



# Surveillance of population exposure to environmental hazards using Ontario Poison Centre data

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# Disclosure

- No conflicts of interest to declare



# Rationale

- United States: National Poisoning Data System (est. 1985)
  - Includes 99.8% of all exposure calls (upload every 10min)
  - Real time automated analysis and alerting based on (i) call volume, (ii) clinical effects, and (iii) case/exposure definitions
  - Purpose:
    1. Identify early indicators for chemical exposures at multiple sites;
    2. Identify emerging problems with newly introduced products;
    3. Identify illnesses resulting from chemical exposures; and
    4. Monitor the frequency of reports involving abused substances.
  - Detected 22 events of public health significance in 2009
    - Salmonella outbreak detected by PulseNet in 12 states & by NPDS in 5 additional states.



## Background

- Canada
  - Five poison control centres
  - No national poison centre data system
  - Environmental health surveillance mandated in only one province
    - Québec reportable exposures include: Lead, Mercury, Carbon Monoxide, Arsenic
  - Role in public health
    - Identify emerging health hazards
    - Event monitoring
    - Post-event monitoring



**Routine surveillance?**



# Ontario Poison Centre

- Established in 1977 (electronic since 1997)
- Manages over 100,000 calls each year
- Information is recorded by Poison Information Specialists
- Collects data on self-reported exposures occurring in the general population, as reported by the public and by healthcare professionals





View Data Reports Admin Window Help

ACTIVE VDL CASES - Visual Dotlab Case Entry Form

**Patient/Caller Information (Alt-1)**      **Exposure/Patient Flow/Outcome (Alt-2)**      **History/Free Areas (Alt-3)**

Date/Time of Call: 03/15/2016 12:29:36      Status: OPEN      #FU:      Case Number: 2016001-2094096      Ctr: 001  
 Date/Time of Exposure: 03/15/2016 12:29:36

**Nature of Call**

Call Type: Exposure  
 Info Sub Category: N/A - Exposure Call  
 Reason: N/A  
 Exposure Site: Own Residence  
 Caller Site: Own Residence  
 HCF Code: N/A

**Patient Information**

Age:      YR      Sex:      Wks Preg:      Time Since:      MINUTE  
 Unk Age: Not Applicable      Lbs:      Kgs:      Patient:      Post:      Patient Phone: ( ) -      City:      County:      More Zip      State: CN

**Caller Information**

Caller Name:      Caller Phone: ( ) -      Relation:      Hospital:      ER Phone: ( ) -      Pt#/Misc:      PMD:      PMD Phn: ( ) -

**SPI Info**

Strt by: 0075      Init SPI: 0075      Final SPI: 9999      Rev By#: 9999

**Follow Up Information**

Date/Time of Next F/U: 03/15/2016 13:29:36      F/U Comment:      Follow Up Acuity: 2      Lower Acuity/Home F/U

QA Notes-> No QA Notes Records Found

Parameters: 24 Hr/Op-En      Status: OPEN      Date/Time of Call: 03/15/2016 12:29:36      Patient:      Age:      YR      Sex:      Requery: User Def 1      User Def 2      SPI/Ctr: 0075      001      Time Since: 0.0 Minutes Ago      Caller:      Relation:

**Substance(s) (Alt-4)**      **Treatment(s) (Alt-5)**      **Symptom(s) (Alt-6)**      **Route(s) & Scenario(s) (Alt-7)**      **Laboratory (Alt-8)**

Number of Substances:      Substance to PI      Imprint Search      AAPCC# to PI      Clear Coded Values      Substance(Detail)

Tx Rtg	Substance(s)	F	Qty	Units	Qty/Kg Calc	Generic Component	Prod Code	Generic#	Poisindex D

New      Delete      Grab



## Data Extract

### Calls:

- Location: Ontario
- Call type: Exposure

Substance	Time period
Pesticides	2012-2013 (2y)
Lead	2009-2013 (5y)
Mercury	2009-2013 (5y)
Carbon Monoxide	2009-2013 (5y)

### Data elements:

- Date
- Age / Gender
- Caller site
- Exposure site
- Route of exposure
- Reason
- Substance / Subcategory
- Outcome
- City / FSA



