from Sutter VNA & Hospice in Concord who volunteered to host a mail-back pilot study. Sharps Compliance, Inc. of Houston Texas, agreed to sponsor the pilot study and donated 500 mailers. The study supplied 25 nurses with 20 mailers each, as well as educational workshops on the basic issues of pharmaceuticals in the environment. Nurses were instructed to provide brochures and mailers to their patients upon initial visit, as well as to the family after the patient passed. During the six-month pilot study, 450 of the 500 mailers were distributed and 40% of the 450 mailers were returned for incineration. Results of the pilot were presented to the Bay Area Pollution Prevention Group, a co-sponsor of the study.

### Pharmacist Education

- **Drugs in the Environment: A Pharmacist's Perspective**, a continuing educational program offered at Touro University, Vallejo, CA. October, 2009.
- **Reducing and Preventing Pharmaceutical Waste** was presented by Dr. Joel Kreisberg to the American Society of Consulting Pharmacist, Anaheim, CA. November, 2009.

### Bay Area Survey

Teleosis Institute surveyed all 9 Bay Area counties to identify existing consumer take-back programs, pounds collected by each program, and total cost of each program. Our report on these 126 sites will be released in Fall 2010.



## 2009 Research Data

### Most common medications returned:

Albuterol	6.4%
Acetaminophen	5.5%
Ipratropium (Atrovent)	5.2%

### Most common classes of medicines returned:

#### 20% Respiratory Agents

Bronchodilators	62.4%
Antihistamines	12.4%
Non-traditional	10.3%

#### 16.5% Central Nervous System Agents

Analgesics	74.6%
Anti-convulsants	9.9%
Anti-emetics	5.3%

#### 12% Topical Agents

Dermatological agents	47.7%
Nasal Preparations	20.8%
Ophthalmic preparations	17.3%



TELEOSIS INSTITUTE

863 Arlington Ave.  
Berkeley, California 94707  
510.558.7285  
www.teleosis.org  
info@teleosis.org

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## Future GreenPharm Coalition Projects

### Take-back Program in Alameda County

Under the leadership of Supervisor Nate Miley, Alameda County District 4, and CommPre (Community Prevention of Alcohol-Related Problems), a permanent program in unincorporated Alameda County is being launched. Four permanent household take-back sites will open in October 2010.

### Research Publication

The **Bay Area Medication Disposal Study 2009: An Inventory of Household Pharmaceutical Waste**, sponsored by Johnson & Johnson, is complete and being submitted for publication. This landmark study will be presented to regional stakeholders in early October 2010.

### Hospice Education

The hospice program is continuing with training sessions for all 38 hospices in the Bay Area. These one-hour training sessions will educate nurses on current information regarding local take-back locations for each hospice program.

### GreenPharmEdu.org

Beginning fall of 2010, Teleosis Institute is offering online curricula specifically focusing on reducing unused pharmaceuticals and pharmaceutical waste in the environment. This online web portal provides continuing education credits for physicians, nurses and pharmacists, supporting improved education of health professionals in this vital topic.

## 2009 Bay Area Survey

Entire 9 County San Francisco Bay Area  
(Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma)

Number of take-back programs:	26
Total number of consumer take-back sites:	126
Totals pounds of unused pharmaceuticals collected:	60,364 lbs
Total cost to dispose of medications:	\$119,133.00
Average cost per pound for disposal:	\$1.99 per pound