

Florence Nightingale's legacy for clinical academics: a framework analysis of a clinical professorial network and a model for clinical academia

Abstract

Background

Clinical academic nursing roles are rare, and clinical academic leadership positions even more scarce. Amongst the United Kingdom (UK) academia, only 3% of nurses who are employed within universities are clinically active. Furthermore, access to research fellowships and research grant funding for nurses in clinical or academic practice is also limited.

The work of Florence Nightingale, the original role model for clinical academic nursing, is discussed in terms of how this has shaped and influenced that of clinical academic nurse leaders in modern UK healthcare settings. We analysed case studies with a view to providing exemplars and informing a new model by which to visualise a trajectory of clinical academic careers.

Methods

A Framework analysis of seven exemplar cases was conducted for a network of Clinical Academic Nursing Professors (n=7), using a structured template. Independent analysis highlighted shared features of the roles: 1) model of clinical academic practice, 2) infrastructure for the post, 3) capacity-building initiatives, 4) strategic influence, 5) wider influence, 6) local and national implementation initiatives, 7) research area and focus and 8) impact and contribution.

Findings

All seven of the professors of nursing involved in this discourse were based in both universities and healthcare organisations in an equal split. All had national and international profiles in their specialist clinical areas, and were implementing innovation in their clinical and teaching settings through boundary spanning. We outline a model for career trajectories in clinical academia, and how leadership is crucial.

Conclusion

The model outlined emphasises the different stages of clinical academic roles in nursing. Nursing as a discipline needs to embrace the value of these roles, which have great potential to raise the standards of healthcare and the status of the profession.

Introduction

Florence Nightingale – the original clinical academic nurse

Florence Nightingale can be viewed as the original, and most-well known, clinical academic for nursing. She applied the best evidence and clinical practice of her time to improve patient outcomes through increasing patients access to fresh air, nutrition, and sanitation (Nightingale, 1859). She further campaigned for major hospital reform using data and statistics. The bi-centenary of her birth in 2020, and global Year of the Nurse being celebrated in 2020/2021 (World Health Organisation, 2020) is a timely opportunity to publicise her work and to re-examine her teaching in relation to modern healthcare and how it might inform modern clinical practice. A framework analysis, using Ritchie and Spencer's principles (Ritchie and Spencer, 1994), is presented with the aim of developing the themes in clinical academic practice adopted by the seven members in this network. We propose a model for clinical academic nursing practice and discuss its potential application to the nursing profession. Currently, clinical academics across all professions focus on conducting, appraising and implementing research in clinical settings, exactly as Nightingale's trailblazing work exemplified.

Having witnessed the appalling conditions in which wounded soldiers in the Crimean War were treated, Nightingale worked with William Farr and John Sutherland of the Sanitary Commission to learn how to use statistics to predict mortality (National Archives, 2014), convey complex information, and ultimately to change nursing practice. She developed visual representations to help communicate complex information, one of which became known as the polar area or 'rose' diagram, and remains in use today. Her extraordinary ability to communicate data led to her being the first woman admitted to the Royal Statistical Society. However, it is her application of those data to her clinical practice in the field hospitals that is of greater significance, and allowed her to demonstrate that most deaths in the Crimean War were not from battle injuries but from infection.

Nightingale transformed clinical hygiene practices across field hospitals in the Crimea resulting in a decrease in deaths by an astounding 99% from 1855 to 1856 (National Archives, 2014). She influenced government health care policy through lobbying, as exemplified by her successful campaign for hospitals to be mandated to collect routine statistics. This allowed comparison across regions and countries, assisting progress in epidemiological research in health care worldwide. She believed that the role of nurses was key to implementing improvements in healthcare and to this end she established the Florence Nightingale School of Nursing in London, and in 1859 published a guide to clinical practice, 'Notes on Nursing' (Nightingale, 1859).

