Ohio Bureau of Criminal Investigation

FB & DNA Process Study
Kaizen Event Report Out
April 11-15, 2011
The TAQ Masters
The Team

- Mike Velten, Assistant Deputy Superintendent, DNA & FB
- Liz Benzinger, BCI DNA, Technical Leader/QA Manager
- Lewis Maddox, BCI-Richfield Lab Director
- Lynn Bolin, BCI-London DNA Lab Director
- Jen Duvall, BCI-Bowling Green, Acting Lab Director
- Amy Wanken, BCI-London, FB Lab Director
- Becki Hager, BCI-London, Office Assistant
- Bryan White, BCI-London, Special Agent, Crime Scene
- Casey Agosti, BCI-Bowling Green DNA Forensic Scientist
- Brenda Gerardi, BCI-Richfield DNA Forensic Scientist
- Kristen Slaper, BCI-London Forensic Scientist
- Russ Edelhelt, BCI-Richfield DNA Forensic Scientist
- Emily Draper, BCI-London DNA Forensic Scientist
- Julie Trackler, Executive Assistant to DAS Director
- Jonathan Blanton, Assistant Attorney General

Facilitators: Bill Demidovich, Steve Wall, Gloria Calcara, Sue Kirby, Chris McGill, Cintas Corp., Amy Harris, Parker, Rich Martinski
Background

The Ohio Bureau of Criminal Investigation processes more than 7,000 DNA cases each year. Most cases are received and/or processed beginning with Forensic Biology and then DNA at three primary laboratories, 1) London, 2) Richfield and 3) Bowling Green. The process is utilized by most law enforcement agencies throughout the state and the results of BCI testing impact the viability of related case prosecution.

Stakeholders

Victims/Victims Family
Law enforcement agencies
Courts
Attorneys
Accused offenders
Ohio Attorney General
Reasons for improving this process

• Improve overall customer relationships.

• Improve service to enforcement agencies and victims/victim family members.

• Improve public/media understanding of the service levels provided by our units.

• Provide better education to submitters entering evidence into our process for increased accuracy and completeness.
Kristen Slaper
Scope of Event

The process begins when agencies bring evidence to BCI and ends when the final report is issued or the forensic scientist testifies.

Overarching Themes:

The purpose of this event is to reduce processing time and improve customer satisfaction while maintaining high quality.
Out of Scope

Areas that will not change as a result of the Kaizen event are:

• No one loses their job because of the Kaizen event, but duties may be modified.
• Need for additional staff is not dependent on improvement process
• Need for additional monies is not dependent on improvement of process
• No legislative changes or changes related to collective bargaining.
• No IT solutions until it is determined that an IT solution is needed.
Goals & Objectives

• Have ALL cases come in ready to work
• Start work on all submissions within 5 days
• Achieve an average report time of 35 days from submission
• Reduce the number of reports returned for changes after technical and administrative review
• Improve customer and employee satisfaction
Amy Wanken
Baseline Data

<table>
<thead>
<tr>
<th>Average Case Processing Time: Dual Lab Cases</th>
<th>Average Days from Receipt at BCI to DNA Report Complete</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-7 Days</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>8-14 Days</td>
<td>0</td>
<td>NA</td>
</tr>
<tr>
<td>15-30 Days</td>
<td>8</td>
<td>1%</td>
</tr>
<tr>
<td>31-60 Days</td>
<td>62</td>
<td>11%</td>
</tr>
<tr>
<td>&gt;60 Days</td>
<td>485</td>
<td>87%</td>
</tr>
<tr>
<td>Total</td>
<td>555</td>
<td></td>
</tr>
</tbody>
</table>
# Baseline Data

## DNA Lab Statistics

<table>
<thead>
<tr>
<th>Days Until Assigned</th>
<th>% Assigned</th>
<th>Total Days at BCI</th>
<th>% Assigned</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Day</td>
<td>122</td>
<td>39%</td>
<td>1</td>
</tr>
<tr>
<td>2-7 Days</td>
<td>10</td>
<td>3%</td>
<td>1</td>
</tr>
<tr>
<td>8-14 Days</td>
<td>8</td>
<td>3%</td>
<td>1</td>
</tr>
<tr>
<td>15-30 Days</td>
<td>19</td>
<td>6%</td>
<td>8</td>
</tr>
<tr>
<td>31-60 Days</td>
<td>65</td>
<td>21%</td>
<td>46</td>
</tr>
<tr>
<td>&gt;60 Days</td>
<td>92</td>
<td>29%</td>
<td>262</td>
</tr>
</tbody>
</table>

