41ST EAPCCT

CONGRESS | 25-28 MAY 2021

VIRTUAL MEETING

LIVE AND ON-DEMAND SESSIONS | POSTERS | VOTING TOOLS | CHAT ROOMS

...AND A LOT MORE!

European Association of
Poisons Centres and Clinical Toxicologists

Web Monitoring Tools to Monitor Trends in Prescription Medicine Misuse

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Competing Interests

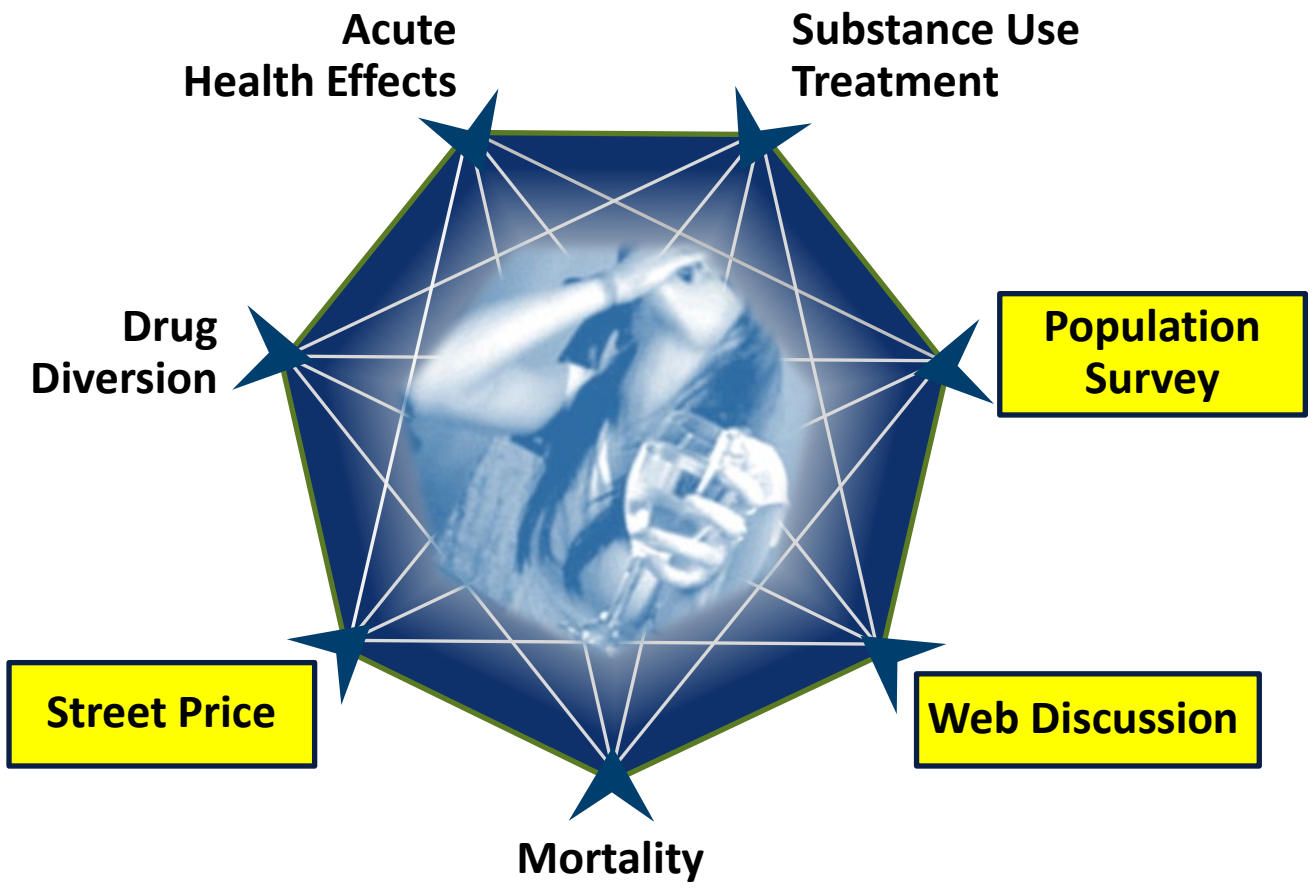
RADARS® System is supported by subscriptions from pharmaceutical manufacturers, government and nongovernment agencies for surveillance, research and reporting services.

RADARS System is the property of The Denver Health and Hospital Authority (DHHA), a political subdivision of the State of Colorado. No subscriber participated in the conception, analysis, drafting, or review of this presentation.

