



2019 Opiate Conference:

"OPIOIDS AND YOUR PATIENTS: WHERE DO YOU GO FROM HERE?"

An Overview of Urine Drug Testing (UDT)

Lonnie Riley III - General Manager

10-11-19



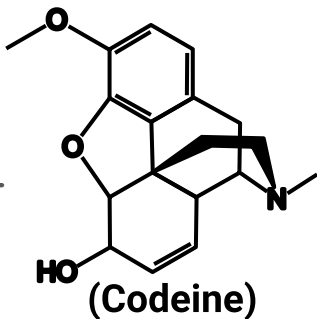
Disclosure(s)

Lonnie Riley III - General Manager of Trident Labs

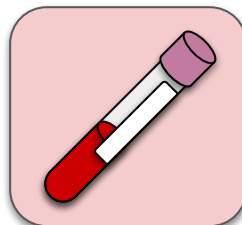
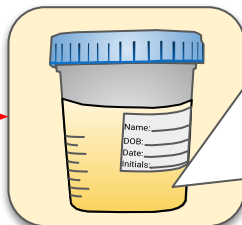
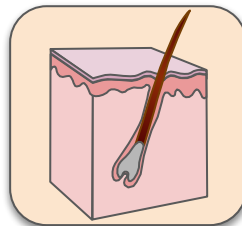
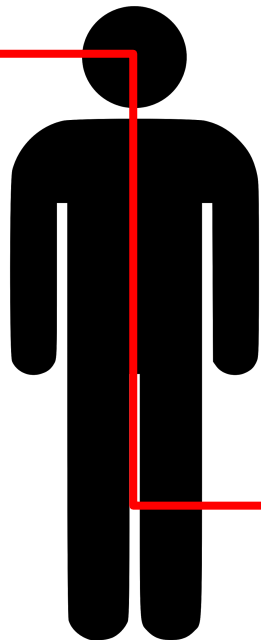
- Trident provides testing for some McLaren Physicians



UDT Overview



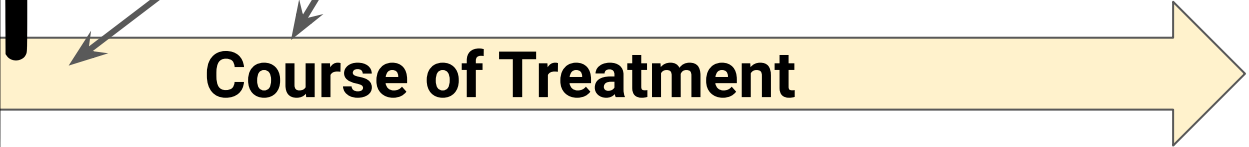
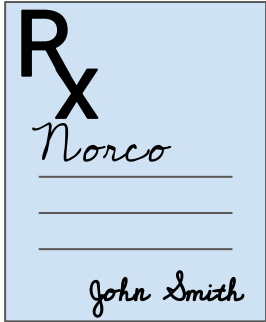
Parent Compound/
Drug

A large oval containing a fingerprint pattern. Two chemical structures are overlaid on the fingerprint. The top structure is labeled "Metabolite" and "HO (Morphine)". The bottom structure is labeled "HO (Codeine)" and "Parent Compound/ Drug".

Metabolite
HO
(Morphine)

HO
(Codeine)
Parent Compound/
Drug

Adherence Monitoring

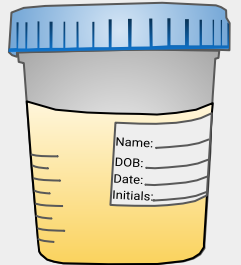


Indirect Methods:

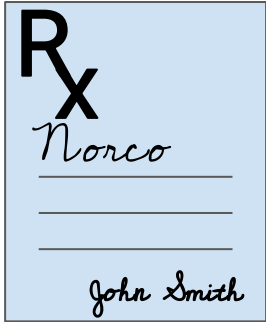
- Pill Counts
- Self-Reporting
- Questionnaire

Direct Methods:

