PROCESSING LOW-PRIORITY CHLAMYDIA & GONORRHEA REPORTS: KAIZEN IN ACTION

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PrISM™ PROJECT TEAM PROBLEM SOLVING

SOLVE

What is the Gap?

1. Starting Point

What is the need or gap that caused this project to be considered in the first place?

The current backlog of low-priority chlamydia (CT) and gonorrhea (GC) reports is approximately 3 months. The Centers for Disease Control & Prevention (CDC) guidelines state low-priority chlamydia and gonorrhea cases should be processed within 30 days of receipt. The Chicago Department of Public Health (CDPH) is not meeting this guideline, resulting in staff going into an "all hands on deck mode" in the first quarter to get all low-priority CT and GC processed from the prior year, and further perpetuating the cycle.

Who is establishing the need?

CDC, Illinois Department of Public Health, STI Surveillance Program

How is the need being measured and is it possible for this project to make an impact on that measure?

- Number of incoming low-priority GC and CT reports (monthly)
- Number of low-priority GC and CT reports entered by type (duplicate, update, new; daily)
- Number of low-priority GC and CT reports entered (monthly)
- Number of low-priority GC and CT reports waiting to be entered (monthly)
- Time studies of data entry by type of report (average and range)
- Backlog time of low-priority GC and CT reports (weekly)

Project can impact all but first measure.

What data or analysis was used to establish that this project will make a key impact?

Program performance data captured from the Illinois National Electronic Disease Surveillance System (INEDSS) Business Objects reports, time studies performed by Program Director, tracking spreadsheet for Senior Data Entry Operators (Sr. DEOs), Access database on data entry accuracy

What scope (e.g. geographic, organization, customer) are you expected to impact?

This project will immediately impact STI Surveillance Program staff from CDPH, and ultimately, healthcare providers (approximately 960 providers reported GC and CT to CDPH in 2012) and Chicago residents (2,695,598 as of 2010 Census). Although this project is within only one programmatic area within the Department, it could potentially serve as a model for other surveillance programs at CDPH.

What conditions are being placed on this project?

- Must adhere to collective bargaining agreements;
- No monetary resources available;
- Data entry and case closure must be performed in INEDSS; and
- INEDSS cannot be changed by CDPH.

2. Vision *(What do you want to achieve in the long range and without any restrictions? Generate a picture or description of your ideal condition. How will it look for the customers, our team, and for the taxpayers/funding sources?)*

Keep up with the incoming volume of low-priority CT and GC reports thereby minimizing the backlog in order to eliminate the first quarter "all hands on deck" mode so non-data entry staff can focus on disease control, prevention and surveillance activities.

3. Current State *(Description of how the process and organization is operating now; Quantitative if possible, always factual and based on observation)*

Stakeholder	Description	How do you know? *(Data if available)*
Customers	• Backlog time exceeds CDC guidelines • CDPH is unable to provide timely feedback to healthcare providers regarding their meeting reporting deadlines, quality of morbidity reports, treatment recommendations, etc. • CDPH is unable to provide more regular reports on CT and GC	• Backlog time is 86 days as of 2/21/14 • Only issue annual reports
Financial	Non-data entry staff performing data entry	INEDSS identifies who "touches" each case
STI Surveillance Program	Data entry staff unable to keep up with incoming low-priority GC and CT reports (morbidity, laboratory and closures)	Backlog is currently 5,880 paper morbidity and laboratory reports, and 11,346 cases awaiting closure in INEDSS (as of 2/21/2014)

What is the Goal for Improvement?

4. Goal or Target Condition *(What is the objective? Which piece of the gap are you addressing?)*

Reduce the backlog time of low-priority CT and GC report receipt to closure in INEDSS from 86 days to 30 days.

5. Customers & Beneficiaries *(Who benefits from achieving the goal? What populations are targeted?)*

- STI Surveillance Program staff
- Healthcare providers
- Public health stakeholders
- Chicago residents

6. Benefit *(What are the benefits from achieving the goal?)*

- Non-data entry staff do not have to process low-priority CT and GC reports in the first quarter;
- Disease Investigation Specialists (DIS) can provide better and more timely feedback to healthcare providers regarding reporting and treatment adequacy;
- Epidemiologists can perform more timely surveillance and publish quarterly reports for public health stakeholders;
- STI Surveillance Staff can detect and prevent outbreaks more quickly; and
- Chicago residents can have improved outcomes and decreased transmission related to GC and CT treatment adequacy and targeted interventions.

7. Measures & Targets *(What quantitatively will be achieved?)*

Beneficiaries	What Measured	How Measured	Target
• STI Surveillance Program staff • Healthcare providers • Chicago residents	Backlog time	Difference between date of receipt of low-priority GC or CT report to closed in INEDSS (using the furthest date out in the batch)	30 days or less (decrease of 65%) by June 2014

8. Conditions *(What do you need to be successful?)*

Data entry quality must be maintained.

What is the Approach?

9. Team Members & Roles *(Who is directly involved and how? Training needs?)*

Name	Role	Work process related interests/ concerns	Project Expectations	Project, QI skills
Kirsti Bocskay	QI Leader, Epidemiologist IV	Quality improvement	Learn how to run a Kaizen Event	Lean, Six Sigma, PDSA
Karen Canada	Sr. DEO	STI Surveillance Pgm		
Joanne Davenport	Sr. DEO	STI Surveillance Pgm		
Karin Hearan	Sr. DEO	Wild Card (Communicable Disease Pgm)		
Jeanette Kowalik	Process Owner, Program Director	Meet CDC guidelines for processing GC and CT reports	Backlog time reduced to 30 days	
Alison Scott	Sr. DEO	STI Surveillance Pgm		
Sandra Tilmon	Epidemiologist II	STI Surveillance Pgm		PDSA
Kingsley Weaver	Epidemiologist III	Wild Card (Communicable Disease Pgm)		PDSA

Training Needs: Working With Others, Introduction to Kaizen and Quality Improvement (QI), Value and Waste

