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P2200 Improved process efficiency and reduced turnaround time using the DermaGenius Nail Real-Time PCR Assay 2.0

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Background: City Hospital, Birmingham (United Kingdom) processes approximately 4,000 dermatological specimens per year. The DermaGenius® nail Assay 2.0 (PathoNostics, The Netherlands) is a commercial real-time PCR assay that detects *Trichophyton rubrum, Trichophyton interdigitale* and *Candida albicans* from nail samples. The objective of this study was to analyse the process efficiency of the PCR assay in comparison to the currently used microscopy and culture techniques for investigating superficial nail mycoses**.**

Materials/methods: The microscopy followed by culture method and the PCR method was recorded from beginning to end. Lean methods were used to produce a process sequence chart and to identify the end-to-end process steps (value-added, checking, transport & waiting). This data was used to calculate the process efficiency and to record the overall turnaround time (processing time from when a sample is labelled to when a final report is released via the laboratory information management system).

Results: The process efficiency using microscopy and culture methods was 0.20% compared to 24% for the PCR method. The microscopy and culture method had 7 value added steps compared to 16 value added steps for the PCR method.

The overall turnaround time for microscopy and culture was 516.96 hours (21.5 days) compared to 15.81 hours (0.67 days) using the PCR method.

Conclusions: The process efficiency was improved by 23.8% by using the PCR method. The PCR method resulted in 9 more value added and 2 less non-value-added process steps when compared to the currently used microscopy and culture method.

By using the DermaGenius® Nail assay, the turnaround time was reduced by an average of 20.83 days to allow earlier reporting and diagnosis.

Further improvements to the process efficiency of the PCR method could be made by automation of the PCR processing steps (DNA extraction, PCR mastermix preparation and pipetting the DNA extract into the Rotor-Gene® (QIAGEN®) strip tubes).