



Collecting Lawfully Owed DNA to Assist with Sexual Assault Investigations



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Agenda

CODIS Background

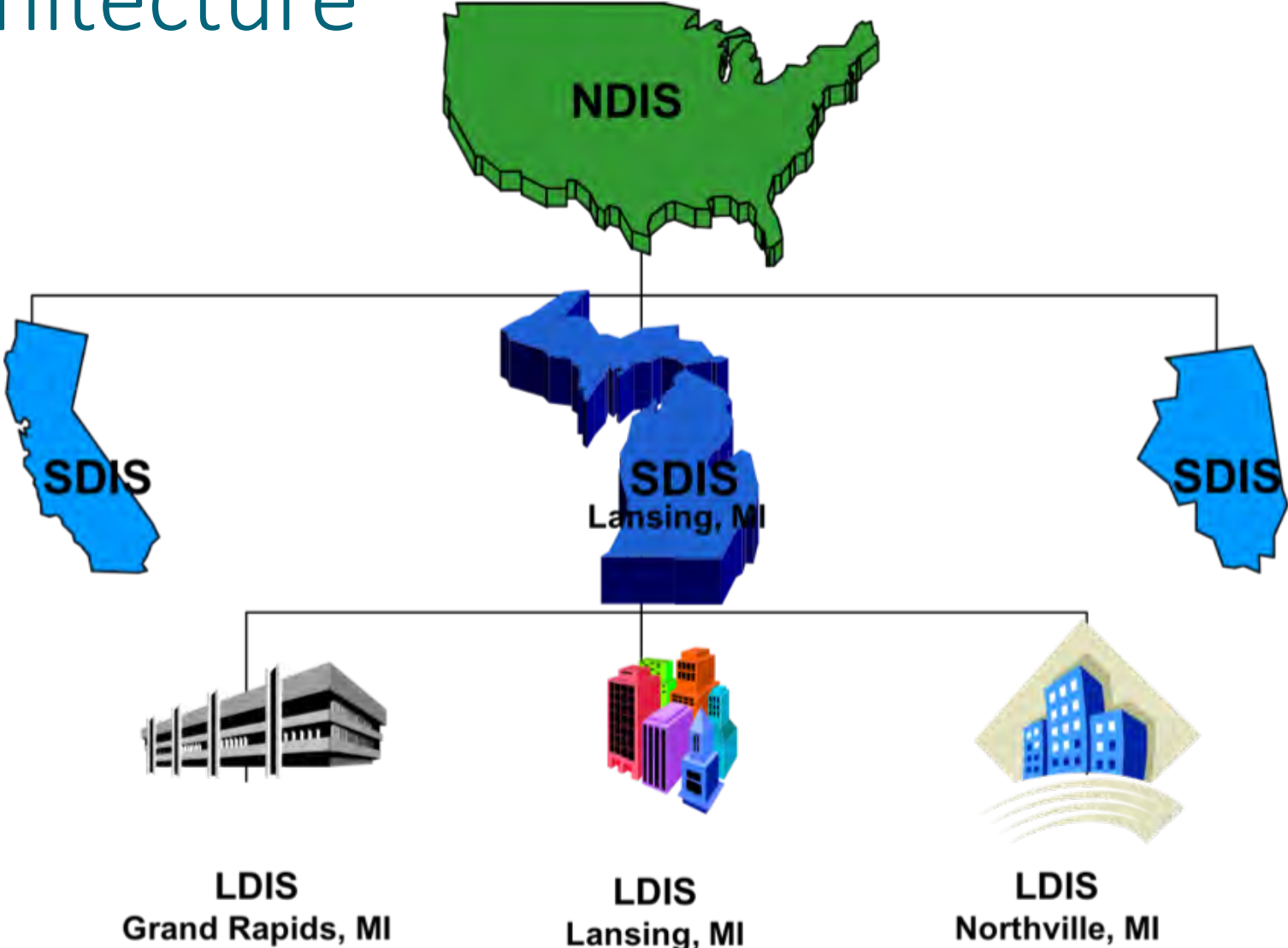
Lawfully Owed DNA

Reasons for Owed Samples

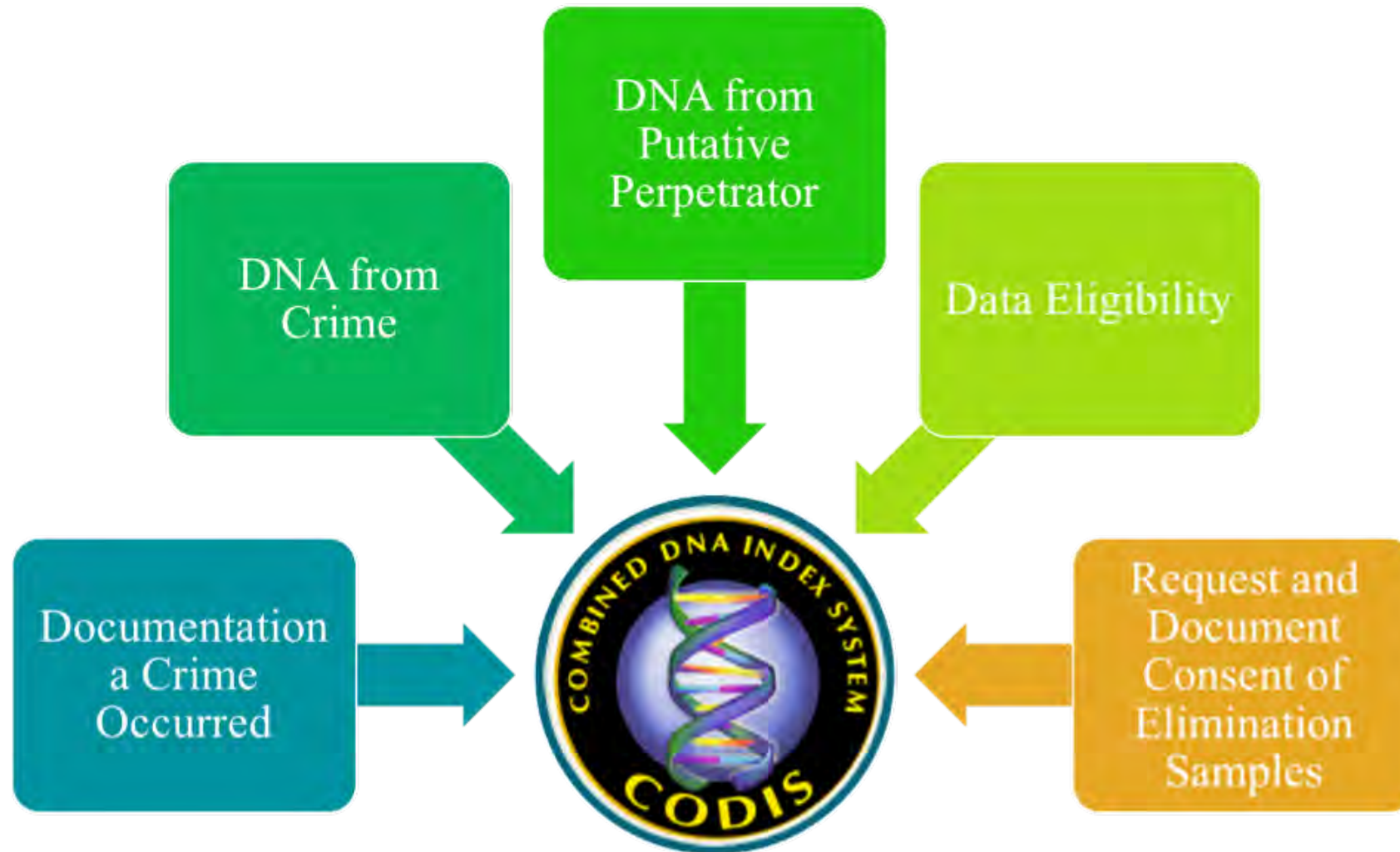
Possible Solutions to Collect Owed
Samples