10. Project Schedule

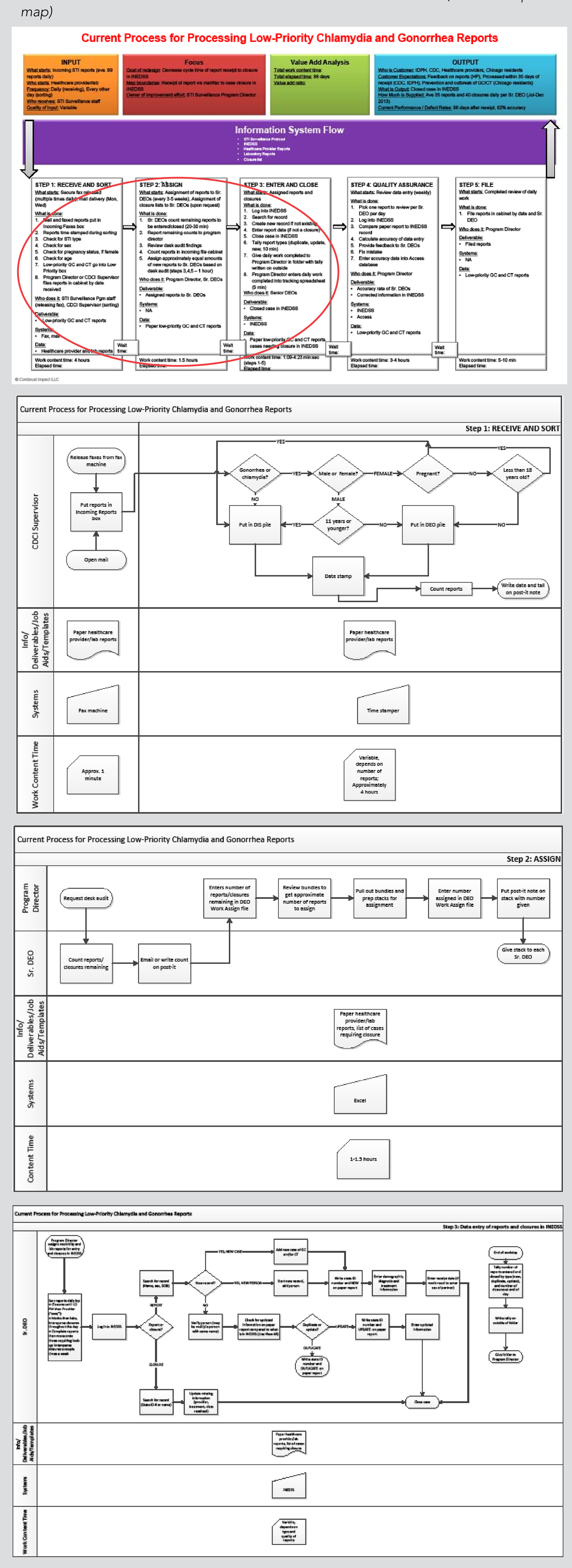
Kaizen Event: Feb 24-28, 2014

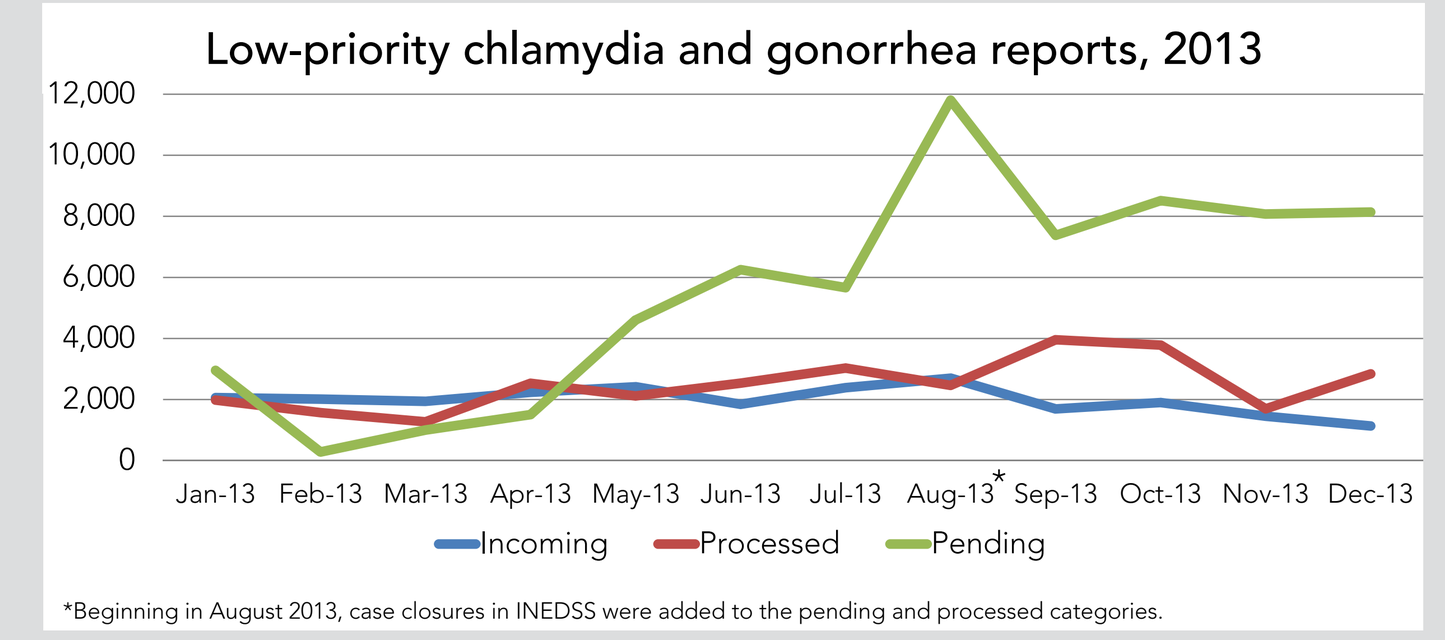
11. Data and Information Collection *(What will you collect? Who? When?)*

