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A tailored intervention to improving the quality of intrahospital nursing handover

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ABSTRACT

Introduction: Nursing handover is a process central to the delivery of high-quality and safe care. We aimed to improve the quality of nursing handover from the emergency department to ward and intensive care unit (ICU).
Methods: A quasi-experimental non-equivalent control group pre-test — post-test design was applied. Handover quality was measured using the Handover Evaluation Scale (HES). A tailored intervention, inspired by appreciative inquiry, was designed to improve the implementation of an existing handover form and procedure.
Results: In total 130 nurses participated, 66 before and 64 after the intervention. Initial structure of the HES showed no good fit to our data; the questions were reshaped into 3 dimensions: Quality of information, Interaction and support, and Relevance of information. Following the intervention, mean changes in HES factor scores ranged from −3.99 to +15.9. No significant difference in factor scoring by ward and ICU nurses was found. Emergency department nurses, however, perceived *Interaction and support* to be improved following the intervention.
Conclusion: The intervention did not result in an improved perception of handover quality by ward and ICU nurses. There was improvement in the perception of Interaction and support among emergency department nurses. The intervention positively effected teamwork and mutual understanding concerning nursing handover practice amongst emergency nurses. In order to improve intrahospital nursing handover, hospital-wide interventions are suggested. These interventions should be aimed at creating a generative story, improving mutual understanding, and establishing a supportive attitude regarding standardised procedures to reduce human error.

1. Introduction

Innovations in medicine, healthcare technology, and the pharmaceutical industry have led to new treatment options — even for previously incurable diseases. The implementation of these innovations resulted in decreased mortality rates for acute health problems (e.g., acute myocardial infarction or stroke) and improved life expectancy for patients with chronic diseases (e.g., diabetes mellitus or chronic obstructive pulmonary disease). As people tend to live longer with one or more chronic conditions their care needs have become significantly more complex. In addition, the setting in which healthcare is provided progressively outstepped the architectural borders of the doctor's cabinet, the hospital ward, and even the hospital itself. Healthcare has become a complex process; characterized as a multi-aspect care process involving numerous sub-processes delivered by several healthcare providers often at various locations — both in and outside of the hospital. Hence, coordination and adequate communication between healthcare providers are essential to ensure the quality and safety of patient care.

A process central to the delivery of high-quality and safe care is handover. Clinical handover is defined as "*the transfer of professional responsibility and liability for some or all aspects of care for a patient or patient groups, to another person or a professional*

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group on a temporary or permanent basis" [1]. At its simplest, handover can be seen as a human-to-human interaction in which information is sent, received, and processed [2]. However, during handover multiple inputs relating to essential care processes are received (e.g., pre-scribing; investigation requests; receiving and interpreting results; ensuring continuity of care; and the provision of advice to the patient) [3]. If we look at the handover process from a systems approach, it is possible to situate this process within a broader *system of work*. Systems approach models (e.g., the Systems Engineering Initiative for Patient Safety model) are useful for providing a view of the entire system instead of focusing on one aspect and treating that aspect in isolation [4]. Hence, we must take account of the action and interaction of various personal and organisational factors (e.g., education, skills and knowledge; teamwork and work schedules), the used technologies and tools (e.g., various information technologies), tasks (e.g., job demands), and the environment surrounding the handover process (e.g., noise) [4].

