



Brief Introduction to Drug Checking

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DISCLOSURES

- I have no conflicts of interest to disclose.
- I am a scientist/employee of FRFF/CFSRE, a 501(c)(3) non-profit research & educational facility.



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 - The opinions, findings, conclusions and/or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the CDC, the DOJ, or other federal, state, local, or private agencies.



WHAT IS DRUG CHECKING?



INTRODUCTION TO HARM REDUCTION

- Public Health and Safety Strategies:

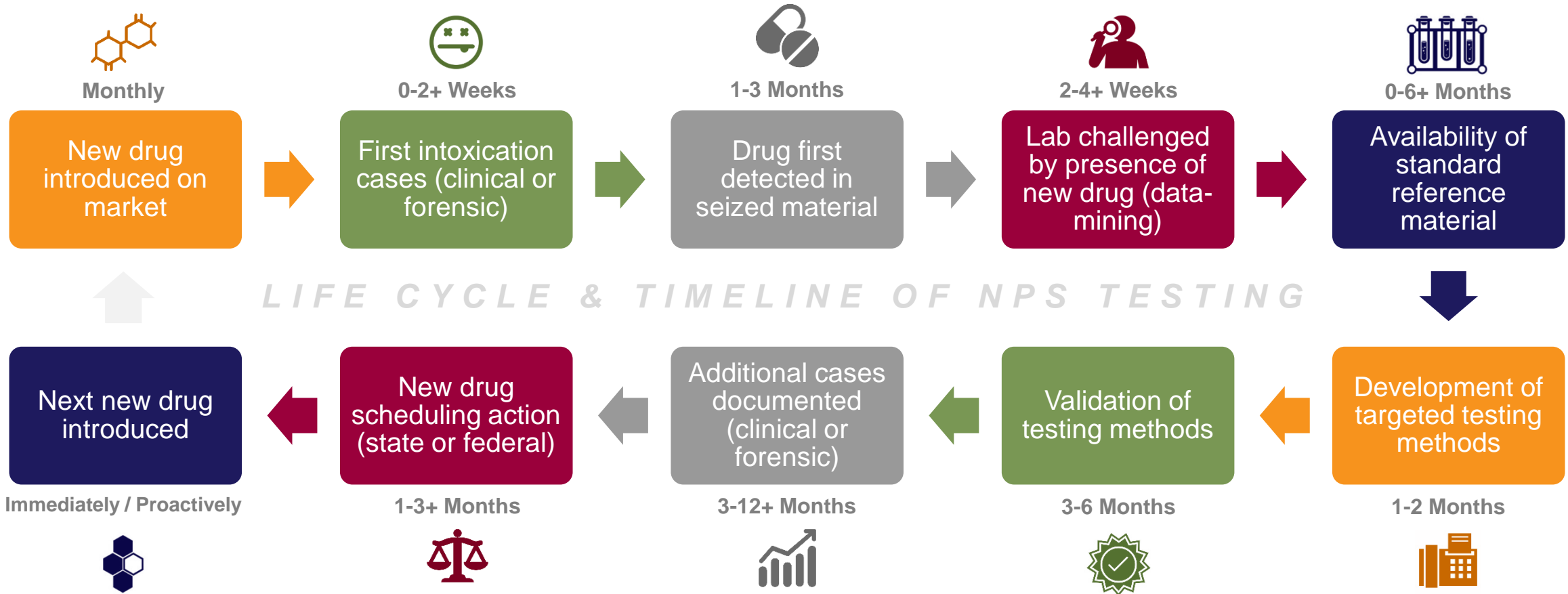
- Supply Reduction
- Demand Reduction
- **Harm Reduction**

- Examples of Harm Reduction:

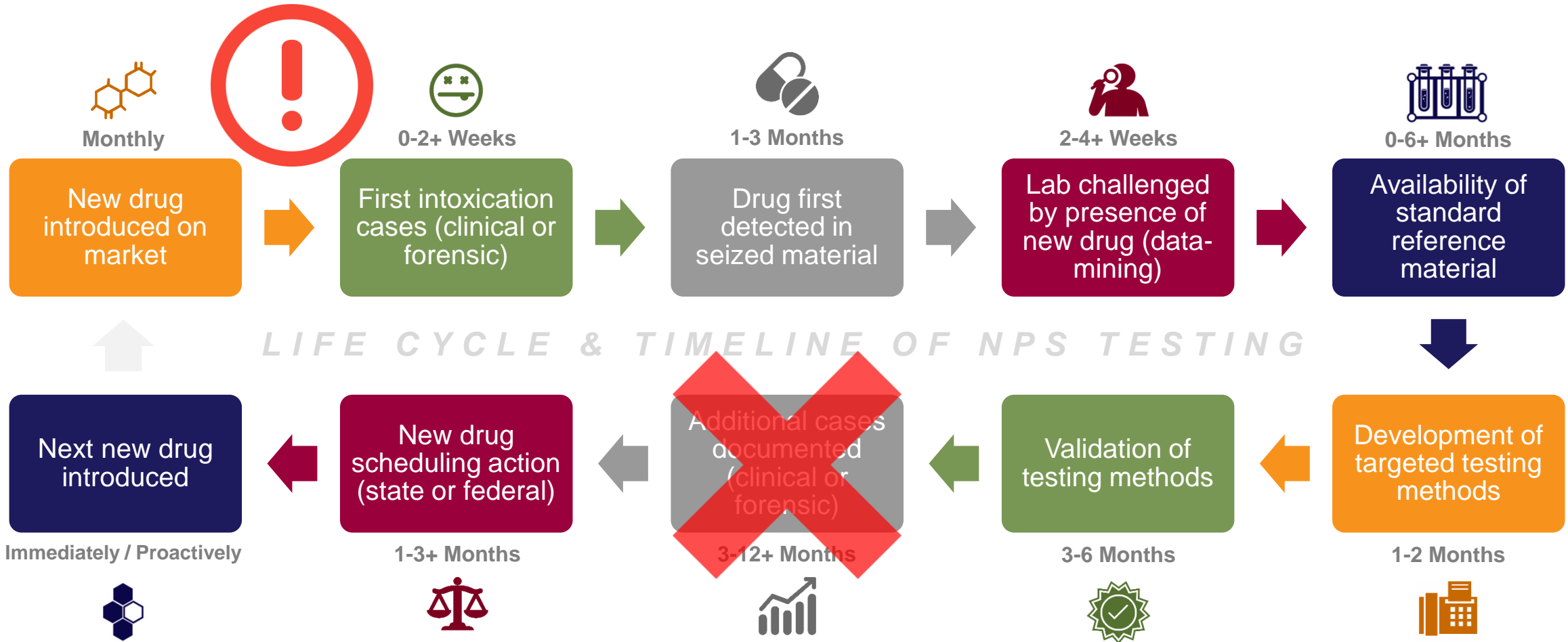
- Naloxone distribution
- Needle exchange programs
- **Drug checking***
- Safe supply



LIFE CYCLE OF A DRUG



LIFE CYCLE OF A DRUG



TYPES OF DRUG CHECKING

THE OLD SAYING → QUICK, CHEAP, OR ACCURATE – PICK TWO

Types of Testing	Examples	Time	\$\$\$	Accuracy	Ease of Use
“Field” Testing	Test Strips, Reagents	5 mins	Low Cost	Low Accuracy	Easy
Point-of-Use	FTIR, Raman, MS*	5-10 mins	Mid Cost	Mid Accuracy	Medium
Lab – Qual	GC-MS, LC-MS	20+ mins	High Cost	High Accuracy	Hard
Lab – Quant	GC-MS, LC-MS	20+ mins	Higher Cost	High Accuracy	Extra Hard

THE CFSRE & OUR LAB

- The Center for Forensic Science Research and Education (CFSRE)
 - Moved to new lab facility
 - Collaborations with public health and harm reduction organizations



Waters Xevo® G2-S LC-QTOF-MS



Sciex X500R LC-TOF-MS



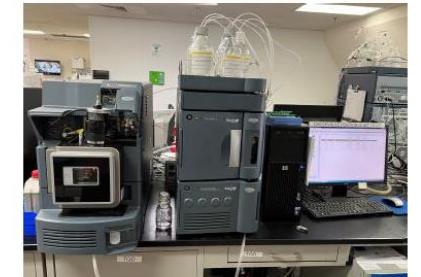
Sciex TripleTOF® 5600+ LC-TOF-MS



Agilent 6495 LC-QQQ-MS



Agilent 6430 LC-QQQ-MS



Waters TQS LC-QQQ-MS



Waters TQD LC-QQQ-MS



Agilent 5975 GC-MS



Agilent 5975 GC-MS

EXAMPLES OF SAMPLE “POPULATIONS”

- **Important → Right populations paired with good intelligence**

- **Toxicology Specimens:**

- Collaborations with medical examiner and coroner offices, other toxicology labs, clinical partners, and other
- Example: Initial toxicology testing negative but “suspected overdose”