What	Who	When
Time studies for types of reports (lab-new, update, duplicate; morbidity-new, update, duplicate; closure)	Kirsti Bocskay, Sandra Tilmon	2/10/14
Average number of low-priority GC and CT reports processed per day	Sandra Tilmon	1/24/14

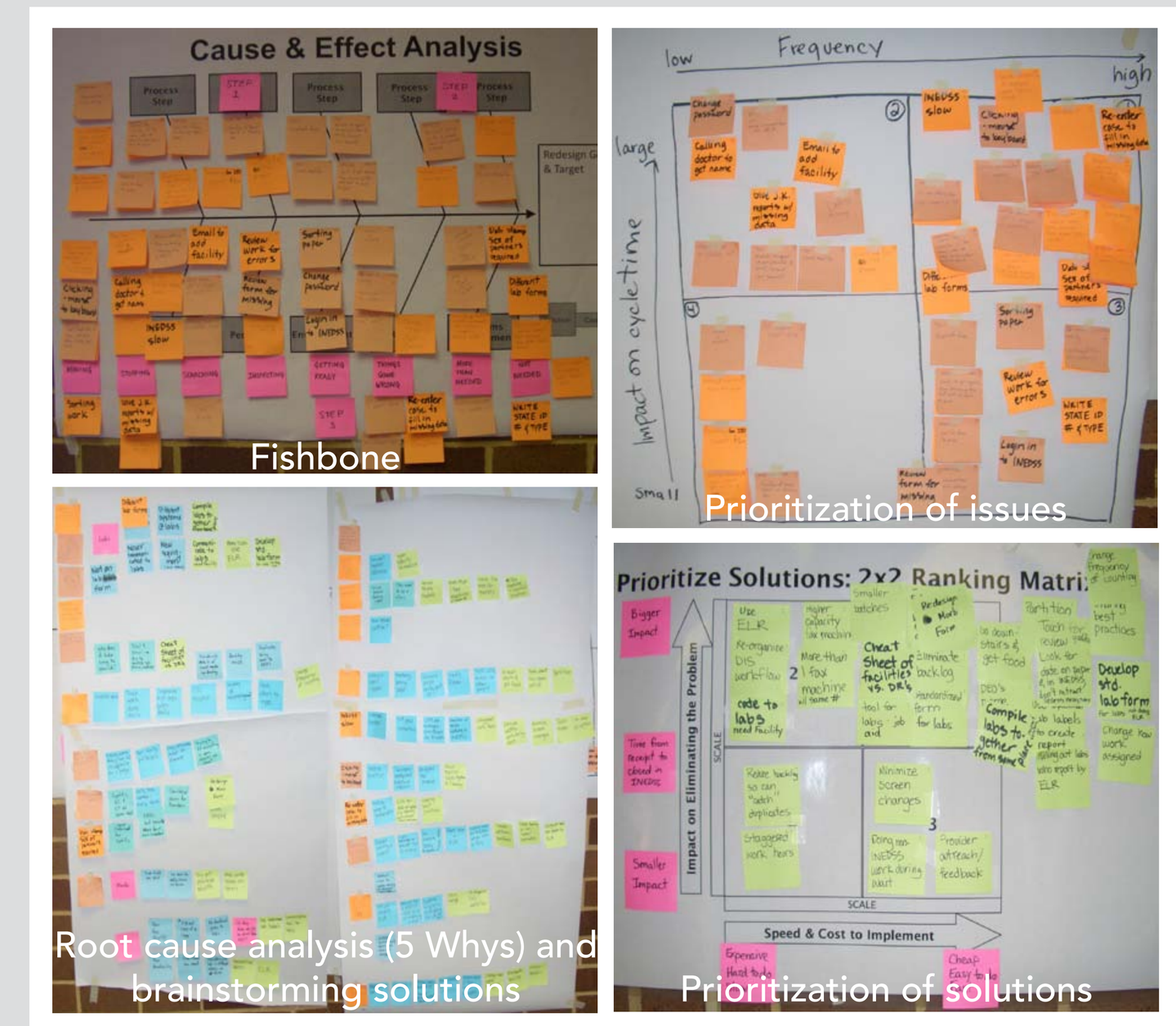
Understanding the Problems:

12. Observe and Document Current Process *(Generate a process map)*





13. Conduct Cause and Effect Analysis *(Priority issues and solutions from cause and effect analysis)*



Issue/Waste	Root Causes	Solutions	To Implement: Speed	Cost
Paper waiting time (morbidity and lab forms sitting in file drawer waiting to be entered into INEDSS)	• Batches are big • Backlog • "Easy" reports entered first, "harder" ones pushed back • Being kicked back to Program Director or DIS • Status quo of how work assigned	• Smaller batches • Change how work assigned • Eliminate backlog	Fast	Free
• Reading/writing • Morbidity form not in order of INEDSS • Extra information on morbidity form	• Form fields are too small • No room for definitions on form • Fitting everything for GC, CT and syphilis on 1 page • For faxing purposes • Only considered order for disease • Trying to fit everything in open spaces on sheet • Epidemiologists wanted 1 morbidity form • Considered easier for providers • Sr. DEO's not consulted when form created	• Re-design morbidity form	Revision quick, vetting and rolling out slower	Free

• Reading/writing
• Searching
  • For facility name in Google because not on lab form
  • Different lab forms
	• Poor fax quality
	• Filling out copy of a copy
	• No feedback given to labs
	• Poor handwriting
	• Form fields too small
	• Providers put different info in different places on form
	• Provider field not on lab form
	• Never communicated to labs
	• New INEDSS requirement
	• Different systems at labs
		• Standardize lab form
		• Electronic lab reporting (ELR)
		• Communication tool for labs
		• List of facilities/ doctors
		• Compile labs together from same facility
			Quick to create standard form and cheat sheet; Others slower	Free

One third of reports are duplicates	• Provider sending 2 copies • Error message on provider fax so re-send • Fax machine busy so provider sending multiple times • Paper labs and ELR • Duplicate copies for DIS and Sr. DEOs but give both to Sr. DEOs	• Pulling out labs who report by ELR • Reduce backlog so can "catch" duplicates • Provider outreach/ feedback	Fast	Free
Cases reopening in INEDSS after Sr. DEO's close	• DIS are merging ELR • Stay on top of INEDSS merging so not re-opening (<30 days) • Syphilis is priority so not getting done in 30 days	• Sr. DEO's merge • Re-organize DIS workflow	Slow	Free
Re-enter case to fill in missing data	Multiple ways to review data in INEDSS	• Don't retract case unless necessary • Sharing best practices	Fast	Free

What are your Conclusions?

