



# TPD Forensic Lab & Property Room Present:

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**You CAN always get what you want;  
streamlining the evidence retrieval process**

**Byron Smith  
Catharine Worthen  
Jordan Green  
Kimberly Lee**

# Project Team

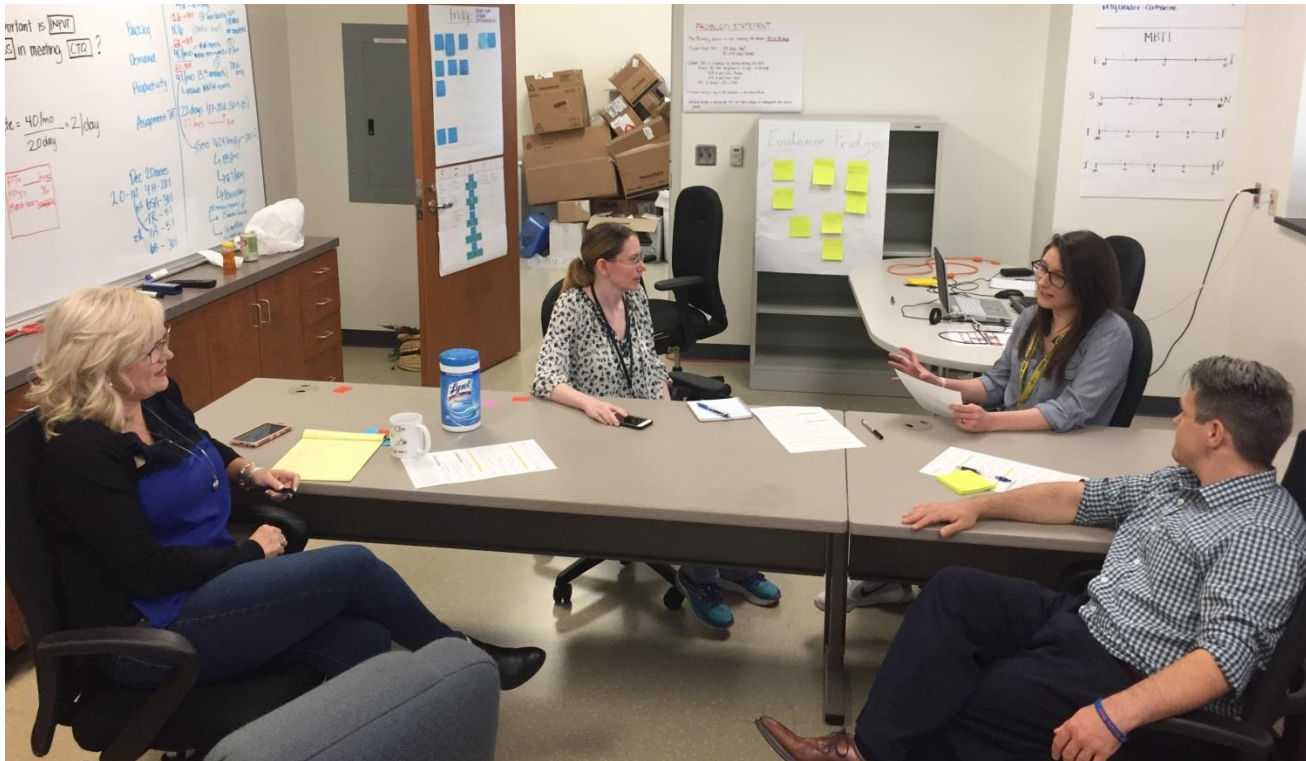


Jordan Green – Team Leader

Byron Smith – Communications Coordinator

Catharine Worthen – Team Member

Kimberly Lee – Team Member

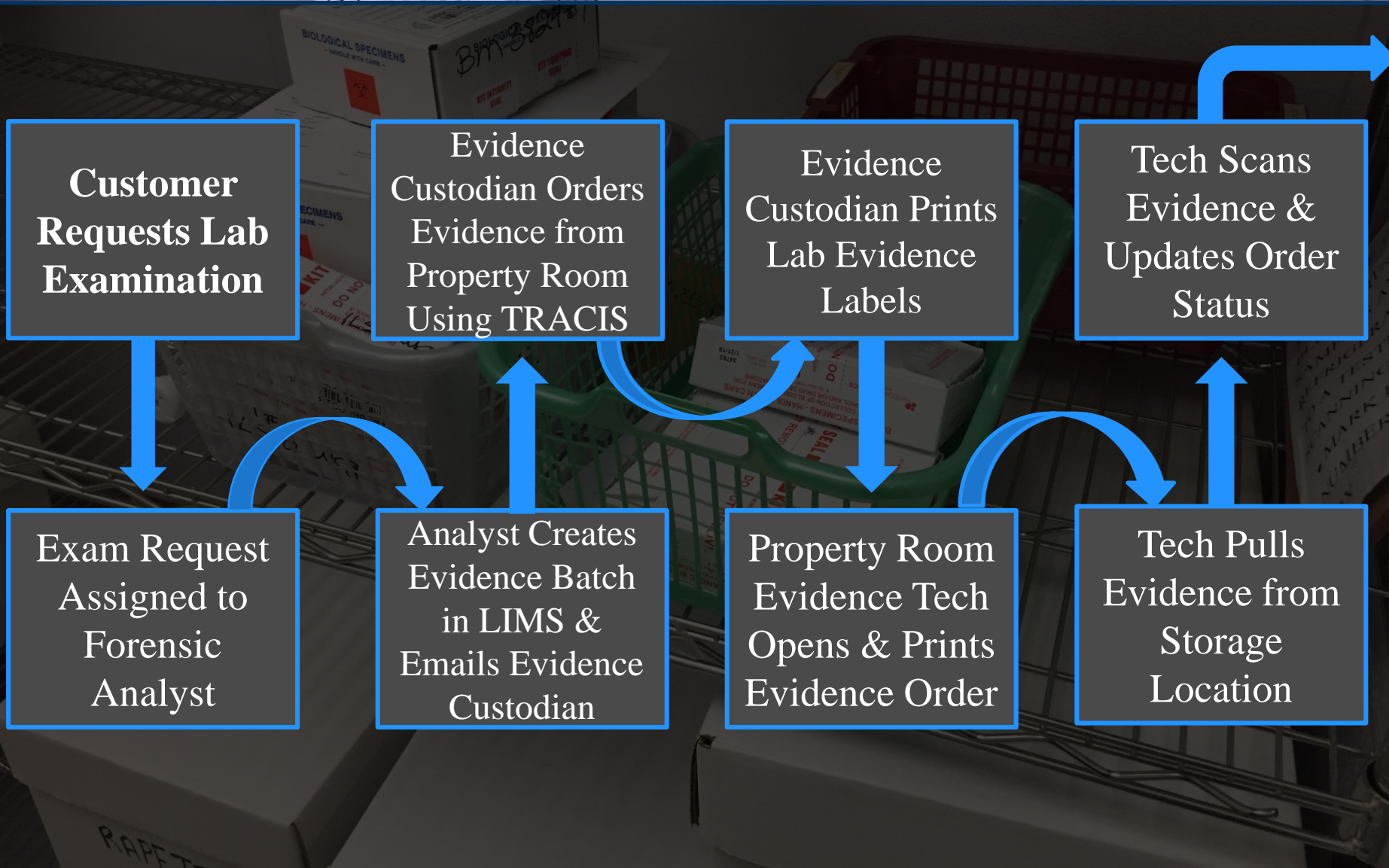


# Problem Statement



The current evidence retrieval process lacks consistent timeliness in delivery. Scientists wait an average of  $11 \pm 12$  working hours before their requested evidence is available to work. With such a large variation in wait times, the existing process stymies efforts to improve productivity and reduce the backlog of exams.

# Process Map





# Tools Utilized

- Gemba – “the actual place”
