

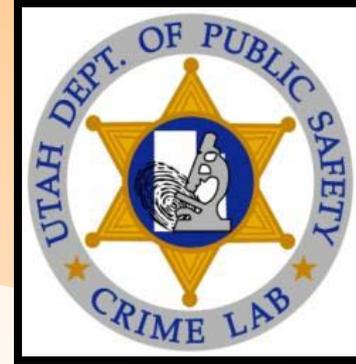
* Balancing Quality and Throughput

Applying SUCCESS to the Forensic Sciences

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- * 5 Analysts
- * Section Manager
- * Latent Fingerprint Cases (~93%)
- * Footwear / Tire Tread Cases (~5%)
- * Bloodstain Pattern Analysis (~2%)
- * Service every Law Enforcement Agency in Utah.
 - * 2013: 81 agencies served



***UBFS ID Section**

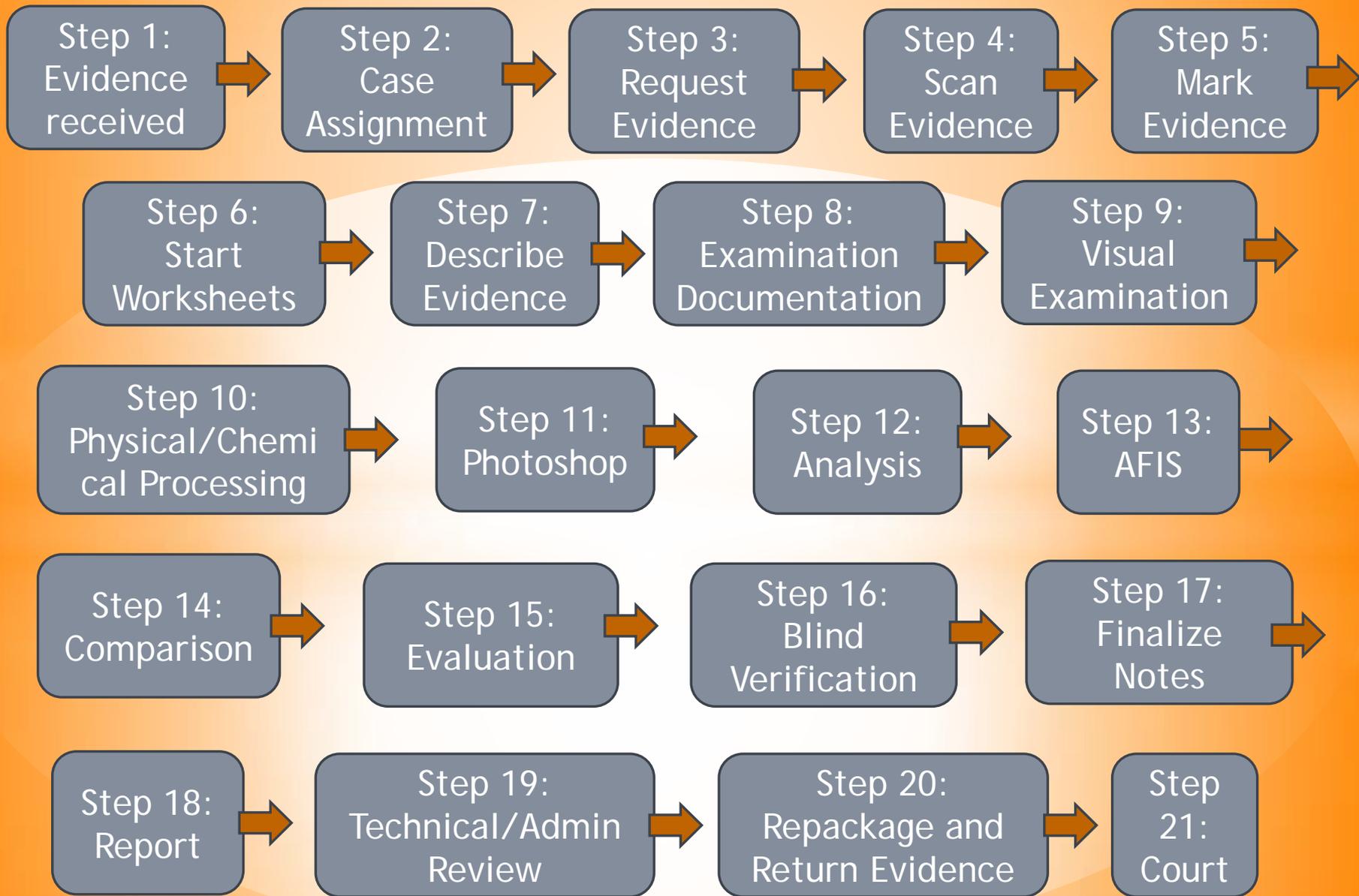
	2012	2013
# Cases	372	425
# Submissions	505	586
# Items Evidence	1924	2640
# Reports	422	511
Median Turnaround	36d	26d

***UBFS ID Section**

*A typical case...