- Drug Testing



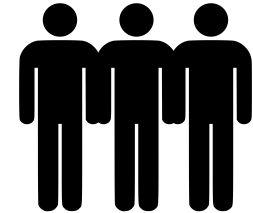
Adherence Monitoring - No/Weak Program



-Addiction

-Drug Interactions

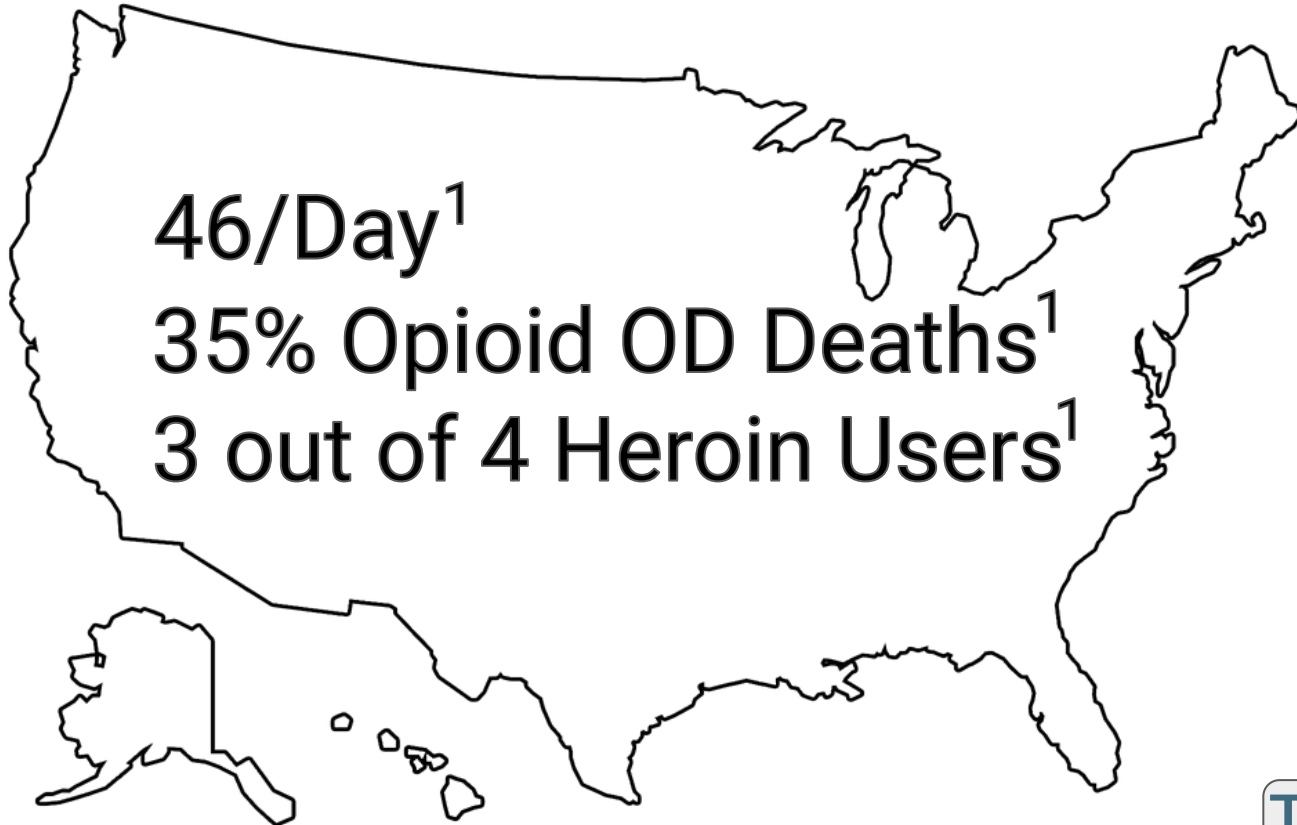
-Diversion



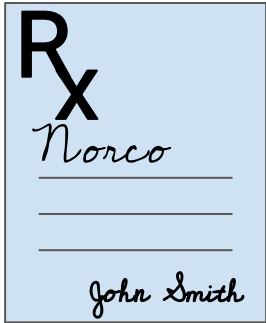
-Multi-Substance Abuse



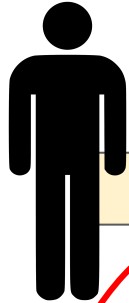
Adherence Monitoring - The Opioid Fight



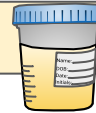
Adherence Monitoring - The Opioid Fight



- Objective Data
