

Scaling up COVID testing in a constrained space

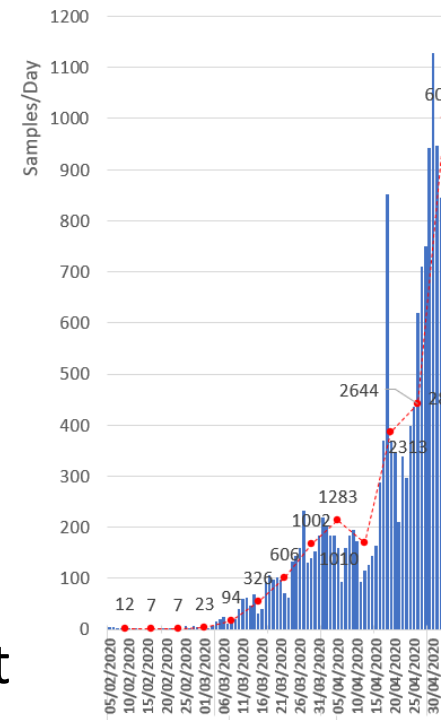
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TASMANIAN
HEALTH
SERVICE



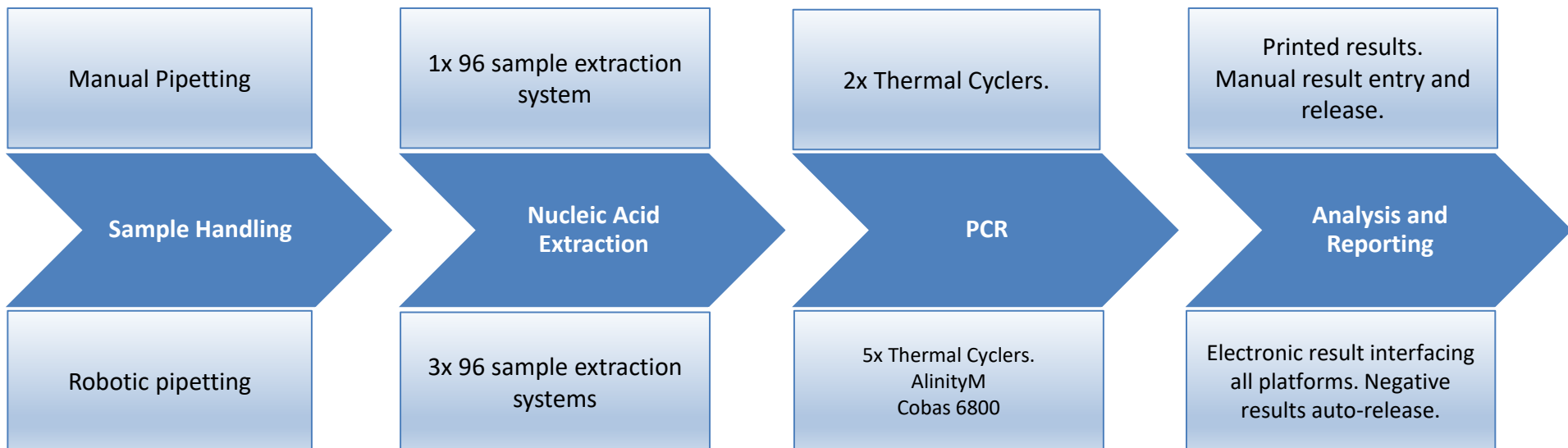
RHH Molecular

- Pre-COVID was a small hospital lab, 4.6 FTE
- Wide range of low-throughput testing
 - Infectious Disease
 - Haem/Oncology
 - Public Health
- 1x 96 sample extraction system.
- 2x Thermal cyclers.
- Not well placed to cope with 5000 samples/day.
- Supporting most COVID testing in the state.
- As covid was going exponential, so were the test numbers.



Scaling up the lab

- Obvious solution = More people, more equipment, more automation, and more space.
- 2x Larger lab June 2020. (20x the samples though)
- Purchased as much equipment as we could fit.



Pre-Analytical Bottleneck

- Typical form + sample in bag system.
- Pre-analytics had limited space with no ability to enlarge, no BSCs.
- Funding available for more staff but nowhere to put them.
- Processing slow, causing significant delay in testing/reporting.



