

# QUANTITATIVE ASSESSMENT OF MANUAL LABELLING TIME IN PHARMACY DISPENSING WORKFLOWS: A MULTI-SITE STUDY IN THE UK AND NETHERLANDS

Alice Dainty, Becton Dickinson  
Sven Schulze, Becton Dickinson

Abstract Number: 2SPD-009

## Background and Importance

- In hospital and retail pharmacy settings, the application of a **dispensing label** - containing critical information such as the patient's name, medication details, administration instructions etc. - to a prescription medication during the dispensing process is a **legal requirement** in many countries.
- A dispensing label is considered to improve safety and support patient understanding of their prescribed medication and subsequent adherence.
- The process of applying the printed label to the medication pack is still **typically carried out manually** by pharmacy staff as part of the dispensing workflow.
- There is potential for **automation** to replace this manual task of label application. However, the lack of quantitative data on the time taken for manual label application makes it difficult to assess the impact automation would have on workflow efficiency.



## Aims and Objectives

- To quantitatively assess the time required for manual label application within the pharmacy dispensing workflow by collecting and analysing timing data from hospital and retail pharmacies.
- To estimate the potential efficiency gains from automating this process and freeing up staff time to perform more value-adding activities.

## Materials and Methods

- Time-in-motion data** were collected by Medical Affairs personnel from a sample of **five hospital and retail pharmacies** in the **UK and Netherlands** during routine dispensing workflows involving manual application of dispensing labels to medication packaging.
- The study recorded the **duration of the manual label application process** - which included tasks such as retrieving the label from the printer, affixing it to the packaging, discarding backing-paper waste - along with the staff grade performing the process and their average annual salary.
- Additionally, process steps within the hospital and retail pharmacy workflows were documented to provide contextual insight into operational differences across the various settings.
- Timings that included additional steps unrelated to label application - for example due to distractions - were excluded.

Contact: Alice.Dainty@bd.com

## Results

- A total of **144 timings** were measured across the 5 sites.
- The results were analysed and average calculations were performed:

Hospital average	13.2 seconds
Retail average	10.7 seconds
UK average	14.1 seconds
Netherlands average	10.1 seconds
Overall average	11.9 seconds

- The average time to print and manually apply a dispensing label was calculated at just under **12 seconds per medication pack**.
- To estimate potential efficiency gains from automating this manual step, projected annual time savings were calculated for pharmacies dispensing an average of 350, 500, and 750 medication packs per day that required labelling and would be suitable for automated label application.
- Estimated gains are shown in the table below:

Packs labelled per day	350	500	750
Total time saved (hours / year)	425.8	608.3	912.5
FTE Technician (2080 hrs / year)	0.2	0.29	0.44
Technician salary* saved (£16 / hr)	£6,813	£9,733	£14,600

FTE = full time equivalent

\* Average salary in GBP calculated across UK and Netherlands

## Conclusion and Relevance

- The findings from this time-in-motion study highlight the **measurable time burden associated with manual label application** in hospital and retail pharmacy settings.
- An average of 12 seconds per medication pack may appear minimal in isolation, but when scaled to high-volume dispensing environments, the **cumulative impact becomes significant**.
- For pharmacies dispensing 500 packs per day, the potential annual time savings were equivalent to **nearly one-third of an FTE's workload**.
- Establishing this baseline provides an important foundation for assessing the operational benefits and potential return on investment of automated labelling solutions.
- Future work is needed to assess the potential impact on label application errors as a result of automating this process.