14. Improvement Hypotheses *(Summary of potential means to achieve goal)*

Issue	Improvement	Expected Results
Morbidity and lab forms **waiting** to be entered into INEDSS	• Bundle reports into smaller batches • Remove lab forms that already submitted via ELR • Eliminate backlog	Decrease waiting time of reports, thereby reducing backlog time of reports
Information on morbidity forms is **more than needed**; **Stopping** to interpret handwriting/bad fax quality.	• Revise morbidity form to include only information needed for low-priority GC and CT and flow with INEDSS order • Encourage providers to use INEDSS	Increase speed of data entry of morbidity forms, thereby decreasing backlog time
Searching for facility name because not included on lab form, and information in different places on lab form depending on lab; **Stopping** to interpret handwriting/bad fax quality.	• Creating provider and facility cheat sheet to minimize time spent googling; • Create standardize lab form • Compile labs from similar facilities when entering into INEDSS • Encourage labs to use ELR	Decrease time spent entering lab forms, thereby decreasing backlog time
Cases being re-opened in INEDSS when DIS merge after being closed by Sr. DEOs.	Improve workflow process of merging and closures in INEDSS	Decrease time between merging and closing, thereby reducing backlog time

TRY

Try Solutions:

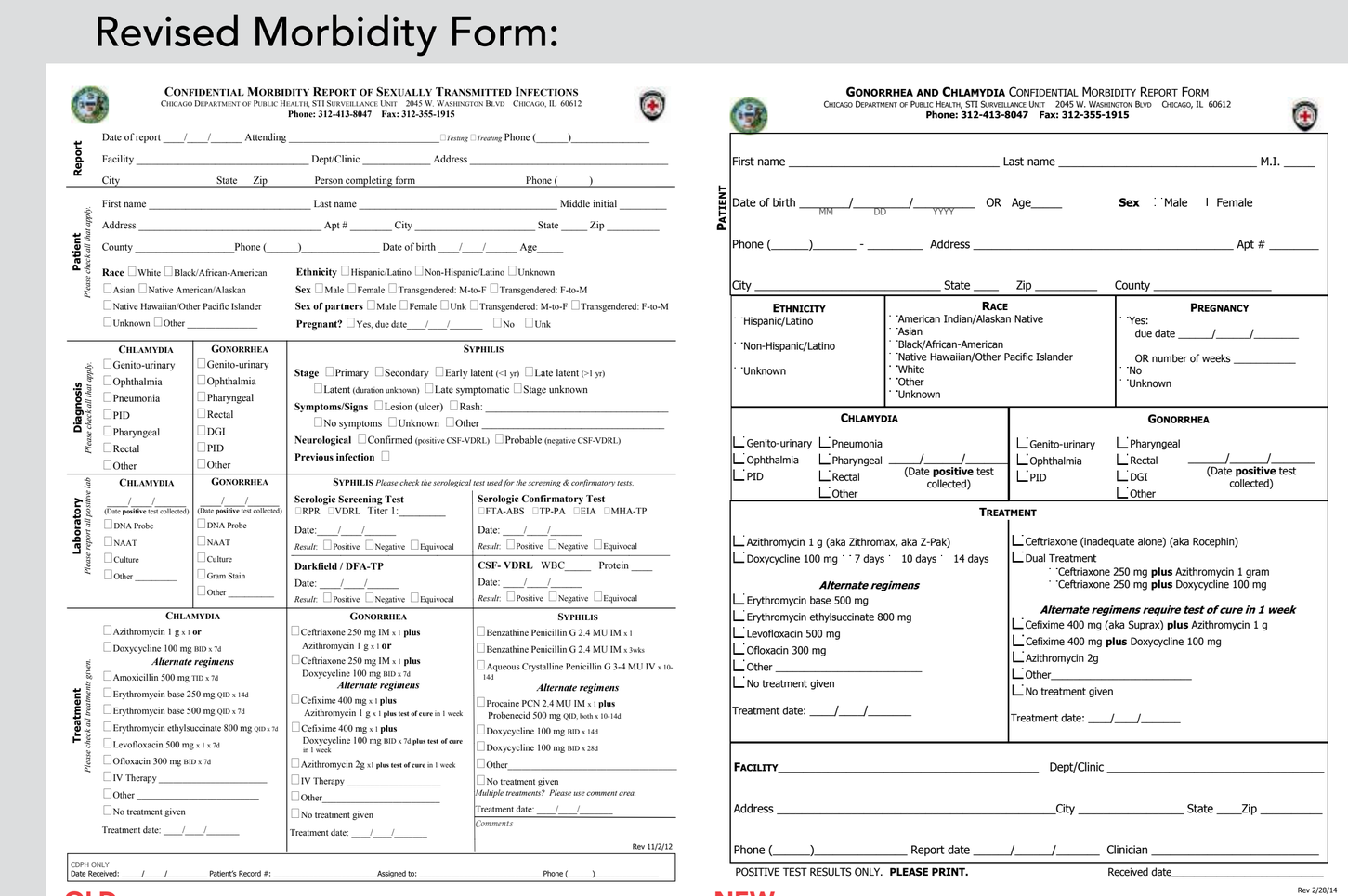
15. Test Hypotheses *(How will you test the potential solutions?)*

