A3 Lean Improvement

NHS

NHS Improvement
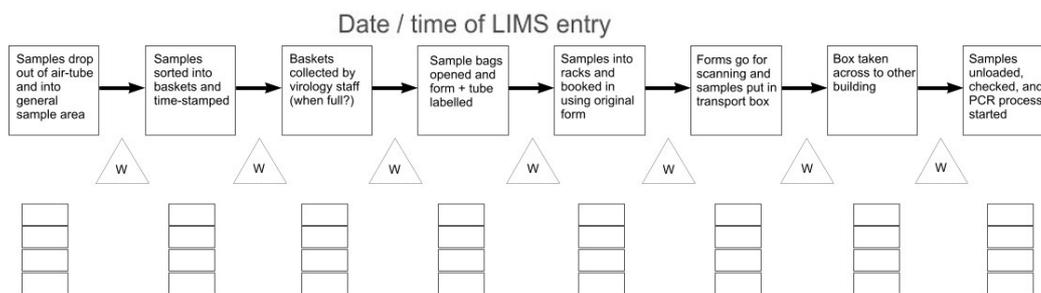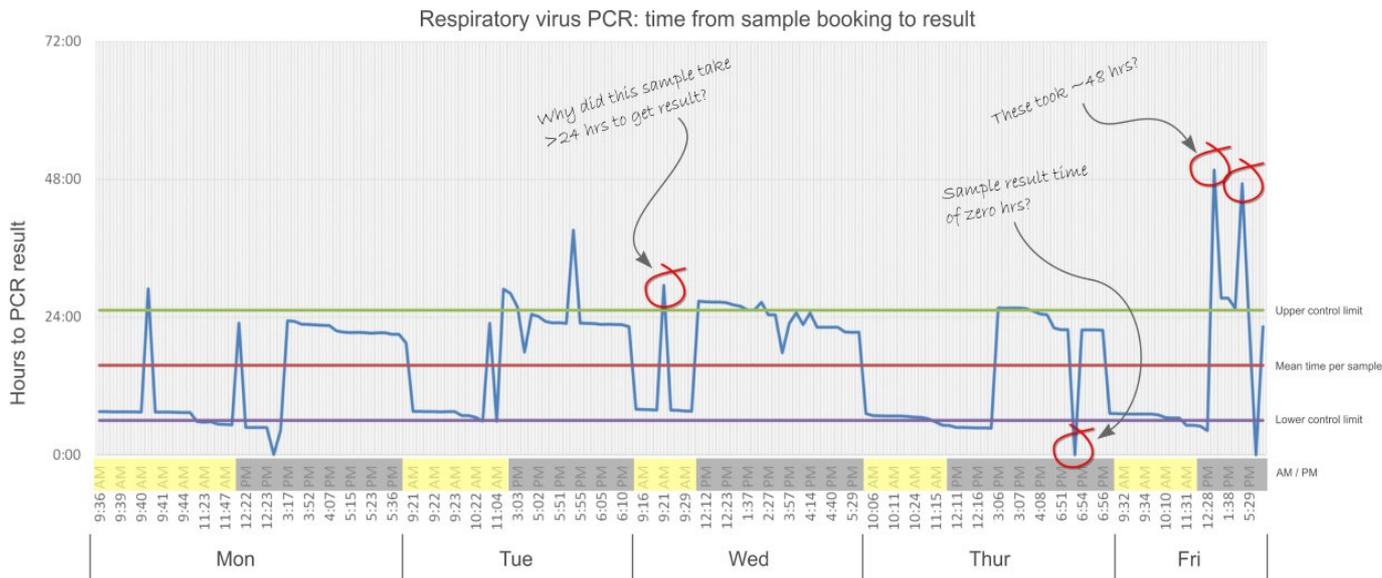
Department: **Date:**

Define the problem / Opportunity:

Respiratory samples are not getting timely virology results

Current State: (What happens now? Be visual – value stream map, graphs, facts & measurements etc)

Respiratory virus PCR: time from sample booking to result

Why did this sample take >24 hrs to get result?

These took ~48 hrs?

Sample result time of zero hrs?