Real World Evidence and Triangulation

Triangulation

More reliable answers by integrating results from several different approaches, each with different and unrelated key sources of potential bias



Lawlor DA, et al. Int J Epidemiology, 2016, 1866–1886 doi: 10.1093/ije/dyw314

World wide web vs internet - what's the difference?

11 Mar 2019

Most of us use the words web and internet to mean the same thing but they're actually quite different.

The world wide web, or web for short, are the pages you see when you're at a device and you're online.

But the internet is the network of connected computers that the web works on, as well as what emails and files travel across.

Think of the internet as the roads that connect towns and cities together. The world wide web contains the things you see on the roads like houses and shops.

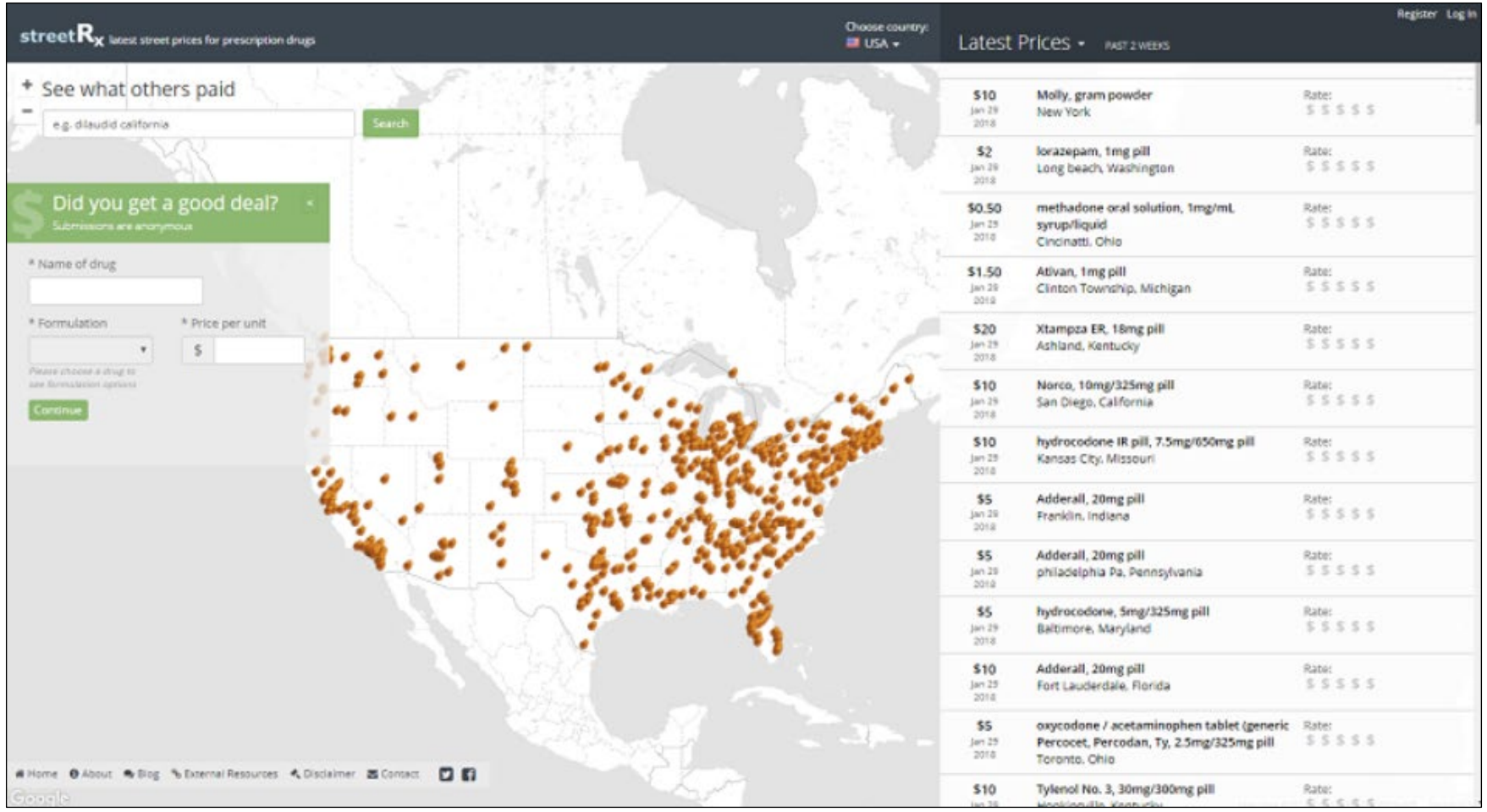
And the vehicles are the data moving around - some go between websites and others will be transferring your emails or files across the internet, separately from the web.