- Surveys to customer and property room personnel
- Process map



# Root Cause Analysis



- **Interviews with personnel to identify bottlenecks**
- Analysis of historical data using laboratory information management system and TRACIS
  - Identification of major outliers and reasoning behind them
  - Identification of time gaps or “problem sections”
- Go to the “Gemba” to understand the current evidence process

# Survey Provided to Laboratory Analysts



Do you often wait for evidence to arrive?

Answered: 11 Skipped: 9

No, my evidence is available well in advance of me needing it.

18.18% (2)



45% of analysts wait for their evidence

No, my evidence is available when I am ready for it.

36.35% (4)



45.45% (5)

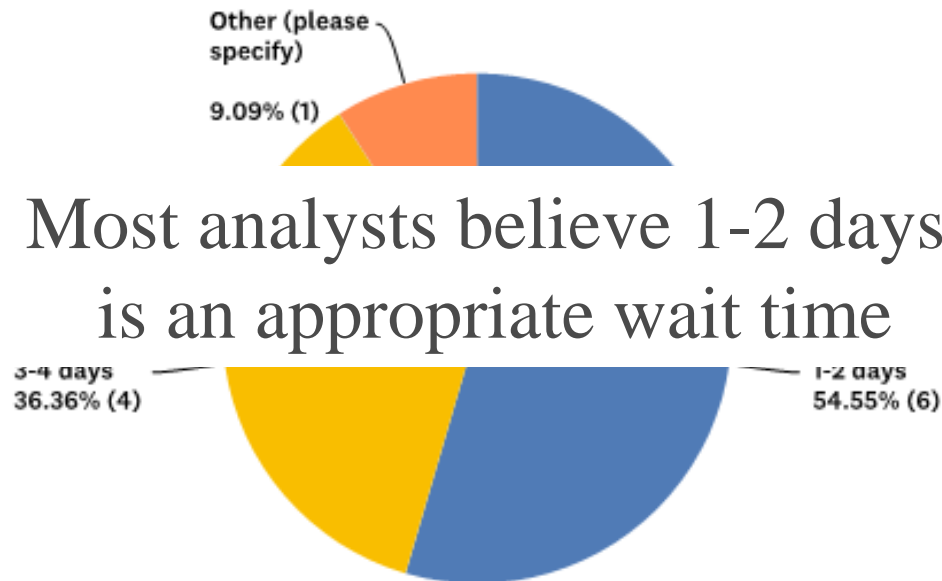


# Survey Provided to Laboratory Analysts



What is an acceptable wait time (in work days) from when evidence is requested until the evidence is available to work?

