

# A work domain analysis of medicines management for hospitalised children

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## SUMMARY

Previous attempts to improve medication safety for hospitalised children have been ineffective because they take limited account of the sociotechnical context in which the interventions occur. To address this problem, we used work domain analysis to examine medicines management for hospitalised children in England. The analysis was based on data from documentary analysis and from observation of healthcare staff and patients. Our findings identified features of the work system that should be taken into account when planning improvement interventions for this setting.

## KEYWORDS

Cognitive Work Analysis, Medication Safety, Paediatrics

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## Introduction

Hospitalised children may be at greater risk than other patients of experiencing an adverse drug event (ADE), and these can occur throughout the medication process (Sutherland, Phipps, Tomlin, & Ashcroft, 2019). There are processes and procedures in place to mitigate ADEs, but these are ineffective (Maaskant et al., 2015). This is because many interventions are not informed by the sociotechnical context in which they are to be implemented (Rinke et al., 2014). Hospitals are complex systems; thus, a systems-based approach using Cognitive Work Analysis (CWA; Vicente, 1999) may help to improve the implementation of improvement interventions. We aimed to apply the first phase of CWA, work domain analysis (WDA), to medicines safety processes for paediatric in-patients.

## Methods

Our study used a qualitative design, based in three acute in-patient paediatric units in the north of England; two in children's hospitals and one in a general hospital. Data for the WDA were obtained from procedural documents and direct observation of activity by hospital staff, patients and their parents (285 hours). An abstraction-decomposition hierarchy was constructed by the research team using the WDA approach described by Naikar et al. (2005) and then reviewed by staff at each study site for completeness and accuracy.

## Results

Purposes, functions and objects and their relationships are presented in Figure 1.

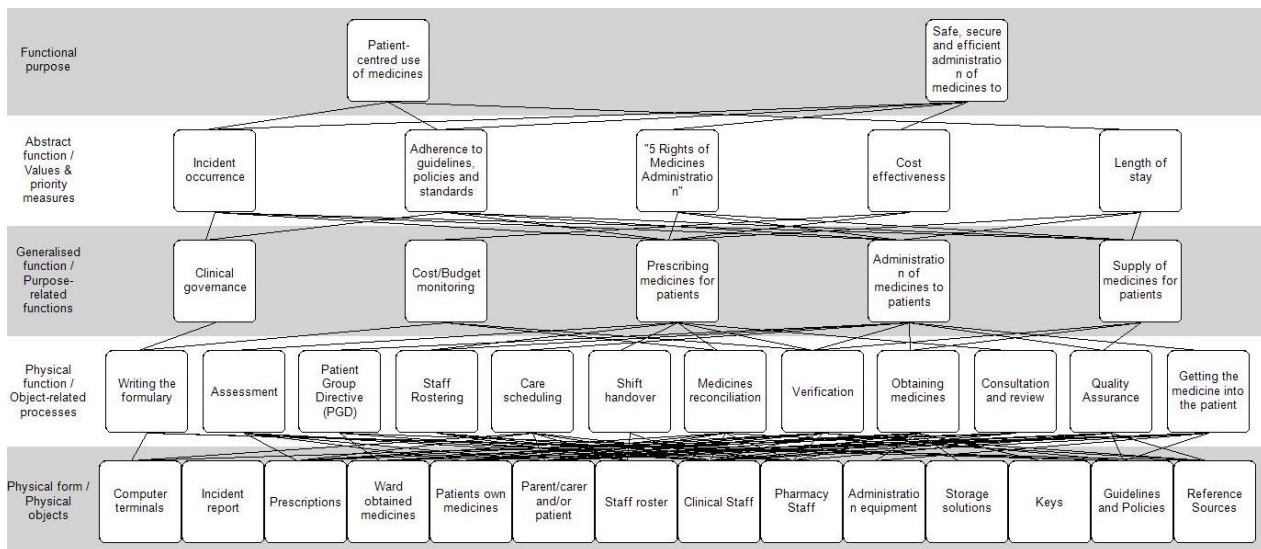


Figure 1 – The work domain analysis for paediatric medicines management

Our analysis revealed that the work system is sensitive to logistical issues (such as inaccessible materials or knowledge of medicines and their management). Secondly, actors within the system encounter conflicting priorities (notably, prioritising medication activity v other tasks). Thirdly, actors engage in efficiency-thoroughness trade-offs to maintain system resilience (for example, adapting drug administration checks that they are expected to carry out). The result of these system characteristics is poorly designed work processes, sub-optimal interaction between the staff roles, and the exclusion of families and other caregivers from the system.

## Discussion

Our study demonstrates the use of WDA to understand the sociotechnical context of medicines management in paediatric care. Our analysis identified work system constraints such as access to task-relevant knowledge and materials, and the roles and priorities of interdependent actors in the system. These constraints shape the everyday work of those involved in medicines prescribing, supply and administration. As such, they should be taken into account when designing and implementing any safety management system governing this work. The insights gained from our study are therefore useful for informing the development of interventions to improve paediatric medication safety.

## References

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