Upper control limit

Mean time per sample

Lower control limit

AM / PM

Mon | Tue | Wed | Thur | Fri

Date / time of LIMS entry

| Samples drop out of air-tube and into general sample area | Samples sorted into baskets and time-stamped | Baskets collected by virology staff (when full?) | Sample bags opened and form + tube labelled | Samples into racks and booked in using original form | Forms go for scanning and samples put in transport box | Box taken across to other building | Samples unloaded, checked, and PCR process started |

Goal (State the specific target(s). State in measurable or identifiable terms)

1. To ensure that all samples booked in the morning, are delivered to the PCR lab in time for the same-day testing.
2. To ensure all samples booked in the afternoon of one day are tested the following day, and thus within 24 hours.

Waste Identified: (Transportation, inventory, motion, waiting, overproduction, overprocessing, defects, unused creativity, automating an inefficient process)

- Turnaround time increases when samples booked in afternoon
- Some samples booked in morning still take >24 hours for result (miss the 1 per day batched run)
- Some samples booked in afternoon take ~48 hrs (they even miss next day's run)
- Some samples appear to have TAT of zero
- Larger number of samples received on Mondays
- Mean based on huge range
- Uneven distribution of booking-in between morning and afternoon (eg yellow/grey bars for Weds)

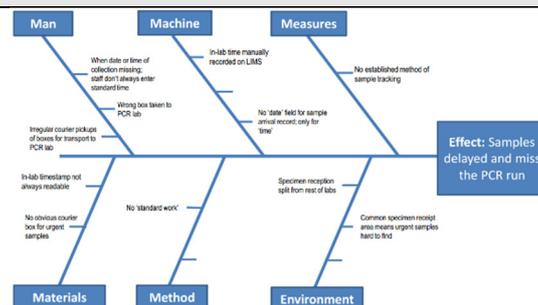**Root Cause Analysis** (What is the root cause of the problem?)

Q1: Why did sample A miss the daily PCR run? *A: Because it wasn't in the courier box that was transported to the PCR lab*

Q2: Why wasn't it in the box? *A: Because the courier took a different box instead.*

Q3: Why did the courier take a different box? *A: Because he didn't know he had to take the one with PCR samples in*

Q4: Why didn't he know? *A: Because it looks like all the other ones.*

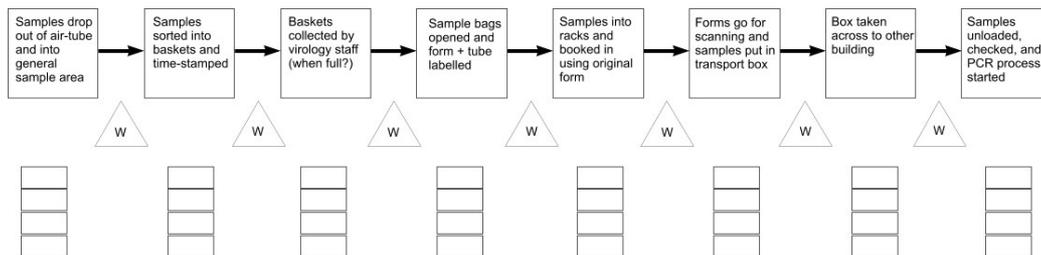**Q5:** Why does it look like all the other ones? *A: Good question!*

Man | Machine | Measures

When date or time of collection missing; staff don't always enter standard time

In-lab time manually recorded on LIMS

No established method of sample tracking

Wrong box taken to PCR lab

No 'date' field for sample arrival record; only for 'time'

Irregular courier pickups of boxes for transport to PCR lab

Effect: Samples delayed and miss the PCR run

In-lab timestamp not always readable

No 'standard work'

Specimen reception split from rest of labs

No obvious courier box for urgent samples

Common specimen receipt area means urgent samples hard to find

Materials | Method | Environment

A3 Lean Improvement

Version: **Author:**

Team Members:

Future State: (What will it look like? Be visual i.e. future state value stream map)

Action Plan			
Action – What, Why, How?	**Who?**	**When?**	**Progress Status**

Results and Measures: (What was your PDSA cycle, how long did you run it for, what data did you collect before and after the change, what did you find? Add any charts or tables)

Next Steps: (Any remaining issues/problems, any further follow up required?)