Source BBC, 2019

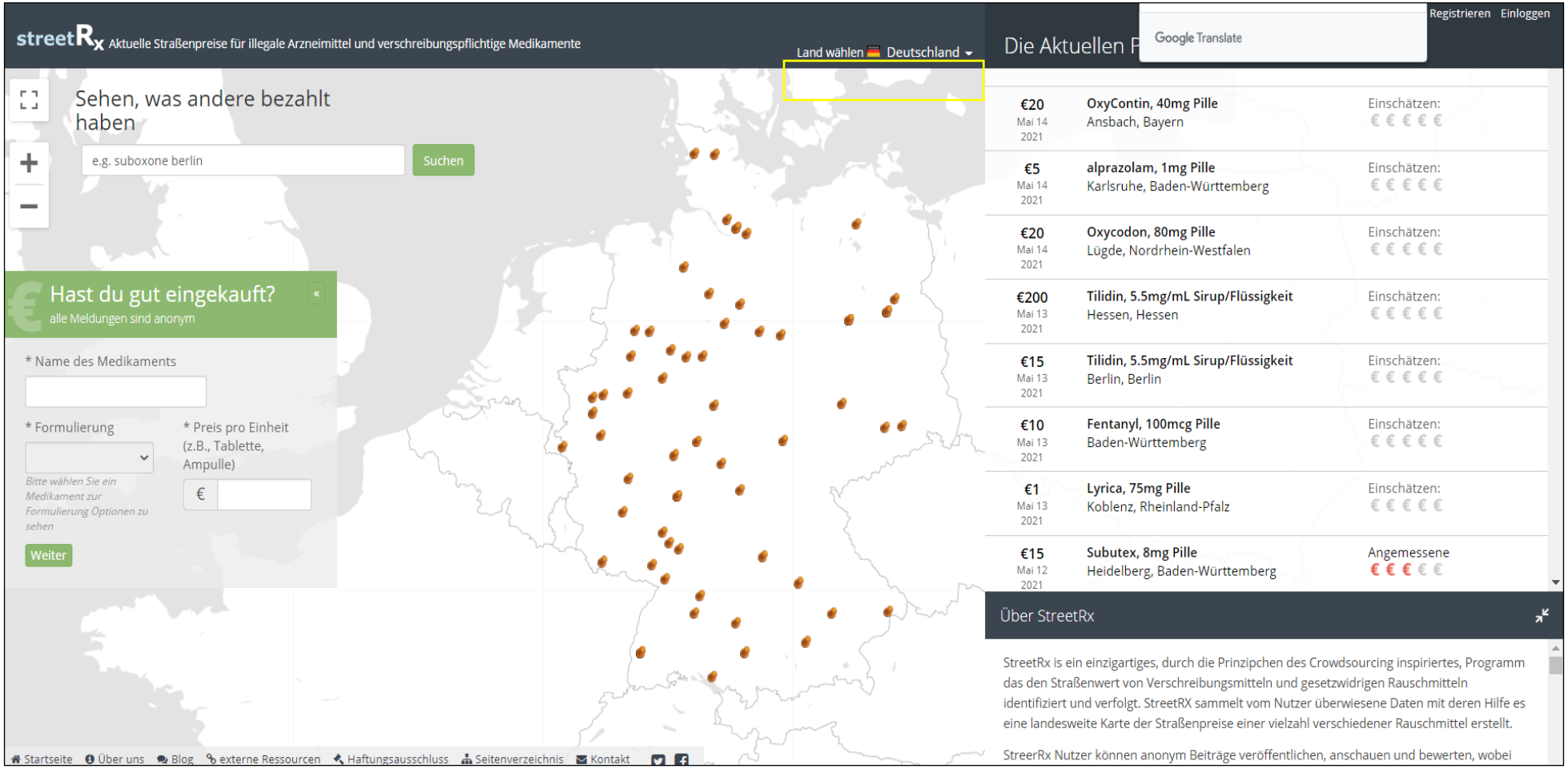
The Web as a Research Tool

- Web as recruitment method
  - StreetRx
- Web as communication method
  - Survey of Nonmedical Use of Prescription Drugs
- Web as a data lode for mining
  - Surface Web
  - Deep Web
  - Dark Web