Preparing for Lawfully Owed Samples

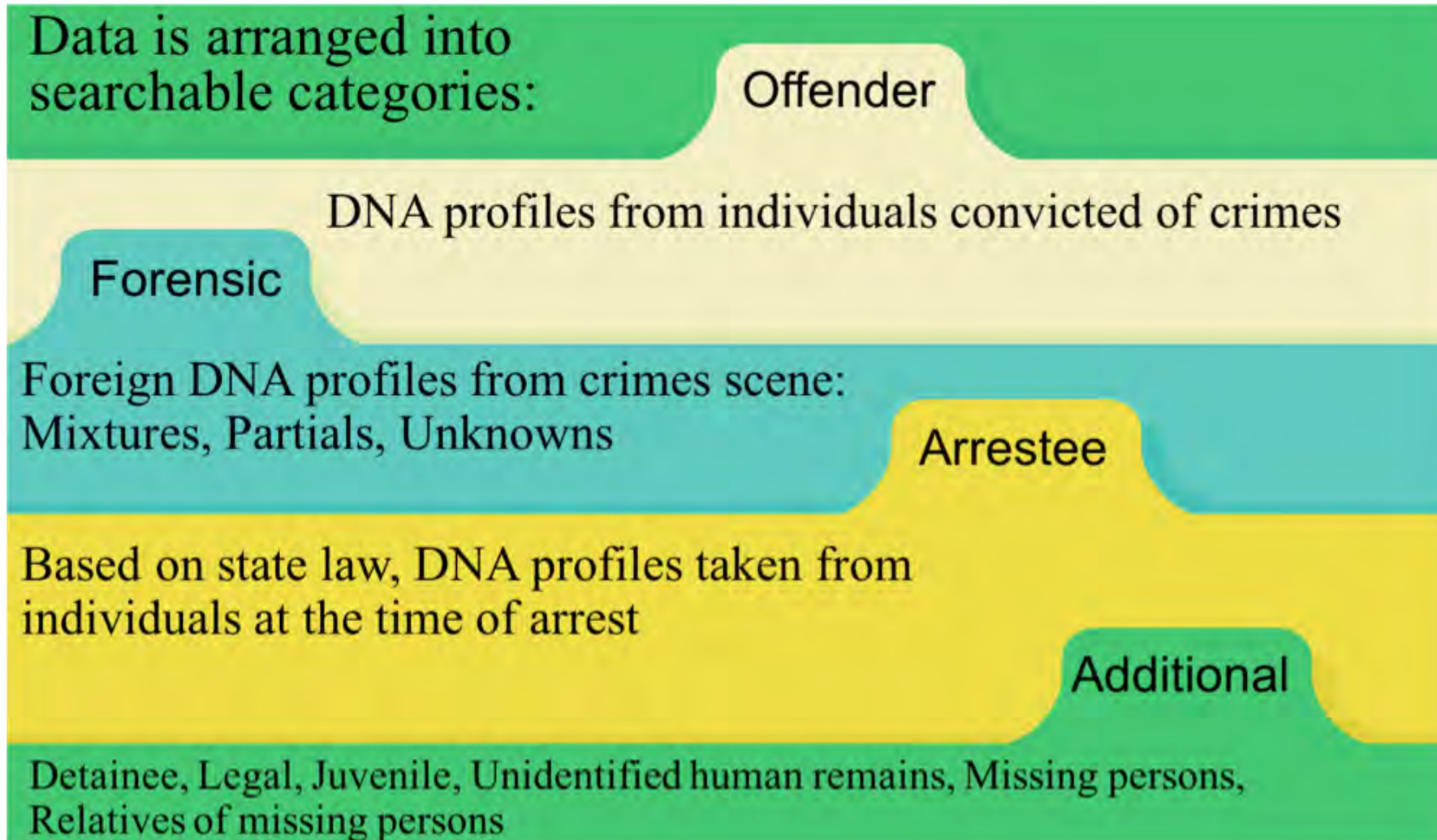
NDIS Architecture



The Gates of CODIS



CODIS Basics



Forensic Samples

- DNA found at a crime scene from a possible perpetrator (identity unknown)

Case Number	Type of Evidence	Offense
16-012	Saliva	Burglary
16-013	Semen	Sexual Assault
16-045	Blood	Homicide

Offense- crime category where DNA was found.

Offender Samples

- DNA taken from buccal swabs from arrestees/convicted offenders

Case Number	Specimen ID	Offense
16-012	A	Sexual Assault
16-013	B	Controlled Substance
16-045	C	Felony Weapons

Offense- qualifying offense to what the offender was arrested/convicted of.

CODIS

Offender
Profiles

Arrestee
Profiles

Forensic
Profiles

13,122,773

2,921,793

817,097

*As of November 2017

Investigations Aided

Forensic Hit

The new profile matches DNA from an unknown forensic sample collected at a scene



Offender Hit

The new profile matches the DNA of an offender or arrestee profile already in CODIS



Investigations Aided

Cold Hit

DNA hits to an offender who was not previously listed as a suspect/person of interest in the case

Warm Hit

When DNA hits to a known/listed suspect in the case



The solvability of CODIS increases the more the database is populated. Less likely to solve sexual assaults and other crimes if there is neglect over upload of legally obtained samples.



