A white paper from UKAuthority and Microsoft:

Healthcare: new models for a new age

A rare combination of technology, opportunity and pressure gives the NHS the best opportunity in more than a decade to embrace technology-led change for the benefit of the patient.

New models of care are emerging, based on health economies as a whole and involving integration with social care. These have the patient at the centre of the process as a co-producer of information, supported by proven commercial off-the-web technology.

Clinical commissioning groups are well placed to take advantage of this revolution.

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Introduction: the opportunity

Once in a decade, an opportunity arises to improve healthcare radically through information technology. In the 1980s, the opportunity was with mainframe computers (for hospital administration), in the 1990s, with desktops (the introduction of PCs into general practice was an international success story) and in the 2000s, networks enabling the creation of infrastructures for sharing information across health communities.

Sadly, the successes are less well known than the failures. The most notorious of those may be the attempt from 2003 to create electronic patient records in hospitals by imposing standard systems under the National Programme for IT in England. While there are many islands of excellence, and the national programme was not the total disaster it is painted as, perceptions of failure have held back a revolution that could have taken place in the 2010s.

While this revolution relies on a new set of technologies, it is based more on a philosophy: of patients becoming partners in their care and co-producers of information. An NHS strategy in 2012 dubbed it the Power of Information (a term itself borrowed from a landmark report published by the Cabinet Office in 2009). More recently, the secretary of state for health has introduced the term “intelligent transparency” to describe the first step in a necessary culture change from a bureaucratic to a patient-centric system.

A number of technologies can be harnessed to produce this intelligent transparency. Much of the recent media coverage has focused on mobile solutions and the internet of things, reflecting the fact that they would be more visible to the public in their communities. But customer relationship management (CRM), a well-established back office technology that streamlines interactions with customers – or in this case patients – also offers a great potential to healthcare organisations.

Pressure for change

The upcoming pressures on the NHS do not need spelling out here. In common with all healthcare economies, it is dealing with long term demographic changes, an ageing population and escalating costs of care.

The UK’s devolved health services face the special challenge of glaring public health inequalities. Differences in such indicators as smoking rates during pregnancy - 2% in west London and 28% in Blackpool - have profound consequences for public health, but cannot be tackled by traditional institution-based healthcare.

On top of this, and a particular priority for the NHS in England, is the productivity challenge. NHS efficiency gains have been estimated by the Office for Budget Responsibility at around 0.8% net annually. The current five-year plan for the NHS in England states bluntly: “0.8% a year will not be adequate.” The government’s ambition is for the NHS to achieve 2% net efficiency gains each year for the rest of the decade – possibly increasing to 3% over time. This would be a dramatic departure
from not only the NHS’s past performance but with that of the wider UK economy, and with other countries’ health systems.

This year’s Carter report on efficiency in NHS care providers stresses the potential for savings in such areas as workforce management and procurement: steps such as better purchasing could save £5bn per annum by 2019-20. These are necessary first steps, but more exciting is the potential for efficiency gains through patient-centred IT, in reducing the cost of duplicate tests and prescriptions and delayed discharges.

This is only a step towards the transformative potential of new models of care, empowered by information.

The five-year plan states that a 2-3% efficiency gain would require investment in new care models and would be achieved by a combination of “catch up” (as less efficient providers match the performance of the best), “frontier shift” and moderating demand increases. It would improve the quality and responsiveness of care: meaning patients getting the right care, at the right time, in the right setting, from the right caregiver. The Nuffield Trust calculates that doing so could avoid the need for another 17,000 hospital beds – equivalent to opening 34 extra 500-bed hospitals over the next five years.

However, the new models of care will have to look beyond the NHS, to the glaring inequalities in public health visible across England (and the rest of the UK). Differences in such indicators as smoking rates during pregnancy – 2% in west London and 28% in Blackpool – have profound consequences for public health, but cannot be tackled by traditional institution-based healthcare.

This propels the move towards the integration of health and social care, which can improve the lives of patients, take out any duplication and fill any gaps in the support. It is a central feature of the Health and Social Care Act (2012) and the previous government gave £2.7 billion to support the integration between 2010-15.

It also requires a new model of care that harnesses the full potential of technology.

**The power of information: patient-centred care**

Patient-centred care has been the mantra of NHS reform for decades, but in the past has more often been an aspiration than a reality. A combination of technology (including personal health monitors and apps), governance changes (the introduction of clinical commissioning groups responsible for health and social care) and personal aspirations (the informed patient) are now making this not merely attainable but unstoppable.

The new models involve primary care operating at scale, enabling seamless care. For example, in Kent, 20 GPs and almost 150 staff operate from three modern sites providing many of the tests, investigations, treatment of minor injuries and minor surgical procedures usually provided in hospital.
It also involves seamless working between primary, community and secondary care, based on fully interoperable shareable electronic health records. Patients must have full access to these records, and be able to write into them. These rights include that of opting out of their record being shared electronically: while only a tiny percentage may take up this option, they will feel strongly about the matter and their wishes must not only be accommodated but facilitated.

Personal records, identified by the NHS number, will be managed across health economies in customer relationship management-type systems.

The new model of co-production is already government policy. The Department of Health has committed to giving citizens access to their electronic health records by 2018. Today, 97% of GPs provide patients with access to a summary of their GP record online, as well as the chance to book appointments and order repeat prescriptions electronically. Also, by 2018 records will also be capable of accommodating data from wearable devices.