Web as a Recruitment Tool – www.StreetRx.com

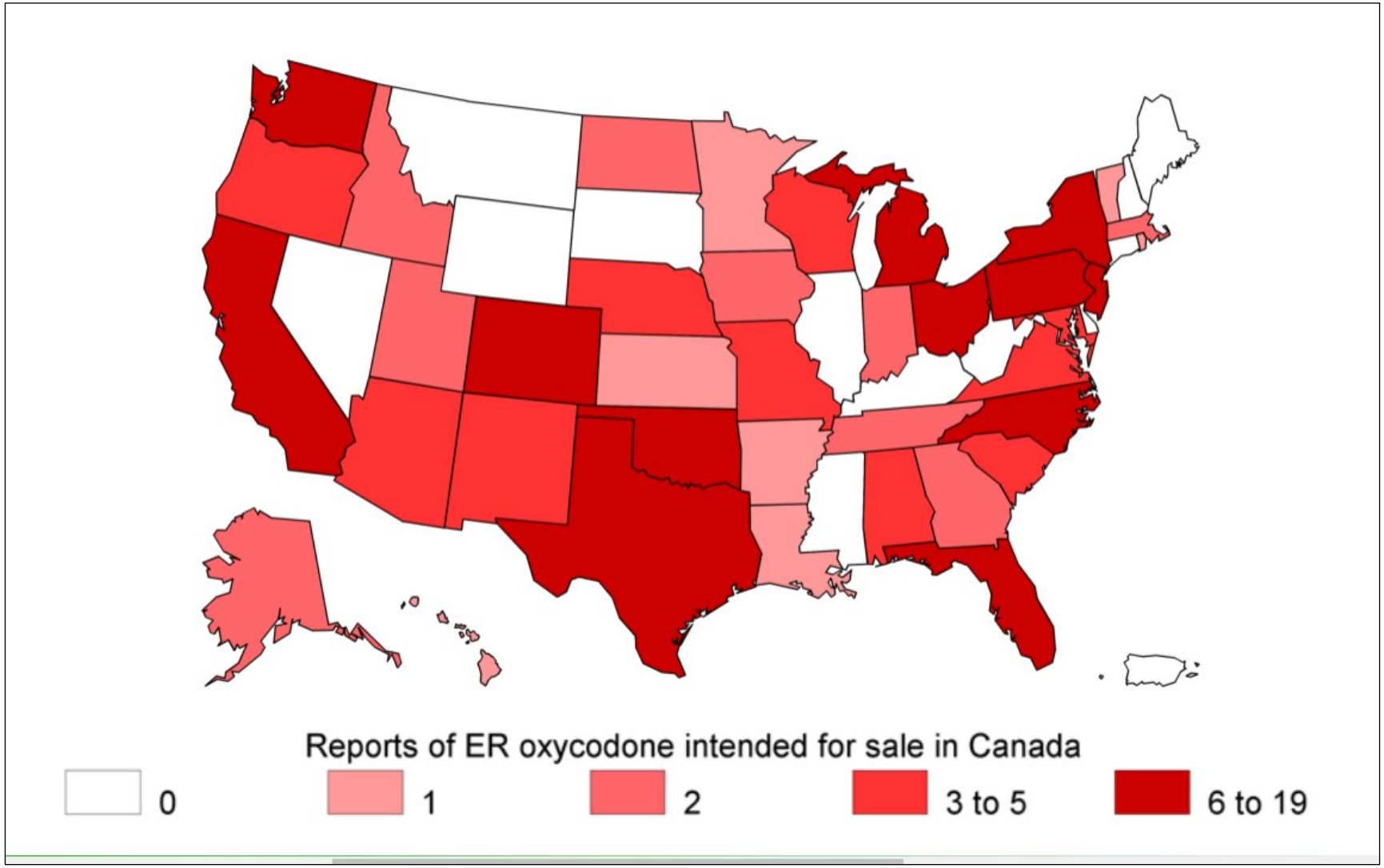


StreetRx France, Germany, Spain, Italy, UK



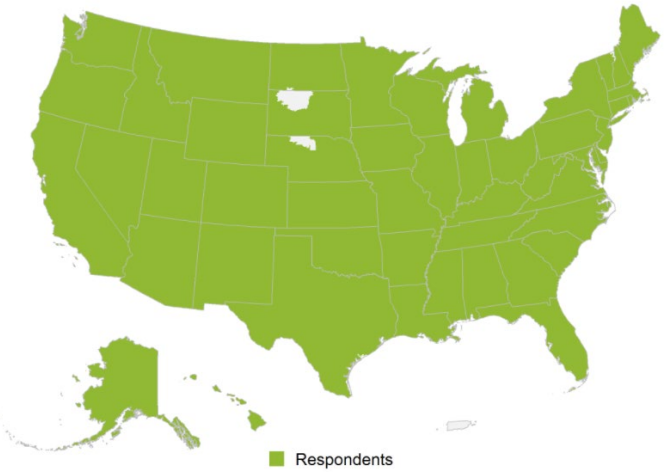
www.StreetRx.com

StreetRx: Canadian Product for Sale in the US



Web as a Communication Tool

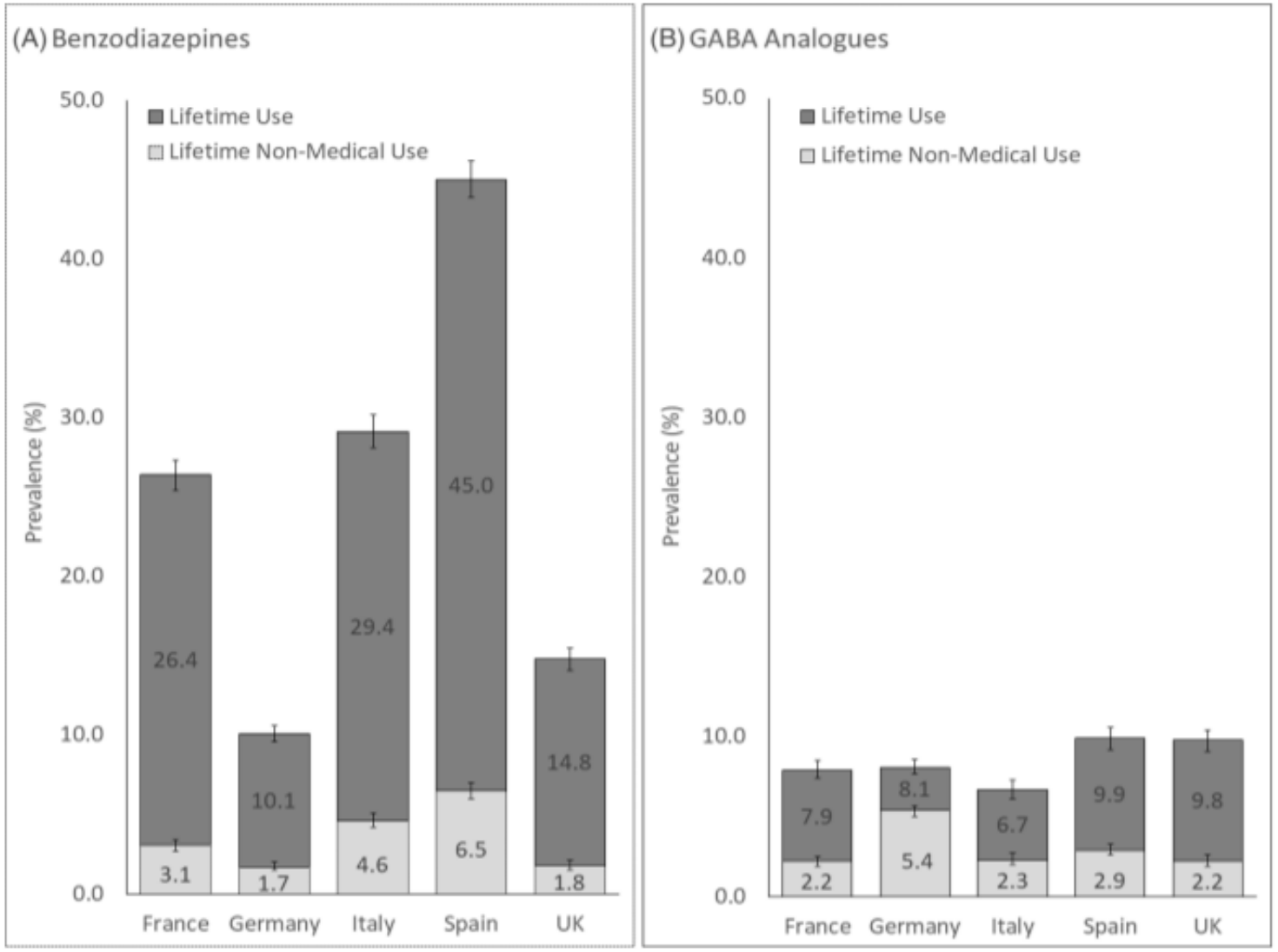
- Nonmedical Use of Prescription Drugs (NMURx)
  - Web-based survey of 60,000 people per year
- Non-medical use of prescription and over-the-counter medications.
  - Use in past year, 90 days, month, or week, reasons for non-medical use
  - Routes of administration for non-medical use,
  - Sources of the drug misused
  - Street price paid if the product was obtained through illicit channels.
- Validated tool