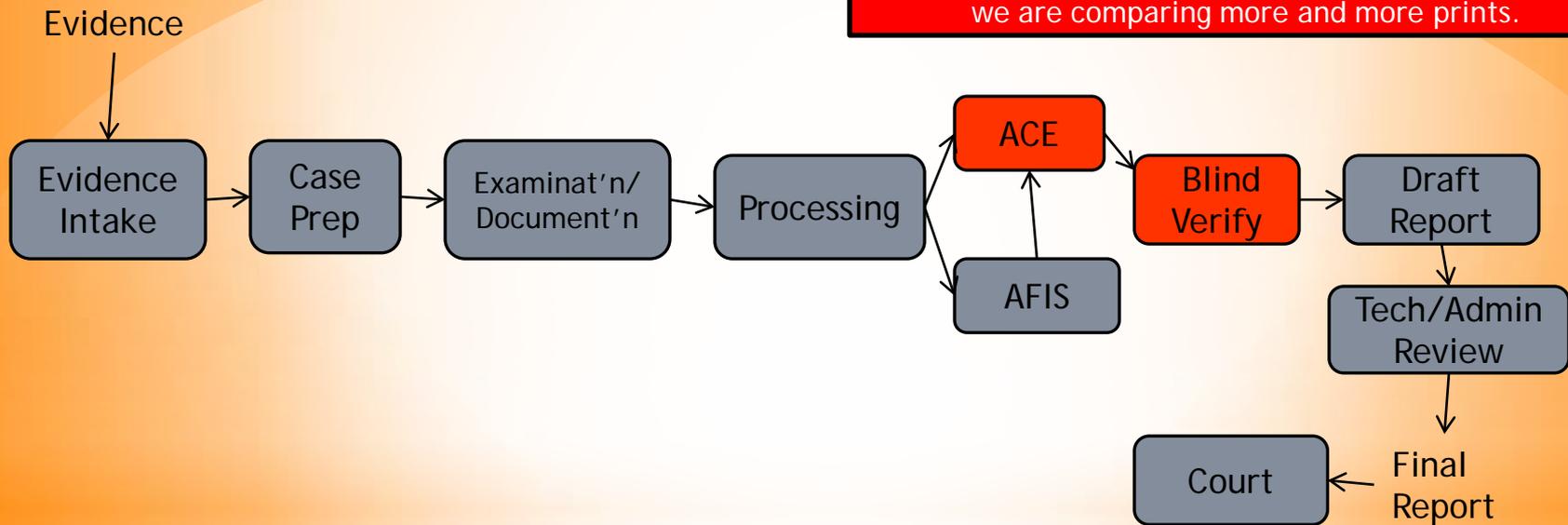
***UBFS ID Section**



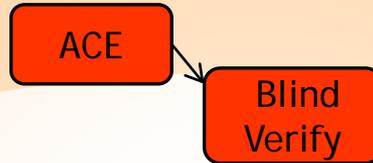
DPS Latent Fingerprint System TOS

Goal
Produce timely, thorough, and accurate reports on physical evidence
Throughput = Final Reports
Quality = thorough, accurate

Control Point
. Analysts are comparing latent prints to known prints (to ID or exclude sources).
• We are spending more of our time comparing prints, we are comparing more and more prints.



Case Work Constraints - Brainstorming Session



"Planned" Interference:

- Slow Computers
- "Partner Lab" Training
- Intern training
- Hood Inadequate
 - Small hood logjams
 - Awkward processing
- Post-Processing Wait (CA/BY)
- Too Few Scanners
- AFIS Searching
- Cross-discipline cases
- Generating / Tracking Stats
- Other Tasks
 - Case assignments
 - Purchasing
 - Safety
 - QC
 - Equipment
 - Reagents
 - Chemical Log
- Meetings
 - Prescreen Evidence
 - Section Meetings
 - CSRT
 - Attorney meetings
- Satellite Lab
 - Receiving evidence
 - Verifications / TR's

"Planned" Interference (con't):

- Form Location
- Audits
 - Training for auditors
 - Performing audits
 - Being audited
 - Post audit compliance
- Tech Lead (2)
 - Staying current
 - Policy Revisions
- Trainings
 - Taught (FP/ Photo / BSPA)
 - Prep
 - Taken (Discipline-specific, Administrative)
- Proficiency Tests
- Court
 - Prep
 - Testimony
- Other sections' trainees
- Lab Social Events

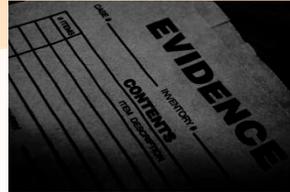
"Spontaneous" Interference:

- Misclassification of Evidence (Sero/FP)
- Evidence Incorrectly Entered
- Case complexity
- FP Consults
- Cross-discipline cases
- Visits
 - Official
 - Social
- Slow / No notification that evidence in locker
- Called up to Evidence
- Phone calls
- Tours / Job Shadows / Other sections' interns
- Evidence scanner malfunction
- "Special" projects
- CSRT
 - Call-outs
 - Consultations

Case Work Constraints

Categories:

- Evidence
 - Mislabeled, improper
- Technical
 - Slow computers, lab equipment not functioning
- Communication
 - Intra-agency, Inter-agency
- Other Duties, As Assigned
 - Many hats, not "Blue Light"
- *Quality Assurance Measures*



*Quality Assurance Measures

Laboratory Accreditation (ASCLD-LAB/ISO)

Extensive Documentation

Technical Review

Administrative Review

Blind Verification

Competency / Proficiency Testing

Certification of Analysts

Annual Audits

Why all the fuss?

***What happens if we
get a fingerprint
wrong?**

Madrid Error



Major, costly overhaul likely in HPD fingerprint unit.

-- Houston Chronicle | December 1, 2009

A blow to the credibility of fingerprint evidence.

-- Boston Globe | February 2, 2004

Calls for crime lab to shut down amid more evidence doubts.

FINGERPRINT WORK UNDER SCRUTINY

-- ST. PAUL, Minn. · Sep 20, 2012

Botched fingerprint work raises questions on HPD.

Houston Chronicle | June 15, 2010

\$145K settlement: Botched fingerprints put innocent man in jail for 17-month Rikers 'nightmare'.

-- Daily News | September 2, 2009

Throughput with Quality

QA Measures in Place:

- Laboratory Accreditation
- Documentation
- Blind Verification
- Technical Review
- Administrative Review
- Competency / Proficiency Testing
- Certification of Analysts
- Annual Audits

Desired Quality Improvements:

- 100% Verification
- Zero Errors

Throughput Metrics:

- Turnaround Time
- # Cases Completed Monthly

Desired Throughput Metric Improvements:

- Increase efficiency
- Increase caseload

Given Quality Constraints, How long should cases take?

- *A case is not a case is not a case*
- Pawn slip vs. Double Homicide

Assign each case a *Case Score*.

- Based on metrics we were already measuring
 - # Items
 - # Processes
 - # Prints developed
 - # Photos

Summary Stats for ID Section 2013 (N=411)

Case Score	0-10	11-20	21-40	> 40
Median Turnaround	10.5	14	21	26
Average Turnaround	16	21	37	41
Standard Deviation	<u>±</u> 20	<u>±</u> 24	<u>±</u> 40	<u>±</u> 50
Max. Turnaround	118	173	178	223
Min. Turnaround	0	0	0	7

So, why were some of the tough cases being processed quickly?

Why were some of the easy cases taking so long?

- Lack of “Full Kit”
 - Evidence
 - Exemplars
 - Suspects
 - Victims
- Cases involving multiple disciplines
 - Controlled Substances
 - Biology / DNA
- Difficulty of the Fingerprints
- “Priority” Cases

So, we just sat down and talked to the analysts...

“How long, maximum, should it take to do these case types?”

Case Type	Case Score	Examples	Percentage of Cases (2013)	Max. Time
“Burn”	1-10	Pawn slips, lifts (light processing)	51%	7 days
Cat. 2	11-50	Burglaries, robberies (multiple items, chemical processing)	38%	21 days
Cat. 3	50+	Aggravated Assaults, Homicides (numerous items, complex processing)	12%	45 days

Given our estimates of what “on time” is, how often did we get cases done “on time” in 2013?

Month	Percent “On Time” (“On Time” Cases / # Cases)	Mean Percent “On Time”
Jan	38%	56%
Feb	59%	
Mar	74%	
Apr	67%	
May	84%	
Jun	56%	
Jul	55%	
Aug	44%	
Sep	68%	
Oct	46%	
Nov	53%	
Dec	35%	

* 25% Improvement Target

GOAL 1: Decrease Turnaround Time

2013 metric: ~56% cases completed "On Time"

25% improvement goal: 81% cases "On Time"

We would also like to strive for a 42% decrease in mean turnaround with a target of 14 days.

GOAL 2: Increase Number Cases Completed per Month

2013 metric: 35 cases per month (~420 total)

25% improvement goal: 47 cases per month (~560 total)

If more cases are submitted, we would like to strive for a 60% improvement of 87 cases per month (~1050 total)

GOAL 1: Decrease Turnaround Time

Become more efficient.

Re: Many easy cases taking too long. Many hard cases being done quickly.