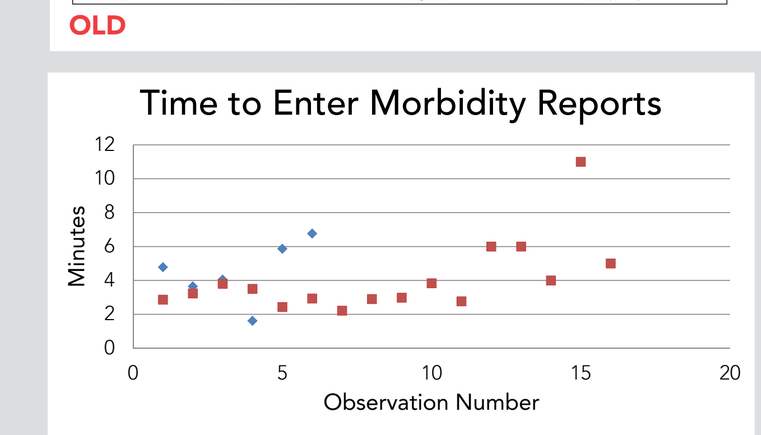
Tests	How	When	Who	Successful if...
Revised morbidity form	Develop new morbidity form (separate GC and CT from syphilis, remove unnecessary information and align with screens from INEDSS), transfer data from a sample of current forms and then test time for data entry	2/27/14	Karen, Alison, Joanne, Sandra, Kingsley, Karin, Kirsti	Time to enter data from revised morbidity form is less than for current form
Standardized lab form	Develop standardized lab form with facility name included as a field, transfer data from a sample of current forms and then test time for data entry	2/27/14	Karen, Alison, Joanne, Sandra, Kingsley, Karin, Kirsti	Time to enter data from standardized lab form is less than for current forms in use
Sorting and bundling of incoming reports	Sort and bundle 5 days of reports at a time, remove duplicates (paper lab reports and ELR), compile similar lab reports together	2/27/14	Kirsti, Jeanette	Sorting time per report is not increased with new method, significant amount of duplicates removed
Eliminate backlog	Using time studies, number of incoming reports data and tracking data, project backlog time of GC and CT reports from receipt to entry and closure in INEDSS if Sr. DEO's can start working in real time	2/27/14	Chris	Backlog time is less than 30 days

A "cheat sheet" of provider names, addresses phone numbers and facility was developed during the Kaizen Event, but its impact on data entry was unable to be tested during the Event. Several of the potential solutions were long term solutions (e.g. changing process of merging and closures in INEDSS, working with and encouraging providers to use INEDSS and labs to use ELR, providing feedback to providers and labs on quality of reporting, sharing best practices among Sr. DEOs) and unable to be addressed during the Event.

16. Results

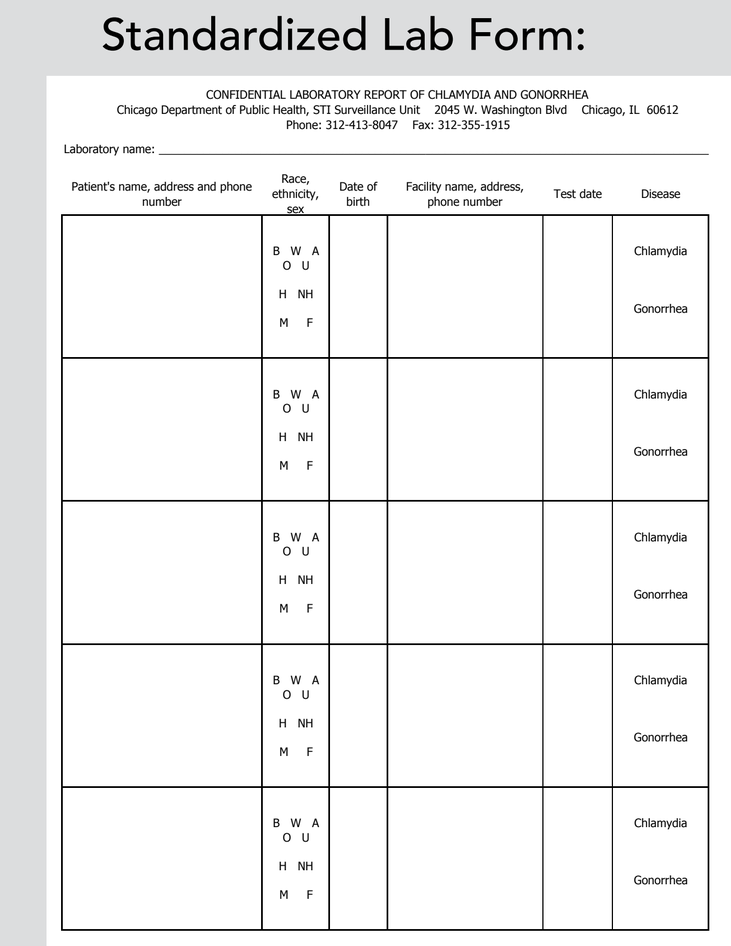
Revised Morbidity Form:

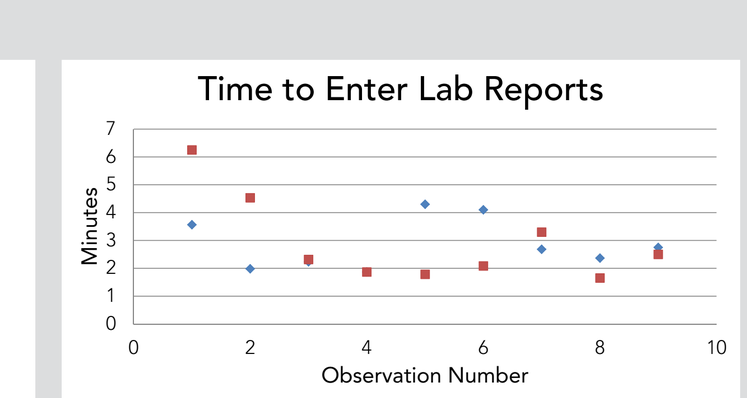




Average Time to Enter Using: (in minutes)	
Old Morbidity Form	New Morbidity Form
4:23	4:05
Decrease of 18 seconds	