Answered: 11 Skipped: 9



# Survey Provided to Evidence Technicians



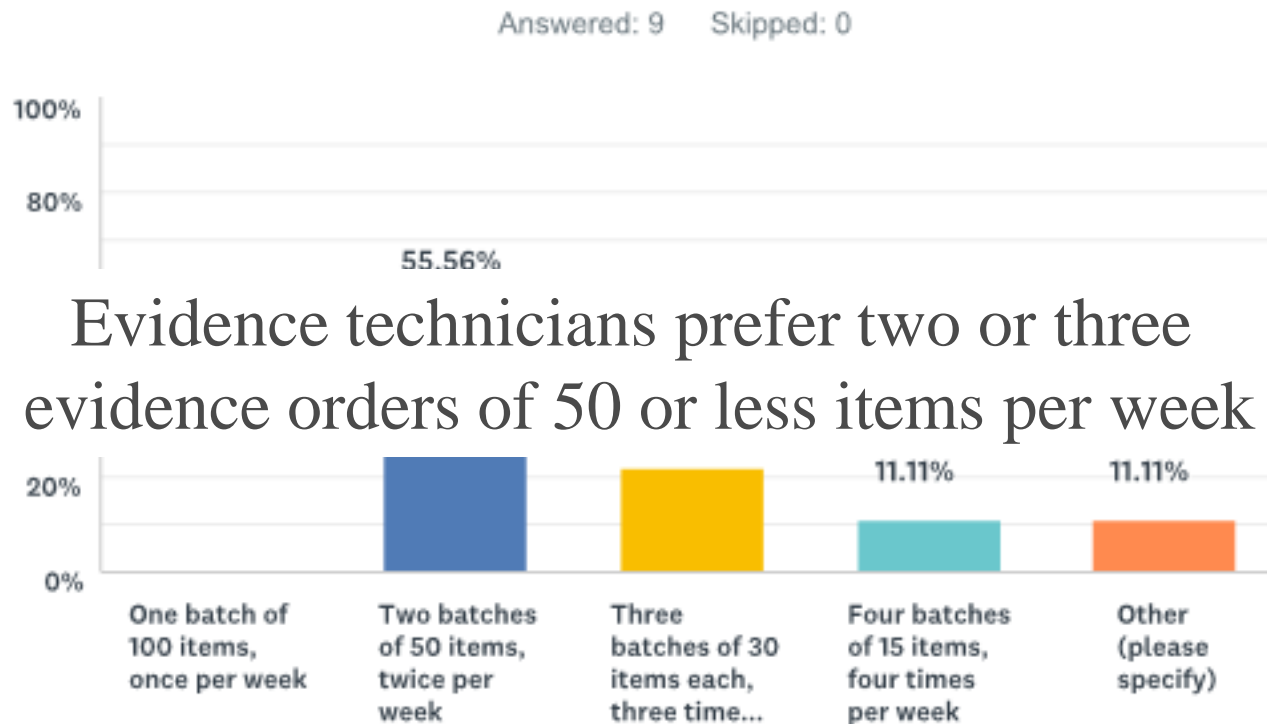
For the following, please rate how convenient it is to retrieve evidence:

	VERY INCONVENIENT	SOMEWHAT INCONVENIENT	NEITHER CONVENIENT OR INCONVENIENT	SOMEWHAT CONVENIENT	VERY CONVENIENT	TOTAL
Retrieve evidence in the morning (8:00 A.M.-10:00 A.M.)	14.29% 1	42.86% 3	14.29% 1	0.00% 0	28.57% 2	7
Retrieve evidence in the morning (10:30 A.M.-11:30 A.M.)	0.00% 0	28.57% 2	28.57% 2	28.57% 2	14.29% 1	7
Retrieve evidence in the afternoon (12:30 P.M.-3:30 P.M.)	0.00% 0	14.29% 1	0.00% 0	71.43% 5	14.29% 1	7
Retrieve small sized batches (Less than 25 items per batch)	0.00% 0	0.00% 0	0.00% 0	25.00% 2	75.00% 6	8
Retrieve medium sized batches (25-50 items per batch)	0.00% 0	25.00% 2	12.50% 1	37.50% 3	25.00% 2	8
Retrieve large sized batches (greater than 50 items per batch)	14.29% 1	57.14% 4	0.00% 0	14.29% 1	14.29% 1	7

# Survey Provided to Evidence Technicians



Of the following, which scenario is the most convenient?

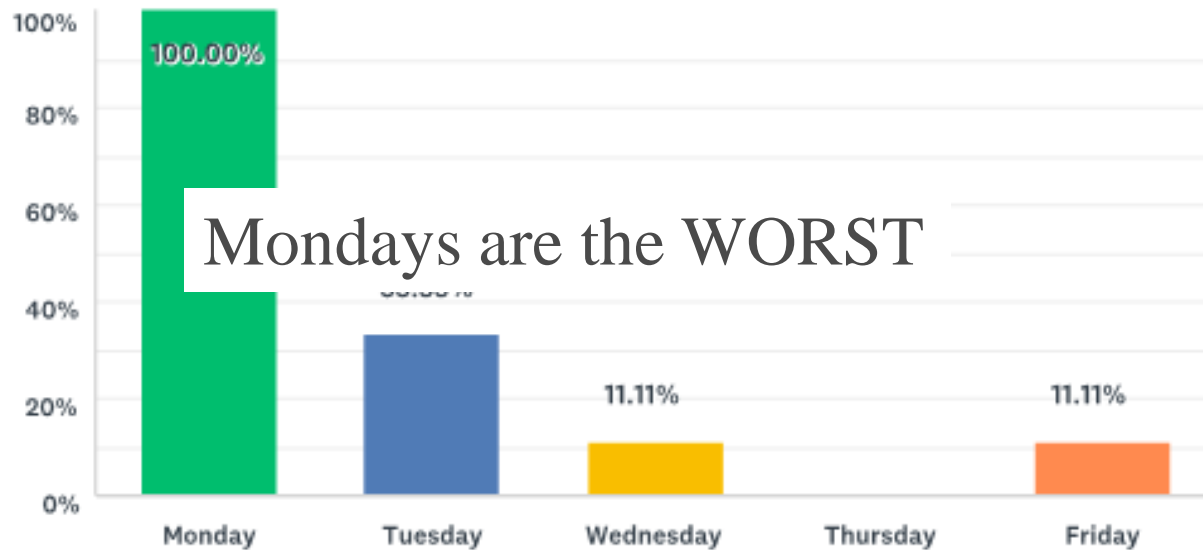


# Survey Provided to Evidence Technicians



Which days are especially busy?