Forensic Samples

- Test all kits
 - 'Consent/non-stranger rapes'
 - Expired statute of limitations
 - Requesting Elimination samples

Offender Samples

- DNA collection expansion laws
- Evaluation of lawfully owed DNA samples

Lawfully Owed DNA

A DNA sample from a qualifying offender who should have had their sample in CODIS but, from whom a sample has never been collected or submitted to a crime laboratory for testing

- Based on the type and time of the offense in relation to applicable state law

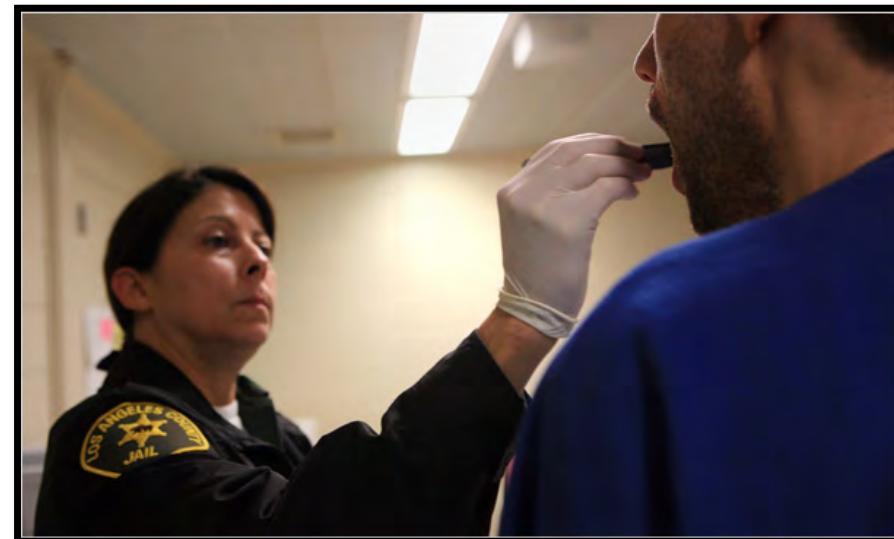


Photo credit: Monica Almeida/New York Times

Lawfully Owed DNA

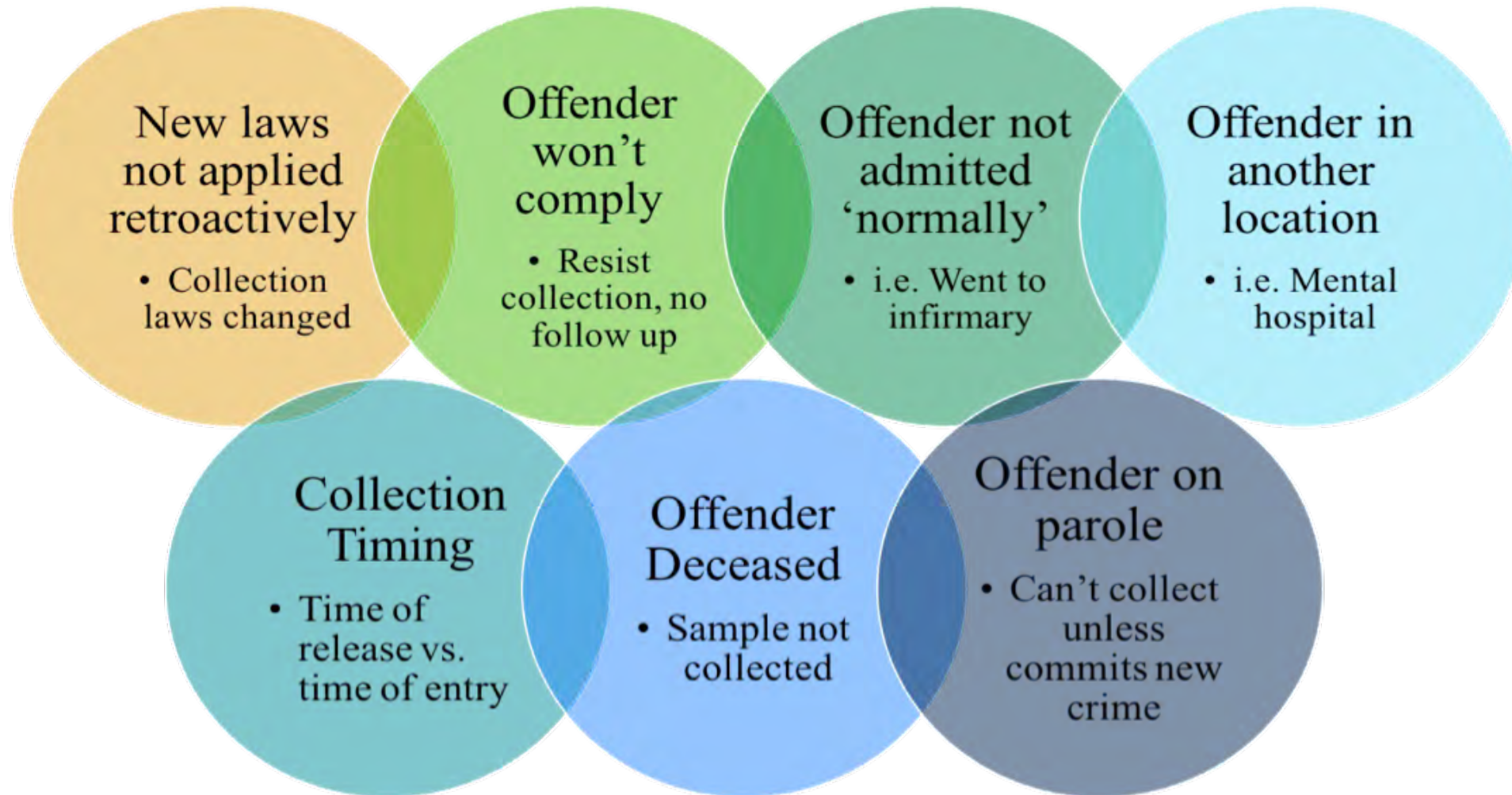
Collecting lawfully owed DNA from convicted offenders contributes to a comprehensive approach to addressing sexual assault



Criminal history involves connection to sexual assault:

- Arrested
- Convicted
- Investigated

Reasons for Owed Samples



Collecting lawfully owed samples

New laws
not applied
retroactively

- Collection laws changed

Offender
won't
comply

- Resist collection, no follow up

- Determine if able to collect
 - Court order
 - Interpretation of intent of the law
 - Modifying current legislation
- May need to collect 'non-voluntarily'
 - Court order

Collecting lawfully owed samples

Offender not
admitted
'normally'

- i.e. Went to infirmary

Offender in
another
location

- i.e. Mental hospital

- Tracking mechanism to identify gap in intake system
 - Train, collaborate, or travel to site to collect

Collecting lawfully owed samples

Collection Timing

- Time of release v time of entry

Offender Deceased

- Sample not collected

- Time of release
 - Belief that person incarcerated and therefore is not a threat to society
 - If possible change procedure to collect at time of entry
- Time of entry
 - Recognizes benefit to adding person to CODIS system to search against the database
- Determine inmates that have a qualifying offense
- Check for autopsy slides
- Determine if any evidence with LEA, crime laboratory, or courts that might be connected to inmate

Preparing for lawfully owed samples



Meeting of Stakeholders

Who is involved?