Standardized Lab Form:



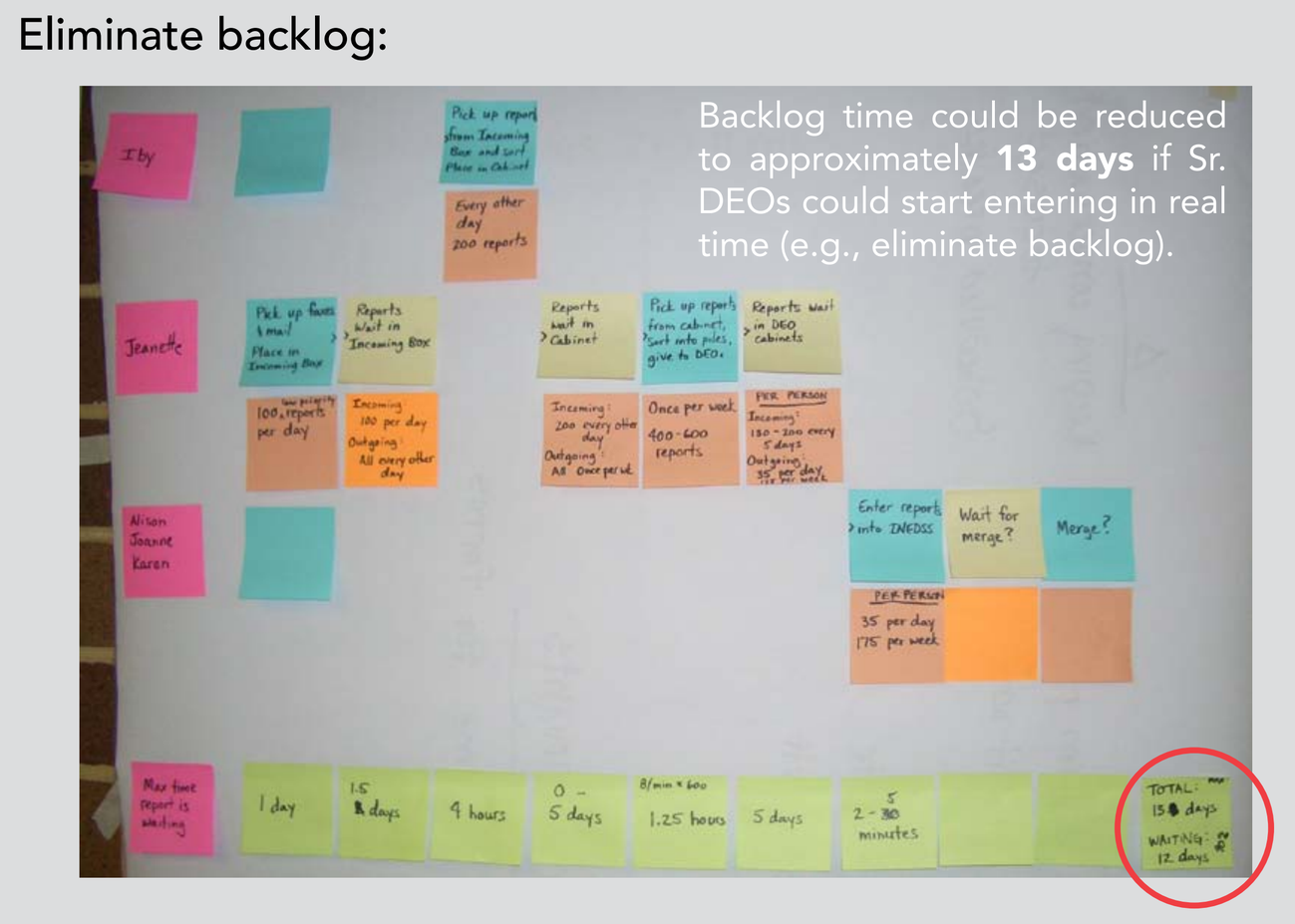


Average Time to Enter Using: (in minutes)	
Unstandardized Lab Form	Standardized Lab Form
2:52	2:38
Decrease of 14 seconds	

Sorting and bundling of incoming reports:

Timepoint	Days in bundle	Rate of sorting (pieces of paper/minute)	Percentage of duplicates removed
Before improvement	Approx. 20	8	0%
After improvement	5	8	13-36%

Eliminate backlog:



LEARN

What did you learn?

17. Learning *(What worked and did not? Why and what are you doing as a result? Is the result repeatable?)*

Reasons	Learning: Why?	Direction: Actions to be taken
Revised morbidity form reduced data entry time on average of 18 seconds per report	Form followed INEDSS windows/ fields, only had necessary information so cleaner (more white space)	Get internal approval for revised form; pilot revised form with sample of providers; make additional revisions based on provider feedback and reporting with new form; Release new form to all providers.
Standardized lab form reduced data entry time on average of 14 seconds per report	Form had facility name as field so Sr. DEOs didn't have to search for facility name online; Since same form, didn't need to search for information, data in the same place	Get internal approval for standardized form; pilot standardized form with sample of labs; make additional revisions based on lab feedback and reporting with standardized form; Release new form to all labs.
Changes to the sorting and bundling processes of incoming reports did not increase the rate of process and removed a significant amount of duplicates	Bundling lab reports from the same labs and removing lab reports also submitted via ELR did not add a significant amount of time to the sorting and bundling process overall -- rate remained the same.	Begin sorting incoming reports in 5 days bundles, and distributing to Sr. DEOs in these smaller bundles. Impact of smaller but more frequent work assignments will be tracked by how long it takes Sr. DEO's are completing assigned work (and asking for more) and backlog time reductions.
By eliminating the backlog of morbidity and lab reports, backlog time can be reduced by 85% theoretically, based on time projections	Sr. DEOs are keeping up with the incoming low-priority GC and CT reports (see figure with 2013 reports incoming and processed). Backlog time will always be more than 30 days because of the perpetual backlog carried over year after year.	Have Sr. DEO's begin entering morbidity and lab reports from most recent 1-2 weeks on 2013 close-out is complete. Work with HIV/STI management to find a permanent solution to backlog (e.g., get volunteers, hire temporary help or utilize overtime/comp time to enter any older reports).

