Evolution of the Opioid Overdose Epidemic
International Landscape of Prescription Medication Misuse
The Global Mosaic: Is Prescription Drug Misuse Really Different Among Countries?

- Janetta Iwanicki, MD
  - Associate Medical Director – RADARS®, Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority

The Growing Nexus Between NARCOS and Counterfeit Medicines

- J. Aaron Graham
  - Executive Director - Brand Safety & Security, Boehringer Ingelheim Pharmaceuticals, Inc.

- John J. Burke
  - President, Pharmaceutical Diversion Education Inc., President and Co-Founder, International Health Facility Diversion Association
WELCOME

• Acute Harms of Prescription Drug Misuse: What Can We Learn from the European Drug Emergencies Network (Euro-DEN) Plus Project
  – David Wood, MD
  – Consultant Physician and Clinical Toxicologist, Guy’s and St Thomas’ NHS Foundation Trust and King’s Health Partners Reader in Clinical Toxicology, King’s College London

• Understanding the Evolution of the Opioid Epidemic in Canada, and the Risks of Poly-Substance Use
  – Tara Gomes, PhD
  – Scientist, St. Michael’s Hospital

• Panel Discussion

• Networking Welcome Reception
The Global Mosaic: Is Prescription Drug Misuse Really Different Among Countries?

Janetta Iwanicki, MD

RADARS®, Rocky Mountain Poison and Drug Center, Denver Health and Hospital Authority
The Global Mosaic: Can We Compare Apples and Oranges?

• Prescription medications vary widely across countries
  – Prescribing patterns
  – Medication availability
  – Cultural and social trends
• Each country measures the impacts of nonmedical use differently
  – Nationwide surveys
  – National databases
• How can we transition to comparing apples to apples?
WHO: Total Opioid Consumption (Morphine Equivalence Mg/Capita), 1980-2015

Sources: International Narcotics Control Board; World Health Organization population data
By: Pain & Policy Studies Group, University of Wisconsin/WHO Collaborating Center, 2016
Global Mosaic: Canada
IQVIA, Standard Units per Population

Canada

Year-Quarter

Standard Units

- Buprenorphine
- Codeine
- Fentanyl
- Hydrocodone
- Hydromorphone
- Methadone
- Morphine
- Oxycodone
- Tapentadol
- Tramadol
Global Mosaic: UK
IQVIA, Standard Units per Population
Global Mosaic: Italy
IQVIA, Standard Units per Population

[Graph showing the trend of standard units per population for Italy from 2012 to 2017 for various opioids and drugs. The graph includes the years 2012 to 2017, with data points for each year and quarter. The standard units are measured on the y-axis, ranging from 0 to 40,000,000, and the year-quarter axis ranges from 2012Q1 to 2017Q4.]
Global Mosaic: Spain
IQVIA, Standard Units per Population

Spain

Year-Quarter

Standard Units

Buprenorphine
Codeine
Fentanyl
Hydromorphone
Methadone
Morphine
Oxycodone
Tapentadol
Tramadol
RADARS® International Program Development

- **2007**: Global Toxicosurveillance Network (GTNet) Program
- **2012**: StreetRx (CA)
- **2012**: EUROPAD
- **2013**: StreetRx (UK, EU)
- **2014**: Survey of Non-Medical Use of Prescription Drugs (UK)
- **2014**: Web Monitoring
- **2015**: SKIP (CA)
- **2014**: Drug Diversion (CA)
- **2016**: Survey of Non-Medical Use of Prescription Drugs (US, CA)
- **2017**: Survey of Non-Medical Use of Prescription Drugs (EU)
- **2018**: Canadian Poison Centre Network (CA)
RADARS® International Program: Canadian Consumer Products & Pharmaceutical Safety, Inc.
RADARS® International Program: European Mosaic

- Acute Health Events
  - Global Toxicsurveillance Network (GTNet)
    - Germany
    - Italy
    - Netherlands
    - United Kingdom
    - Switzerland
    - Lithuania
    - France

- Patients in Substance Abuse Treatment

- European Opioid Treatment Patient Survey (EUROPAD)
  - Germany
  - Italy
  - France
  - United Kingdom
  - Norway
  - Spain

- Early Signals/Contextual Experience
  - United Kingdom

- Users/Buyers
  - Germany
  - Italy
  - France
  - United Kingdom

- Survey of Non-Medical Use of Prescription Drugs
  - Germany
  - Spain
  - Italy
  - France
  - United Kingdom

- StreetRx
  - Germany
  - Spain
  - France
  - United Kingdom
Methodology

- Standardized data are collected during routine daily management of acute medical events then queried for cases involving drugs of interest

Key Measures

- Date of event
- Demographics (gender, age, postal code)
- Reason for exposures (e.g. intentional abuse, misuse, unintentional, suicide)
- Drugs/drug products involved in the exposure (product-specific)
- Routes of abuse
- Outcome (e.g. death)
Global Mosaic: GTNet, France
Exposures per 100,000 Population

There were no reports of hydromorphone and oxymorphone during the surveillance period
Global Mosaic: GTNet, Germany
Exposures per 100,000 Population

There were no reports of hydromorphone and oxymorphone during the surveillance period.
Global Mosaic: GTNet, Italy
Exposures per 100,000 Population

There were no reports of hydromorphone or oxymorphone during the surveillance period.
Global Mosaic: GTNet, UK
Exposures per 100,000 Population

There were no reports of oxymorphone during the surveillance period
Canadian Opioid Dependence Treatment and European Opioid Treatment Patient Survey Program (EUROPAD)