- Collection through CODIS upload

Review policies & procedures

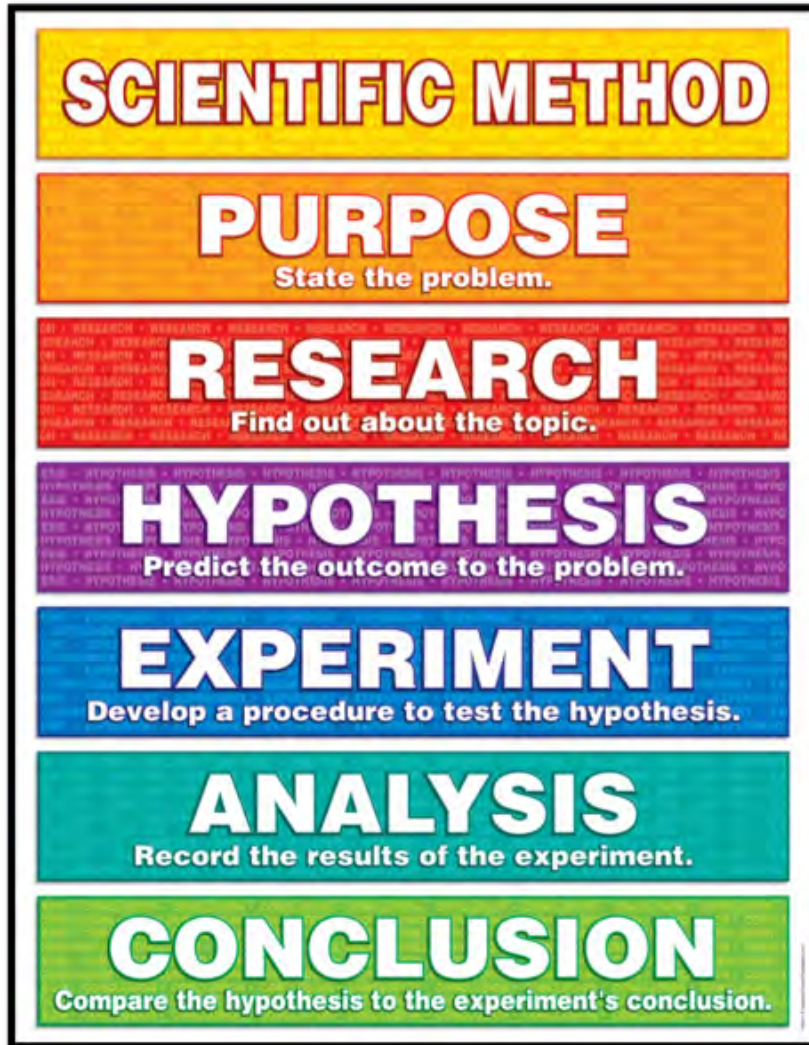
- Identify any potential gaps

Action plan

- Rectify collection with specific goals and accountability



Business Process Improvement



Every process improvement methodology is basically derived from the scientific method

Potential uses:
Collection Process
Laboratory Database Process

Business Process Improvement

Lean

Quick fixes to issues you may already know exist to improve the flow and increase efficiency

Key Tool: Value Stream Mapping

- Flow of materials and information from through your laboratory from vendor to stakeholder.
- Identifies where the delays are in your process, any restraints and excessive steps.
- Mapping your current situation allows you to work towards your ideal state for your jurisdiction.



Business Process Improvement

Six Sigma

Aims to improve quality through statistical analysis and reducing variation

Quality Made Measurable

- 80% of the problems are commonly related to only a few quality aspects
- Can use 100+ statistical tools to find root causes of “defective” processes
- Focus on the aspects of the process that stakeholders find important or needed