The importance of patient handover becomes evident from the number of adverse events resulting from poor communication between healthcare providers [5]. Moreover, suboptimal quality of handover has been recognised as a persisting deficit in safety culture evaluation [6,7]. Failures in nursing handover can produce a wide variety of untoward outcomes ranging from lack of event awareness, to loss of significance, and to dropping or lacking information required to perform tasks. Handover failures typically contribute to a cascade of failures involved in adverse outcomes, rather than being sole causes, making the estimation and investigation of handover-derived harms difficult. Common consequences of handover failures, such as near misses and delays in care, are difficult to assess for their overall contribution to potential harm. Recognition of the potential risks of handover errors has led many researchers to attempt to improve it using a range of methods, both simple and multi-component. Interventions generally target information transfer directly, individual behaviour or the wider system. Approaches have included process standardisation; training and education; changes to the physical environment; use of technology; explicit signalling of accountability transfer; and others. The diversity of methods used to evaluate the results has been even greater, but can be grouped as dealing with patient outcome, staff satisfaction, compliance with protocols, time taken for handover and information transfer (e.g., completeness or accuracy of information transfer). Despite the importance of the handover process and the clear need for improvement, the availability of effective interventions to improve interhospital handover is limited [8,9]. The current literature cannot confirm that any method reliably brings improvement in the quality of patient handover [9]. At present, it appears that information transfer is the aspect of handover in which interventions most readily show change: whether this results in any beneficial outcomes beyond better recording of data is however unclear. In spite of this uncertainty accreditation bodies — in order to ensure a minimum level of quality — have supported the use of an *institution standardised protocol for the transmission of client information* (e.g., the read-back technique, the Identification Situation Background Assessment Recommendations technique, or electronic medical records). The implementation of such standards is proving difficult [10,11].

The aim of this study was to improve the quality of nursing handover for patients admitted in the hospital following an emergency department visit. A first objective of this study was to evaluate the quality of emergency department to ward and intensive care unit (ICU) handover. A second objective was to investigate the effect of a tailored intervention to improve the implementation of an existing practice standard (i.e., structured handover form and procedure). Based on the assumption that the use of such a standard would improve the quality of nursing handover, we hypothesised that the intervention would improve the quality of nursing handover.

2. Methods

A quasi-experimental non-equivalent control groups pre-test/post-test design was used. We compared the quality of intrahospital nursing handover — for patients transferred from the emergency department to the ward or ICU — before and after an intervention designed to improve the implementation of an existing practice standard (i.e., a structured handover form and procedure).

2.1. Setting

This study was conducted at a general hospital in Belgium's Flemish region with 326 beds divided over 14 wards (including an ambulatory surgical daycentre). The hospital employs over 100 physicians and 800 employees. In 2015 the emergency department had an annual census of 16,837 patient visits of which 32.7% was admitted in the hospital. The emergency department consists of 10 rooms, 4 nonroom bed-spaces, and 4 observation unit treatment spaces [12]. The hospital participates in various regional and national quality and safety programs. Currently, the hospital is actively engaged in an accreditation process (NIAZ). Prior to this project several other initiatives to improve the quality of nursing handover have been carried out. To meet the accreditation standards, a standardised handover system was implemented. Building on the various recommendations, a digital handover form has been developed — summarising important information from the electronic patient file (e.g., personal data, allergies, completed and pending investigations, etc.).

2.2. Rationale and theoretical underpinning

As the current literature cannot confirm that any method reliably brings improvement in the quality of nursing handover [9], we designed an intervention tailored to the needs of the participating emergency department. As previously mentioned, various efforts have already been initiated in order to improve the quality of patient handover. Much attention has been paid to the development of a structured handover form — in accordance with accreditation standards — and accompanying handover procedure. Hence, the main problem was not the lack of a system or structure to facilitate the handover process, but is rather to be found in the implementation of these practices. Therefore, the intervention was designed to improve the implementation of the handover form and procedure amongst emergency nurses.

From the broader field of implementation science we learn that, before a new practice will be used properly, change is needed at two levels: (1) the perception of the sharp end user about the new practice (i.e., problem recognition and practice is accepted as a valid solution) and (2) the workflow of the sharp end users (i.e., the new way of working fits with the existing routines) [13]. We used Normalization Process Theory (NPT) to facilitate the implementation process. It provides a set of sociological tools to understand and explain the social processes through which new or modified practices of thinking, enacting, and organizing work are operationalized in healthcare and other institutional settings. The theory is described in detail elsewhere [14–17]. In this study, we focused on the mechanism of *Reflective Monitoring*, more specifically on the component *Communal appraisal*.

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