The Need for a Cannabis Phyto-Epidemiology

Public Health Consequences of the Global Green Rush Era

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Epidemiology

- The study of incidence and prevalence patterns of disease in populations
- The basic science of Public Health
- Cornerstone methodology of Public Health Research
- Used throughout the entire Public Health Process
Pharmaco-epidemiology

The study of the use and effects of drugs in large numbers of people.

-International Society of Pharmacoepidemiology

The study of population level incidence and prevalence of Adverse Drug Events (ADEs) caused by pharmaceutical drugs (synthetic molecules) and devices

-Health LAMP, LLC Cannabis Initiative 2019

ADEs also known as Adverse Events since both drugs and devices are pharma.
Pharmacoepidemiology

- Post-Marketing Surveillance of synthetic drug related morbidity or mortality is mandated for pharmaceutical companies: **Sentinel Events Monitoring**

- Reporting ADEs is mandatory for hospitals

- Usual done by collection of *spontaneous case reports*: FDA Adverse Event Reporting System (**FAERS**) & **MedWatch**

- We do not fully understand the epidemiology of pharmaceutical ADEs

- Voluntary reporting vs. mandatory. Unreported Community-based ADEs
ADEs: A Hidden Public Health Concern

- 100,000-150,000 deaths per year
- 4th largest cause of mortality in the U.S.
- 1.5-2.2 million hospitalizations
- 20-70% preventable
- Where’s The Ribbon?

The incidence of fatal adverse drug reactions in hospitalized patients has been estimated to be approximately 5%. In previous studies the incidence of fatal adverse drug reactions in hospitalized patients has been reported, but the incidence of fatal adverse drug reactions in the general population is largely unknown.

www.ncbi.nlm.nih.gov/pmc/articles/PMC2291376/
Retrieved Feb 2019
Phyto-epidemiology

The study of the use of plant derived and plant-based molecules (phytocules) for improving health, and the incidence and prevalence of adverse events they cause in populations.

- Phytoceutical vs. Pharmaceutical
- Plant derived vs. Synthetic
- Phytocule vs. Molecule
- Phytotherapeutics vs. Pharmacotherapeutics

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Phyto-epidemiology

A Note on Nutraceuticals

- Foodstuffs (fortified food or dietary supplement) providing health benefits in addition to their basic nutritional value
- Must be included as an objective of phytoepidemiology

Example: **Red Yeast Rice** is a nutraceutical that contains **Monoclonin-k**

Monoclonin-k is also known as **lovastatin**

Lovastatin was marketed by Merck as **Mevacor for hyperlipidemia**

Statin drugs cause liver and muscle damage and may cause death
Cannabis Phyto-epidemiology

The study of:

- Use and effects of cannabis on populations
- Incidence and prevalence of cannabis-related adverse events
- Exposure to contaminants, and waste products
- Environmental consequences of cannabis waste

-Health LAMP Cannabis Initiative, NY
Cannabis-related Adverse Events

Any noxious, unintended, or undesired effect of Cannabis when used in humans for prophylaxis, therapy or recreation by exposure to:

- Cultivation
- Processing
- Manufacturing
- Consumption
- Waste Disposal

-Health LAMP Cannabis Initiative 2019
Cannabis Manufacturing Residues

- Flower: Pesticides, bacteria, mold, mycotoxins
- Extract: Hydrocarbon residues
- Oils: Alcohol residues
- Waste: All of the above
Cannabis Product Exposure

- **Flower Blunts**: Cigar wrapped: lung cancer, emphysema
- **Extract: Dabbing**: High THC concentrations: respiratory arrest
- **Oils Vaping**: Inhaling contaminants of processing
- **Edibles**: Food poisoning, consumption indiscretion
Genetics Loads the Gun

Environment Pulls the Trigger

-Joslin