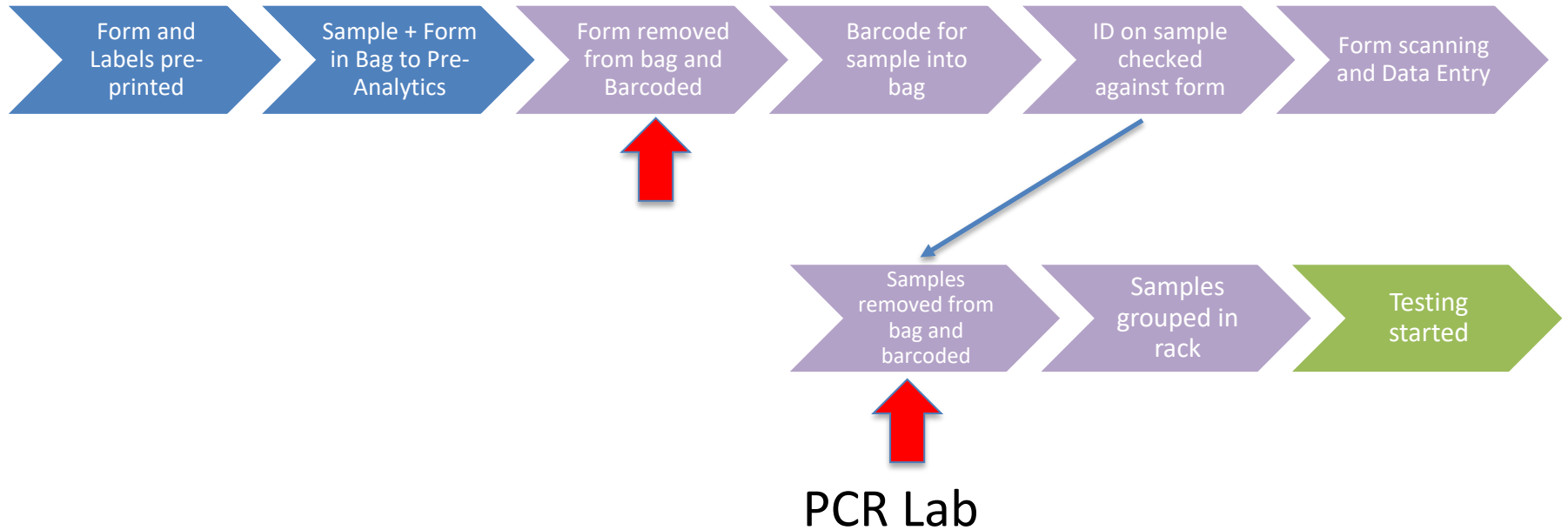
Pre-Analytical Bottleneck

- Form + sample in bag system designed for varied requests with multiple samples from many different requestors.
- COVID = identical requests from limited number of clinics/hospitals, single sample.
- Opportunity to rethink the process.