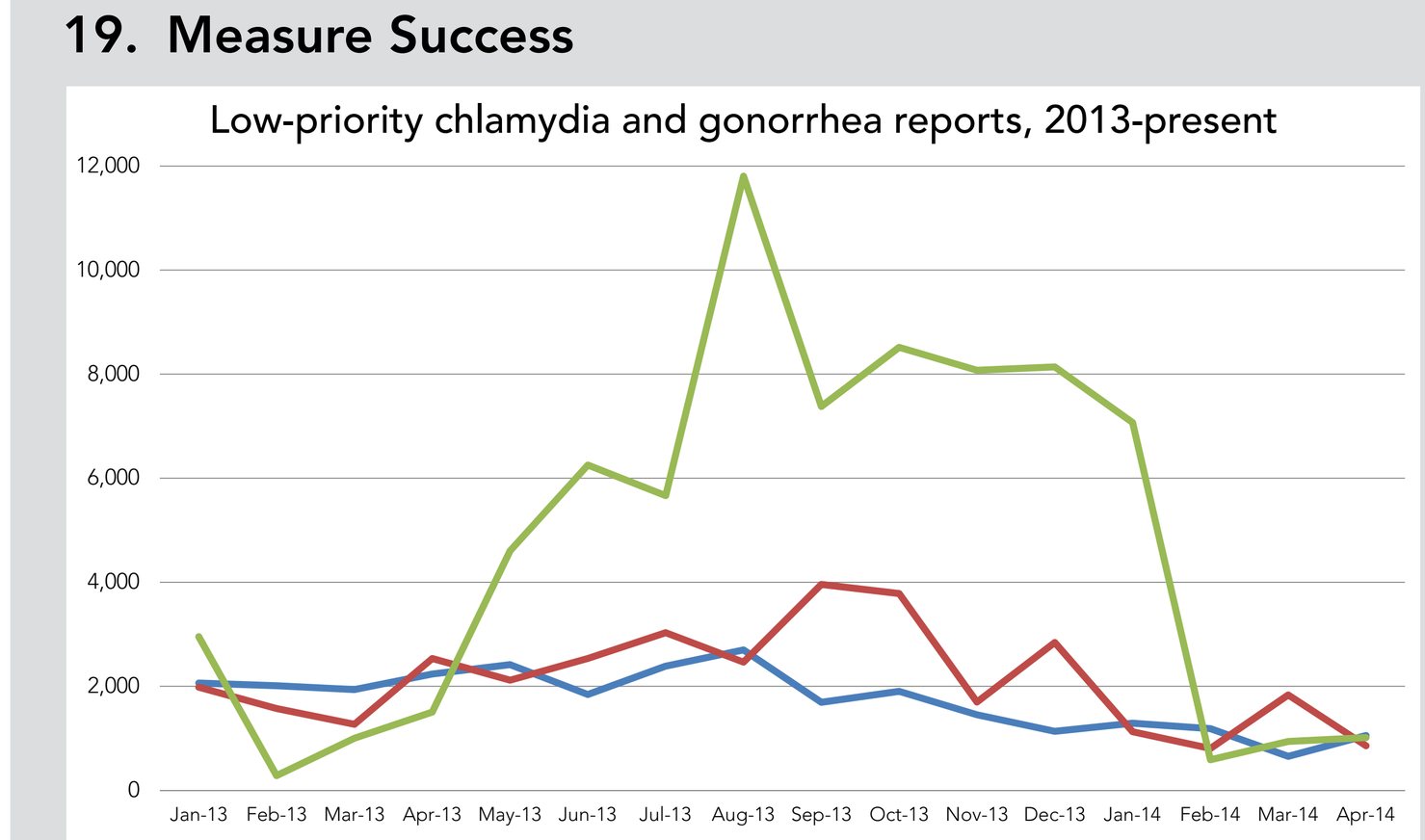
INSTALL

How will you make the new way happen?

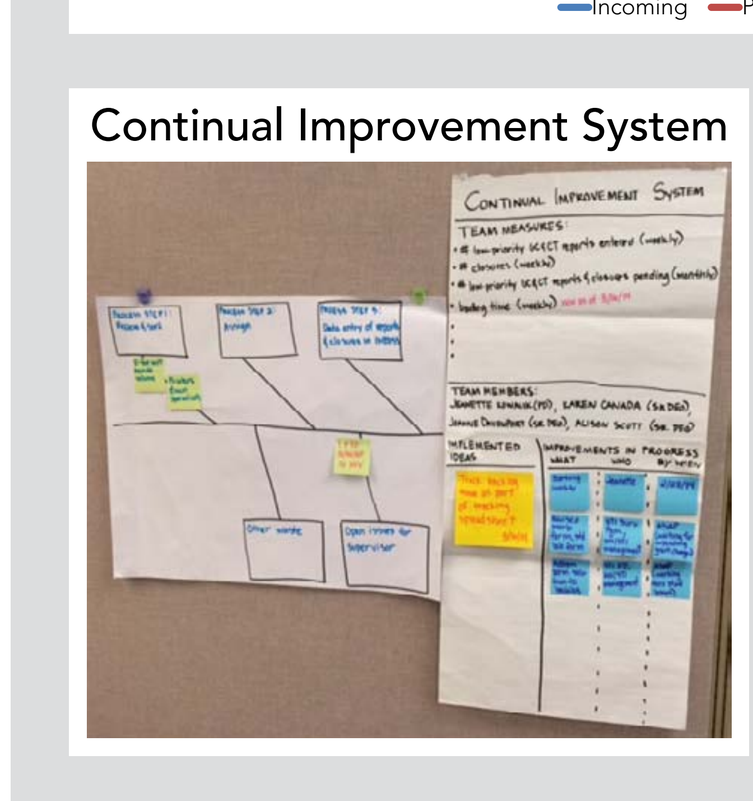
18. Installation Plan *(Steps to operationalize the process and make it stick. Generate new process map.)*