Business Process Improvement

Value Stream Mapping- Collection

Identify 'muda'- waste, motion, & materials in collection of DNA samples

Defects in DNA collection

Opportunities for missed collection

Waiting time to collect or send to the lab

Unnecessary transportation

Unnecessary movement of people

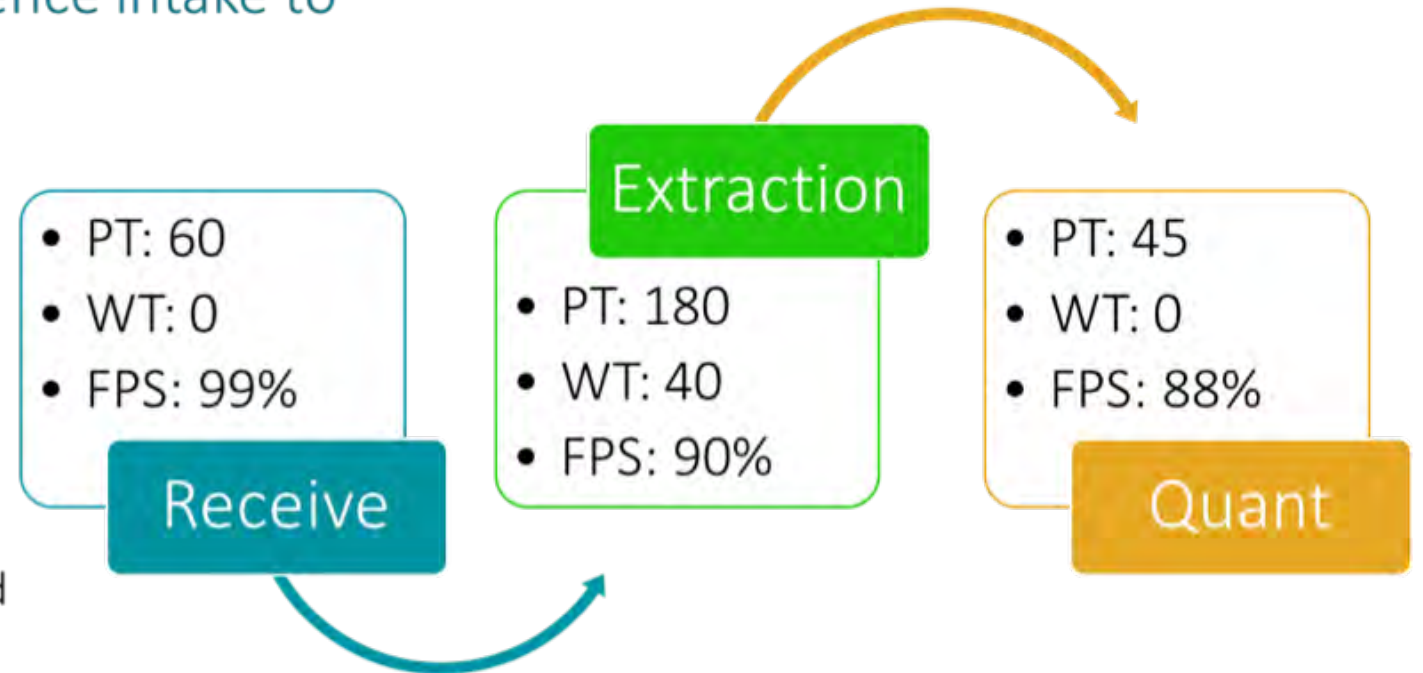
Inventory levels of collection products

Business Process Improvement

Value Stream Mapping- Laboratory

Follow path of sample from evidence intake to report received by client

1. Identify all the steps in your laboratory operation process
2. Develop measurement criteria:
 - Process time
 - Wait time
 - First pass success rate
 - Distance sample traveled
3. Evaluate each step considering your end client
4. Determine time spent on value added vs. non-value added activities