The average processing time for DNA cases was 126 days. 50% were not assigned to a scientist for 30 days or longer.
Julie Trackler
# The Kaizen Approach

Team-based energy and creativity drives immediate process improvement

<table>
<thead>
<tr>
<th>DAY 1</th>
<th>DAY 2</th>
<th>DAY 3</th>
<th>DAY 4</th>
<th>DAY 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day of Learning</td>
<td>Day of Discovery &amp; Developing Improvement Ideas</td>
<td>Day of Improvement &amp; Creating the New process</td>
<td>Day of Design Implementation &amp; Documentation</td>
<td>Day of Celebration &amp; Results Schedule 30-60-90-day follow-ups</td>
</tr>
</tbody>
</table>

At the end of the week, each Kaizen team has designed dramatic operational improvements
To Break for the Better

- Clear objectives
- Team process
- Tight focus on time (one week)
- Quick and simple, action first
- Necessary resources available right away
- Immediate results (new process functioning by end of week)
Lead-time Reduction

- Backlog
- Excessive Motion
- Defects & Loop Backs
- Hand-offs
- Waiting
- Over processing
- Over Production
Emily Draper
Current-State Process Map

187 steps
52 handoffs
43 decisions
The original processes had:

- Too many steps
- Too many handoffs
- Caused too much process lead time
- Too many duties for the forensic scientist that could be done by others
- Lot of delays
- Lot of redundancies
The team brainstormed more than 70 improvement ideas

- Garbage in=Garbage out
- Only take complete cases
- No non-sex cases at less than F3 level
- Edit sub. Policy (limit rushes)
- Establish better criteria for submission of evidence to reduce non-essential work
- Require synopsis & standards on submission
- Incomplete is unacceptable
- Tighten up compliance with evidence protocol – must have svse std & synopsis
- Cases ready to be worked on submission
- Require checklist to be completed prior to case acceptance
- Incentives for status communication for Detectives & Court
- Stop cases at the door if they don’t have everything they need
- Train LEA better
- Tell L.E. & Pros. What is required
- OHLEG Training & use
- Give Detectives /Inv. OHLEG access to reports
- No memos.. OHLEG
- Give BCI staff "read" access to OHLEG
- Electronic access to court dockets & OHLEG
- Mideo access on other computers
- Stop attaching CV to each report - stop mailing reports
- Automated note taking
- Purchase & install barcode system for sample tracking
- Dictation software for staff
- LIMS generate report from report input info
- LIMS that works
- LIMS creates reports FB/DNA little FS interaction wizards
- Better LIMS – report writing – tracking sample types
- IT support to include program for robots
- Faster computers
- Make more of process electronic
- Paperless process
- Go paperless
- Better data mining tools to track trends and sample types
- Take better advantage of OA3s
- Have someone else order
- Evidence transfer to a minimum
- More support with admin functions (Purchasing ordering)
- Reassign non-technical tasks to OA3s
- Liz have dedicated OA3
- OA3 to order supplies (2)
- Delegate some responsibilities to OA3
- Decrease amount of case transfer
- Don’t transfer cases/evidence
- Less shipping around of case files
- Minimize transfer between labs
- Eliminate or reduce Fed Exing
- Less movement of case pockets- only absolutely necessary transfers
- Organize DNA vault for incoming evidence
- Property room person to move evidence
- Place in DNA vault (no transporting from vault to vault)
- Good scanners for case files
- Better define interpretation guidelines (i.e.: inconclusive)
- Bar code readers for DNA sample tubes
- Use colored folders to identify case typed priority
- Assign additional counties to L&R – from BG area
Clean Sheet Redesign
Common Ground

- Auto Assign
- Submission Policy Enforced
- No more mailing
- QC Tech Responsibilities
- QA's move evidence
- Bar coded tubes
- Tablets for notes
- Triage in analysts hands
- Automated Flow Path
- Paperless
- IDX = use it
- LIMS Enhancement
- Simple cases bypass FB reporting
- Visual prioritization
- CODIS - Forensic check by analyst. Refer to DBL.
Russ Edelheit
The New, Improved Process

