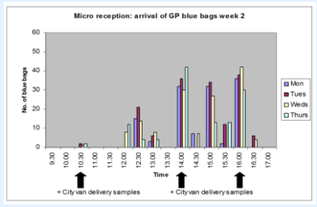
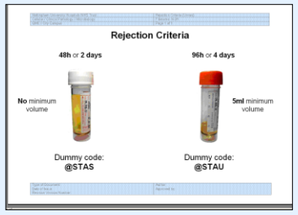
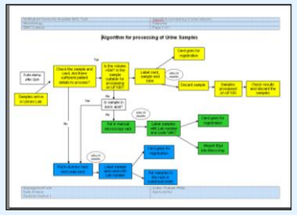
A3 Lean Improvement

Define the problem/ opportunity: (Why are you talking about it? What are you trying to solve/ improve?)
Are we maintaining an improvement for negative urine specimens compared to the parameters achieved in the "original" state?

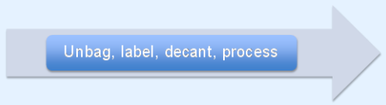
Current state: (What happens now? Be visual – value stream map, graphs, facts and measurements etc.)







- Visual management and user engagement through VOC and VOE are in place
- Still not in control of all transport: potential Pathology-wide Lean project required.
- One piece flow with registration in the lab (smaller batches)



- Wastes removed, no pre-labelling tubes
- Emphasis of "right first time"
- Saving *c.* 220h/annum of SBMS time
- Inpatient samples prioritised throughout the day

Goal: (State the specific target(s). State in measurable or identifiable terms)
Have we achieved 100% TAT for all negative urines from all patients within 24h and from in-patients within 3h.

Waste identified: (Transport, Inventory, Motion, Automation, Waiting, Over-production, Over-processing, Defects, Skills.)

- Transport – Deliveries (high batch numbers). Continue to be outside our circle of influence. Not in control of all transport, central reception at City campus and QMC (autocore) i.e. not Microbiology
- Automation: Dependent on deliveries. Creation of 'bottle neck' at peak times. Issues with interface.
- Over processing – Continue to receive inappropriate samples
- Defects – Mainly inappropriate samples
- Skills –definition of roles at a time of significant change in the workforce

Root Cause Analysis: (What is the root cause of the problem? Use fishbone/ cause and effect diagram, five why analysis)

Materials – Continue to have peaks in deliveries (10.30am, 2pm and 4pm); *c.*50% samples in last 2 h; transport (GP deliveries once a day)
Spaghetti map – Sample from GP to lab
People – Better communication and education of users (both hospital and GPs)
Machines – 8hr day = 540 samples with 2 machines = 1080 samples per day
Environment – layout of card route poor compared to sample route; registration and scanner separate from the lab process

Department: Clinical Microbiology	**Date: 01/05/15**	**Author: Core team**
Team members: Core team	**Agreed by: Core team**	**Version: 1**

Future state: (What will it look like? Be visual – future state value stream map)
Single step process:

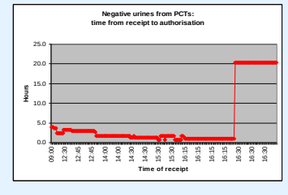
Receipt → un-bag, check, label → Electronic scan → process → validate/ authorise

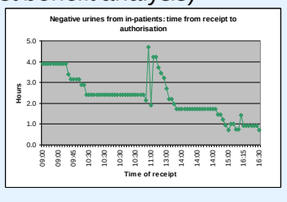
- Create regular updated VSMs (scheduled per annum)
- Greater influence over transport of samples into laboratory
- Continue to reduce errors from users (both specimen forms and samples/types)
- Engage with users on 24/7 working
- 100% uptake of electronic requesting (ICE) from GPs

Action Plan:

Action – what, why and how?	Who?	When?	Progress status (ie competed, in progress)
Communication: daily huddles, suggestion boards etc	All	Daily/Monthly	Ongoing
Transport: understand/measure high volume user process in sending samples	Core/IT, OMG/GPs	Monthly	In progress
Test and feedback of future state model	Core/ lab/OMG	Annual	Complete
Communication and Education of users	Core/ OMG	Annual	In progress
Review current service hours	OMG/ CMT	Dec 15	In progress
Training for all staff implemented & being sustained	Core/ lab	Monthly	Ongoing

Results and measures: (What was you PDSA cycle? How long did you run it for? What data did you collect before and after the change? What did you find? Add charts, tables, and cost benefit analysis)





- 11% increase in samples tested
- Most GP specimens' turnaround time (TAT) < 4h (median=1.7h). Overnight storage results in TAT c. 20h - **i.e. median TAT reduced by 45% (mean TAT reduced by 29%)**
- Majority of in-patient specimens' TAT<3h (median=2.4h) **- i.e. median TAT reduced by 23% (mean TAT reduced by 23%)**
- VOE – ""*We seem to process more specimens*", ""*It's much less stressful now in Urines*", "*I don't go home feeling frazzled*!" and "*I didn't think it would work, but it does*!"

Next steps: (Are there any remaining issues/ problems? Is there any further follow up required?)

- Continual improvement of transport and IT
- Identify savings and clarify routes for re-investment in Service