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# Exposures by Year & Month

## Number of Exposures

### Pesticides

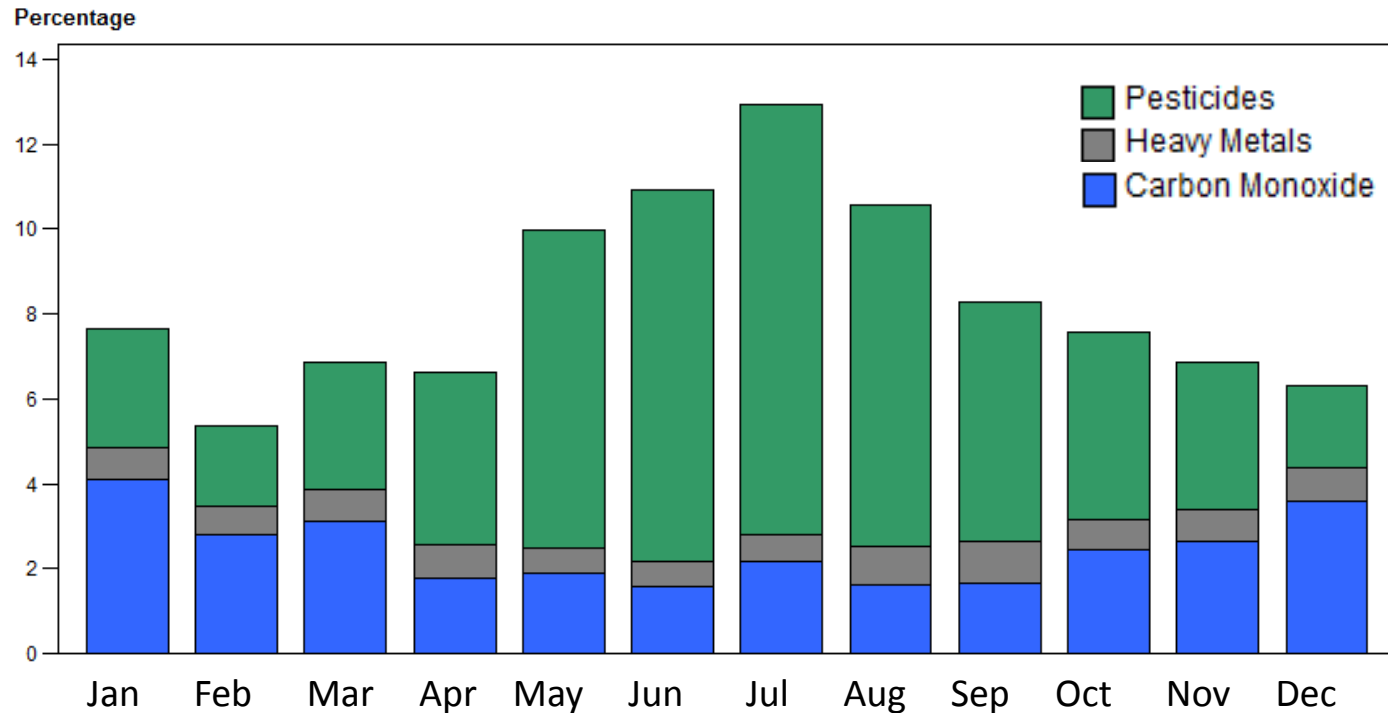
2,952  
(1,476 /year)

### Heavy Metals

446  
(89 /year)

