

Patient safety investigation through the lens of FRAM

Helen Alm¹ & Rogier Woltjer²

¹Vattenfall Power Consultant AB, Stockholm

²LFV Air Navigation Services of Sweden, Norrköping
Sweden

Abstract

The purpose of this study was to apply the systemic Functional Resonance Accident Model and its associated Analysis Method (FRAM; Hollnagel, 2004) to an incident investigation in a health care context. FRAM is a novel systemic approach to system safety and resilience engineering, with a specific aim to unravel functional interdependencies and non-linear effects of performance variability in complex socio-technical systems. In health care a substantial number of people die or are seriously injured due to preventable adverse events that occur during treatment. Since 2005, the County Council in Östergötland, Sweden, has a dedicated patient safety unit (PSU). This unit investigates health care incidents using an analytic method that combines root cause analysis (RCA) with huMan, Technological and Organisational (MTO) aspects. The FRAM analysis was applied to a case (concurrently investigated by the PSU) where surgical materials were left in a patient's abdomen during a surgical procedure. In comparison to the investigation done by the PSU this study found that FRAM had a number of advantages most prominently because of its facility to expose the complexity often found in the health care domain. The study concludes that FRAMs more extensive investigation process facilitates finding more complex and systemic interdependencies than other methods may allow, and that the method is still under development, necessitating further research.

Introduction

Accident models are conceptions of how accidents occur, often implicit in the minds of accident investigators or in their guidelines. As these conceptions determine what accident investigators look for during investigation, and thereby which contributing factors are found and prescribed to be fixed (Lundberg et al., 2009), accident models are important to recognize, identify, and reflect upon when discussing system safety and the control of risk. Early accident models, often aim to attribute an accident to a root cause. However, although possibly useful in straightforward cases, the root cause concept is problematic because of its neglect of the often fuzzy and coincidental combination of numerous events and circumstances preceding and surrounding an adverse event. This observation leads to the importance of accident models to adequately describe and understand accidents.

In D. de Waard, A. Axelsson, M. Berglund, B. Peters, and C. Weikert (Eds.) (2010). *Human Factors: A system view of human, technology and organisation* (pp. 153 - 165). Maastricht, the Netherlands: Shaker Publishing.