- Presence in Urine



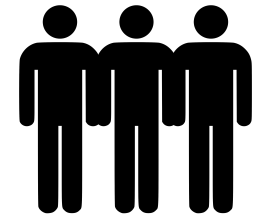
Course of Treatment



-Addiction

-Drug Interactions

-Diversion

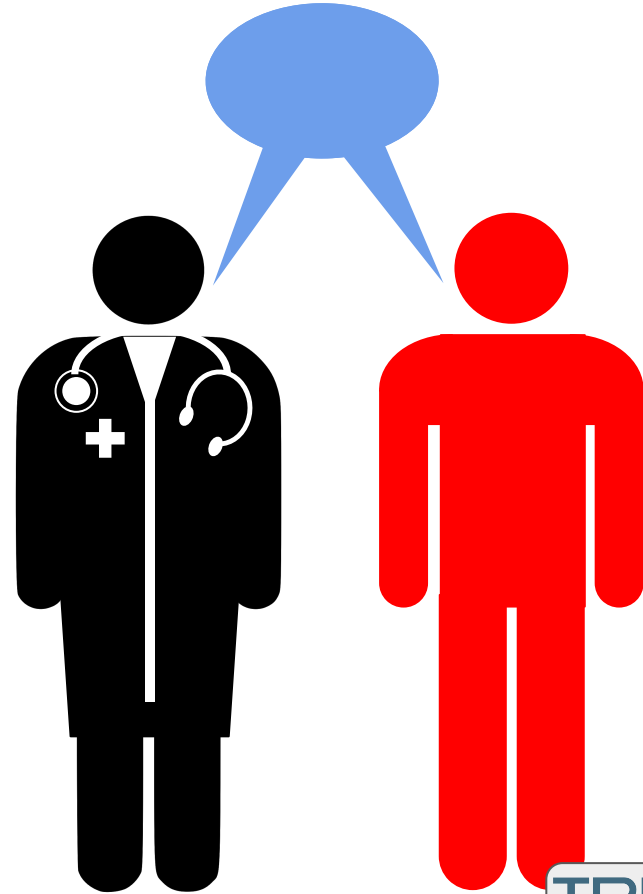
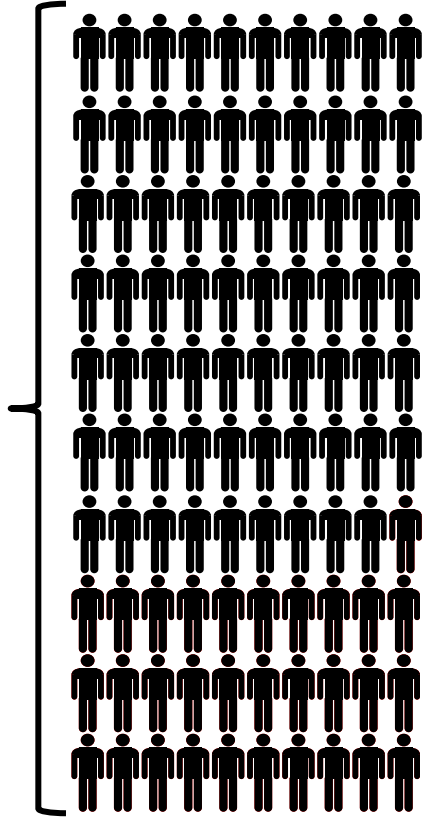


-Multi-Substance Abuse



Success with UDT

10,405
Patients



 ~ 100 Patients

Limitations of UDT

- Sample Adulteration
- Concentration \neq Time of Last Dose
- Stigmatization
- Shouldn't be the only approach!



