

# Response to the Health Select Committee Inquiry into the ability to deliver the “Nicholson Challenge”

## Our details

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## Summary

- We welcome the opportunity to contribute to the inquiry into the ability of the NHS to deliver the 4% year-on-year efficiency gains required by the ‘Nicholson Challenge’. Our response relates to “the plans being made by NHS bodies to enable them to meet the Nicholson Challenge” as detailed by the Committee.
- Over the last seven years, our company, The Learning Clinic, has worked closely with over twenty NHS acute Trusts to improve the quality, safety and productivity of healthcare delivery through the use of our innovative, award-winning system called VitalPAC.
- The NHS and indeed healthcare systems worldwide face huge challenges to provide comprehensive care to an ageing population with increasing levels of chronic conditions. Whilst specific innovations in individual investigations and treatments will make a significant difference to outcomes, sustained improvements in productivity require step-changes in the way healthcare is delivered.

- Such changes require a relentless focus on the “value chain” - ie: the core function of healthcare providers which is to deliver care. The emphasis must be on how to improve patient outcomes whilst improving efficiency, rather than on reducing costs *per se*. To do so requires an understanding of who is doing what to whom and when. This means access to continuous, real-time clinical data to monitor performance, identify problems and make immediate improvements. This in turn requires systems that can capture clinical data in real time and direct the delivery of care accordingly.
- VitalPAC is a proven technology that ensures clinical staff deliver healthcare according to patient need in accordance with hospital protocol and best-evidenced practice. It captures data at the bedside and makes it immediately available system-wide. Hospitals that use the system have seen significant improvements in outcomes and productivity.
- VitalPAC differs from conventional EPR and other administrative systems because it measures every episode of care in real time and makes the information immediately available to staff and managers. Without such systems the NHS will be unable to truly monitor and improve care pathways for patients and productivity for the healthcare system as a whole. The NHS and the Department of Health need to consider how the adoption of such technologies can be hastened to enable productivity improvements, without which organisations are likely to resort to crude cost-saving measures which are likely to impact negatively on safety, quality and throughput.

## Introduction

1. We believe that NHS organisations need to radically change the way they work if they are to provide affordable, high quality, accessible and equitable healthcare in a sustainable way in the future. The triple challenges of caring for an ageing population with a rising prevalence of chronic diseases using an ever-expanding range of new interventions means that the demand for healthcare will increase inexorably.
2. The extent of change required will not be achieved by tweaking the system to do “more of the same” in a slightly more efficient manner. As implied by the acronym “QIPP”, the NHS needs to embrace innovation and understand how other sectors have been transformed by the use of new technology to fully measure, improve and control their core activities.
3. At the heart of such change is the concept of the “value chain” – understanding and focusing on the key steps in healthcare that truly add value to both patients (improving outcomes and experience) and organisations (improving productivity and adding value).

However, the NHS focuses relentlessly on reducing costs. The risk to patients and the NHS as a whole is that, in trying to deliver £20bn of productivity improvements, providers will cut costs for short-term expediency at the expense of delivering sustainable improvements in quality and safety.

4. In contrast approaches such as Lean Engineering, Six-Sigma and similar techniques to redesign manufacturing systems emphasise the need to eliminate wasteful steps and ensure that the same or better outputs are delivered more efficiently. However, such approaches require a continuous stream of information about how well the system is performing. Healthcare is characterised by the lack of accessible real-time data about the care that patients are receiving.
5. Although many NHS Trusts have employed Lean and other techniques as “one-off” projects, capturing the relevant data manually, the impacts have often been short-lived since there has been no way to easily provide the necessary data on an ongoing basis. It is notable that in Emergency Departments (ED), waiting time improvements have been sustained but this has required ED staff to repeatedly enter data on patient status into desk-based IT systems, diverting them from patient care and making the system less efficient.
6. Other industries (eg: retail, banking, airlines, manufacturing) have successfully used real-time data to measure and control activity and it is almost impossible to imagine such sectors returning to an era of spot checks to estimate quality, safety and productivity. However, clinical audit as used throughout healthcare is based on exactly that premise. New technologies provide an opportunity to consign such outdated approaches to history and embrace a model of continuous measurement of all activity in real time, identifying problems as they occur and fixing them before harm occurs. Continuous measurement is the key to sustaining process improvements, greater productivity and better outcomes.