Answered: 9 Skipped: 0



# Root Cause Analysis



- Interviews with personnel to identify bottlenecks
- **Analysis of historical data using laboratory information management system and TRACIS**
  - Identification of major outliers and reasoning behind them
  - Identification of time gaps or “problem sections”
- Go to the “Gemba” to understand the current evidence process

# Root Cause Analysis



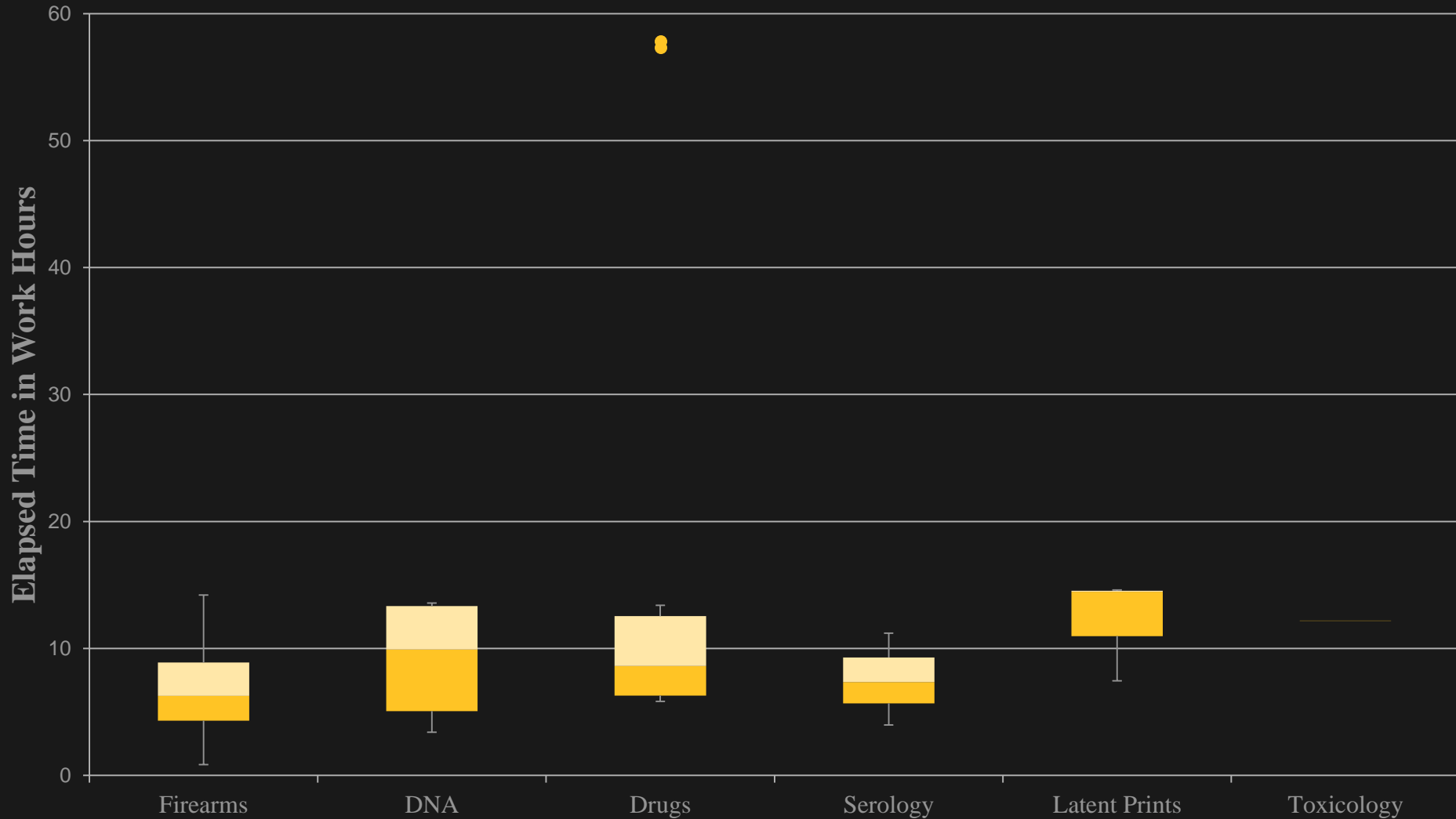
We collected evidence order creation and retrieval information dating February 20, 2018 to March 16, 2018 in order to:

- Determine current time intervals
- Identify any trends
- Define the evidence retrieval demographics