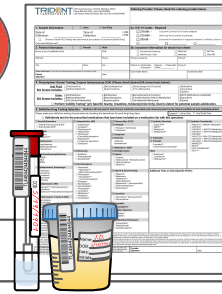
Testing Overview

24-48 Hours

Physicians
Employers
Courts



1



2



3

S
PE



4

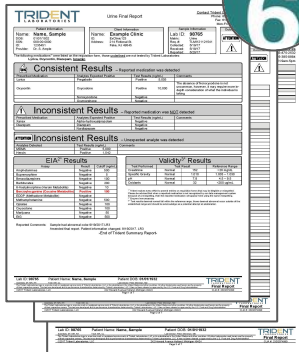


5

Positive/
Negative

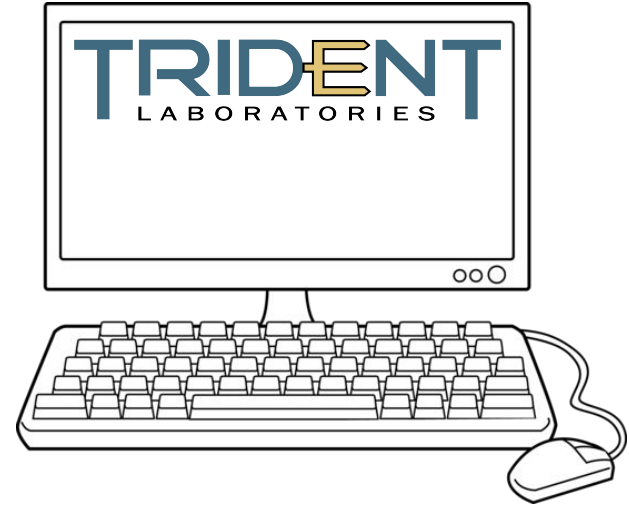
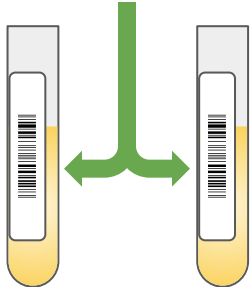
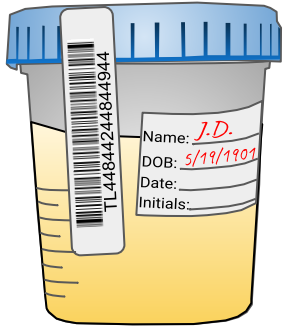
123.4
ng/mL

6



1 Receiving Samples

- Patient Demographics
- Ordered Testing
- Sample Integrity



2 Validity Testing

NORMAL vs ABNORMAL



Temperature (90.5 - 99.86 °F) [In-Office]

pH (3.0 - 11.0)

Specific Gravity (SG) (1.001 - 1.020)

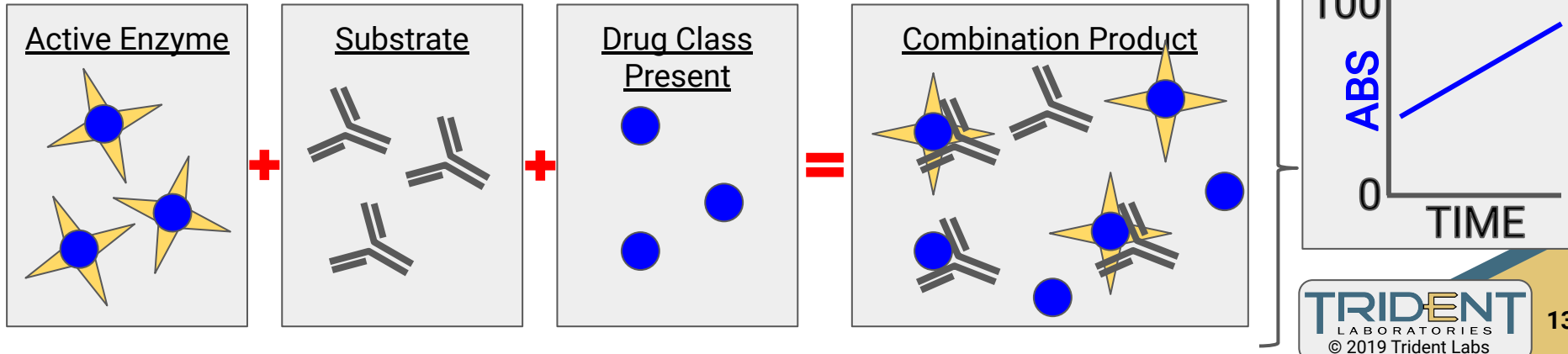
Creatinine (≥ 20 mg/dL)

Oxidants (< 200 $\mu\text{g/mL}$)

Synthetic Urine Test (Coming Soon)