## **VitalPAC – system description**

7. VitalPAC uses handheld personal devices such as iPod Touches to record patient observations at the bedside, analyse the data and make the information instantly available to other authorised staff using the hospital’s wireless network. It ensures that patients have risk assessments such as screening for MRSA, blood clots and malnutrition undertaken on admission and that they are properly monitored throughout their stay in hospital. It links the data to lab results, identifies if they are at high risk of complications or deterioration and, if so, automatically and immediately sends a message to medical and other specialist staff on their iPod Touches, requiring them to respond and record any actions that they take.

8. VitalPAC is very popular with clinicians, fits well into their usual workflow and allows them to view patient information in real time, anywhere. It is easy to roll-out and integrates with other IT systems. Complications are reduced because high risk patients are identified earlier and then their risks are managed throughout their stay leading to substantial reductions in length of stay, intensive care admissions, infection rates and mortality.
9. VitalPAC generates a rich source of performance (and research) data that allows continuous and real-time measurement of all clinical activity without the need to engage in cumbersome and retrospective audits of small samples of patients. VitalPAC enables care to be re-engineered without compromising clinical autonomy and decision making because the “production line” of routine tasks is measured and monitored on an ongoing basis. It is this that maintains the incentives to sustain delivered improvements.
10. VitalPAC makes hospital processes highly reliable. Observation taking is 99% complete compared with as low as 25% for paper-based systems. Outcomes improve when deteriorating patients are identified and treated earlier. Death rates fall, length of stay is shorter and productivity improves, for example:
  - Up to 15% shorter lengths of stay and fewer admissions to intensive care associated with VitalPAC introduction. For a 1,000 bed hospital, shorter lengths of stay could generate savings of £1.3 million per year.
  - 30% lower Hospital Standardised Mortality Rate and up to 20% fewer observed deaths. Similar patterns have been seen at multiple sites coincident with VitalPAC’s introduction.
  - 95% reduction in outbreaks of infectious diseases. At Portsmouth Hospitals NHS Trust, the use of VitalPAC’s infection control case management system has led to an almost complete eradication of outbreaks of diarrhoea and vomiting, and a 53% increase in productivity of the Infection Control Team.
  - Sustained high levels of compliance with hospital protocols for prevention of deep vein blood clots (>90%) and MRSA screening (97%), with associated large falls in infections.
  - 40% quicker to record and interpret vital signs, equivalent to 16 nurses for a 1,000 bed hospital.
11. Existing EPR and similar systems are not capable of delivering these improvements. They disrupt the delivery of care by clinical staff and do not make data capture easier, so are rarely used in real time. Whilst they may be essential for medico-legal reasons, they are poorly designed for operational purposes.

## Lessons for the NHS and for QIPP

12. Delivering the “Nicholson challenge” will require healthcare providers to develop new approaches to managing increasing numbers of older people in new ways more efficiently. This requires an investment in innovative technologies. IT systems will inevitably underpin many of the improvements needed.
13. Much of healthcare delivery, particularly that related to secondary elective and emergency care, requires mobile technology to support ambulatory clinical staff (on wards, in theatres etc). If care delivery is considered as a system, then real-time data is needed to measure, monitor, evaluate, control and improve it on a continuous and ongoing basis. However, the NHS (like most healthcare systems) has failed to adopt the type of real-time data and information systems that are commonplace in other industries.
14. VitalPAC can be perceived as a disruptive technology because it changes the way people work. This is a frequently observed and important feature of true innovation and should not be overlooked. The corollary is that innovation is challenging and uncomfortable for staff who are affected, at least in the short term, so implementation is never without consequences. Clear leadership and a well communicated vision of the expected benefits, as well as honesty about any associated challenges or downsides, are critical if such systems are to be implemented successfully.
15. System innovations will not be readily diffused unless they are demonstrably scalable (ie: reliable) as well as effective. There are too many examples of technologies being implemented as small scale trials that fail as soon they are deployed system-wide, ie: evaluation of the trial has been inadequate. Reliability needs to be included as part of every trial and this requires suitable measures being developed to continually review performance of the new system after diffusion. Similarly, system innovations should not be deployed unless their impact and performance can be readily measured on an ongoing basis.
16. Decisions to adopt/diffuse new technologies need to be based on value for money rather than purely on cost. Arguments that technologies are unaffordable are simplistic and naïve. Change requires realignment of business processes and therefore of the value chain. Benefits need to be assessed in these terms – how they add value to the business. Funds need to be shifted from less efficient areas of the organisation to realise these benefits.
17. Whilst the NHS Commissioning Board (and Commissioning Groups in general) should define outcomes, they will be poorly placed to define how these should be delivered. However, this should not prevent them articulating specific requirements about the standards of care that patients can expect to receive.