# Root Cause Analysis



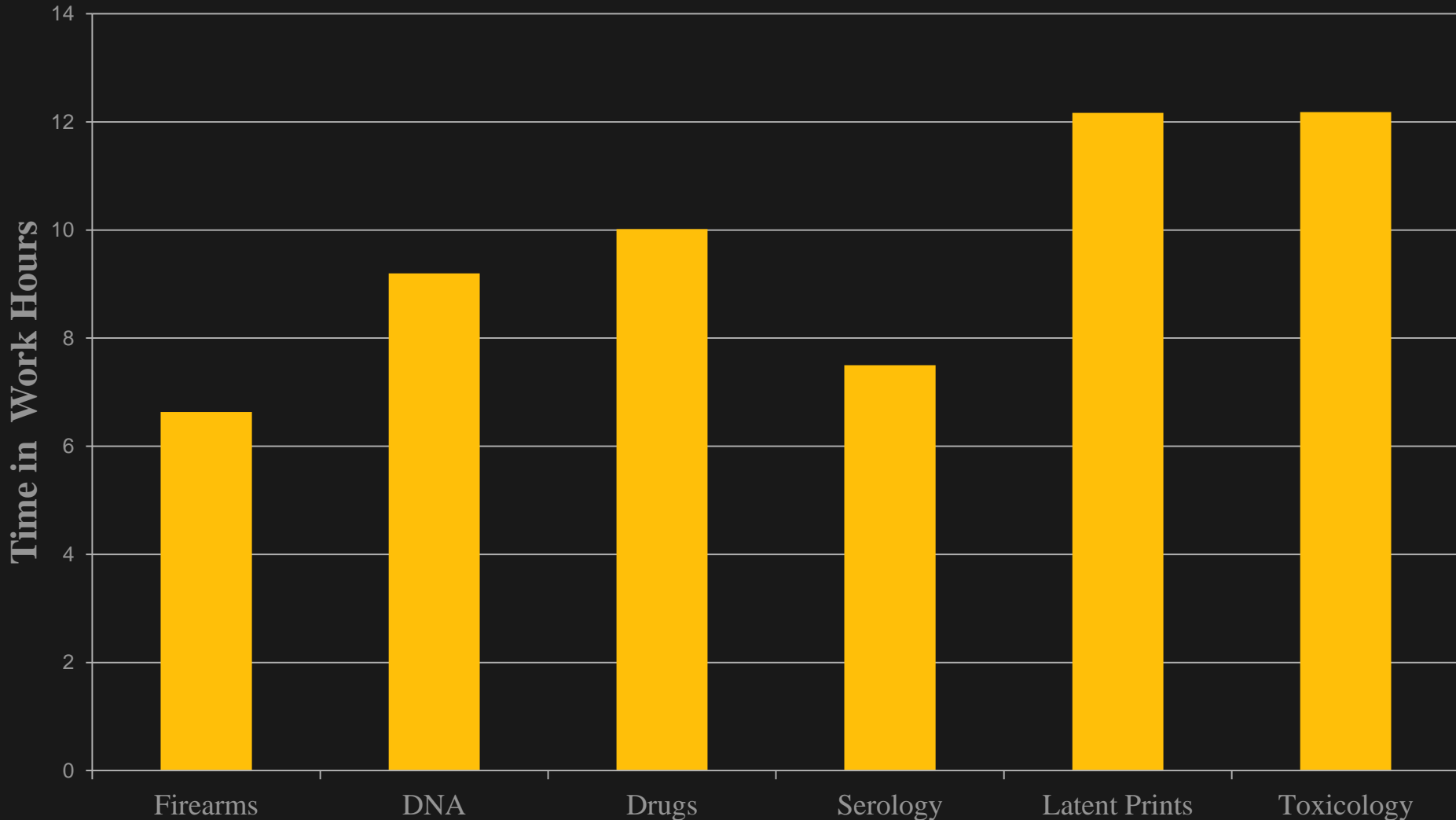
## Time Spent Waiting for Evidence per Section



