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RADARS® System
Faculty/Presenter Disclosure

• **Faculty**: Richard C. Dart

• **Relationships with commercial interests:**
  
  
  – **Speakers Bureau/Honoraria**: Same as Grants, Paid to Denver Health
  
  – **Consulting Fees**: Same as Grants, Paid to Denver Health
  
  – **Other**: Employee of Denver Health and Hospital Authority
Disclosure of Commercial Support

• This program has received financial support from [None] in the form of [Not applicable].
• This program has received in-kind support from [None] in the form of [Not applicable].

• **Potential for conflict(s) of interest:**
  – Denver Health and Hospital Authority owns and operates the RADARS System, which is funded largely by subscriptions from pharmaceutical manufacturers of prescription opioids and stimulants.
Opioid Consumption Map
Morphine Equivalents, mg/capita, 2010

Total Pharmaceutical Opioid Consumption 1980 – 2010, Morphine Equivalents per capita
More Drug Production = More Drug Abuse
But - the Slope Varies by Drug

First Do No Harm

• Prescription opioid-related deaths doubled in just over 10 years in Ontario... (Fischer & Argento, 2012).
• British Columbia – death rate from opioid prescriptions drug in one region (2.7 per 100,000 persons) is similar to that of the number of residents killed in any given year in motor vehicle accidents (Corneil, Elefante, May-Hadford, Goodison, & Harris, 2012),
• Centre for Addiction and Mental Health in Toronto, 37% received opioids from physician prescriptions, 26% from both a prescription and “the street,” and 21% from the street (Sproule, Brands, Li, & Catz-Biro, 2009).
Table 3  Average annual percent change in the opioid-related poisoning death rate according to age group by gender, population 20 years of age or over, Québec, 2000 to 2009

<table>
<thead>
<tr>
<th>Men</th>
<th>Segment</th>
<th>AAPC†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-34 years</td>
<td>2000 to 2009</td>
<td>+3.3%</td>
<td>(-1.8% to +8.8%)</td>
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<tr>
<td>35-49 years</td>
<td>2000 to 2009</td>
<td>+7.5%*</td>
<td>(+4.4% to +10.6%)</td>
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<tr>
<td>50-64 years</td>
<td>2000 to 2009</td>
<td>+20.9%*</td>
<td>(+13.0% to +29.4%)</td>
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<tr>
<td>65 years and over</td>
<td>-</td>
<td>-</td>
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<table>
<thead>
<tr>
<th>Women</th>
<th>Segment</th>
<th>AAPC†</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-34 years</td>
<td>2000 to 2009</td>
<td>+5.4%</td>
<td>(-4.4% to +16.3%)</td>
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<tr>
<td>35-49 years</td>
<td>2000 to 2009</td>
<td>+9.5%*</td>
<td>(+5.6% to +13.5%)</td>
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<tr>
<td>50-64 years</td>
<td>2000 to 2009</td>
<td>+13.7%*</td>
<td>(+5.9% to +22.0%)</td>
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<tr>
<td>65 years and over</td>
<td>2000 to 2009</td>
<td>+7.1%*</td>
<td>(+0.1% to +14.5%)</td>
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</tbody>
</table>

* Statistically significant at the 5% level.
Prescription Opioid Deaths

England and Wales Drug Related Deaths 2001 - 2011

*Note: heroin and morphine are reported as one category in the data from England, Wales and Scotland; since the focus of this analysis is on prescription opioids, that category was not included in this analysis.
Canadian Pain Strategy

First Do No Harm

• Phase 1: Develop *First Do No Harm: Responding to Canada’s Prescription Drug Crisis* (the Strategy)
  – Prevention
  – Education
  – Treatment
  – Monitoring and Surveillance
  – Enforcement

• Phase 2: Implement the recommendations

• Phase 3: **Complete an impact evaluation of the Strategy’s implementation**
  – How? What measures are needed and available?
What is the RADARS® System?

