



The use of data in histopathology service improvement

Historically, departmental performance had not been measured. Upon embarking on a major service improvement project in conjunction with NHS Improvement (September 2009 to September 2010), electronic data extraction from the laboratory software was undertaken and provided timings for key steps in the specimen pathway. Analysis of the data allowed evaluation and monitoring of turnaround times (Figs 1-3). Use of statistical process control charts facilitated assessment of variation and root cause analysis of any special causes. The data was also used to populate a value stream map of the specimen pathway, enabling calculation of the 'value add time' and 'waste'.

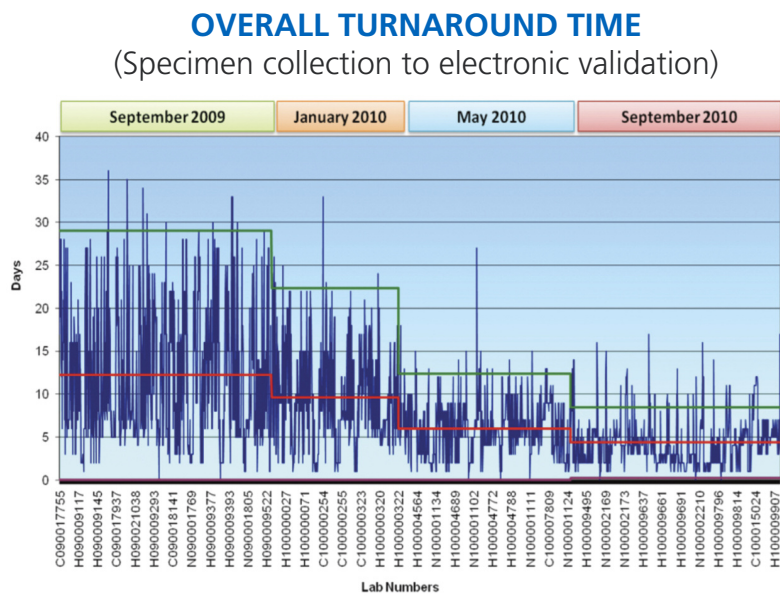
As the project progressed, the impact of any change that was introduced was measured by comparing pre- and post-change data. This included the implementation of several innovations and new technology (Fig 4). Any improvement could therefore be quantified.

- Quantifying improvements and presentation of the data in an appropriate format:
- provided feedback and encouraged the improvement team
 - was used to gain support and agree actions
 - was an influential tool to convince others of the need and benefit of change
 - was a powerful vehicle of communication both within the department and with the trust board, service users and patients.

Demand data was collected across the pathway and capacity adjusted to maximise flow. This was particularly useful when tackling issues of specimen delivery and transport (Fig 5).

Daily workloads and targets are displayed on a centrally located board within the laboratory which acts as an effective visual management tool. An electronic dashboard based on real-time data is in use by consultant staff and monitors individual and departmental performance (Fig 6).

Fig 1. A statistical process control chart which tracks the progress of the improvement project by demonstrating the stepwise reduction in overall specimen turnaround time. A root cause analysis was performed for any outliers exceeding the upper control limit.



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Fig 2. The percentage of histopathology specimens turned around in 3 & 7 days