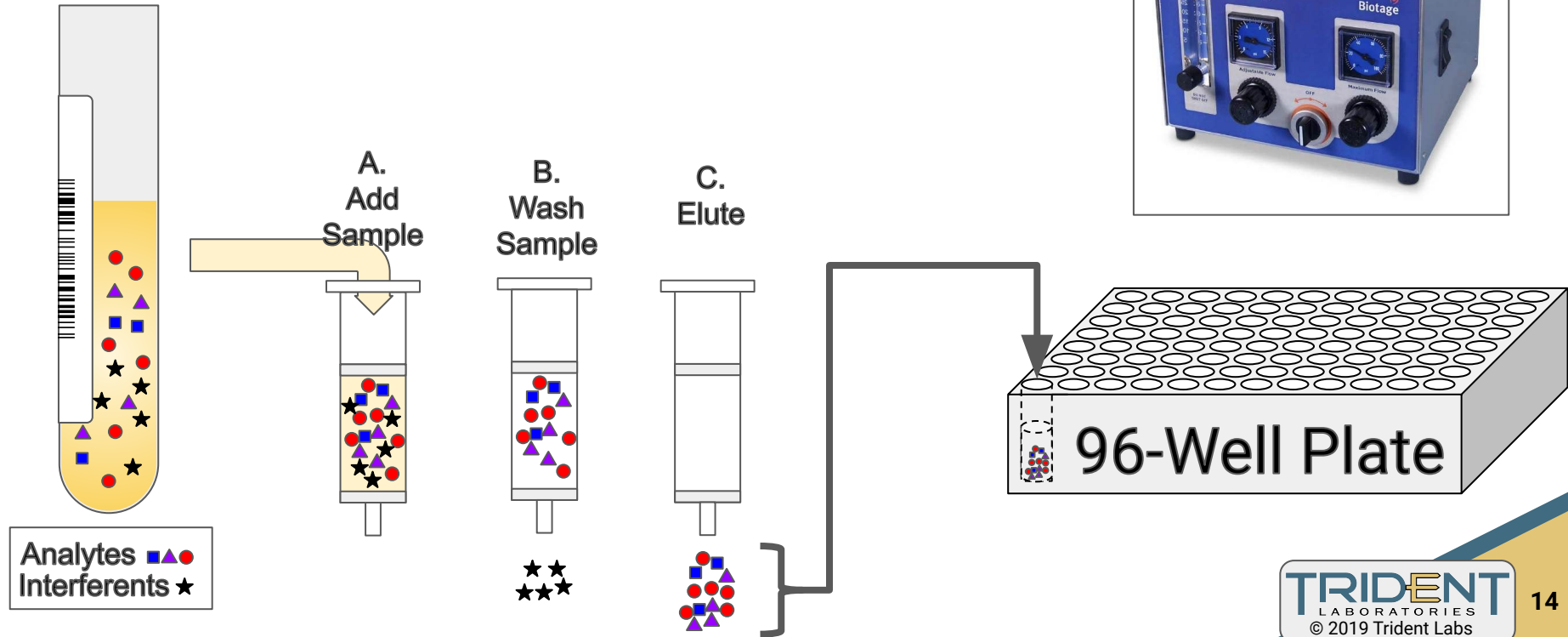
2 Screening Samples

- Enzyme Immunoassay (EIA)
- Identifies drug class
- Qualitative Results
 - o Positive/ Negative

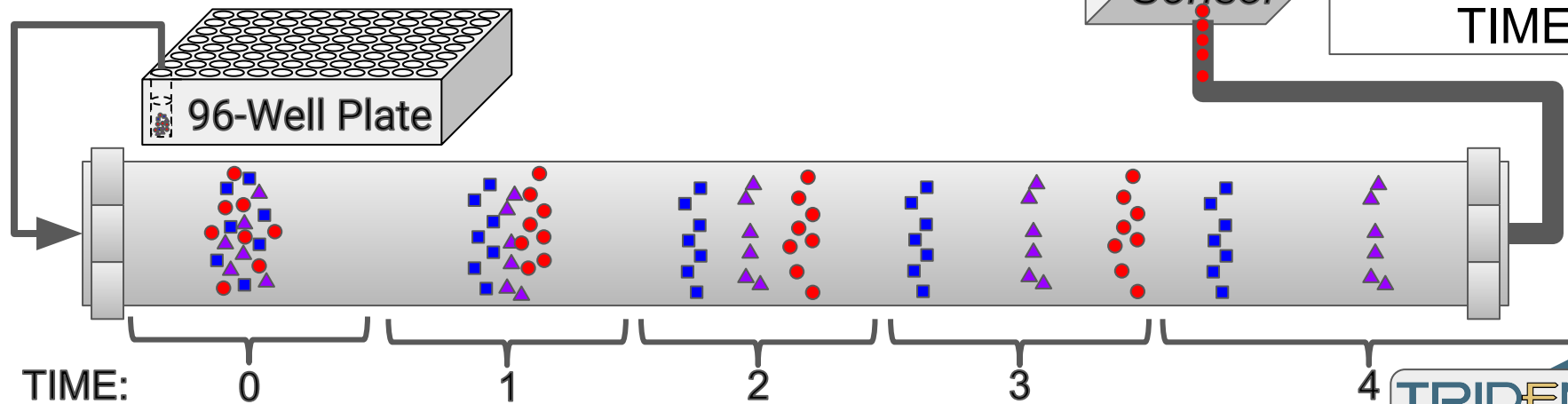
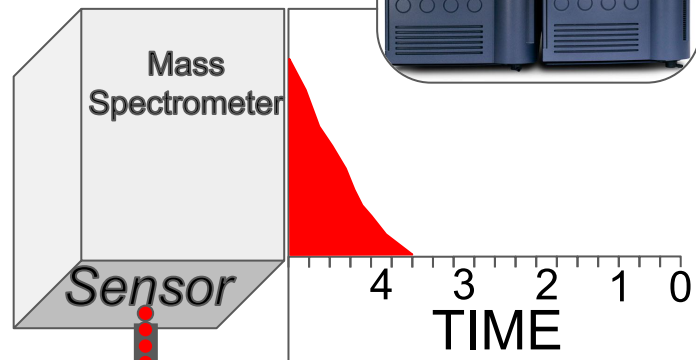
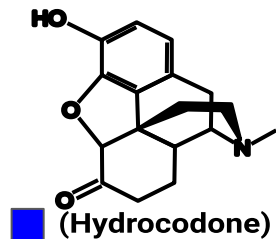
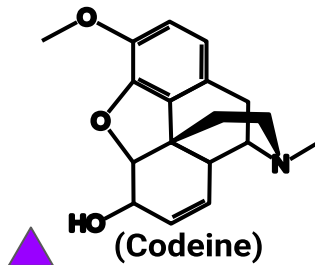
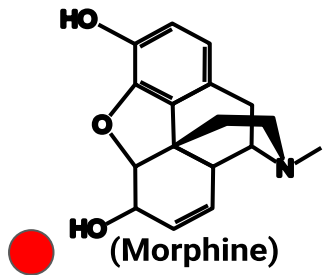


