

CONTAMINANTS OF EMERGING CONCERN (CECS) &
PHARMACEUTICALS AND PERSONAL CARE
PRODUCTS (PPCPS)

REGULATORY AND RESEARCH UPDATE

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SESSION SS
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CATEGORIES

- Prescription and OTC Therapeutic Drugs
- Veterinary Drugs
- Fragrances
- Cosmetics
- Sunscreen Products
- Nutraceuticals (e.g. vitamins)
- Steroids & Hormones (EDCs)



OVERVIEW

PPCPs represent a vast group of compounds manufactured in large quantities that are frequently used by humans (and domesticated animals) worldwide and are not commonly monitored for or regulated.



OVERVIEW

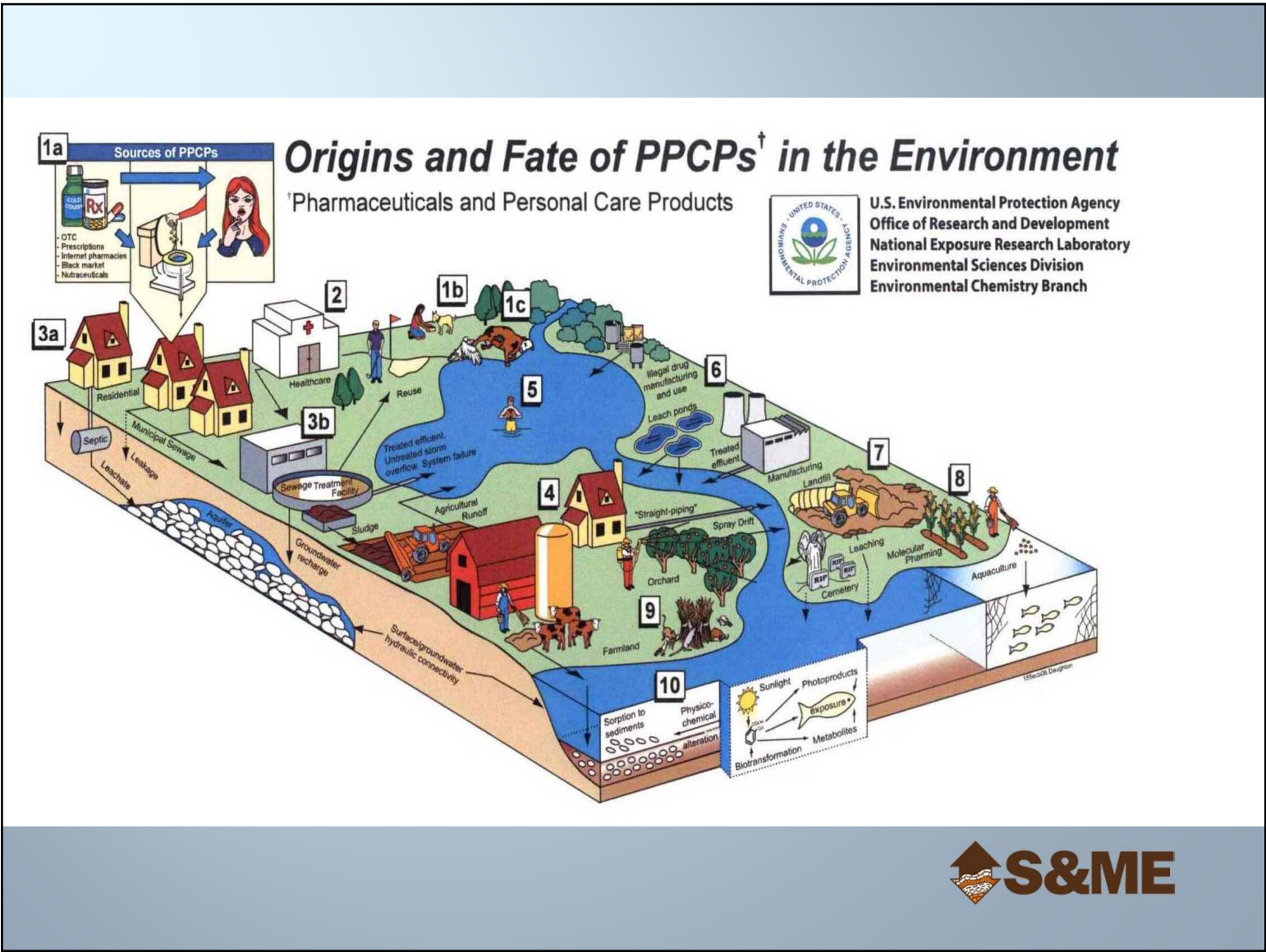
Ongoing research is focused on the environmental impacts of these compounds, including research on the prioritization of compounds of greatest concern, the development of better detection and analytical methodologies, removal technologies; management and disposal, source characterization, and human health and ecological impacts.