Methodology

- Patients entering treatment for opioid addiction are asked to voluntarily complete the questionnaire
- Questionnaires are sent to central data coordination site for quality review and data entry

Key Measures

Gender, age, substance abuse treatment history, primary drug used “to get high,” source of primary drug acquisition and routes of abuse

Endorsement of prescription drugs “to get high” in the past 30 or 90 days (product-specific)

Route of abuse (chewed, snorted, smoked, injected)
Opioid Dependence Treatment Program, Canada
Quarterly Rates per 100,000 Population
Opioid Dependence Treatment Program, Canada
Cumulative Rates per 100,000 Population
Opioid Dependence Treatment Program, Canada
Routes of Opioid Misuse

Distribution of Route of Abuse

- Codeine
- Fentanyl
- Heroin
- Hydromorphone
- Morphine
- Oxycodone

- Chew
- Smoke
- Snort
- Inject
EUROPAD, GABA Analogues

% of Respondents Endorsing Gaba Drugs

- Germany: 14.08%
- UK: 13.00%
- Norway: 6.19%
- Italy: 1.23%
- France: 0.83%
- Spain: 3.31%
StreetRx Program
http://streetrx.com

Methodology
• Street price information is voluntarily submitted to the open access websites

Key Measures
- Date of submission
- Geographical locator (country, state/province, city)
- Drugs/drug products purchased (product, formulation and dosage strength specific)
- Amount purchased
- Price paid for purchase
Web Monitoring Program

Key Measures

- Number of monthly, weekly, daily mentions (product specific)
- Reason for use (e.g. abuse, misuse)
- Route of abuse
- Outcomes (e.g. addiction, overdose, death)
- Frequency of pre-identified themes
- Sentinel events, new trends
StreetRx, Canada
Price per Milligram, 2012-2017
Global Mosaic: Web Monitoring, UK

![Graph showing the number of posts over time for different substances: oxycodone, hydrocodone, tramadol, and buprenorphine.](image)
Survey of Non-Medical Use of Prescription Drugs Program (NMURx)

Key Measures

- Gender, age, income, geographic location, veteran and student status
- General use and non-medical use of prescription drugs by active pharmaceutical ingredient and by specific product
- Co-ingestants and use of illicit drugs and alcohol
- Reason for non-medical use (e.g. treat pain, to get high, curiosity)
- Routes of non-medical use by product endorsed
- Source of drug acquisition and price paid if purchased through illegitimate channels
- History of chronic and acute pain and prescription drug therapy
The Global Mosaic: How Can We Compare Apples and Oranges?

- NMURx
  - Standardized survey across multiple countries
  - Allows direct comparisons between countries
  - Each country has a “fingerprint” of nonmedical use patterns
Global Mosaic: NMURx Around the World
Global Mosaic: NMURx Around the World
Global Mosaic: NMURx in USA

Percent of Respondents

Benzos  GABA Analogues  Opioids  Stimulants

Metric

Lifetime Use

Lifetime NMU
Global Mosaic: NMURx Around the World
Global Mosaic: NMURx in Canada

[Diagram showing the percentage of respondents for different substances in Canada. The substances are Benzos, GABA Analogues, Opioids, and Stimulants. The graph indicates the trend and distribution of each type of substance use.]
Global Mosaic: NMURx in UK

Percent of Respondents

- Benzos
- GABA Analogues
- Opioids
- Stimulants

Metric:
- Lifetime Use
- Lifetime NMU

UK
Global Mosaic: NMURx Around the World

[Graphs showing drug usage patterns in different countries, such as France, Germany, USA, Italy, UK, and Spain, with different drug classes like benzodiazepines, GABA-antagonists, opioids, and stimulants.]
Global Mosaic: NMURx in France

France

Percent of Respondents

Benzos  GABA Analogues  Opioids  Stimulants

Metric

Lifetime Use

Lifetime NMU
Global Mosaic: NMURx Around the World
Global Mosaic: NMURx in Germany

Percent of Respondents

Benzos  GABA Analogues  Opioids  Stimulants

Metric

Lifetime Use  Lifetime NMU
Global Mosaic: NMURx Around the World

Graphs showing the prevalence of different drug classes (Barbiturates, GABA Antagonist, Opioid, Stimulant) in France, Canada, Germany, USA, Italy, and UK. Each graph represents a different country, with the percentage of the population affected by each drug class plotted against the total population. The Italy graph is circled in red, indicating a particular focus or highlighted data point.
Global Mosaic: NMURx in Italy

![Graph showing the percentage of respondents using Benzos, GABA Analogues, Opioids, and Stimulants in Italy.](chart.png)
Global Mosaic: NMURx Around the World
Global Mosaic: NMURx in Spain

Percent of Respondents

Benzos  GABA Analogues  Opioids  Stimulants
Global Mosaic: NMURx Around the World
The Global Mosaic: Conclusions

- Comparisons between countries can be difficult

- NMURx allows for direct comparisons

- Each country has a “fingerprint” of patterns of misuse

- Misuse of prescription opioids is most common across all countries
Global Mosaic: NMURx Around the World
Each component of the global mosaic provides complementary data.

Codeine and tramadol are highly available in multiple countries.

GABA analogues are commonly misused by persons who abuse drugs, most often in setting of polysubstance misuse.
The Global Mosaic: Conclusions

- NMURx provides comparable data across countries

- Opioids are most commonly misused medications across all countries

- UK has the highest rate of lifetime opioid misuse, followed by Spain and France

- Spain has the highest rate of lifetime benzodiazepine misuse

- Italy has the highest rate of lifetime GABA analogue misuse
Questions?

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