

# The 10-year impact of a ward-level quality improvement intervention in acute hospitals: a multiple methods study

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## Scientific summary

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# Scientific summary

## Background

The 'Productive Ward: Releasing Time to Care'<sup>TM</sup> programme (Productive Ward; PW) is a quality improvement (QI) intervention that aims to give ward staff the tools, skills and time needed to implement local improvements to (1) increase the time nurses spend on direct patient care, (2) improve the safety and reliability of care, (3) improve staff and patient experience and (4) make structural changes on wards to improve efficiency. PW draws on tools based on the 'Lean' improvement methodology, which originated in the manufacturing sector, and aims to improve processes, safety and reliability by reducing waste, improving flow and ensuring that all work adds value.

The NHS Institute for Innovation and Improvement (NHSI) developed PW in 2005/6 for application in hospitals and wards, and first implemented it in England in 2007. PW is a self-directed QI toolkit consisting of three foundational modules (Well Organised Ward, Knowing How We Are Doing and Patient Status at a Glance) and eight modules dealing with ward processes. The modules were supplemented by guides for ward, project and executive leaders and an extensive 'toolkit' to aid implementation.

As a large-scale QI intervention, PW has three distinctive features. The first is the systematic and relatively sophisticated design and development process that it underwent prior to its widespread adoption. It was designed through collaboration with industry partners and drawing on social movement theory, and was developed incrementally through piloting and refining modules in collaboration with NHS trusts.

The second distinctive feature is the speed at which PW was adopted. It was launched in late January 2008. In May 2008, the government invested £50M to support the implementation of PW in acute trusts in England. This investment was provided on the basis of evidence from early test sites (2006–8), widespread commitment from nursing leaders and the promise of what PW might help to achieve across the NHS. By March 2009, 14 months after the launch, 36% ( $n = 140$ ) of all NHS trusts (acute and non-acute) had purchased either an accelerated or a standard support package. In May 2012, the NHSI reported that, at that time, 70% of all acute wards in the UK were implementing PW.

Third, PW is remarkable with respect to the scale of the claims made regarding its impact (both potential and achieved). This included a report commissioned by the NHSI predicting that a £270M benefit would be yielded by March 2014 from implementing PW across 139 acute trusts in NHS England. However, more than a decade after the initial development of PW, little robust evidence remains of its impact on efficiency and productivity in England (despite its widespread adoption and ongoing use in several other countries).

Greater insight is needed into the assimilation of QI interventions, such as PW, into day-to-day health-care practice. Studies of sustained change in health-care organisations are rare, and the evidence base to help guide both national and local strategies is insufficient.

## Objectives

Our overall research question is whether or not the PW has had a sustained impact at the ward level in English NHS acute trusts since its introduction in 2007. Our five related objectives are to:

1. identify non-adopters and cohorts of adopters; and explore the timing, scale, nature and perceived impact of PW adoption, implementation and assimilation into routine nursing practice
2. explore how local implementation and assimilation processes relating to the PW, including patient engagement, have shaped sustained impact and any wider legacies

3. investigate any wider legacies in terms of professional development
4. draw conclusions about the nature and extent of the sustained impact of the PW in English acute trusts over a 10-year period and make recommendations to managers and clinicians as to how to maximise and sustain the benefits from QI interventions
5. add to the theoretical knowledge relating to the assimilation of QI interventions into routine day-to-day practice and their sustained impact.

## Methods

We conducted a multiple methods study.

First, we fielded two national online surveys using open and closed questions during the period from June 2016 to January 2017. The first was sent to directors of nursing (DoNs) in English acute NHS trusts and was a 10-item survey comprising strategic-level questions on hospital use of PW. Out of 153 DoNs, 56 (37%) responded. The second survey was sent to current or most recent PW 'leads'. This was a 22-item survey that explored approaches to adoption and implementation, perceptions of the PW programme, and the availability of local impact data; 35 out of 57 (61%) PW leads responded. Open-comment fields were coded thematically.