84 steps
26 handoffs
8 decisions
# The Results

<table>
<thead>
<tr>
<th>Measure</th>
<th>Before</th>
<th>Projected After</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Processes</td>
<td>3</td>
<td>1</td>
<td>66% reduction</td>
</tr>
<tr>
<td>Steps</td>
<td>187</td>
<td>84</td>
<td>103 less steps -55%</td>
</tr>
<tr>
<td>Decisions</td>
<td>43</td>
<td>8</td>
<td>81% fewer</td>
</tr>
<tr>
<td>Handoffs</td>
<td>52</td>
<td>26</td>
<td>50% fewer</td>
</tr>
<tr>
<td>Forensic Biology Processing Time</td>
<td>50 days</td>
<td>14 days</td>
<td>36 fewer days 72% reduction</td>
</tr>
<tr>
<td>DNA Processing Time</td>
<td>126 days</td>
<td>21 days</td>
<td>105 fewer days 83% reduction</td>
</tr>
<tr>
<td>Overall Processing Time</td>
<td>117 days</td>
<td>35 days</td>
<td>82 fewer days 70% reduction</td>
</tr>
</tbody>
</table>
More Results

• Reduced information-gathering steps
• Created a process that can be explained to the customers
• Reduced job frustration; revitalized job satisfaction
• Buy-in from all levels of staff
Mike Velten
Projected Cost Savings

Laboratory-wide savings:

- Paperless Reports:
  - Paper Savings: $28,000 annually
  - Postage Savings: $12,000
  - OA3 time spent mailing: $17,000

Projected Annual Savings of $57,000
Staffing Plan

2012 Budget includes money to hire 8 DNA Forensic Scientists ($500,000/year)

Post Kaizen staffing plan:
- 4 DNA Forensic Scientists
- 3 Laboratory QC/QA Analysts
- 3 FT & 2 PT dedicated OA3s to the DNA Biology Unit

BUDGET NEUTRAL
<table>
<thead>
<tr>
<th>Key Issues</th>
<th>Major Improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Each lab had a separate process</td>
<td>Standardized processes</td>
</tr>
<tr>
<td>Forensic samples came in incomplete</td>
<td>Created a new checklist and educational process to ensure more complete submissions.</td>
</tr>
<tr>
<td>Scientists doing too many other duties</td>
<td>Moving duties to more appropriate staff. Hiring and using office assistants.</td>
</tr>
<tr>
<td></td>
<td>Future hiring of technicians to free up scientists to do more DNA work</td>
</tr>
<tr>
<td>Lead time too long</td>
<td>Reduced steps, implementing paperless process,</td>
</tr>
<tr>
<td>Purchasing procedures were burdensome &amp; caused delays</td>
<td>Credit card, blanket POs, pre-approved standard lab supplies vendor</td>
</tr>
<tr>
<td>Employees took too long to get help</td>
<td>Dedicated IT staff at BCI</td>
</tr>
</tbody>
</table>
Bryan White & Lewis Maddox
Implementation Plan

• Submission Expectation action items
• Training plan
• Communication plan
• IT action items
• HR action items
• Fiscal action items
• Data collection
Submission Form

**HEADER**

<table>
<thead>
<tr>
<th>Agency Item</th>
<th>Description</th>
<th>Where?</th>
<th>Purpose/Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Comforter</td>
<td>Victim's bed</td>
<td>Suspect's semen</td>
</tr>
<tr>
<td>2</td>
<td>Pants</td>
<td>Victim's pants</td>
<td>Suspect's semen</td>
</tr>
<tr>
<td>3</td>
<td>Underwear</td>
<td>Suspect's under</td>
<td>Victim DNA</td>
</tr>
<tr>
<td>4</td>
<td>Knife</td>
<td>Found @ scene</td>
<td>Susp - handle</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Vic - blade</td>
</tr>
<tr>
<td>5</td>
<td>Swabs/Sample</td>
<td>Victim</td>
<td>for comparison (auto)</td>
</tr>
<tr>
<td></td>
<td>Standard</td>
<td></td>
<td>for comparison (auto)</td>
</tr>
<tr>
<td>6</td>
<td>Standard</td>
<td>Suspect</td>
<td></td>
</tr>
</tbody>
</table>

*Submitted by:*

*(Investigator)*

(Brief Synopsis: *"*

- Charged: □ yes □ no
- Trial Date: □ yes □ no
- Grand Jury: □ yes □ no
- In Custody: □ yes □ no
- Other Comments:
Action Plans

Fiscal Action Plan

What | Who | When
---|---|---
P-cards x2 | Jennie B. | 4-22
List of most common vendors for Blanket POs Preapproved Std Lab Supply Vendors | Lewis | 4-22
Timing for Maintenance Contracts | Mike, Jennifer B. | 4-22
Performance audit of local PCs Help Ticket with PCs | Lynn Wellens (Lite) | 4-22
Ensure IT is aware of all DNA IT projects needed | Mike, Lewis, Lynn | 4-22