18. Similarly, regulators have an important role to play in defining the way in which care should be provided, although not how this should be achieved. For example, it would be legitimate for the Care Quality Commission to demand that all licensed healthcare providers properly and fully monitor their patients, escalate care if they deteriorate and can demonstrate in real time that this is taking place. How providers achieve this is a decision for their management teams.
19. Diffusion would be helped if the centre shared the financial risk by contracting centrally with vendors to cover initial core costs. Trusts should fund recurrent costs with freedom to withdraw if the technology does not deliver the expected benefits. This model works well in other sectors and countries – the US Meaningful Use model providing rebates on IT expenditure has been very successful in driving adoption of EPRs, albeit more slowly than originally intended.
20. The centre should define specific measures that must be used to demonstrate and measure results. These should reflect improvements in the value chain – ie: reliability of care delivery, quality and lack of defects, safety, patient/carer experience, and productivity. Conversely, the centre should eliminate the perverse incentives that actively discourage Trusts to innovate. For example, our VitalPAC system reduces patient complications and therefore admissions to and length of stay on intensive care units (ICU). However, the current Payment by Results tariff reimburses Trusts for each day's admission to ICU. Reducing admissions leads to reduced income, despite it being better for patients.
21. The NHS needs to move quickly but it is incredibly risk averse and this predicated against the adoption of new technologies, particularly where the potential benefits may not be defined until after deployment and their value remains to be quantified. The NHS needs to accept that evidence of effectiveness sometimes needs to be balanced, at least in part, against potential gains. If not, the take-up of innovative technologies will be too slow to enable the potential benefits to contribute towards the QIPP savings targets.
22. Ultimately, local and national leaders need to be incentivised appropriately to drive innovation and productivity improvements ruthlessly across the NHS. At present, the focus of most NHS organisations and their CEOs is to achieve financial balance and to manage their cost base. CEOs should be incentivised, at least in part, on the basis of the value added to the organisation by improving the processes of care.
23. Clinicians must also be fully engaged in, if not actively driving, any changes to care delivery. They therefore also need to be appropriately incentivised and their efforts to innovate should be properly recognised in medical Clinical Excellence Awards and similar schemes.

24. Equally, innovative technologies are rarely adopted unless respected leaders and peers set an example and help to create the right environment for successful deployment. Royal Colleges, clinical networks, research institutes and other professional networks should be asked to accept a responsibility for assisting with the evaluation, recommendation and rapid deployment of new technologies across the NHS and the wider health system.
25. Lastly, the culture of the NHS needs to change to recognise that innovation is not something that can be done behind closed doors by NHS organisations alone. There is still an emotional aversion amongst many staff to working openly with private companies which are perceived to be motivated purely by financial gain at the expense of their partners. This is both incorrect and short-sighted and prevents all parties from fully exploiting the huge opportunities that lie ahead to improve the quality and efficiency of care.

## Conclusions

26. Our key messages are as follows:

- To achieve the levels of productivity improvement required by the “Nicholson Challenge”, the NHS should focus on system improvement. As a first step, providers need to generate real-time data to enable continuous monitoring, control and improvement of clinical activities.
- Appropriate IT systems should be deployed to enable such systems to operate effectively. Existing EPR systems disrupt the delivery of care by clinical staff and are therefore poorly designed to capture and share data in real-time.
- Mobile wireless technology (smartphones and tablets etc) are pre-requisites to the delivery of healthcare in the 21<sup>st</sup> Century.
- Professional bodies and networks should be actively involved in evaluating, promoting and championing the adoption of such technologies, focused on how they improve the core value chain of hospitals and other care providers.
- Organisations and individuals should be incentivised accordingly to adopt and utilise such technologies through existing and new incentive schemes..

27. We would be delighted to demonstrate the VitalPAC system as a potential case study and to have further discussions about our experiences and our ideas for how adoption and diffusion of innovative technologies could help the NHS achieve sustainable improvements in quality, safety and productivity.