# Root Cause Analysis

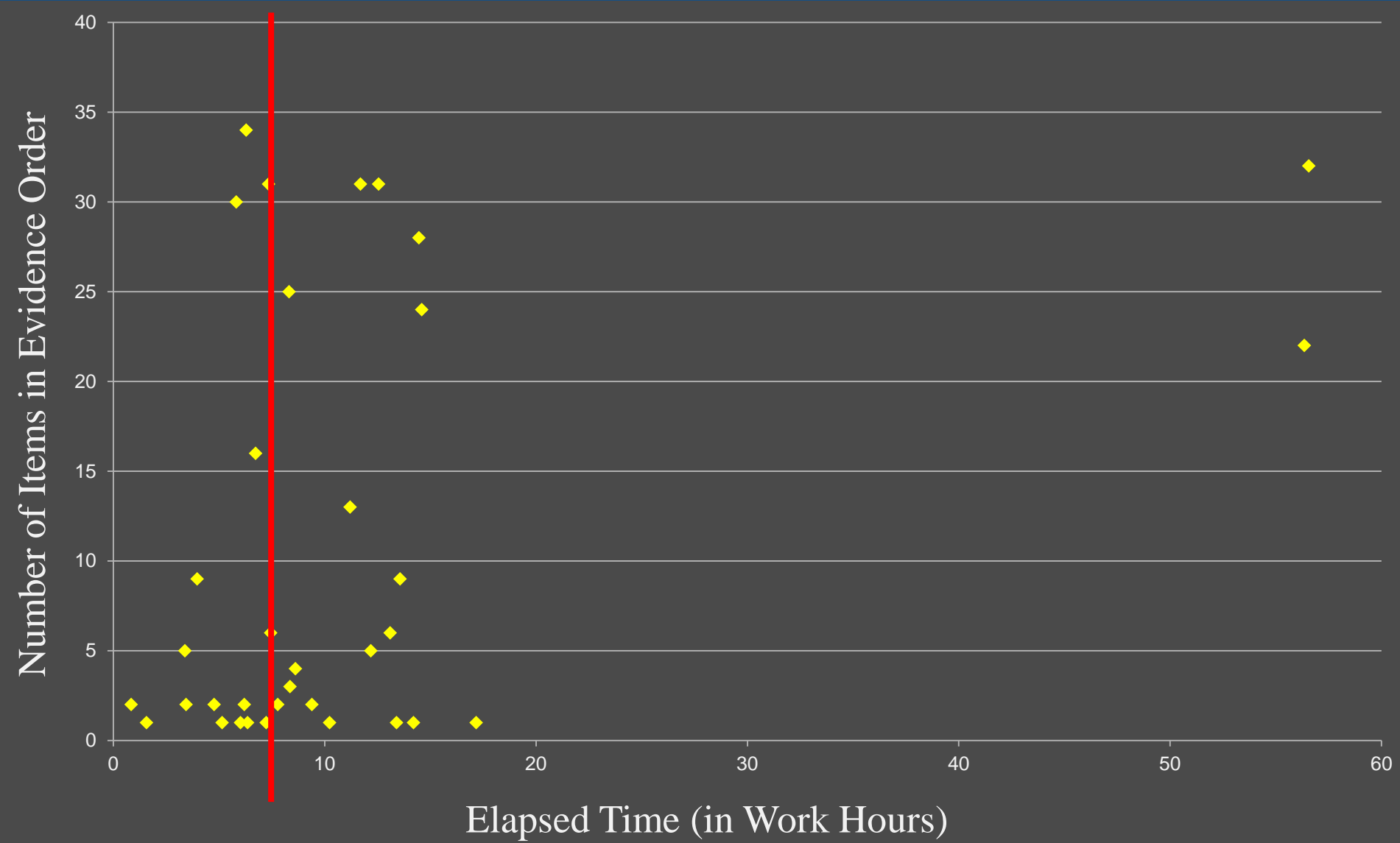


Average Wait Time Per Section, in Work Hours





# Evidence Order Size as a Function of Time



# Historical Sigma Level



Evidence order process taking over 8 work hours  
is considered a defect

<b>Sigma Level</b>	<b>1.32</b>
Defects	57.14%
Yield	42.86%
DPMO	571,429

# Root Cause Analysis



- Interviews with personnel to identify bottlenecks
- Analysis of historical data using laboratory information management system and TRACIS
  - Identification of major outliers and reasoning behind them
  - Identification of time gaps or “problem sections”
- **Go to the “Gemba” to understand the current evidence process**

# Root Cause Analysis

The team followed evidence from evidence order creation to delivery into storage lockers in order to:



- Find any obvious hiccups in the process
- Understand the process from the eyes of property room personnel
- See if there are any undetected redundant or unnecessary steps in the process

# Root Cause Analysis



Time spent during the steps of evidence retrieval after ten operator analyses:

	Evidence Order Size	Process Step: Ordering	Process Step: Pulling	Process Step: Retrieving	Waiting between process steps
<b>Range</b>	1-36 Items	1-12 Minutes	1-30 Minutes	11-77 Minutes	1-919 Minutes
<b>Average</b>	14 Items	5 Minutes	13 Minutes	51 Minutes	172 Minutes

# Project Improvement Ideas



The **root cause** was identified to be lack of coordination between the Forensic Laboratory and the Property Room, which led to a lack of structure in the evidence retrieval process.

# Project Improvement Ideas



The laboratory conducted a month long pilot study to measure the efficacy of changes to the evidence retrieval process. The changes included:

- Developing a schedule for evidence ordering
- Adjusting the barcoding system for evidence by removing laboratory specific barcodes
- Limiting the quantity of items in each evidence order to 30 items or less

# Project Improvement Ideas



A schedule is now followed to pull evidence by the Property Room and retrieve evidence by Laboratory evidence custodians.

**Our pull times will be as follows (M-F):**

**0800-0830** (or later if needed until completion)

**1230-1300** (or later if needed until completion)

**Person responsible:** the person assigned to the pager (on-call) will ensure that the picklists are printed and pulled each day of that week. This means the on-call officer will come in to the office instead of picking up their property at their division. If an emergency arises (manning levels or otherwise), the on-call officer must notify the supervisor as well as contact the laboratory to let them know their picklists will be pulled in the second pull or morning pull, whichever one is appropriate.

**Lab retrieval of evidence will begin as follows (M-F):**

**1000**

**1400**



# Project Improvement Ideas

Laboratory personnel were trained to create item orders using a different barcoding schema. This reduced waste by eliminating the need for lab labels.



# Project Improvement Ideas



Evidence orders were limited to 30 items or less.

# New Process Map

Before 8:00a and  
again before 12:00p

Customer  
Requests Lab  
Examination

Tech Lead/Analyst  
Creates Evidence  
Order in LIMS &  
Emails Evidence  
Custodian

Evidence is  
Ordered from  
Property Room  
Using TRACIS

Exam Request  
Assigned to  
Forensic  
Analyst

Request for  
Tox or  
Chemistry?

