# Integrating centralised medical content management systems in the NHS: a time and motion study

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### Introduction

#### **Digital Transformation**

- Digital solutions are crucial for enhancing patient care<sup>1</sup>.
- The NHS aims for full digitisation by 2024, with 90% of NHS providers adopting electronic patient records (EPRs) by December 2023 and full implementation by March 2025<sup>2</sup>.

#### **Nurse Care Delivery and Morale**

- Nurse morale and patient care quality are directly linked to time spent with patients<sup>3-6</sup>.
- Nurses currently spend only 37% of their shifts on direct patient care<sup>7</sup>.
- Despite the advantages of EPRs, many Trusts still rely on paper, causing inefficiencies and data risks<sup>8-9</sup>.
- Digitisation can streamline workflows and improve nurse efficiency<sup>9-10</sup>.

### **Objective**

• This research aims to assess the effects of integrating a medical video recorder and a centralised medical content management system, connected to EPRs, in a hospital on nurses' time and experience.

occurrence of issues, delays, or downtime I have experienced." "The digitised process reduces the time you spend on tasks." "The digitised process makes your tasks more efficient."

"The digitised process has **reduced the** 

"The digitised process has improved your confidence in the accuracy of patient details.'

"How has the digitised process **impacted** your morale?"

Figure 1. Respondent Attitudes Towards The Digitised Process

## Strongly Disagree Disagree Agree Strongly Agree Neutral 12% 25% 63% 100% 75% 25% 37% 63%

Significantly decreased Slightly decreased No impact Slightly improved Significantly improved

25%

75%

MT6

#### **Methods**

- A single-centre, direct observational time and predetermined motion time system analysis was conducted over two, separate one-week periods in the ear, nose, and throat (ENT) outpatient department of Royal Devon University Healthcare NHS Foundation Trust located in Devon, UK.
- During the first week of the study (April 24th to April 28th, 2023), observers defined traditional processes for transferring clinical images and videos from the camera system to EPRs.
- From May to September 2023, nCare<sup>™</sup> (a Medical Video Recorder) and VaultStream<sup>™</sup> (Centralised Medical Content Management) were installed in the ENT outpatient department.
- In the second week of the study (October 30th to November 3rd, 2023), observers defined the new digitised process for transferring clinical images and videos following the installation of nCare<sup>™</sup> and VaultStream<sup>™</sup>, replacing the traditional process.
- Standard Minute Values (SMVs) were used to measure and compare the efficiency of traditional and digitised processes. SMVs are reported in seconds.
- A survey measuring staff experience during the shift from traditional to digital processes was conducted.
- A resource cost analysis was conducted to estimate the time efficiency and time efficiency cost per nasal endoscopy procedure, as well as the projected cost savings for the ENT outpatient department.

#### Results

#### **Improved Efficiency**



- Traditionally, nurses used two methods to upload clinical images and videos to EPRs.
- Implementing nCare<sup>™</sup> and VaultStream<sup>™</sup> (digitising the process) resulted in efficiency gains of 10% and 33%, respectively, saving 43 seconds (385 vs 428 seconds) and 3 minutes and 8 seconds (385 vs 573 seconds) per nasal endoscopy compared to Process 1 (where nurses print, attach, scan, and digitise images offsite to EPRs) and Process 2 (where urgent content recorded on an iPad and transferred to EPRs). (Figure 2)
- Cost savings per nasal endoscopy:
- Digitising the process resulted in a time efficiency cost saving of £0.38 per nasal endoscopy compared to Process 1 (£3.43 vs. £3.81) and £1.68 compared to Process 2 (£3.43 vs £5.11). (Figure 3)
- **Annual impact:** For the ENT outpatient department, digitising could save nurses 26 working days annually in non-patient-facing tasks, a time efficiency cost saving of £6,780 per year.

#### **Nurse Experience**

- 63% of nurses strongly agreed that digitisation improved confidence in the accuracy of patient details (Figure 1)
- 75% of nurses reported significantly improved morale (Figure 1)

## **Sustainability**

• Eliminating paper processes led to savings of £6,252 to £9,631 per year.

## Time Efficiency Cost Per Endoscopy (£)

## Conclusions

• Our findings highlight the inefficiency of the current traditional process of transferring clinical images and video from the camera system to EPRs.

**Note:** Process 1: Manual process where nurses print, attach, scan, and digitise clinical images offsite for inclusion in electronic patient records (EPRs). Process 2: Urgent content is recorded on an iPad and transferred manually to EPRs. Digitised Process: Fully automated process using nCare and VaultStream to directly upload clinical images and videos to EPRs without manual intervention

• Digital transformation in the procedure and technology of medical content documentation may improve nursing care efficiency, and morale and subsequently improve the quality of care delivered.

#### Limitations

- The study was descriptive, so we couldn't determine a cause-and-effect relationship.
- It used time-efficiency cost savings based on nurse time saved, not direct cash-releasing savings.
- The research was conducted at a single center, which may limit how generalisable the findings are to other healthcare settings.
- Future research should include a longer follow-up period, an economic evaluation, assess nurses' digital competence, and determine the effectiveness of the digitised process for image and video transfer across different hospital departments.

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