A Socio-Technical Approach to Evidence Generation in the Use of Video Conferencing in Care Delivery

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ABSTRACT

Care and support services need to respond to the rapidly changing demands of the population and available resources. The authors will present evidence that video conferencing can underpin many of the aspirations for future care delivery. However, if the necessary scale and pace are to be achieved a new model for evidence generation needs to be found. Using the experience of deploying video across health and social care a new model of evidence generation will be proposed based on a socio-technical approach where complexity and human capabilities are features of the intervention. A practice-based approach utilising action research will be used. The model will focus on four dimensions that are key to the success of an intervention using video: Practice, Outcomes, Technology and Evidence. Addressing the interactions between these four dimensions promotes a system that can evolve services that, in cooperation with the video technology platform, can satisfy changing care demands.

Keywords: Care, Evidence, Health, Outcomes, Practice, Social, Socio-Technical, Technology, Video

1. INTRODUCTION AND PROBLEM DEFINITION

The effects of current economic and demographic pressures on care and support systems are well documented (MacLennan, 1988, Robine et al., 2007). The need to do more with less is an established requirement of new models of care (Spillman & Lubitz 2000, Casey et al., 2003). However, there are significant barriers to the innovation of new ways of working in care delivery (Eason et al., 2013). Some of these barriers will be described through the experiences of one of the authors (AH) in deploying video conferencing to support people in their own homes or in a care environment.

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The current use of video in care delivery is predominantly clinician-to-clinician communication between care organisations. Established examples are stroke or cancer networks (Gibson et al., 2013, Lewis, 2014). When developing a strategy for deploying a video intervention targeted at people in a residential environment it soon became clear that there was not a precedent to follow. In terms of Porter’s Five Forces the intervention was neither a new entrant to an industry that already exists or a substitute for a current product (Porter, 1980.) Clearly any adoption of the video approach was going to disrupt internal systems in the care organisation and result in changes to practice. From a resources and capabilities point of view (Grant, 1991) any strategy to deploy video requires close collaboration between the resources of the care organisation and the video service provider. This is a challenging engagement for care providers as they are more accustomed to transactional approaches where products or services are bought to a specification. Hence, each video deployment required sensitivity to the resources and capabilities of the customer and a collaborative approach to lowering the barriers to use of the technology. For example, modifying the user interfaces of the video conferencing equipment could lower some barriers and this has been done extensively to improve the experience of the people receiving care and of the clinicians providing it.

A further challenge to any deployment of video conferencing is the initial modelling of the economic benefits. As each deployment creates a network of contacts there is no template for a specific intervention. Within health care, each disease, e.g. diabetes, has its own ‘silos’, i.e. has its own care pathway, its own specialists, seeks its own technical support and is evaluated in terms of its ability to meet disease-specific outcomes. Engaging with a particular silo is very dependent upon the context of the engagement and each deployment raises its own challenges. Therefore, before video can be deployed in the residential environment its benefits and cost effectiveness within current siloes of care have to be proved.

The experience of working across deployments of the video in primary, secondary and social care highlighted four recurring aspects that we will refer to as dimensions. These dimensions are strongly coupled to each other and form two axes. One axis is how the technology platform couples with the practice of the caregiver. The other relates to how the evidence generated supports the outcomes being sought. The successful interlinking of Practice, Outcomes, Technology and Evidence (POTE dimensions) is key to a successful intervention. The approach proposed here is to consider, from a socio-technical point of view, each of these four dimensions. The question at the heart of the approach is:

*Within a given context, how do we successfully couple practice to the technology to produce evidence that the desired outcomes are being generated?*

### 1.1. The Video Communication Platform

One of the authors (AH) has been developing deployments of care using video in cooperation with a range of care delivery partners in the National Health Service (NHS) in England and Local Authorities. The use of the core video platform has been integrated into different use cases including: virtual ward rounds, virtual clinics, virtual visiting and on-demand remote support. These services are deployed across primary, secondary and social care. Some of the deployed use cases are shown in Figure 1. The video platform underpins a range of services that link different care organisations to people in different residential settings. The flexibility of the end points and interfaces also facilitate dispersed modes of working such as mobile units for community nurses or software clients for clinicians working from home on PCs or tablets (v-connect, 2014.)

The reusability of the video connections in different locations can facilitate other modes of communication such as clinician-to-clinician or family member-to-person receiving care. Hence
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