• History
  – Denver Public Safety Net Hospital for 150 years
    • State sanctioned independent authority
  – Created 2001 by Purdue Pharma
  – 2006, Denver Health and Hospital Authority (DHHA)
  – Independent program
  – Multiple pharmaceutical subscribers

• Conflict of interest statement
  – None, other than running system for DHHA as noted above
Mosaic Surveillance for Surveillance of Prescription Drug Abuse

- **Acute Events**: 49 Poison centers, 46 states
- **Drug Transactions**: Criminal Justice, 250 agencies, 49 states
- **Entering Treatment**: OTP, 75 programs, 37 states
- **Entering Treatment**: SKIP, 155 practices, 47 states
- **New Initiates**: College Survey, 2000 students, 50 states
- **Illicit Market Price**: StreetRx.com, Users/Buyers, 50 states
Abuse Deterrent Formulations in the United States

OxyContin, Opana ER, Exalgo, Oxecta, Nucynta ER
Abuse Deterrent Formulations

Population of People with Addiction Risk
↓
Exposed to Opioid

Swallow
Chew
Crush
Snort
Inject

Can ADFs Minimize Progression?

Currently Approved ADFs
Poison Center Program
Population Rate, 2009-2013

Oxycodone ER
Oxymorphone ER
Other Opioids
Drug Diversion Program
Population Rate, 2009-2013

*Other opioids excluding ER oxycodone and ER oxymorphone.
Poison Center Program
Route of Administration, OxyContin

![Graphs showing the rate of administration for oral and non-oral routes with data points before and after ADF transition.](Image)
Case Outcome in Poison Center Program – Major Outcome or Death

![Graph showing the rate of major outcome or death before and after ADF for Oxycodone ER and Opana ER.](image_url)
Treatment Programs
2009-2013

- Oxycodone ER
- Oxymorphone ER
- Other Opioids
US StreetRx
Endorsement of Canadian Products in United States

11 States - 1 to 4 reports
## Oxycodone ADF in US and Canada

<table>
<thead>
<tr>
<th>Formulation</th>
<th>United States</th>
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<tbody>
<tr>
<td></td>
<td>Number reports</td>
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<tr>
<td><strong>Crushable “Old OxyContin”</strong></td>
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</tr>
<tr>
<td>Apo-Oxycodone CR</td>
<td>24</td>
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<tr>
<td>OxyContin®</td>
<td>93</td>
</tr>
<tr>
<td>Co-Oxycodone CR</td>
<td>11</td>
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<tr>
<td>Teva-Oxycodone CR</td>
<td>4</td>
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<tr>
<td><strong>Average</strong></td>
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</tr>
<tr>
<td><strong>Abuse Deterrent “New OxyContin”</strong></td>
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</tr>
<tr>
<td>Oxycodone ER (OxyContin in US, OxyNEO in Canada)</td>
<td>277</td>
</tr>
<tr>
<td><strong>Average</strong></td>
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RADARS System Technical Report, 2014-Q2
The Rest of the Story...

• Abuse Deterrent Formulations may work...
  – OxyContin allowed labeling
  – Not recognized on Canadian products

• What are the effects on outcome?
SAMHSA CBHSQ Data Review, 2013
Past Year Heroin Users, Heroin Dependence and Heroin Initiates

http://www.samhsa.gov/data/
Patient Activism

Government asked to boost generic OxyContin supplies

Brand-name oxycodone was pulled off the market in 2012

CBC News Posted: May 19, 2014 4:38 PM ET Last Updated: May 19, 2014 4:43 PM ET

• The federal government must intervene to end shortages of generic versions of the addictive painkiller OxyContin, says a Toronto man who relies on the drug.

• Small business owner Jim Burke has written Federal Health Minister Rona Ambrose to complain that the government is too focused on addiction and not focused enough on the needs of Canadians like himself who depend on the opioid drug oxycodone.

• Burke... has suffered chronic phantom limb pain since having his right leg amputated above the knee following a car accident.
Other Changes on Horizon

• Many new products in development
• Influx of cheap heroin of high purity
• Natural cycles of substance abuse
• Many different interventions
  – Education, community involvement, prescription monitoring plans
Canadian Surveillance

- StreetRx (streetrx.com)
- Drug Diversion
- Poison Center
- Web-based survey
- Web monitoring
- Pain patients?
Changing Landscape Summary

• Numerous interventions changing abuse
• Expansion of market led to increased population of dependent patients
  – Constriction of availability may push patients to heroin – good or bad?
• Abuse deterrent formulations effective for the formulations that feature them
  – Will they slow the number of people entering the substance use disorder (SUD) pathway?
• Measurement of specific products is needed to identify the problem and to determine whether it is improving.