3 Sample Preparation

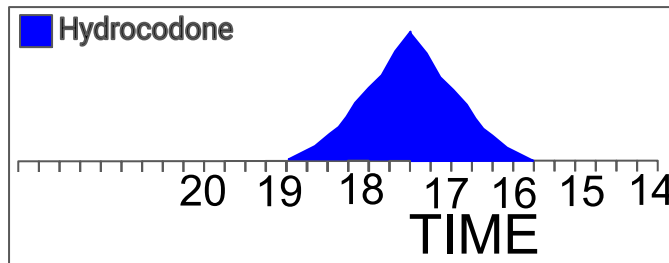
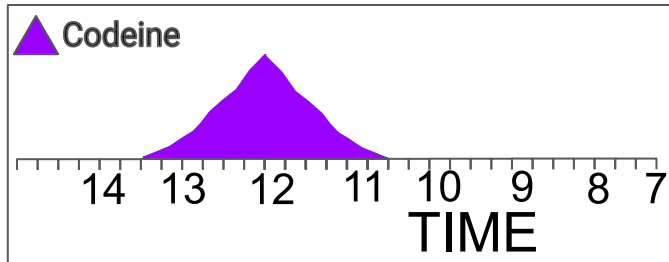
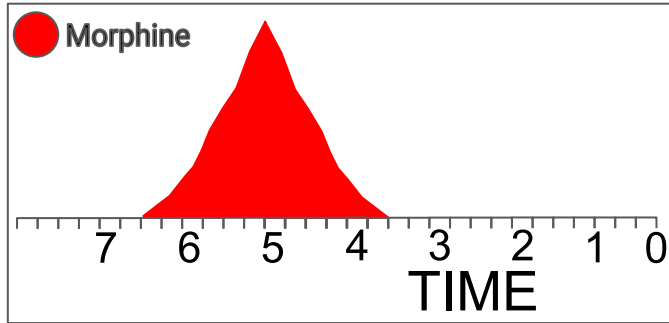
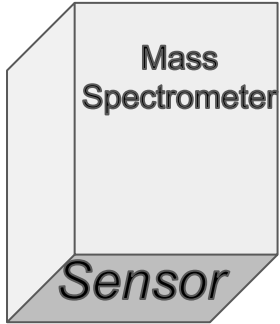
- Solid Phase Extraction (SPE)