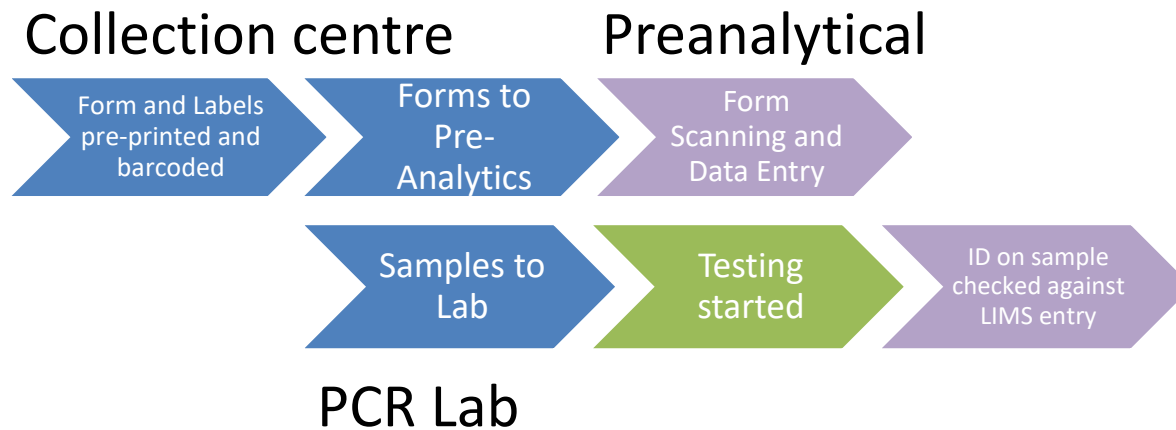
It was all about the bags

Collection centre

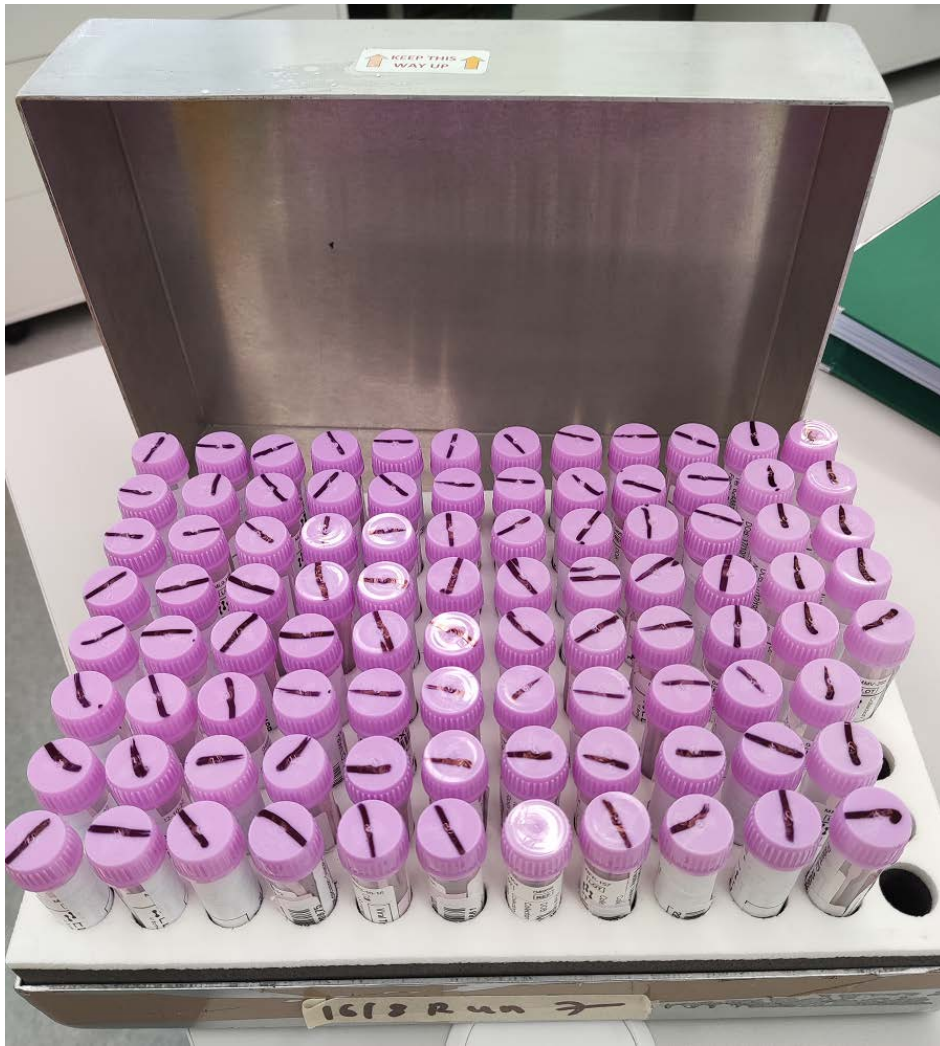
Preanalytical



De-linking forms and samples



A humble box



- Nothing commercial available.
- Custom made for our needs.
- Tray layout matches 96-well format used in Extraction/PCR instruments.
- No manipulation required before testing.



Issues

- ID issues
 - Received form, no specimen and vice versa.
 - Transposed barcodes
 - Transposed labels
 - No barcodes
 - No label
 - etc.
- All the same issues arising in a normal system.
- Marginally harder to resolve when samples and forms de-linked, but worth it for the efficiency.



Good Outcomes

- Data entry much more efficient.
 - Electronic ordering from clinic booking system helped a lot here too.
 - Further evolution was entering scanned forms from distant clinics.
- Average TAT <24hours throughout pandemic.
- Never had a backlog.
- Not a single leaking sample
- Avoided use of plastic bags - >500,000 and counting.
 - Cost recouped
- Samples stored in boxes made finding and retrieving samples for confirmation, genomics etc. much easier.
 - Locations automatically stored in searchable database.
- Collection, Pre-Analytical, Molecular staff all happier.