What	Who	By When
Draft letter to labs and providers with proposed standardized lab form/revised morbidity form, best practices for reporting, recommendation for reporting via ELR and/or INEDSS	Jeanette Kowalik	3/5/14
Finalized standardized lab form	STI Surveillance Program, HIV/STI management	3/5/14
Revised morbidity form	STI Surveillance Program, HIV/STI management	3/5/14
Sharing best practices for data entry monthly during staff meetings, add to STI Surveillance Manual annually	Karen Canada, Joanne Davenport, Alison Scott, Jeanette Kowalik	Beginning April 2014
Share Touch for quality tool at monthly staff meeting	Jeanette Kowalik	April 2014 staff meeting
Address issue of merging and closures program-wide by bringing together STI Surveillance Program at next QI Learning Collaborative (QILC)	STI Surveillance Program	April 2014
Address issue of ongoing backlog by recruiting volunteers to help, allowing for Sr. DEOs to begin working in real-time after March 21 deadline.	Jeanette Kowalik and HIV/STI management	3/22/14
Identifying legal and/or regulatory impacts of changes to morbidity form	Jeanette Kowalik	3/5/14
Schedule a call with IDPH to discuss ideas that came up during Kaizen Event for improvements to INEDSS	Jeanette Kowalik	4/15/14
Evaluate impact of improvements	Jeanette Kowalik, Kirsti Bocskay, Karen Canada, Joanne Davenport, Alison Scott	May 2014
Implement Continual Improvement System	Jeanette Kowalik	Begin 3/7/14

19. Measure Success



Continual Improvement System



Since the event:

- Backlog time has been reduced by 10% to 77 days as of 5/16/14.
- Revised morbidity form and standardized lab form as well as best practices for reporting will be shared at annual CDPH Infection Control Conference.
- STI Surveillance Program is participating in QILC to address merging and closure issue.
- Initial solution to address backlog (volunteers) was abandoned due to loss of staff, HIV/STI management still working on finding permanent solution.

KEY LEARNINGS

- Using data and working through the Kaizen process lead to improvements that were different from the initial assumption of the "problem" and pre-identified solutions, underscoring the need for utilizing information and systematic methods to improve processes.
- Kaizen events engage the people who actually do the work to develop improvements, which has a significant change management impact and helps develop positive energy and build morale among staff. It is therefore critical to not only gauge Kaizen event success as meeting or exceeding the goal, but to also include these softer people issues as a measure of event success.
- Full participation of ALL team members is critical to success. This includes engaging persons who are disconnected during the event, re-directing persons dominating discussions, eliminating outside interruptions (e.g., phone calls/emails/texts) and preventing schedule conflicts resulting in absence at the event for periods of time.
- Communication from management to the Kaizen Team prior to the event demonstrated to team members that management was supportive of the QI process and the solution to the"problem" was in their hands.
- Prep work for a Kaizen Event can be time consuming, yet absolutely necessary, especially data collection. Collecting and analyzing baseline data prior to the event makes it easier to understand the process, work through root causes behind each waste/issue and capture impact of improvements during the testing phase.
- Teaching the team about the 8 kinds of waste and then focusing on waste during the cause and effect analysis helped the team to (1) focus on the process not the people and (2) shift perspective to the "thing" being processed as key (i.e., reports are waiting to processed, not people waiting to process reports).
- Testing potential solutions during the event allowed the team to get immediate results/feedback, and was an invigorating activity at the end of a busy week.
- Holding the event onsite (gemba) provided the opportunity to pull in staff involved in different steps of the process, walk the process during mapping and test solutions.
- Access to and availability of resources, such as a projector, wifi and printers, is imperative to keep the process moving during an event.

FUTURE DIRECTIONS

- Build on success of Kaizen Event by continuing to engage team members in ongoing CIS meetings to address new challenges and participating in more Kaizen events and QI initiatives.
- In order to sustain the gains made during Kaizen event, at both the people and process level, include in the action plan specific tasks to measure and verify improvement results, and follow-up regularly with process owner to confirm completion and/or progress.
- Before upcoming Kaizen events, provide pre-event trainings to team members to build capacity in waste identification and "process not people" thinking, and to address any change management issues. Include management/leadership in at least pre-event meeting so they can demonstrate their support for the QI process and the team to come up with and implement change for the better.
- Communicate clear expectations to future Kaizen team members and management regarding team norms and participation during event.
- Complete data collection, value stream and sub-process mapping prior to all future Kaizen events to allow for more time to test solutions.
- Continue to hold future Kaizen events onsite in order to call in people for consultation and test solutions where the work is being done, but ensure that the dedicated space is private and free from interruptions(e.g., has a door, signage to not disturb team, etc.) with access to wifi/DSL, printers and a projector.
- For the QI leader, build on facilitation skills developed during the Kaizen event by running more Kaizen events and leading other QI team meetings such that a repertoire of techniques to tone down dominators, draw out non-participators and discourage disruptors is available.
- Maintain interest in Kaizen and building a culture of continual quality improvement by communicating results and successes of this event and all future events. *In doing so for the "Processing Low-Priority Chlamydia and Gonorrhea Reports" event, the Breast Health Program at CDPH initiated a Kaizen event in March. Though untraditional, the event was held over 2 weeks (3 days the first week and 2 the second), the team was able to identify and address wastes related to equipment, data management and quality assurance resulting in improvements in mammography services for Chicago women.*

KAIZEN TEAM

Clockwise beginning at top left: Joanne Davenport, Kirsti Bocskay, Chris Schucker, Karin Hearan, Jeanette Kowalik, Karen Canada, Alison Scott, Kingsley Weaver and Sandra Tilmon.

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