4 Confirmation: LC-MS/MS



4 Confirmation: LC-MS/MS

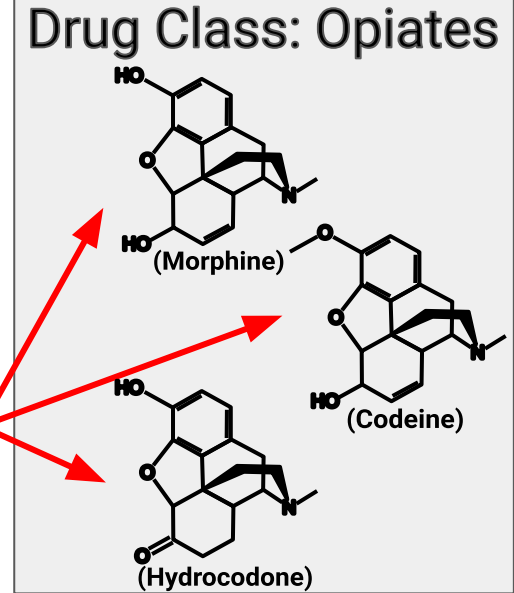


Selection Criteria	Parameters
S/N	>10
Ion Ratios	Analyte Dependent
RT	∓ 0.1

2 Screening vs 4 Confirmation

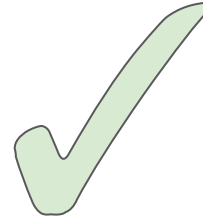


EIA Screen	LC-MS/MS
Screen (Presumptive)	Confirmation (Definitive)
Qualitative <i>i.e. Negative/ Positive</i>	Quantitative <i>i.e. 123.4 ng/mL</i>
Identifies Drug Class	Identifies Drugs & Associated Analytes
High Cutoff Levels	Lower Detection Levels
Lower Specificity	Higher Specificity

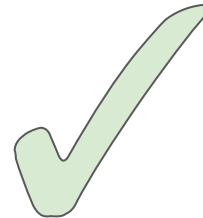


5 Data Analysis

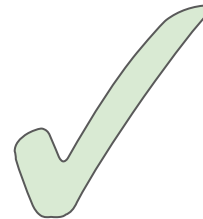
Patient Demographics



QC/QA Data




Instrument Results



6 Reporting

- Fax and/or Portal
- Interpreting Results:
 - Sample validity
 - Screen Results
 - Confirmation Results
 - Result history
- Questions?



Urine Final Report

Contact Trident Laboratories
Phone: 855-875-2532
Fax: 616-395-8884
Mon-Fri 9am-5pm

Patient Information

Name: **Name, Sample**
DOB: 01/01/1932
SSN: 000-00-0000
ID: 1235451
Provider: Dr. S. Ample

Client Information


Name: **Example Clinic**
ID: ExClinic123
Address: 214 Fictional St.
Fake, NJ 49545

Sample Information

Lab ID: **98765**
Matrix: Urine
Req. # TLM121121541
Collected: 5/19/17
Received: 5/19/17
Reported: 5/20/17

Outcome

ATTENTION



The following medications¹ were listed on the requisition form, those underlined are not tested by Trident Laboratories:
Lyrica, Oxycotin, Diazepam, **Ignamix**

OK Consistent Results – Reported medication was detected

Prescribed Medication	Analytes Expected Positive	Test Results (ng/mL)	Comments
Lyrica	Pregabalin	Positive 5,005	
Oxycotin	Oxycodone	Positive 10,000	The absence of Noroxycodone is not uncommon, however, it may require more in-depth consideration of what the individual is taking
	Noroxycodone	Negative	
	Oxycodone	Negative	

! Inconsistent Results – Reported medication was NOT detected

Prescribed Medication	Analytes Expected Positive	Test Results (ng/mL)	Comments
Xanax	Alpha-hydroxyprazolam	Negative	
Diazepam	Diazepam	Negative	
	Nordiazepam	Negative	

ATTENTION Inconsistent Results – Unexpected analyte was detected

Analytes Detected	Test Results (ng/mL)	Comments
MDMA	Positive 5,000	
Heroin	Positive 1,542	

EIA^{2*} Results

Assay	Result	Cutoff (ng/mL)
Amphetamines	Negative	500
Buprenorphine	Negative	5
Benzodiazepines	Negative	100
Barbiturates	Negative	200
6-Acetylmorphine (Heroin Metabolite)	Negative	10
Benzoyllecgonine (Cocaine Metabolite)	Positive	100
EDDP (Methadone Metabolite)	Negative	
Methamphetamine	Negative	500
Opiates	Negative	100
Oxycodone	Negative	100
Marijuana	Negative	50
EIG	Negative	500

Validity^{3*} Results

Test Performed	Test Result	Reference Range
Creatinine	Normal	152
Specific Gravity	Normal	1.010
pH	Normal	7.8
Oxidants	Normal	32
		<200 ug/mL

¹ Trident makes every effort to amend entries on requisition forms that may be illegible or misspelled. Please be advised that when a reported medication is not recognized by our data management system because of a misspelling, then the reported medication will appear here using the same misspelling.
² Enzyme immunoassay
³ Test results deemed normal fall within the reference range, those deemed abnormal occur outside of the established range and should be acknowledged as a potential attempt at adulteration.