Clinical academia in nursing

The central belief held by Nightingale, which is shared by modern clinical academics, was that research and evidence are the foundations of clinical practice and enquiry. We recognise that this leadership might be on varied levels, and that it might range from junior researchers and junior clinical practitioners who are leading on a project, to professors leading a programme of research in clinical practice. That all nurses should understand, implement and initiate research is regarded as fundamental, as is the need for them to be trained to do so (Nursing and Midwifery Council, 2018). The time taken for research findings to become embedded in clinical practice has been estimated as averaging 17 years (Curtis et al 2017; Davis et al 2003; Morris et al 2011). Clinical academics in nursing seek to address this by their contributions to developing a nursing workforce adept at applying and leading research directly relevant to clinical practice. In Australia, clinical chairs are not uncommon and these seek to act as a bridge between academic institutions and clinical practice (Wallis and Chaboyer, 2012), with a drive for clinical academia evidenced since the 1990s (Darbyshire, 2000; Davidson et al 2006). However, as in China, the Nordic countries and the US, in Australia there is no recognised formal training pathway (Carrick-Sen et al, 2019). In the UK,

attempts have been made to achieve this with pathways proposed by the Association of United Kingdom University Hospitals, 2014. In addition, the research arm of the English National Health Service, the National Institute for Health Research (NIHR), provides a formalised infrastructure with clear pathways for developing clinical academic careers (NIHR, 2020).

The NIHR definition of a clinical academic is a healthcare professional working within a university while continuing to provide clinical expertise in health and social care, combining clinical and research knowledge and skills (National Institute for Health Research, 2018). Westwood et al (2018) expands on this, stating that clinical academics investigate, innovate, teach and develop research-active cultures. A joint appointment across academia and clinical institutions has also been described as a significant feature of the clinical academic's role by the Association of United Kingdom University Hospitals (Association of United Kingdom University Hospitals, 2014).

Varied definitions for the role of 'clinical academic' prevail. Drawing on these many definitions we have chosen to define it as:

'a health professional who works in clinical practice and leads research directly applicable to clinical practice, and has a tenured or honorary position in a higher education institution'.

In contrast to discrete educational or research initiatives with a specific goal and endpoint, clinical academics strive to continuously improve practice and address the evidence base. This is facilitated by enabling academics to remain active in clinical practice, as is more common in medical professions throughout the world.

There have been significant challenges in developing a clinical academic nursing workforce globally (Emami et al 2017; Kelly et al 2018; Carter et al 2020), with most research in this area describing partnership models, in which academics or educators work on projects in clinical practice, or with clinical practitioners working on a finite project rather than a clinical academic pathway. An example was the Global Health Service Partnership in Africa (Stuart-Shor et al 2017), where educators work

with nurses in clinical practice across the US and Kenya to share knowledge. However, historically, nurses who developed as academics have been employed by universities (Baltruks and Callaghan 2018; Baltruks et al 2020), with few remaining in a clinical environment, thereby limiting the potential for rapid dissemination or implementation of research into clinical practice.

Clinical academia innovations

Since it was established in 2006, the NIHR has supported an increase in numbers of clinical academics in nursing. However, less than ten NIHR clinical doctoral fellowships have been awarded annually to nurses, and since 2009, only 64/813 of the NIHR clinical academic awardees were nurses (National Institute for Health Research, 2019), equating to < 8%. This is disproportionate to the number of nurses as a percentage of applicants overall (78% n=636/813) (National Institute for Health Research, 2019), and the fact that nurses currently represent a third of the UK health care workforce (The Nuffield Trust, 2019).

The Department of Health and Social Care in England published a strategy in 2012 (Department of Health and Social Care, 2012), outlining an aspiration to increase the numbers of clinical academic nurses, emphasising the potential impact of these posts in healthcare, as iterated in a recent report from the Council of Deans for Health (CoDH) in the UK (Baltruks et al, 2020). The Scottish Government's Nursing, Midwifery and Allied Health Professional Research Unit (2017) published a position paper on the importance of clinical academic careers for these professions. Northern Ireland has no formal clinical academic career infrastructure and Wales has created a Research Capacity Building Collaboration, however, this remains underdeveloped (Baltruks and Callaghan, 2018). Yet, the nursing and midwifery professions continue to lag far behind that of the medical profession. The majority (76%) of NIHR fellowships were awarded to medical colleagues (n= 2158/2840) compared to 0.1% in nursing/midwifery (n=105/2840 fellowships) (National Institute for Health Research, 2019). From a registered nursing population of 660,000 (The Nuffield Trust, 2019)

this is a staggering contrast and highlights the inequalities of clinical academic provision for nursing/midwifery in the UK. In the UK 4.6% of medical consultants are clinical academics (Health Education England/Nursing Midwifery Council, 2015), with clearly delineated career paths and infrastructure in medicine to support clinical academic activity (Medical Research Council, 2017; NHS Employers, 2019).