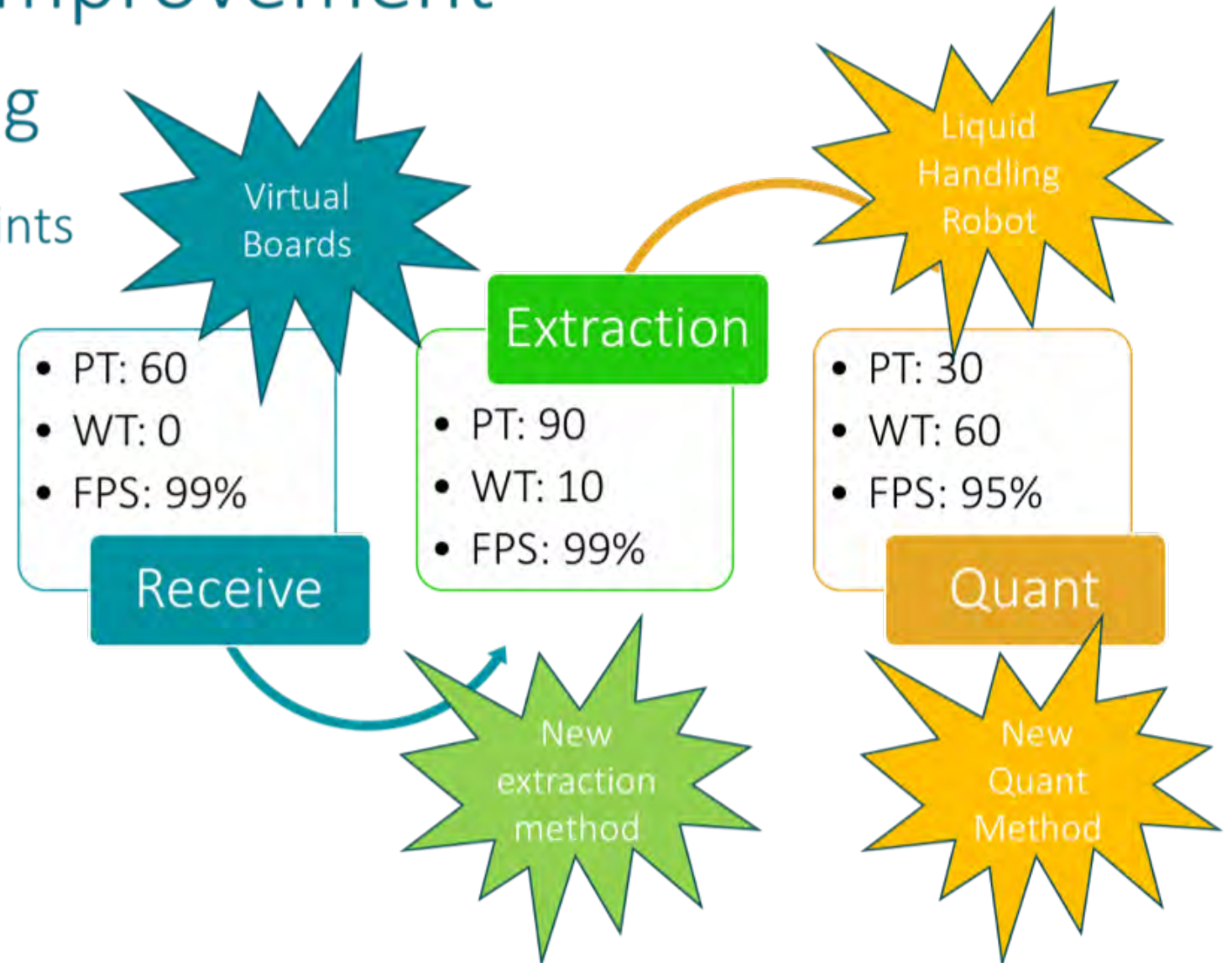


Business Process Improvement

Value Stream Mapping

Identify delays, waste, constraints

5. Critically evaluate process for wasted time and time spent reprocessing defects
6. Pay attention to things that are done because 'that is how it has always been;
7. Obtain lots of feedback and have open discussions
8. Create a new optimized map with realistic and ideal improvements to wasted time/processes and add improvements
9. Continue to revisit



Business Process Improvement

Value Stream Mapping

Implement by creating a business plan
Example: Gantt Chart

Task	Lead	Target Date	NOV	DEC	JAN	FEB
Virtual Sign-up for Equipment & Space	AA	11/20				
Design Validation Plan for New Extraction Method	TL	12/1				
Complete Extraction Validation	TL/VM	1/31				
Train Analysts in Extraction Method	TM	12/27				

Robotics & Automation

- Consider most time consuming steps:
 - Extraction
 - Quality and efficiency
 - Improve first pass success rate
 - Direct Amplification
 - Cost versus time savings
 - Liquid Sample Handling
 - Set up: amplification, CE
 - LIMS updates
 - Expert Systems



Use of Outsourcing Partners

Long term vision plan implementation can take years to implement (i.e. continuous improvement)

Outsourcing can be a strategic approach

- Direct Outsourcing
- Resource Analysis
- Meet Stakeholders Needs
- Surge Capacity



MI Depart. Of Corrections collected 5,000 inmate samples in 2011

- Inmates were linked to 74 additional crimes in CODIS including:
 - 5 murders
 - 23 rapes
 - 3 armed robberies



Governor Rick Snyder signed into law, an amendment to Michigan Compiled Laws (MCL) section 791.233d of the Corrections Code of 1953, titled "Samples for DNA Identification Profiling." The amendment gives prison officials the ability to take DNA samples from prisoners currently housed in state correctional facilities without delay

Project D3: DNA Database Samples from Deceased Inmates and Parolees in Sacramento County

- 1) Determine if deceased inmate has a qualifying event that would allow DNA profile upload into CODIS
- 2) Locate biological material in which an inmates DNA profile can be extracted.



Success story:

40 autopsy slides were collected from Folsom State Prison. A dead inmate who was convicted of 5 murders in LA County but whose DNA was never collected, was linked to another unsolved murder in LA through CODIS profile developed from autopsy slide

Collecting lawfully owed samples

- Close cases
 - Cold cases
 - Sexual assaults
 - Other violent crimes
- Provide answers to victim's families
- Provide new investigative leads