Second, we undertook case studies in six purposively sampled acute trusts during the period from March 2017 to February 2018, with fieldwork comprising a total of 88 staff interviews (with PW leads, ward staff, patient and public involvement representatives and senior managers), 10 ward manager questionnaires, structured observations on 12 randomly selected wards and documentary analysis. All sites also completed a short questionnaire about the use and availability of data used to measure the impact of PW, in order to determine the potential for secondary analysis.

To analyse the interview data, we used the Framework method. Initial themes were developed from the theoretical literature, the topic guide (itself reflecting theoretical and empirical literature), familiarity with interviews and coding of four transcripts. With regard to the theoretical literature, we included codes in the coding framework that were rooted in existing frameworks related to (1) implementation, (2) assimilation and (3) sustainability of PW in the six case study sites. The various strategies used to implement PW in the sites were classified using a published framework that provided a comprehensive categorised list of published implementation strategies. We drew on previous studies of the adoption of managerial innovations to explore whether potential 'compatibility gaps' between a set of assumptions underlying the design and implementation of PW and the actual cultural, structural and political characteristics of our case study sites had resulted in one (or more) forms of assimilation after initial implementation. We then explored the factors that have helped or hindered sustainability by considering three independent variables related to the intervention, organisation and environment. Descriptive case studies were written based on the framework. Documentary, observational and ward manager questionnaire data were included in the thematic narrative at this stage. We linked the three processes of implementation, assimilation and sustainability through a cross-case analysis of our six case studies.

Third, between February and December 2017 we conducted 14 semistructured telephone interviews with former PW leads. Data were summarised and analysed thematically using the Framework approach.

## Results

The surveys showed that trusts that adopted PW did so in 2008–9 (no trusts adopted PW from 2012), confirming the rapid adoption and implementation of PW in England. Strong normative pressures, manifested through interorganisational professional (nursing) networks, were highly relevant to the rapid diffusion of PW.

Local implementation typically took a phased approach, the goal being to eventually implement in all wards across a trust over time (typically planned to be a 2-year period). Among those trusts using this approach, full roll-out was reported to have been achieved in 74% (26/31) of cases.

One-third (11/30) of PW leads reported that their trusts had collected impact data, and one-quarter of DoNs (11/43) said that impact measures were regularly reported to the trust board. In just over half of the trusts (17/31), patients/carers were said to have taken an active role in PW; current levels of involvement were reported to be lower.

The average length of PW use was 3 years (range from < 1 year to 7 years), but 61% (27/44) of DoNs reported that PW was no longer regularly used. A change in the trust's chosen QI approach was cited as the most common reason. Financial and management support for PW and staff engagement with PW appear to have declined or disappeared in many trusts. Despite the fact that a majority of trusts had abandoned the full PW programme in favour of new QI approaches, PW had influenced trust QI strategies in nearly half. Although the ongoing, systematic use of PW was rare, PW leads in 97% (32/33) of trusts reported that at least some elements of PW were still being used.

Overall, the impact of PW was reported by DoNs and PW leads to be positive, although for some specific PW aims (e.g. staff morale) a relatively high proportion of respondents noted no impact. Processes resulting from past PW activity (e.g. protected mealtimes) were reported to still be in place. PW was seen to have led to change through more efficient and/or standardised routines; the display of information; rethinking processes; giving staff a voice; and improving staff QI knowledge and skills.

The date of adoption of PW across our six case study sites ranged from June 2007 to June 2011. In all of our case study sites, material legacies (e.g. display of metrics data; storage systems) remained. However, in practice these did not always serve their original purpose well. For instance, Safety Crosses were not always clear, up to date or on public display; and Knowing How We Are Doing boards were often out of date, difficult to interpret, and rarely discussed with whole ward teams. We found good evidence that 7 out of 26 process legacies were still present on all 12 randomly selected wards (e.g. menu process conducted outside mealtime). In keeping with our wider data set, it was clear that PW tools were now rarely used to identify problems and potential solutions on an ongoing basis. Nonetheless, ward managers and more senior staff involved in the initial implementation of PW identified wider legacies.