Despite the contribution of the NIHR and other funding bodies, the contrast between professional disciplines in attaining these fellowships is an indication of a pervasive inequality throughout the UK healthcare workforce in clinical academic opportunities, funded infrastructure support and career progression. The Council of Deans for Health reported that only 3.3% of all nurses employed by universities are in clinical academic roles, emphasising a concerning gap between nurse educators and clinical practice (Baltrucks and Callaghan, 2018).

Recent research by Trusson et al (2019) identified three themes related to the success of clinical academic careers (CAC) in nursing; 1) embarking on a CAC, 2) overcoming barriers and 3) the benefits associated with CAC. The authors identified that there were particular problems relating to investment in people later in their careers, leading to less time to demonstrate impact and for career progression. Westwood et al (2018) endorsed this point, noting that doctoral training is the starting point for most CAC, yet the time to complete training can be considerable (Trusson et al, 2019). Moreover, the impetus in nursing is for direct patient care, placing it at a higher value and priority than non-patient-oriented activities. This misplaced, or even biased, value is also evident in the minimal emphasis on research in UK undergraduate nursing curricula, with a focus on only *applying* evidence-based practice (Nursing Midwifery Council, 2019), and is mirrored in Europe and internationally. Moreover, the NHS People Plan (NHS Employers, 2020) has very little to say about research as part of people's development.

The Shape of Caring Review (Health Education England/Nursing Midwifery Council, 2015) in the UK identified the translation of research into practice as central to the production of a flexible

workforce that can innovate and adapt to changing patient needs. Broad research awareness and the ability to engage in critical enquiry are seen as essential features of the future workforce and underpin the ability to advance patient care safely and effectively. The document 'Leading Change, Adding Value' (NHS England 2016) outlines the need to support nurses, midwives and allied health professionals to *lead* and *drive* research and highlights the need for research training pathways in order to develop CAC opportunities for nurses. Therefore, involvement in research is something that nurses should do because it improves service delivery and patient outcomes. Boaz et al (2015) suggested that when clinicians and healthcare organisations engage in research there is the likelihood of improvement in the organisational health care performance, even when that has not been the primary aim of the research. There is also evidence that research-active UK NHS Trusts have improved outcomes, including satisfaction and lower risk-adjusted mortality for acute admissions (Jonker and Fisher 2018; Ozdemir et al 2016). This means that having a larger clinical academic workforce is highly likely to improve patient outcomes above and beyond the actual research aims of specific projects.

Articulating the added value of senior clinical academic leadership in healthcare and higher education

Senior level joint appointments between healthcare and higher education organisations have been demonstrated to enhance the research culture, yielding significant benefits not only to the hosting organisations by ensuring rapid knowledge transfer and implementation, but also to individual clinicians (Jinks and Green 2004). Moreover, joint appointments, particularly at professorial level, have been considered a way to enhance clinically-based research developments (Jinks and Green 2004; Westwood et al 2018). In the US, Professors of Practice aim to promote the integration of academic scholarship with clinical practice, but these posts are uncommon. In Australia and Europe, Clinical Professors of Nursing have similar aims, but again these posts are not common. Joint clinical

chairs have been in place in Australia since the 1990s, with the aim of bridging the theory-practice gap. The expectations regarding these joint clinical positions have been criticised for being overambitious with unrealistic service and academic demands placed by both clinical and academic institutions (Darbyshire, 2010). Yet, they have been regarded by some as a success, particularly as bridge-builders (Lumby, 2007; Wallis and Chaboyer, 2012). Senior leadership is also a significant factor in the success of such appointments, as they are more able to implement change and lead others in research, growing an active research environment in which using best-evidence in clinical practice becomes the norm. Furthermore, they can act as a bridge between higher education and health care institutions, which can be viewed as a boundary spanning role (Williams, 2002).