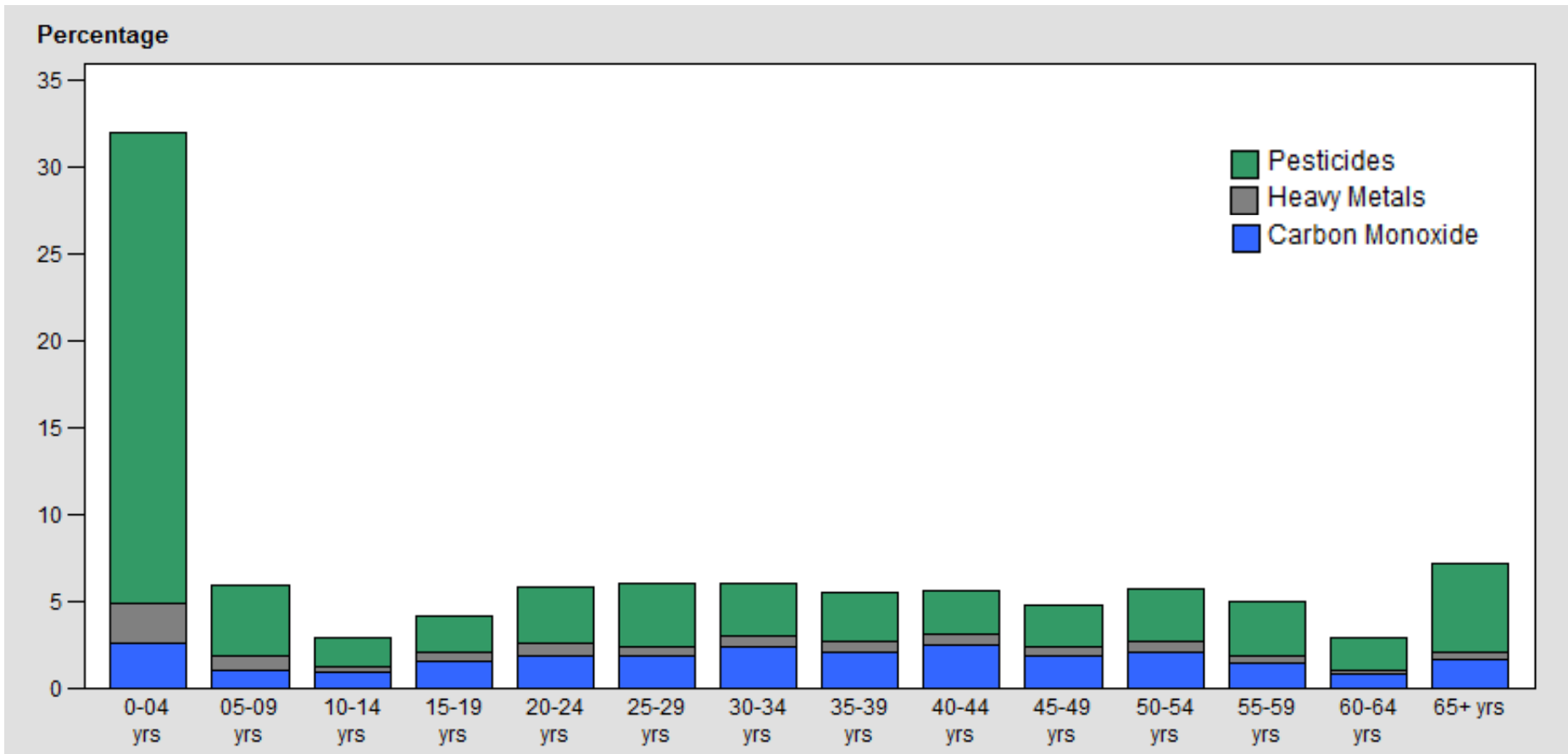
### Carbon Monoxide

1,504  
(301 /year)