Only one of our six case study sites had sufficiently robust data collection systems to allow an objective assessment of the impact of the PW programme on its stated aims during the initial implementation period. In this site we found no association between progress through the PW programme (the number of modules completed) and patient satisfaction. Although there was an association between progress through the programme and staff satisfaction, it was impossible to isolate any effect of PW from a general improvement in staff satisfaction over time. There was clearer evidence that those care processes we measured (patient observations and direct care time) had improved. Scores on the patient observation audit improved both with the number of modules completed and, specifically, after completing the observations module. Each PW module completed was associated with a 1.3% increase in direct care time.

Trusts that adopted PW earlier had access to much greater, particularly external, resources to aid implementation. Consequently, there was large variation among our six case study sites in the number of (1) modules that they determined should be implemented and (2) whole-time equivalent PW team members.

Fidelity to the approach to implementation recommended by the NHSI was highly variable. Although some elements of local implementation strategies were common [i.e. providing interactive assistance and low levels of patient and public involvement (PPI)], there were significant variations that had important consequences for the nature of the assimilation of PW into routine practice and, subsequently, the sustainability and legacies of the programme over a decade. For example, the survey showed that not all trusts implemented all modules, which was the case in some of our case study sites. Some trusts situated their PW teams in wider

QI/change/transformation teams, which enabled better monitoring of implementation progress. Only one of our six case study sites reported explicitly considering PW sustainability as part of their implementation approach.

When considering how different forms of assimilation of PW emerged over time, we found 'transformation' in only two of the six case studies at the end of the initial implementation period. In these two cases, by the end of the decade, 'customisation' was a more accurate description of how PW had been assimilated into routine organisational practices. In a third site, PW was assimilated in an adapted form, which continued to operate at the time of our fieldwork. In the remaining three case study sites, we found that, over time, PW was largely adopted only superficially, in a ritualistic way, with the functioning of the sites remaining largely unchanged ('loose-coupling'); this had negative implications for the nature and the scale of the sustained legacies we observed.

For the vast majority of the interviewees, experience of those leading PW had had significant impacts on their careers. Starting with little or no QI experience, many went on to work on other QI initiatives within their trusts, or to work in QI at regional or national level within the NHS or in the private sector.

## Conclusions

Many service developments in the NHS and other health-care systems are shown to lead to short- or medium-term improvements, but there is too little evaluation of their long-term impact on standards of care and other legacies (e.g. staff knowledge and skills).

We found that PW has had a lasting impact on specific ward practices; some processual and structural changes to improve efficiency on wards have remained in place for up to a decade after initial implementation. As an ongoing QI approach continually used to identify and improve problem areas, PW has been less successful. However, it is notable that a significant proportion of trusts continue to report regularly using some elements of PW, and there was evidence that PW has informed wider organisational QI strategies that remain in place today.

Only one of our six case study sites had sufficiently robust data collection systems to allow an objective assessment of the initial impact of the PW programme on the time nurses spend on direct patient care or improvements in the experiences of staff and/or patients. More widely, we found no robust quantitative evidence of the impact of PW over time or whether or not any initially reported improvements had been sustained.

The timing of adoption of PW, and the (closely related) issue of how it was then implemented, locally shaped the evolving forms of assimilation into routine practice of the programme; these in turn shaped some of its wider legacies and sustainability. In early adopting sites, there was a noticeable shift over time away from a vision of empowering ward staff to take ownership of the programme by enabling them to implement the modules themselves, and towards a narrower view of the principles and goals of PW. Later-adopting sites appeared to begin from this more limited view (sometimes for an explicit reason). These shifts and decisions manifested themselves in a range of implementation 'short cuts' motivated by time constraints and the logic of standardisation.

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