‘Boundary-spanning’ is the concept of reaching across organisational structures to build relationships, interconnections and interdependencies. It can be done at an individual level, to develop and manage interactions, and at an organisational level, by setting up policies and structures that facilitate and define the relationships between individuals and their respective organisations (Williams, 2002). Boundary spanning is the activity by which individuals within an organisation bridge to another organisation, functioning in both clinical and academic worlds with credibility and transferrable skills. Boundary spanners act as information brokers, as ambassadors or diplomats and as conduits for resources, information and influence. The challenge in Nursing and Midwifery in the UK is that only 3% of academic posts have joint clinical academic contracts, which requires both worlds to be inhabited simultaneously (Baltruks et al, 2020). According to the University Hospitals Association’s (formerly Association of UK University Hospitals), pathway for clinical academic careers in nursing, midwifery and allied health professionals, the culmination of the CAC is the appointment as Clinical Professor (Association of United Kingdom University Hospitals, 2014). These positions are few and far between in the UK, and worldwide. In the UK, there are currently 21 clinical chairs in post, employed to role model Nursing and Midwifery CACs and foster clinical academic research across England, Northern Ireland and Scotland, less than five percent of

the 267 full professors of nursing in the UK (Royal College of Nursing, 2020). In the UK, posts vary significantly in terms of the clinical component. With some posts based in the healthcare institutions and others based primarily in the academic, and others with an equal split; however a unifying feature is the importance of clinical visibility as both a clinical and academic expert in a specific field of nursing, as well as advancing the research agenda more broadly. To this end, we sought to understand how these distinct senior clinical academic posts influence practice and policy, and how a framework for career development could be conceptualised as a model. The following research question was posed: *how do senior nursing clinical academic posts at professorial level influence clinical practice, career development and policy?* We aimed to explore this through developing an understanding of clinical professorial roles, as clinical and academic experts, and to draw out broader aspects of value for advancing the nursing discipline through clinical academic careers.

Sample, setting and methods

Models of practice in clinical academia vary significantly across the UK. With the aim of exploring this further, and to demonstrate the variation in practice, a network of clinical professors (n=7) representing three of the nations in the UK (Northern Ireland, Scotland and England [there was no Welsh representative in post]), individually collated role case study descriptions, using a comprehensive written template developed through consensus within the group, to capture textual data about each of their roles, including ways of working, practice, leadership and policy impact. The authors analysed this for initial themes, using a framework analysis approach. However, given the subject was about individual roles and to provide independence, a framework analysis of the models was independently conducted by an experienced researcher (*initials to be supplied*) to draw these data into themes (Table 1.). The initial framework analysis propositions were informed by both the literature and experiential knowledge. The independent researcher and two of the network (*initials*

to be supplied) reviewed the themes together to verify themes identified independently, and to provide member-checking of the textual data.

Framework analysis of case studies

Framework analysis is a qualitative method ideally suited for applied policy and related research (Ritchie and Spencer, 1994). It is an approach suited to research that has specific questions, a limited time frame, a pre-designed sample and *a priori* issues (e.g. organisational and integration issues) that need to be addressed. Although Framework analysis may generate theories, the prime concern is to describe and interpret what is happening in a particular setting. Framework analysis allows either collection of all the data and then subsequent analysis, or concurrent analysis and collection. In the analysis stage the gathered data are sifted, charted and sorted in accordance with key issues and themes. This involves a five-step process: 1. familiarisation; 2. identifying a thematic framework; 3. indexing; 4. charting; and 5. mapping and interpretation (Ritchie and Spencer, 1994). The researcher becomes familiar with the data, noting key ideas and recurrent themes, and identifying a thematic framework with emerging themes or issues. These concepts and themes then form the basis of a thematic framework to filter and classify the data. Subsequent indexing and charting involve identifying and moving sections of data that correspond to the emerging themes into an emerging thematic framework, mapping phenomena, finding associations and providing explanations.

Findings from framework analysis

Exploration of the roles of these clinical professors demonstrates that although different in exact configuration and relational roles within the health services and universities, there are common

themes shared across these posts. Clinical professorial roles change the emphasis and value placed on research and CAC in nursing, strategically in setting out a vision and plan for embedding research activities and CAC in practice, and operationally to establish infrastructure and build research capacity and capability.

The framework analysis yielded eight themes that were common across these posts: 1) model of clinical academic practice, 2) infrastructure for the post, 3) capacity-building initiatives, 4) strategic influence, 5) wider influence, 6) local and national implementation initiatives, 7) research area and focus, 8) impact and contribution. All of these clinical professors have senior level reporting structures, and high-level influence in their respective organisations. They facilitate the translation of research into clinical practice, and the development of clinical academic infrastructures, alongside leadership of programmes of research.