- Evidence
 - Mislabeled, improper
- Technical
 - Slow computers, lab equipment not functioning
- Communication
 - Intra-agency, Inter-agency
- Other Duties, As Assigned
 - Many hats, not "Blue Light"
- *Quality Assurance Measures*
- Lack of "Full Kit"
 - Evidence
 - Exemplars
 - Suspects
 - Victims
- Cases involving multiple disciplines
 - Controlled Substances
 - Biology
- "Priority" Cases

Also, 51% of cases are "Burn" cases.

GOAL 1: Decrease Turnaround Time

Become more efficient.

Create a "Burner" role:

- Do Burn Cases
- Do any Rush Cases
- Make sure the other analysts have a "Full Kit" for their cases, including:
 - 10-prints and Major Case prints
 - Suspects
 - Victims
 - Supplies are stocked
 - Equipment checked
- Attend to random phone inquiries and calls up front
- Assist analysts doing Category 2 & 3 cases



GOAL 1: Decrease Turnaround Time

Become more efficient.

“5S” the workspace.

- Eliminate waste / redundancy.



- Make each workspace autonomous.
 - Individual lab space
 - Chemical area
 - Photo rooms
 - Individual cubicle spaces

GOAL 1: Decrease Turnaround Time

Become more efficient.

Week Ending	Burns - Q1	Category 2 - Q2	Category 3 - Q3	Q Total (Q1+Q2+Q3)	Turnaround Time
3/7/2014	75.00%			75.00%	
3/14/2014	100.00%	100.00%	100.00%	100.00%	
3/21/2014	100.00%	100.00%	100.00%	100.00%	
3/28/2014	100.00%	75.00%		91.67%	
March Total	95.65%	94.12%	100.00%	95.24%	20 days
4/4/2014	100.00%		100.00%	100.00%	
4/11/2014	80.00%		75.00%	86.67%	
4/18/2014	100.00%	87.50%		94.44%	
4/25/2014	72.73%	50.00%	100.00%	70.59%	
April Total	87.50%	86.36%	88.89%	87.30%	14 days
5/2/2014	50.00%	66.67%		60.00%	
5/9/2014	100.00%	50.00%	100.00%	85.71%	
5/16/2014	60.00%	92.86%	100.00%	85.00%	
5/23/2014	100.00%	100.00%	100.00%	100.00%	
5/30/2014	80.00%	71.43%	100.00%	77.78%	
May Total	80.77%	82.76%	100.00%	83.33%	14 days
6/6/2014	57.14%	100.00%	100.00%	80.00%	
6/13/2014	100.00%	100.00%	66.67%	92.86%	
6/20/2014	100.00%	80.00%	100.00%	90.91%	
6/27/2014	100.00%	100.00%		100.00%	
June Total	86.96%	94.74%	83.33%	89.58%	14 days
7/4/2014	100.00%	100.00%	100.00%	100.00%	
7/11/2014	100.00%	75.00%	100.00%	83.33%	
7/18/2014	100.00%	100.00%		100.00%	
7/25/2014	100.00%	100.00%		100.00%	
July Total	100.00%	91.30%	100.00%	95.56%	13 days

Re: Turnaround Goal → 81% cases "On Time", 14 day Turnaround

GOAL 2: Increase Number Cases Completed per Month

- 2013 metric: 35 cases per month (~420 total)
- 25% improvement goal: 47 cases per month (~560 total)

If more cases are submitted, we would like to strive for a 60% improvement of 87 cases per month (~1050 total).

So, how do we have more cases submitted?

- Word of mouth
- Go out and recruit cases

Week Ending	T Total (Cases Completed)
3/7/2014	4
3/14/2014	15
3/21/2014	11
3/28/2014	12
March Total	42
4/4/2014	13
4/11/2014	15
4/18/2014	18
4/25/2014	17
April Total	63
5/2/2014	5
5/9/2014	7
5/16/2014	20
5/23/2014	10
5/30/2014	18
May Total	60
6/6/2014	15
6/13/2014	14
6/20/2014	11
6/27/2014	8
June Total	48
7/4/2014	14
7/11/2014	12
7/18/2014	5
7/25/2014	14
July Total	45

GOAL 2: Increase Number of Cases Completed per Month

Go out and recruit cases.

Wait. Check that.

Go out and recruit *quality* cases.

ILDDS Training - Impressions, Latent Detection, Documentation and Submission (lame working title).

Teach client agencies:

- What our capabilities are.
 - Paper → Decomposed hands
- How to locate good evidence.
 - Multiple surfaces / light sources
- How to properly document / collect.
 - Photography, lifts, packaging

Summary:

GOAL 1: Decrease Turnaround Time

2013 metric: ~56% cases completed "On Time" ✓

25% improvement goal: 81% cases "On Time" ✓

We would also like to strive for a 42% decrease in mean turnaround with a target of 14 days. ✓

GOAL 2: Increase Number Cases Completed per Month

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Questions?