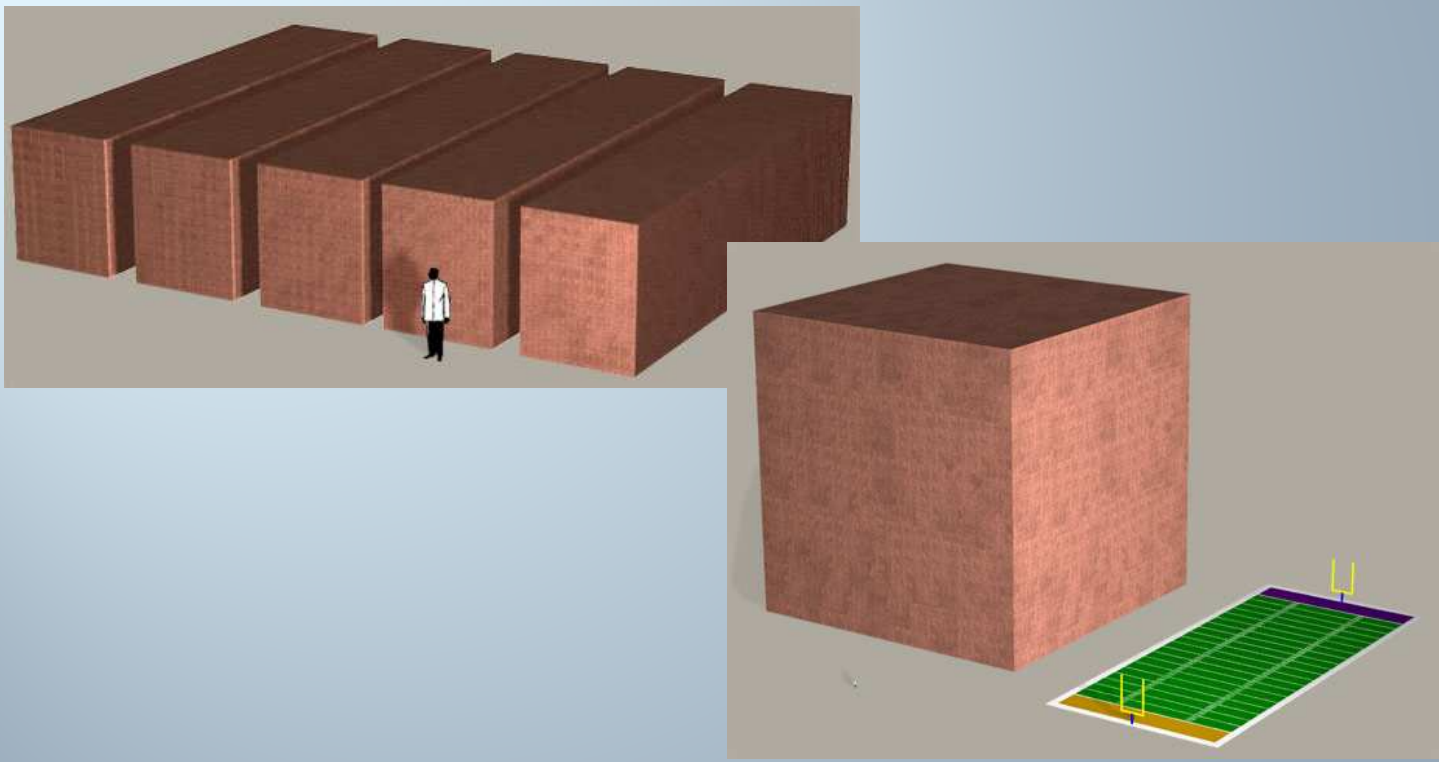
SOURCES OF PPCPS

- Human activity
- Residues from hospitals
- Illicit drugs
- Residues from pharmaceutical manufacturing
- Veterinary drug use, especially antibiotics and steroids
- Agribusiness





Very low concentrations – ppb & ppt



HOW PPCPs ENTER THE ENVIRONMENT

- Largely from sewage treatment plants
- Fish farms
- Stormwater runoff
- Recreational activities
- Leaking landfills



RECENT RESEARCH

11/22/13

- Only about half of prescription drugs and other emerging Contaminants of Concern in sewage are removed (International Joint Commission for the Great Lakes).
- 1,400 wastewater treatment plants discharge approximately 4.8 billion gallons per day of treated effluent into the Great Lakes.



RECENT RESEARCH

9/27/13

- Steroids given to livestock can stay in waterways for a long time and don't always breakdown.
- These chemicals break down by sunlight during the day, but regenerate at night – **ZOMBIE CHEMICALS**



RECENT RESEARCH

1/23/14

- Young coral reefs are being killed by benzophenone-2 (BP-2). This compound is used in soaps, laundry detergents and cosmetics. PPB concentrations can kill the coral, and these concentrations are found in wastewater effluent (Ecotoxicology, 2013).

2/4/14

- Estrogenic compound have been linked to improper heart development in fish (Environmental Health).



RECENT RESEARCH

3/25/14

- A 4-year study tracked 501 couples trying to have children. Phthalates in men had the biggest effect on fertility problems

4/29/14

- The USGS found high levels of toxic substances in the Columbia River from sediments to fish to osprey eggs, largely from household products.



RECENT RESEARCH

5/2/14

- A draft EPA report failed to prove its chemical testing strategy would detect health or ecological harms that may result from exposure to chemicals that mimic, block or alter how hormones work.