To advance nursing science and practice, nurse-led programmes of research need to be fostered to maintain academic and clinical credibility within the broader clinical and health science arena. Having embedded, clinically-active researchers in healthcare organisations, who lead research programmes, is important for role-modelling and driving effective nursing care. This in turn improves care processes and patient/client outcomes. The case study data emphasises how these roles impact on patient outcomes beyond the research outputs of specific studies. Moreover, as the analysis in Table 1 summarises, these posts facilitate rapid knowledge transfer into clinical guidelines and practice at both local and national levels (see supplemental file 1. for the full Framework analysis).

>>INSERT. Table1. Framework analysis of 7 Clinical Professorial roles within a network

Proposal for a clinical academic model

This case study framework analysis has outlined themes and commonalities in these senior posts at clinical nursing professorial level. As the data attests, the theme of capacity-building was a prominent theme (although we have not presented our themes in hierarchy of value). This encompassed the notion of developing junior researchers into fully-fledged committed clinical academics, who are supported to develop both clinical and academic expertise in their field. While the concept of developing others careers' is not novel, texts refer to this with reference to specific examples (Carter et al 2020; Emami et al 2017; Wallis and Chaboyer, 2012), or in more abstract terms of needing to promote career development (Baltruks and Callaghan, 2018). Our data shows how senior clinical academics can create the environment that facilitates growth, and mediate capacity-building and, in turn, career development. Furthermore, we recognise that these senior clinical professorial posts exist as part of a broader infrastructure for clinical academia. The wider vision and scope for these sorts of clinical professorial posts is broader than the delivery of a research programme; post holders should be influencers of the future clinical environment.

The pathway outlined by AUKUH (2014) provides a useful linear framework for nursing CAC progression but we are aware there is the opportunity for a wide variety of clinical academic practice within nursing. Drawing on our experiences, the literature that articulates the possible stages of clinical academic development (AUKUH, 2014; NIHR, 2020) and our case study framework analysis, we propose four types of clinical academics: toe dippers, waders, trackers and spearheaders. This is distinct from the existing models that outline posts, rather than characteristics of those who wish to develop a clinical academic career. These four groups encompass the wide breadth and levels of clinical academic nursing models, from those just wanting to "dip their toes" in clinical academia all the way through to nursing clinical professors who are leading programmes of research and influencing the clinical milieu (spearheaders). In Figure 1, we delineate the core elements needed for each of the four types, which includes the alignment of clinical and research topic/subject areas. This

relationship between clinical and research practice is particularly key for new clinical academics, the *toe dippers* who may be motivated to pursue a CAC when they can access the research support to take forward their ideas from clinical practice into a robust piece of research. These individuals may then become *waders*, who understand and perceive the value of clinical academia, and who may progress to undertake formal clinical academic training, through fellowship or rigorous academic training at doctoral level. The *trackers* are those now committed to a CAC, who continue through to post-doctoral work, leading research which informs their area of clinical practice. Finally, there are the *spearheaders* who, underpinned by a joint institutional commitment, act as role-models, and clinical and research experts in their area, leading programmes of research, as well as fostering clinical academic careers for others.

Each of the above four types of nursing clinical academic, requires facilitators at all levels, from Chief Nurses who can advocate for clinical academics at executive level in healthcare Trusts, through to healthcare managers who support secondments, fellowships and other research activity, and finally, University Deans to provide the academic infrastructure needed for such posts. While Florence Nightingale was a unique trailblazer and able to drive significant change, in modern healthcare systems, it is recognised that this activity needs to take place in an environment and culture that is receptive to, and promotes, research to inform clinical practice.

>>INSERT. Figure 1. Model for clinical academia

Discussion and conclusion

Exploration of clinical academic leadership, using the roles within the authors' network as case exemplars, demonstrates that while different in exact configuration and relationships within the

health services and universities in which they sit, there are commonalities and clear themes inherent in these posts. These roles are: providing senior leadership to develop the UK clinical academic workforce to generate and apply research in practice, especially nurses and midwives; spearheading and acting as boundary spanners between higher education institutions and clinical practice; role-modelling leadership in clinical areas of expertise, and leading programmes of research. All these activities enhance the impact of robust research in practice by not only improving quality and efficacy of care but also contributing to the development of clinical academics of the future.