HR Action Plan

What | Who | When
---|---|---
Potential intern Candidates from OSU | Erica | Mon, Apr 18
Create specs/P.D. for tech position with BC1 mgrs. | Erica | June 18 (8 wks)
Study tasks that can be reassigned to OA3 | Erica | Mon, May 2 (2 wks)
OA3 - Designated per Lab. | Mike | Study IT support staff for BC1 - Mike
Communication Plan

<table>
<thead>
<tr>
<th>When</th>
<th>Stakeholder</th>
<th>What</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| 90 days    | law enforcement, prosecutors, media, SANE nurses | BCI customer session appreciation | - Brief on new process  
- Impacting changes  
- Understand BCI mission; operations |
| Soon       | BCI staff                          | email from Dir Stickrath      | Debrief Kaizen results                       |
| ?          | district attorneys, sheriff, Chief of Police | Ltr from AG Delvin or Stickrath | "Perform improvements"  
"why are we making changes"  
Help us, help you |
| next edition | subscribers                     | Article in AG newsletter | Raise awareness of process/perform change |

<table>
<thead>
<tr>
<th>When</th>
<th>Stakeholder</th>
<th>What</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| next available meeting | BSSA, OACP, OPAA, SANE | personal appearance  
- Ask for space to add article for new BCI process  
- AG law enforcement conf  
- OPOTA | Explain process changes  
and impact on stakeholders |
| as needed  | Media                              | Soundbites for AG Director  
- to defend lab  
- - delays due to LEA  
- - X (more)  
- - X | To raise public awareness of lab vs LEA roles in DNA field |
# Training Plan

<table>
<thead>
<tr>
<th>Who?</th>
<th>When?</th>
<th>How? What?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submitters &amp; Investigators</td>
<td>Can start introducing new (4/18)</td>
<td>- EAP/RA class&lt;br&gt;- Evidence Technician class&lt;br&gt;- Introduce new ER manual&lt;br&gt;- Give instruction on using CHLCS&lt;br&gt;- Offer to get LE registered on CHLCS&lt;br&gt;- Introduce new submission policy &amp; form&lt;br&gt;- Give brief overview of EU process&lt;br&gt;- Law Enforcement Conference&lt;br&gt;- Offer regionally.</td>
</tr>
<tr>
<td>Internal Staff/ Evidence Receiving</td>
<td>when completed</td>
<td>4/18  &lt;br&gt;- Internal training&lt;br&gt;- Introduce new ER manual&lt;br&gt;- Introduce new submission policy &amp; form&lt;br&gt;- Have ER call assigned analyst (not lab director) w/ questions&lt;br&gt;- ER gives analyst a business card to investigator&lt;br&gt;- Set deadline for investigator to provide additional info/evidence</td>
</tr>
<tr>
<td>OAS</td>
<td>4/18</td>
<td>- Internal training&lt;br&gt;- Mailing reports&lt;br&gt;- Returning evidence&lt;br&gt;- CBIS procedures (use triaging worksheet)&lt;br&gt;- Writing memos&lt;br&gt;- Filing&lt;br&gt;- Phone calls</td>
</tr>
</tbody>
</table>
Come Monday...

- Purchasing
- DNA can be stored upstairs (London)
- Help desk
- Eliminate simple biology blood reports
Benefits

• Less paper products
• Reduced postage costs
• Less waiting time
• Less frustration for employees
• Streamlined process
• Process is a product of the employees
• Reduces the opportunity for human error
• Fewer incomplete submissions
• More standardized workflow between labs
• Better use of scientists’ time
Casey Agosti
Personal Lessons Learned

- Philosophy change on who the customer is
- Better understanding of the process of DNA analysis
- Better understanding of how incomplete evidence delays the process
- Really like salmon post-it notes
- Better understanding of why it took so long
- Management has a lot of faith in the employees
- I would do it again
- We do a lot of stuff
- Scrub down before you commit a crime
- There is a true cost savings in getting rid of waste
- Scientists have a lot of diversity in their daily tasks
- Scientists wear many hats
- I should have invested in 3M!
Life as a member of a Kaizen event Team...

Brenda Gerardi, Bryan White, Liz Benzinger
What Questions/Comments do you have?
Special THANKS to…

• Attorney General Mike DeWine

• BCI Superintendent Tom Stickrath

• Sponsor: BCI Assistant Superintendent Steve Schierholt

• Team Leaders: Liz Benzinger, Mike Velten, Lynn Bolin, Lewis Maddox, Amy Wanken

• Subject Matter Experts: Sarah Smith, Sue Hamilton, Jennifer Biedenharn

• And all those who were just a phone call away