6/30/14

- Turtles have been observed to be feminized by BPA (bisphenol-A) which mimics estrogen. BPA is thought to contaminate 40% of US Rivers. (Univ. of Missouri pilot study)



RECENT RESEARCH

7/17/14

- Feminized fish are now found in 3 Pennsylvanian river basins, including the Delaware – this is symptomatic of estrogenic chemicals in the water. There are severe intersex characteristics downstream of WWTPs. PA is now launching a sampling campaign for 180 compounds.



REGULATORY UPDATES

9/2/13

- The World Health Association (WHO) published "Handbook on Health Care Waste.

In the handbook there is a requirement for human excrement containing cytotoxic (e.g. cancer) drugs to be collected and properly disposed. It identifies the chief pharmacist as the RP for management of waste, and hospital and health insurance companies to shoulder the cost of disposal.



REGULATORY UPDATE

12/11/13

- The U.S. Environmental Protection Agency has new guidelines to phase out some antibiotics used as growth enhancers in livestock.



REGULATORY UPDATE

3/17/14

- The New Hampshire Dept. of Environmental Services and Omnicare reached a settlement re: hazardous waste violations. Fined \$298,000.
- “Omnicare was accused of failing to identify some pharmaceutical waste as hazardous waste and then shipping the waste to facilities that were not licensed to process hazardous waste.”
- 30 pharmaceuticals are considered hazardous waste (by characteristic – toxic, reactive, ignitable, corrosive).



REGULATORY UPDATE

5/19/14

- Minnesota bans anti-bacterial chemical used in soap – Triclosan.
- This will take effect January 1, 2017.
- Johnson & Johnson will remove it from all consumer products by 2015.