Nursing clinical academics have the potential to enhance universities' profiles and be valuable assets when preparing for quality assurance reviews such as the UK higher education institutional Research Excellence Framework (ref.ac.uk), where impact in practice must be demonstrated. However, it remains a challenge for CAC in nursing to provide evidence of impact, as early career researchers may have limited scope, power, status and dissemination opportunities to affect change. This highlights the importance of ongoing support for nursing CAC to enable post-doctoral nurses, the **trackers** to grow into **spearheaders** to develop robust programmes of research with greater capacity for impact. The concept of a CAC does not have to be linear, contrary to that articulated in pathways proposed by AUKUH (2014) or the NIHR (2020); the model presented outlines some of the external factors that might influence an individual's pathway. In this article, the concept of impact for clinical professors includes developing a clinical academic workforce (capacity building), by fostering a research culture, creating a clinical academic research environment through opportunities, and developing the infrastructure to support these within health services.

There are clear examples, as Trusson et al (2018) outlined, of how a larger, research active nursing workforce could reduce health inequalities. These include substantial financial gains and improvement to health and wellbeing, thereby demonstrating achievement of the NHS England strategy, *Leading Change, Adding Value* (NHS England, 2016). However, research findings diffuse slowly into clinical practice, and there continues to be a stubbornly intractable gap between

research and practice. The pervasive concept in nursing of 'them' and 'us', academe and healthcare, perpetuates the narrative that these are two distinct areas that cannot be bridged. The need to have boundary spanners between these two areas is evident. Clinical academic nurses are in an optimal position to act as boundary spanners, and develop and implement person-centred interventions with the aim of improving care, services, processes and experiences. Clinical academic leaders provide support for those aspiring to this vision, and help create the infrastructure, and pave the way for others to embed research in practice.

Limitations

We aimed to identify how leadership roles contribute to the clinical academic landscape, and limitations include the small sample, however this was a whole sample of these clinical academic nurses in unique roles. Including independent analysis provided some rigour to analysis, and helped demonstrate trustworthiness of the data, but we recognise the limitations around an auto-analysis. We aimed to outline how these kinds of unique professorial positions can also be used to develop clinical academics of the future, using a network exemplar (all of which had a 50% clinical component). However, we recognise that more alternative and independent sources from other clinical professorial working models may have complemented or provided opposing models to our descriptions of these positions and employment models.

Honouring Florence Nightingale's legacy, we need clinical academic nurses working across the spectrum of research activity, from toe dippers to spearheaders, and working on synthesis and evaluation of evidence, analysis of data, generation of new research, and conducting and leading robust programmes of research. Clinical academic skills also facilitate stronger business cases, service evaluations and critical thinking. The myriad challenges of health care in today's world

requires nurses to augment their caring and clinical expertise with academic skills. Given the current limited number of clinical academic careers in nursing, joint senior posts such as Clinical Professors of Nursing are essential across health service organisations to build this vital workforce.

Relevance to clinical practice

By having clear infrastructure and support for those embarking on clinical academic careers, and demonstrating impact at varying levels of research, clinical practice and policy, the value of clinical academic leaders can be realised. However, it is important to recognise there are different levels of commitment to clinical academia on a personal level. Nurse-led programmes of research are needed to advance the science of caring, but these programmes have to be fostered in both clinical and academic institutions in order to enhance academic and clinical credibility for nursing. Having clear examples of how clinical academia can work successfully contributes to exemplar pathways for others to work from. Nurses need to raise the profile of clinical academia more broadly in order for the role clinical academics have as boundary spanners between higher education and clinical practice, and to make research accessible to all, ultimately improving patient care by being the interface between robust evidence and care.

What this paper adds

- For clinical academic pathways in nursing to flourish there needs to be strong leadership, institutional and personal commitment. We outline a model where clinical academic leaders can be considered as spearheaders, who support clinicians in research, from toe dippers to waders and trackers.
- Florence Nightingale remains an important model for research-active clinical nurses who wish to innovate in their practice through research.

- Clinical academic leaders have impact beyond their own sphere of clinical expertise to pave the way for others and create a milieu for clinically applied research innovations.

Disclosures:

None of the authors declare any conflicts of interest.

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