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Editorial

Managing transformational change: Implementing cross-sectional imaging into death investigation services in the United Kingdom



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1. Introduction

In general, healthcare is constantly re-building to provide better, guicker, more dependable services and care and, as a result, change is an inevitable part of our professional lives. The process of death investigation is no different. Traditionally the 'true' cause of death can only be determined by an invasive autopsy. Considered the 'gold standard' investigation, this highly specialised surgical procedure consists of a thorough examination of the corpse, evaluating the contribution of any natural disease or injury identified to the cause and manner of death. It involves the processes of external and internal examination, supplemented with laboratory investigations when required, followed by reconstruction of the body. However, a radical adjunct or alternative to the traditional autopsy has now been developed, challenging the concept of the 'gold standard', using the 'so-called' minimally invasive radiological autopsy. This approach uses post-mortem computed tomography (PMCT) and/or post-mortem magnetic resonance (PMMR) imaging, possibly supplemented with angiography, pulmonary ventilation, needle biopsy and, where available, surface scans of corpses. When combined with an external examination this innovative translation of clinical radiological

* Corresponding author. E-mail address: JRutty@dmu.ac.uk (J.E. Rutty). imaging provides fresh insights and a new horizon for death investigation worldwide.

In the beginning there was considerable doubt, resistance and uncertainty concerning the use of cross-sectional imaging in autopsy practice from the global medical community. Nevertheless, time has seen change in death investigation practices across the world, and a growing number of centres are investigating and instigating PMCT and PMMR into autopsy practice, including Japan, Australia, United States and parts of Europe (Denmark, Germany and Switzerland to name only a few) [1–9]. Recently practitioners and researchers from around the world united with the formation of the International Society of Forensic Radiology and Imaging (http://www.isfri.net/ last visited October 2014) which included the launch of the first dedicated journal for this specialist area of work, the Journal of Forensic Radiology and Imaging (http://www.jofri.net/ last visited October 2014). Despite these international developments, and some local enthusiasts, the forensic, pathology, criminal justice system and radiology communities in the United Kingdom (UK) have, in general, been slow to use post-mortem cross-sectional imaging. Possible reasons include unawareness of its potential, financial concerns, lack of experience and lack of educational opportunities. However, it has been questioned by UK practitioners within the forensic press whether, in terms of the adoption of imaging technology, the world is running before it can walk [10].

2. Implementing change - why does it take so long?

"Planning change is like planning a journey: it should include not just where people will go, and how they will get there, but what might make them want to make the journey, and stay there once they have arrived." [11]

Effecting transformation of a service incorporates changing the way people think, feel about things and carry out their work. This can be more challenging to manage than initially perceived, especially as research informs us that an estimated two thirds of organisational change projects fail [12]. The proposal to try something new is often viewed with caution or fear by those affected. This caution, which is common in all of us, has been described as the "inherent conservatism of man" [13] and 'change' can generate feelings similar to mourning in that we grieve for old patterns and behaviours, finding the 'new ways' difficult to accept and more demanding to apply. One could argue though that nothing is exempt from change, and to quote Benjamin Franklin (1705-1790), "when you're finished changing, you're finished". Change is normal and essential, as without it no progress would be made and life would become stagnant. Historical examples of resistance to change include the experiences in the mid-19th century of Simpson (development of the first childbirth anaesthetic) and Semmelweis (the importance of hand-washing to prevent puerperal sepsis). Despite the now obvious major benefits offered, they both experienced major resistance, with scepticism, disbelief and even contempt from their peers and the scientific community. Simpson's contribution was eventually recognised in his own lifetime, but Semmelweis was not so fortunate, dying in obscurity in an 'insane asylum' in Vienna [14]. Historians can now study the various reasons Semmelweis failed to convince his peers to implement change, and contrast this to the story of Sir Joseph Lister, who pioneered antiseptic surgery later in the 19th century.

The literature identifies numerous complexities associated with effecting change, often caused by the use of unstructured processes [15]. It is vital therefore that the management of change is purposeful, calculated and collaborative in order to ensure success and ultimate service improvement. Managers of change therefore need to identify an appropriate change theory or model to provide a framework for implementing, managing and evaluating change [16].

There are numerous change theories and models that can be applied. Lewin's 1951 pioneering model of unfreezing, changing and refreezing [17], modified by Rogers in 2003 [18] is a wellknown analogy for this process drawing comparison to an ice cube melting, changing shape and refreezing into a new shape (Fig. 1). The initial frozen ice cube represents what was happening before, the melting signifies the stage at which change was proposed and people considered it and began to accept the idea, the newly shaped ice cube symbolizes things starting to change and the old way slowly but surely ceasing to exist. Finally, refreezing characterises the new way becoming accepted as the established way of doing things [11].

In 1962, in his seminal work The Structure of Scientific Revolutions, Kuhn challenged the world's current concept of development in science, in that it was a steady progression of the



Fig. 1. The ice cube starts with one shape (cube), melts, and reforms into a new shape (triangle).



Fig. 2. The Kuhn cycle.

accumulation of new ideas [19]. Kuhn proposed that this view was wrong and suggested that science mainly advanced by occasional revolutionary explosions of new knowledge, with each revolution being triggered by new ways of thought so radical that they should be called paradigms (Fig. 2).

The six steps are described as

- 0. Prescience The field has no workable paradigm to successfully guide the work.
- 1. Normal Science The normal step, where the field has a scientifically based model of understanding (a paradigm) that works.
- 2. Model Drift The model of understanding starts to drift, due to accumulation of anomalies, phenomenon the model cannot explain.
- 3. Model Crisis The Model Drift becomes so excessive the model is broken. It can no longer serve as a reliable guide to problem solving. Attempts to patch the model up to make it work fail. The field is in anguish.
- 4. Model Revolution This begins when serious candidates for a new model emerge. It is a revolution because the new model is so radically different to the old one.
- 5. Paradigm Change A single new paradigm emerges and the field changes from the old to the new paradigm. When this step ends the new paradigm becomes the new Normal Science and the Kuhn Cycle is complete.

More recently, Anderson and Mangino in 2006 [20] outline a seven-step change-management strategy of building the team, identifying goals and measurable outcomes, making the implementation a priority, gathering baseline data, educating the team and providing resources, celebration of achievements and clear feedback to all stakeholders. In contrast to these more traditional change-management frameworks, more recently a new 'rapidspread' method using a 'big-bang' approach has been developed that involves a three month intensive period to meet all the requirements to achieve the successful adoption of the new working practice before the change 'goes live' [21]. However this approach involves implementing a proven change that does not need to be piloted or refined for local circumstances, so the science behind the initiative must be both proven and convincing and resident experts must feel comfortable and secure with the science.

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