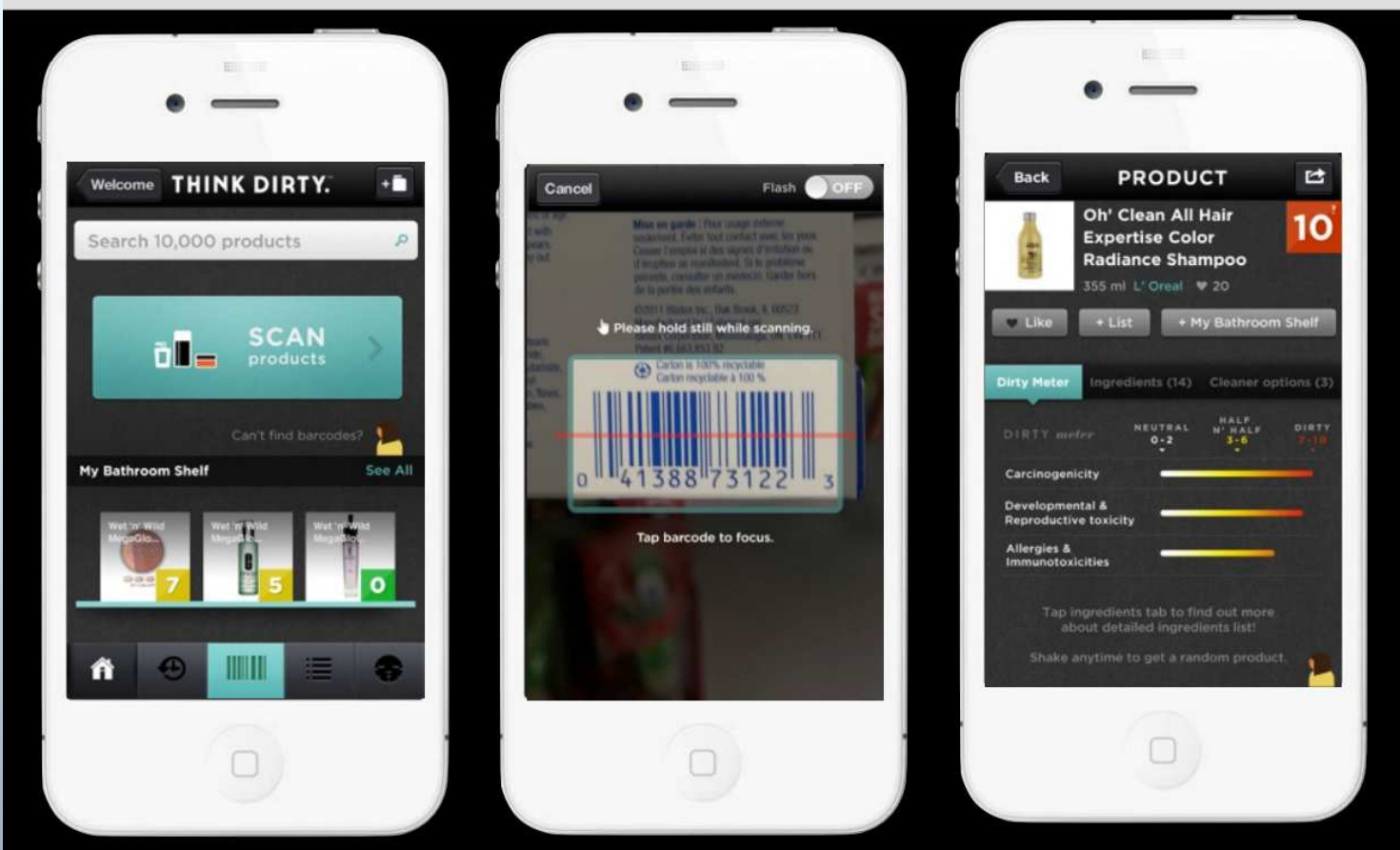
REGULATORY UPDATE

6/12/14

- The European Union's "Endocrine Disruptor Strategy" is on the agenda for French Ministers to consider.
- The Strategy urges action at the EU level.



AND FINALLY.....
THERE'S AN APP FOR THAT



QUESTIONS AND MORE INFORMATION

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