Black JC, et al. An Online Survey for Pharmacoepidemiological Investigation: Validation Study. J Med Internet Res 2019;21(10):e15830 doi: 10.2196/15830

Prevalence and Use of BDZ and GABA Analogues in Europe

- NMURx
  - Web-based survey
  - FR, DE, ES, IT, SP, UK
  - 10K – 15K respondents per country



Hockenhull, J, Amioka, E, Black, JC, et al. *Br J Clin Pharmacol*. 2021; 87: 1684– 1694. https://doi.org/10.1111/bcp.14537

Web as a Data Lode

- **Surface Web** | **5%**
- Deep Web | **95%**
  - Research
  - Legal
  - Financial
- **Dark Web**

Surface Web: Online Discussion Prescription Opioids NMU within the UK

TABLE 3 Number and proportion of mentions discussing specific themes for the drugs oxycodone, hydrocodone, buprenorphine and tramadol from 2014 to 2016

Theme	Oxycodone[b] *n* % (95% CIs)	Hydrocodone[b] *n* % (95% CIs)	Buprenorphine[a] *n* (%)	Tramadol[b] *n* % (95% CIs)
Information sharing				
Seeking information	169	102	261 (8.9)	241
	4.6 (3.8, 5.5)	3.9 (3.1, 5.0)		3.1 (2.8, 3.5)
Sharing experience or opinion	3630	2754	2685 (91.5)	7555
	93.5 (91.4, 95.2)	94.8 (93.7, 95.8)		98.0 (97.7, 98.3)
Drug advice	675	442	807 (27.5)	1069
	20.5 (18.1, 23.0)	15.5 (12.3, 19.3)		14.0 (13.2, 14.8)
Side effects	373	159	415 (14.1)	1080
	9.6 (8.3, 11.0)	5.6 (4.6, 6.7)		14.0 (13.3, 14.8)
Indicators of nonmedical drug use				
Abuse	148	142	158 (5.4)	89
	4.4 (3.1, 6.0)	5.0 (3.3, 7.2)		1.2 (0.9, 1.4)
Endorsement of drug use	343	397	213 (7.3)	657
	8.8 (7.4, 10.3)	14.1 (12.4, 16.0)		8.5 (7.9, 9.2)
Detoxification	191	79	563 (19.2)	310
	5.1 (3.9, 6.6)	2.8 (2.0, 3.8)		4.0 (3.6, 4.5)
Diversion	276	224	121 (4.1)	302
	8.1 (6.3, 10.1)	7.8 (6.5, 9.2)		3.9 (3.5, 4.3)
Polysubstance use	1578	806	1135 (38.7)	2713
	44.0 (40.9, 47.0)	28.6 (25.0, 32.4)		35.4 (34.3, 36.5)

Hockenhull J, Black JC, Bletz A, et al. An evaluation of online discussion relating to nonmedical use of prescription opioids within the UK. *Br J Clin Pharmacol*. 2021; 87: 1637– 1646. https://doi.org/10.1111/bcp.14603

The Dark Web

- Not accessible except through special servers
- Two primary categories of data
  - Discussion boards - Similar to surface web content and not particularly unique
  - Cryptomarkets
    - Legal and illegal drug products
      - Counterfeit goods
      - Weapons, hacking sites, pornographic sites, and resources for bitcoin tumbling…
- Content of discussion board posts similar to surface to web

Dark Web Cryptomarket Analysis

- Information
  - Source country, countries shipped to, products, dose, formulation, seller user handle, name of market, price
  - Seller is often post misleading information
- Benefits
  - Unique data source for describing the black-market trade of prescription and illicit drugs
- Limitations
  - Cryptomarket data is unstructured
  - Difficult to extract drug-specific content without manual review

Summary

- The Web: A important tool that provides unique qualitative data, not a purpose in itself
  - Research question first, then tool selection
- Also very useful for recruitment and communication of research subjects
  - www.StreetRx.com
  - NMURx
- One perspective, not the final answer – part of triangulation

Questions?

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