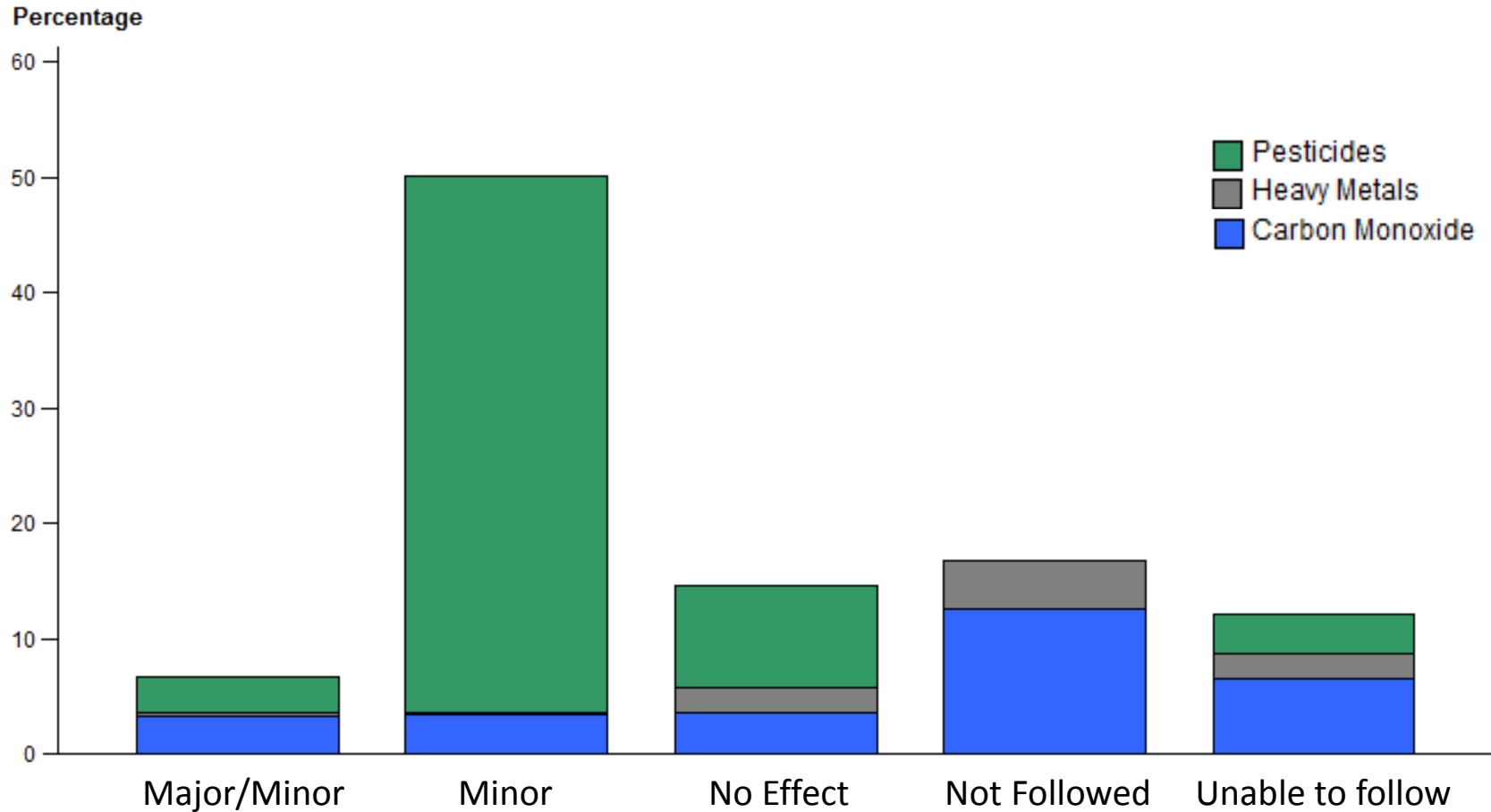


# Exposures by Age





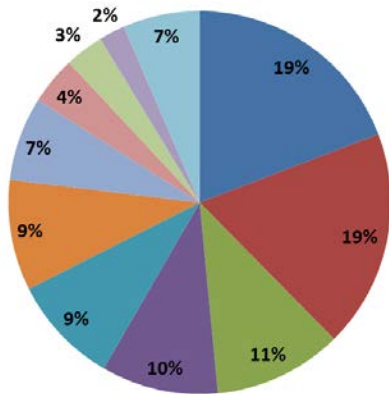
# Exposures by Outcome



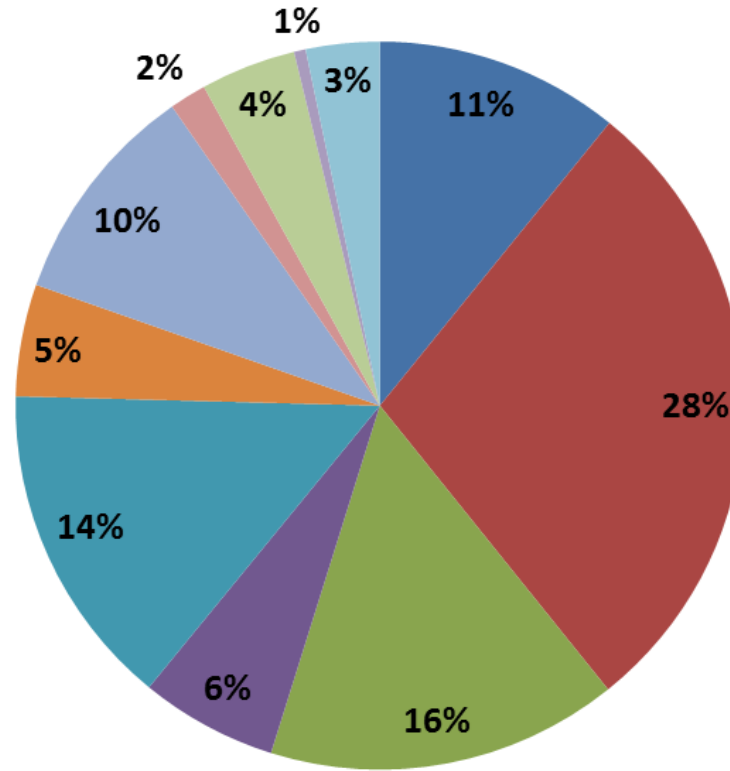


# Pesticide Exposure Subcategories

Entire Population



Children ONLY



- Insecticide
- Ant/Roach Killer
- Rat/Mouse Killer
- Flea Treatment
- Insect Repellent
- Herbicide & Fungicide
- Mothball
- Wasp/Hornet Killer
- Lice Treatment
- Bed Bug Killer
- Other & Unknown



## Key Findings

- This project assessed a small extract of OPC data describing exposures for 3 important environmental hazards
- Data trends were consistent with US data
- Lessons learned from secondary use of novel data source
- Unique data for supporting public health practice and represents the only comprehensive data source for voluntarily reported exposures in Ontario



# Thank You & Acknowledgements

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- Stanley Ing, Nicole Somers, JinHee Kim, Ray Copes

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