Evidence  
Custodian  
Reviews Request  
and Generates  
Evidence Order

No

Yes

# New Process Map

At around 8:30a  
and again at 12:30p

Property Room  
Evidence Tech  
Opens & Prints  
Evidence Order

Tech Pulls  
Evidence from  
Storage  
Location

At around 10:00a  
and again at 2:00p

Evidence  
Custodian  
Receives Order  
in Property  
Room

Tech Scans  
Evidence &  
Updates Order  
Status

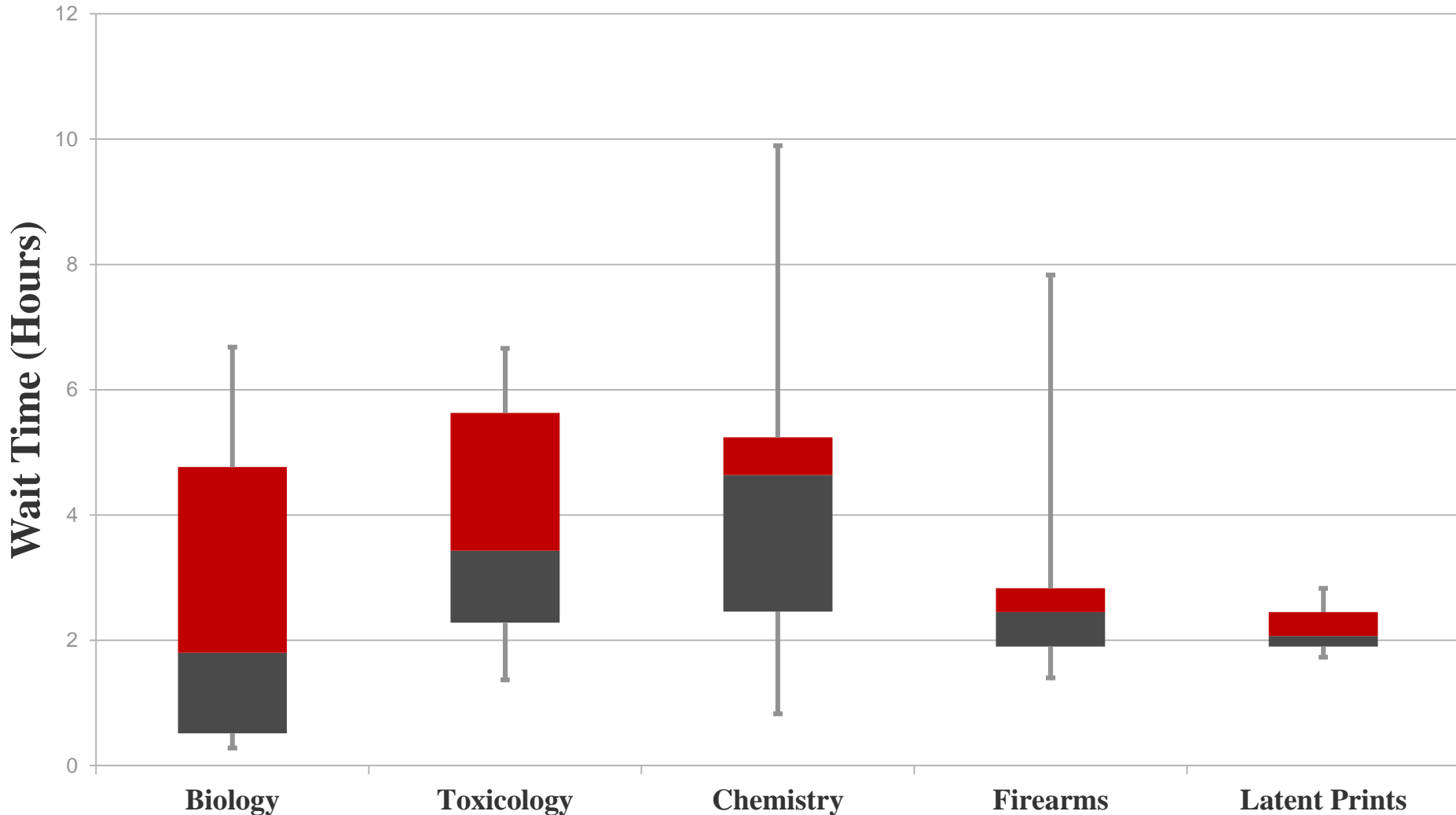
Evidence  
Custodian  
Transfers  
Evidence to  
Personal Custody