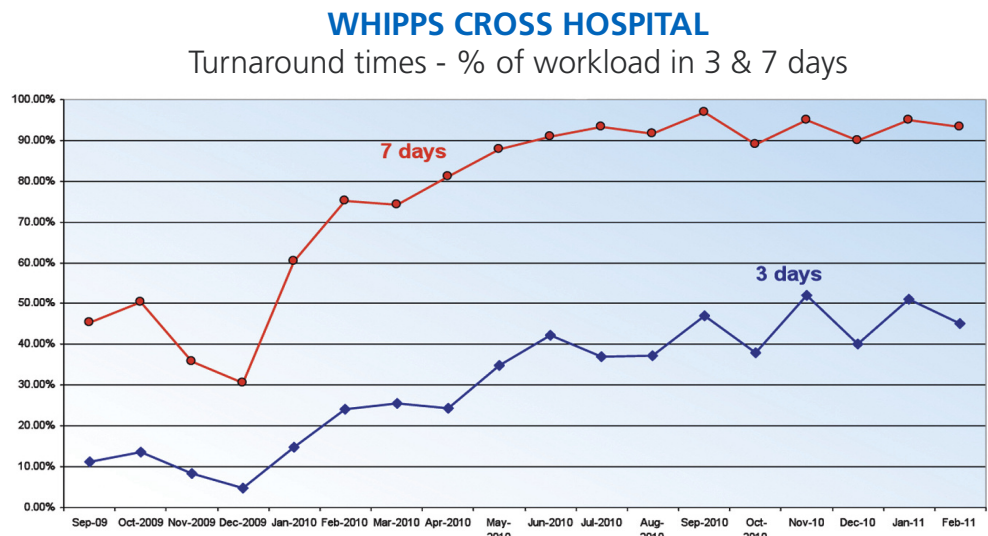


Fig 3. The changes in each of the 3 main parts of the specimen pathway

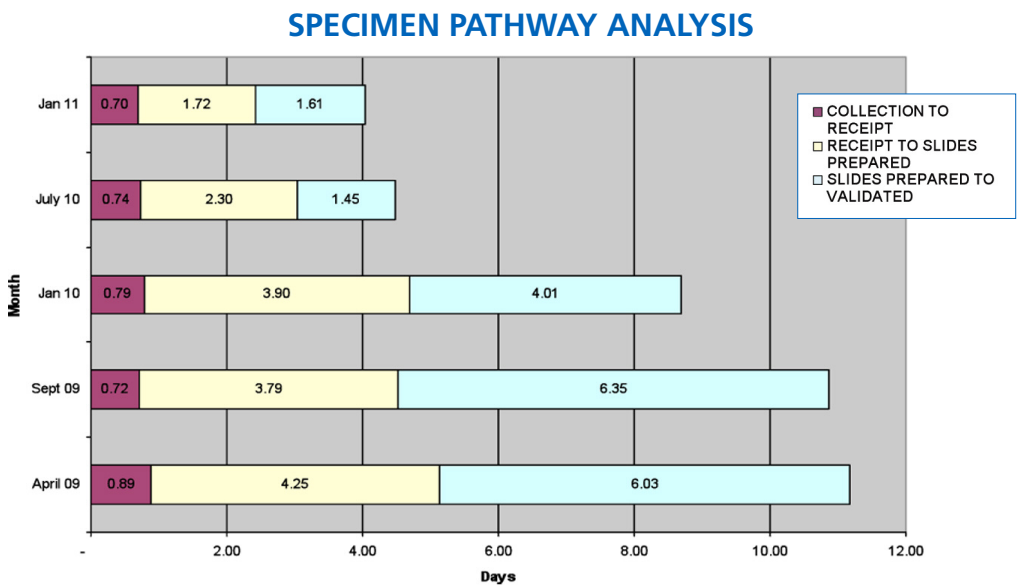


Fig 4. The impact of introducing digital dictation

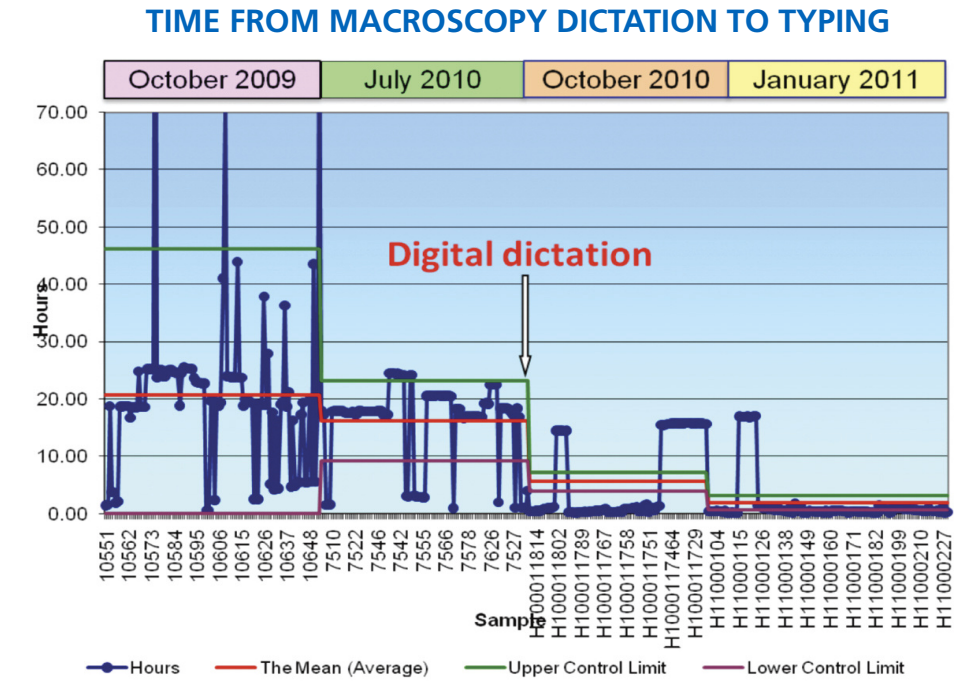


Fig 5. Delivery times from the Endoscopy department. The majority of specimens were being delivered in the late afternoon, so capacity in specimen reception and cut-up areas was maximised to deal with the work at this time. Simultaneously, a review of specimen collection times and procedures in Endoscopy was launched.

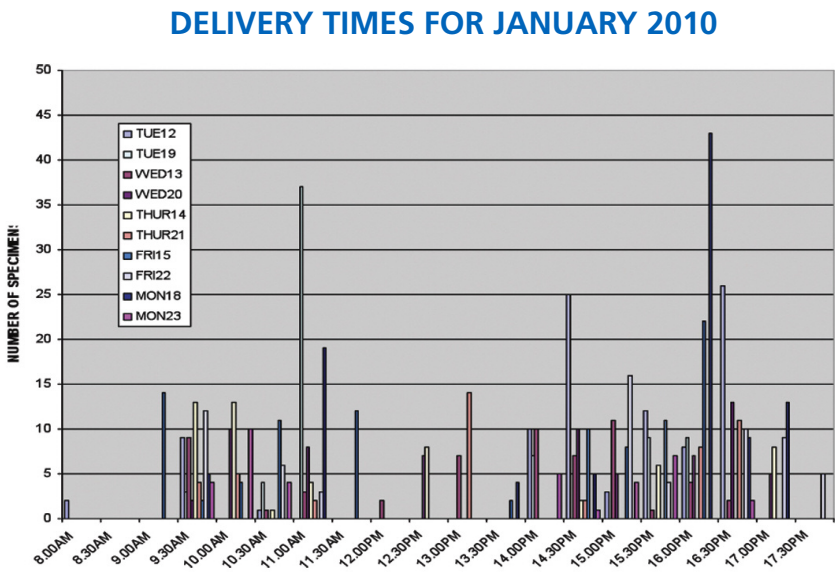


Fig 6. An electronic dashboard for monitoring departmental and individual workload and turnaround times