- **Drug Materials:**

- Collaborations with crime labs, law enforcement agencies, **public health partners**, and others
- Routine analysis vs. chemical characterization (structural elucidation)

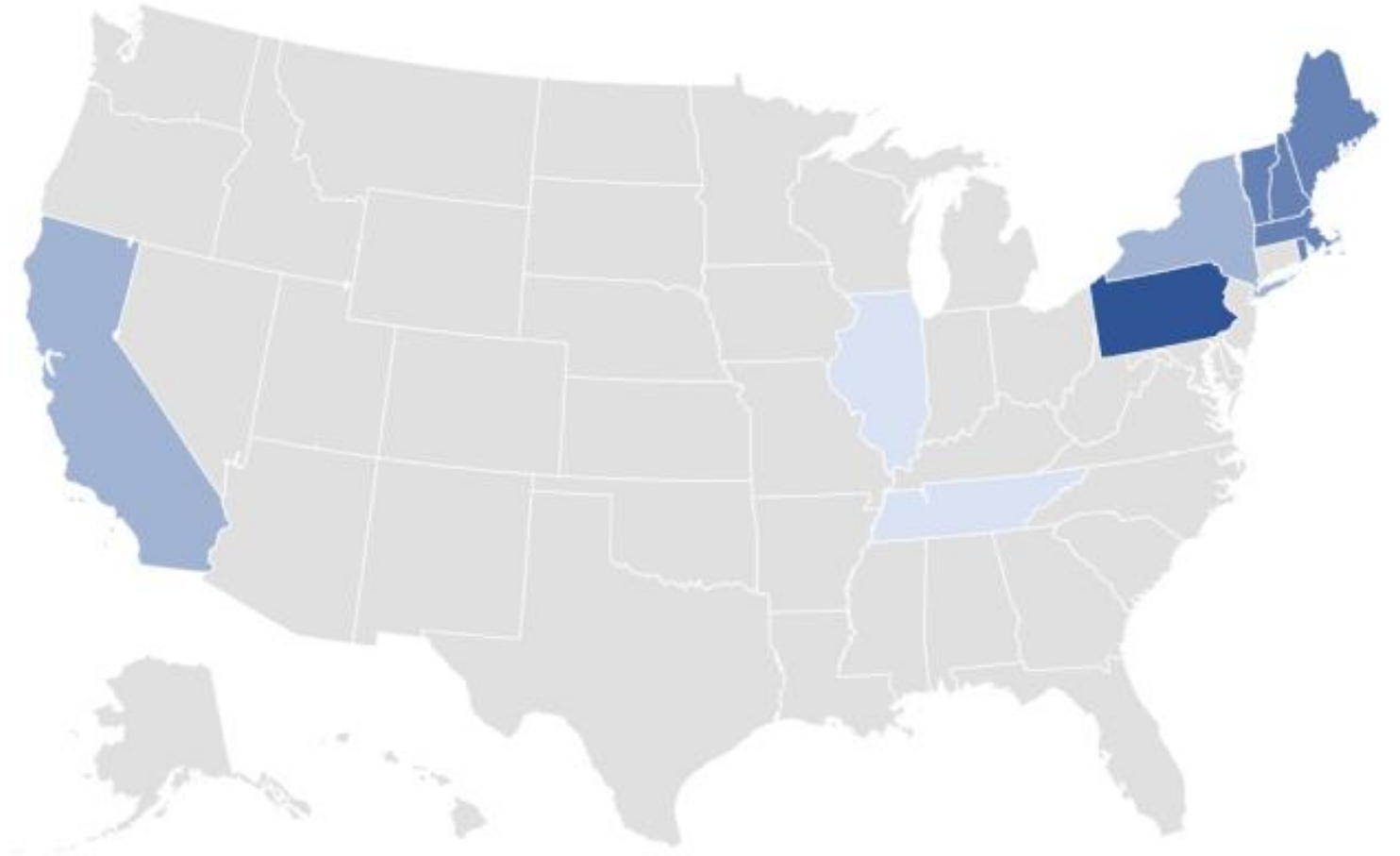
- **Intelligence & Surveillance:**

- Monitor online surface web gray market sites, drug use forums, etc.
- Some correlation between sites and drug markets but delayed



COLLABORATING DRUG CHECKING PROGRAMS

- Philadelphia, PA
- New England
- Providence, RI
- New York City, NY
- San Francisco, CA
- Oakland, CA
- *Pending Developments*



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