Reported Comments: Sample had abnormal color. 9/19/2017, LRS
 Amended final report. Patient information changed. 9/19/2017, LRS
 -End of Trident Summary Report-


Lab ID: 98765

Patient Name: **Name, Sample**

Patient DOB: 01/01/1932

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Final Report
CLIA # 23C2074800

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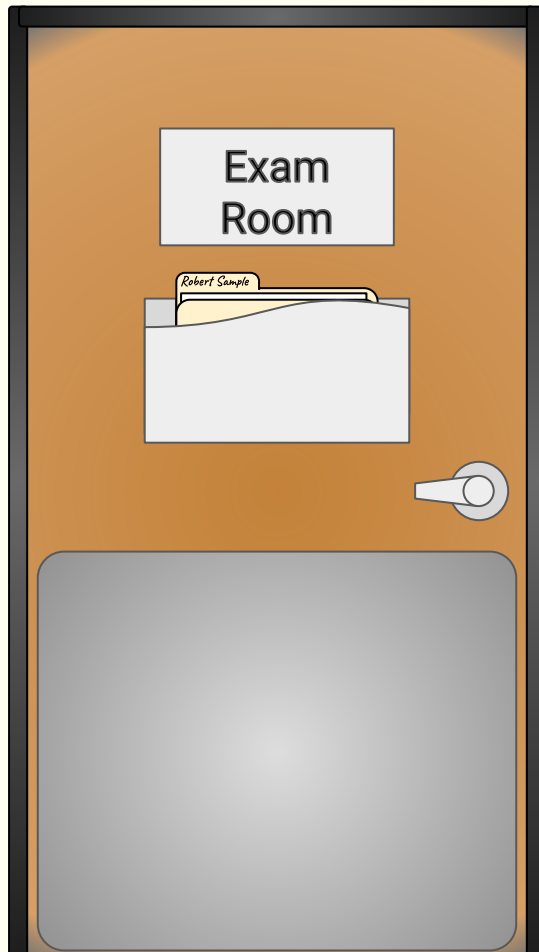
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19

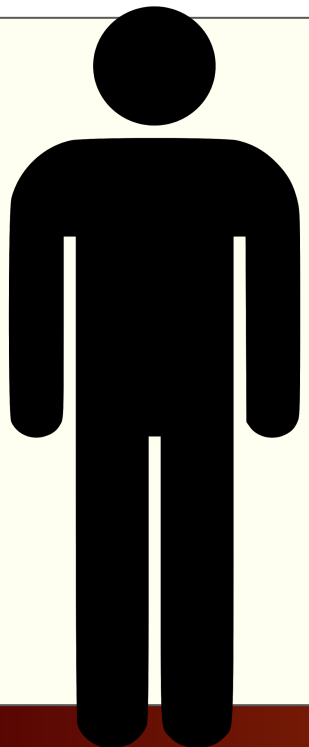
Conclusions

- What is a UDT?
- UDTs role in Adherence Monitoring
- Potential Positive Impact on Opioid Fight
- Today's Testing Process

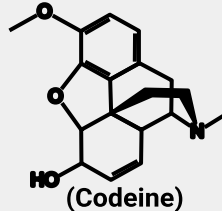
Case Study



Pt: Test, Patient
Rx: Morphine



Drug Class: Opiates



← ND

← ND

← 123ng/mL

Acknowledgments



Patti Wesenick - CME Coordinator
Barry Schmidt

McLaren Physicians & Support Staff



Daniel Kelsey - President
Nicole Kelsey - Billing
Matthew Rycenga, PhD - Lab Director
Peter Shireman, MD - Medical Director
Lonnie Riley III - General Manager
Val Voss - Office Manager
Fred Winkle - Compliance

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Caitlin Loc
Rebecca Jones
Morgan Morehouse
Michael Alsante
Rachel Green
Anthea Mitchell
Alexandra VanSumeren
Carlos Castello
Matthew Moorman



Bill Freckman
Tom Bauer
Rod Westhuis
Jeff Bosma
Don Ritz
Bob Sharp
Prabhat Malviya

Questions?



References/ Resources

- *AACC: Using Clinical Laboratory Tests to Monitor Drug Therapy in Pain Management Patients* ([LMPG](#))
- ¹: Scholl L, Seth P, Kariisa M, Wilson N, Baldwin G. Drug and Opioid-Involved Overdose Deaths – United States, 2013-2017. *Morb Mortal Wkly Rep*. ePub: 21 December 2018.