Evidence Custodian Transfers  
Evidence to Section-Specific Storage  
Location

# Project Outcomes



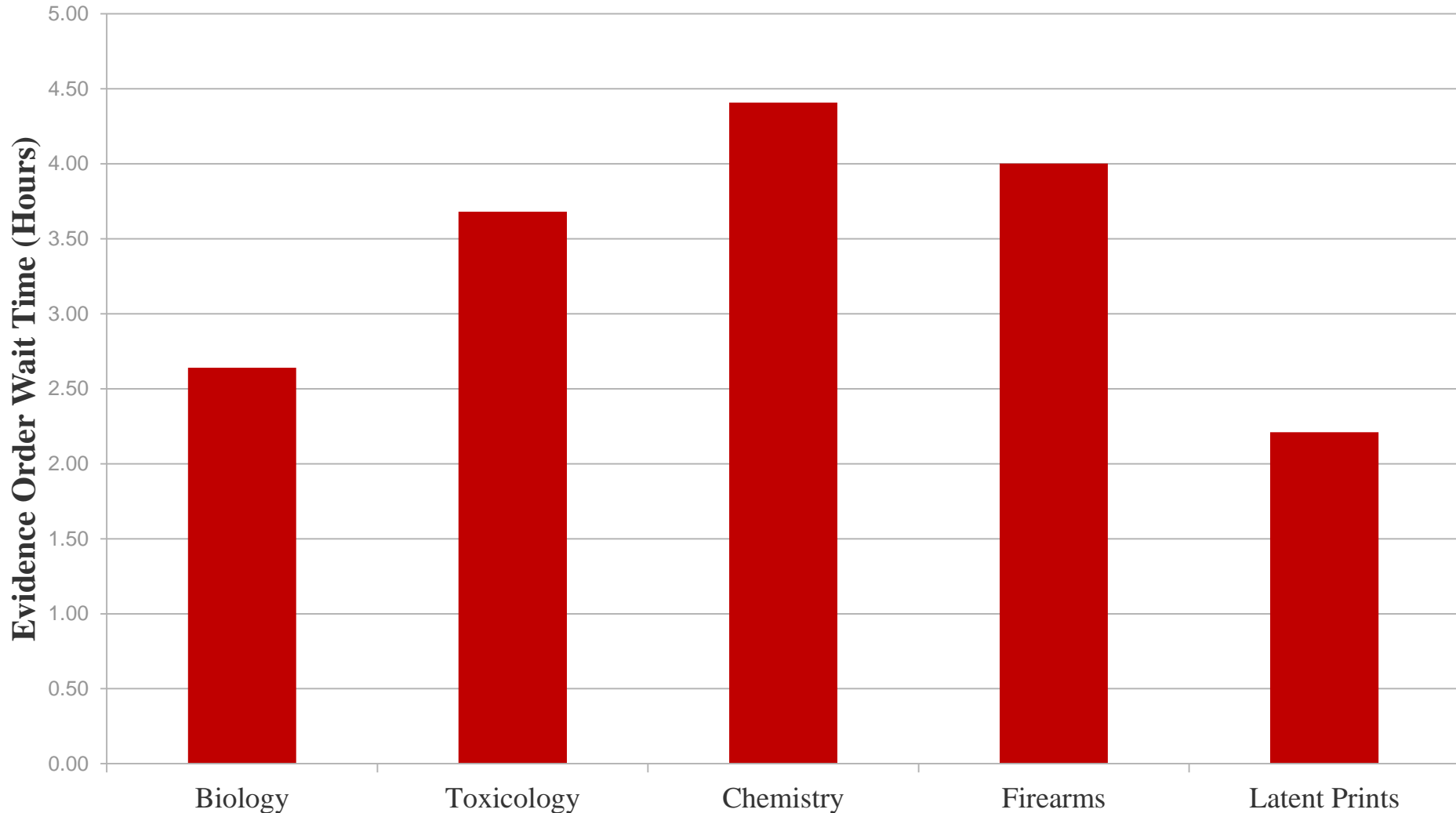
## Ranges of Wait Times per Section



# Project Outcomes



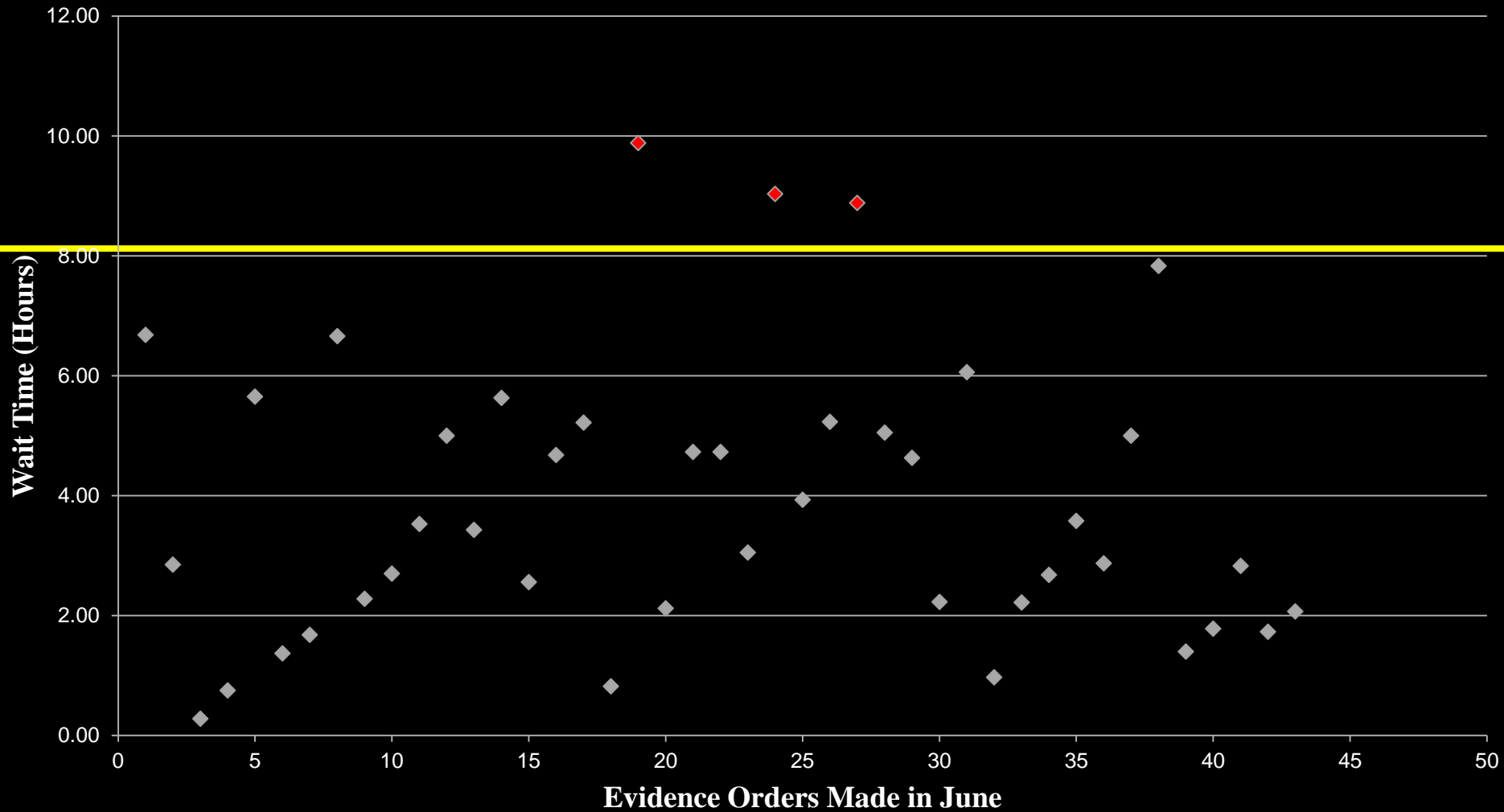
## Average Wait Time per Section



# Project Outcomes



## Evidence Order Wait Times



# New Sigma Level



Evidence order process taking over 8 work hours  
is considered a defect

<b>Sigma Level</b>	<b>3.00</b>
Defects	7%
Yield	93%
DPMO	69,767



# Next Steps in the Project...



- Use a second survey to measure stakeholder satisfaction of changes tested in the pilot study
- Recommend changes for permanent implementation based on outcome of pilot study
- Investigate further into why the defects and outliers involved the Chemistry section