Chapter 11
A Serious Game for On-the-Ward Infection Control Awareness Training:
Ward Off Infection

Ian Dunwell
Serious Games Institute, UK

Steve Jarvis
SELEX Systems Integration Ltd., UK

ABSTRACT

Healthcare associated infections represent a major ongoing cost to health services. This chapter reviews the development and deployment of Ward Off Infection, a serious game targeted at improving infection control practices of nurses in on-the-ward training. The game was deployed in 2009 across 13 hospital wards within the UK. As limited usage of the game precluded attempts to consider its efficacy though pre and post-survey, this chapter focuses upon the key issues surrounding this low uptake. Relating these more generally to the deployment of serious games in healthcare, a potential link is observed between the presence of training professionals and usage of the game, as well as strong overriding perceptions of the medium and training objectives by users. The findings demonstrate the challenges associated with enacting effective behavioural and attitudinal change through a serious game deployed in an on the ward context, particularly with respect to stimulating high levels of perceived usefulness. Hence, the authors reflect on key lessons learned in the development and deployment of Ward Off Infection, and relate their findings to other studies of serious games in healthcare, identifying the context in which a game is deployed to be a critical development consideration.

INTRODUCTION

Simulation of medical scenarios both in physical and virtual forms has long been used as a training tool. However, only more recently has the incorporation of game-based elements within training simulations been widely considered as a means for enhancing learning outcomes. Previous studies (Mautone, Spiker, & Karp, 2008) have demonstrated the benefits of introducing game-based elements into a computer simulation, whilst noting that precisely how and why these

benefits arise remains a significant area of study. Clearly, the use of game-based technologies can stimulate interest and engagement from learners, though examples showing games to offer improved outcomes amongst audiences who are already highly motivated (such as that of Mautone et al.) suggest lower level cognitive transfer may also benefit from a game-based approach. Principal rationales often given for the use of game-based elements are to increase intrinsic motivation (Jung, Schneider, & Valacich, 2010), exploit novel forms of feedback (Dunwell, Jarvis, & de Freitas, 2011), and improve learning transfer as a result (Jarvis & de Freitas, 2009).

The Ward Off Infection game this chapter describes addresses the particular situation of on-the-ward training in hospitals within the UK. In such a context, the training solution is deployed to practising nursing staff rather than forming part of a formally attended course. Due to the practical constraints this places on content delivery, we examine an approach which uses serious games as a blended enhancement, rather than alternative, to existing training solutions for infection control. Such an approach proves novel in both the design of the training intervention and its usage context, and therefore the study described in this chapter sought to evaluate the intervention in these terms. Consequently, the results of this study reflect on the findings of an on-the-ward deployment of a prototype of the game through pre- and post-survey, supplemented by observational study, but hindered by low uptake. Despite this low uptake, completed surveys, coupled with observation, provide both quantitative and qualitative bases for examining the underlying causes, contributing towards the discussion of how future interventions might better address nonsocomial infection control in an on-the-ward context. These results, demonstrating potential acceptance of serious games amongst nursing staff, but low usage in the absence of extrinsic motivation, identify significant barriers when attempting to deploy serious games as on-the-ward training solutions, as well as issues

that may prove more general to the introduction of serious games as part of training curricula.

BACKGROUND

Research into infection control on hospital has previously indicated that lack of theoretical knowledge is not a significant factor in ward hygiene, and that attitude plays a more predominant role (de Wandel, Maes, Labeau, Vereecken, & Blot, 2010). As such, whilst training programmes focussing on knowledge transfer have value to a student audience, a comprehensive training solution targeted at minimizing nonsocomial infection must engender attitudinal change amongst clinical staff. In a large-scale survey, key factors in hand hygiene were identified as clinical role, gender, working in an intensive care unit, working during weekdays rather than weekends, and the number of opportunities for hand hygiene arising per hour of nursing care (Pittet, 2001). Whilst this study supports the notion that nurses are responsible for a proportionally smaller number of violations of infection control policy than clinical staff in other roles, continued support and training for nursing staff in maintaining best-practice in a high-pressure environment is essential in minimising the risk of healthcare associated infection (HCAI). This is supported by findings linking workload to increased rates of nonsocomial infection (Kibbler, Quick, & O'Neill, 1998), as well as those of demonstrating the impact of improper management and placement of patients with infectious conditions on HCAI (Coia et al., 2006). Infections primarily spread by hand contact, for example MRSA highlight the importance of adherence to hand-washing policy and best-practice, though effective infection control requires multiple factors be addressed (Dancer, 2010), further reinforcing the notion that both long-term behaviour and momentary lapses, rather than knowledge transfer, must be the focus of training programmes seeking to reduce HCAI rates.

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