Some islands of the NHS are already moving towards this. In Cambridge, for example, patients will be able to add information to their records, including from home devices, through a patient portal known as MyChart being created as part of the eHospital programme at Addenbrooke’s hospital.

The “hard stop” ambition is for all NHS-funded care services to have digital and interoperable IT systems by 2020. Future possibilities include the ability for clinical decision support systems to be auto-populated with my existing healthcare information (my past), to take real time feeds of my biometric data (my present), to consider my genome (my future) and to configure the questions that I need to be asked based on this information.

A welcome development is that, in contrast to the past, the government seems to be avoiding the temptation to dictate the approach. This provides the scope for more local choices around the technology that will be used to reach the “hard stop”.

Enabling factors

The key development in the leadership of intelligently transparent healthcare is the clinical commissioning group (CCG).

Through CCGs, frontline clinicians are now responsible for two-thirds – £66 billion – of the annual budget of the NHS in England. Many are harnessing clinical insight and energy to drive change in their local health systems in a way that has not been achievable before now. The government’s strategy is: “Local procurement to national - and international - professional standards.”

A major opportunity is provided by the end of the excessively rigid NPfIT contracts by the end of this year, and some CCGs have already taken the opportunity to migrate to systems underpinning patient-centred care.
The CRM role

A customer relationship management (CRM) system has the capabilities to provide a foundation for patient-centred care, bridging the gap between electronic medical records and other systems to provide the information needed by healthcare professionals and support the care processes.

It can provide a record of all the interactions with a patient, drawing on different departments in an organisation and possibly other sources (subject to patient consent and access protocols). This can involve information on medical histories, medication, test results and patient relationship, and feed into the case record to provide a 360-degree view of the individual.

In turn, this helps to coordinate patient care, especially when combined with the workflow function in a CRM, which can be harnessed to the predefined administrative steps to meet patient needs. These include referrals and the exchange of patient information, reflecting the procedures agreed across organisations, all of which can be automated with the necessary reminders and notifications to ensure that a patient’s care is not interrupted when one professional takes over from another.

These are not intended to replace the clinical expertise of healthcare professionals, but can provide valuable support. Other functions of a CRM can add extra support; notably an online knowledgebase to quickly provide answers to common patient questions, and links to video conferencing and instant messaging facilities for clinicians to consult with each other at a distance.

The patient-centred element can be reinforced with the provision of a self-service portal, in which they can access their pre-admission and post-discharge health information, make appointments, update their personal details, email the relevant organisations, and use a Q&A and chat to find answers to questions about their care.

A CRM can also provide an audit trail for an organisation, a crucial element in proving compliance with standard procedures for communicating with a patient and managing their care.

In addition, it provides a source of data for monitoring overall performance and planning for the future. It can enable an organisation to track its daily activities and service performance through customisable dashboards, and look at long term trends in patient conditions and outcomes. This can help to predict future care needs and plan for the allocation of resources.

There is also the potential to strengthen this function by adding ‘social listening’ tools to the CRM, making it possible to track patient feedback and public sentiment about the organisation. This is becoming an increasingly important element of organisations’ public engagement, giving them the opportunity to respond quickly to any negative feedback and anticipate what will be expected of them in the future.

Underlying all this is the potential to increase staff productivity by freeing them from finding and recording information that the patient has already provided, taking out duplication and redundant steps in the care process. This gives them more time for face-to-face interactions and to manage expanding caseloads.
Overall, CRM provides a flexible tool that can be used to increase efficiency and support improved care for patients.

**Case study: Wales unifies care information**

Later this year, health and social care professionals across Wales will begin to share case data via a single system for the first time.

The Community Care Information Solution (CCIS), from Ireland-based CareWorks and incorporating Microsoft Dynamics CRM, will allow some 33,000 health workers across 29 organisations to share vital patient information locally, regionally and nationally. One of the goals is to support community nurses, mental health workers, health visitors, social workers and therapists, among others, to make better decisions.

“The Welsh health minister has described it as a game changer,” says Michael Dolan, managing director of CareWorks. “The main driver is the desire in Wales for health and social care to work together in a more integrated way.”

Traditionally, organisations share case data by building technology to link between systems or by integrating a new, bespoke solution with an old.

“There are two separate systems operating to different agendas. There is no single or integrated view, leading to unnecessary time, effort and complexity,” says Dolan.

“Whether it’s health or social care, you follow a similar pathway. By bringing them in under one system, you can work as one team, see what’s going on and make better decisions.”

Within CCIS, Microsoft Dynamics will present the status of cases along the care pathway, including assessment, development of a care plan, treatment and rehabilitation. When it comes to tracking Referral to Treatment – the NHS pledge to provide treatment within an 18-week timeframe – a workflow methodically feeds tasks to users as they approach deadlines.

“Dynamics is good at helping people assemble a to-do list for all cases they’re working on,” says Dolan. “It makes it easier for users to keep track of what they should be doing and check things off as they do them. And it has a built-in familiarity because it’s similar to other Microsoft products.”

He says that Dynamics fits the bill for other reasons too: it can handle the large scale of the programme (Wales has a population of more than 3 million people); it provides sufficient layers of security; and users can access tailored views of data according to their role or local programmes.

“Using the same database, you can run information through the system in slightly different ways, for example, if one region wants to operate slightly differently to another. That level of flexibility is very important”, he says.

**Case study: Trafford CCG**

NHS Trafford Care Commissioning Group (CCG) is creating the country’s first care co-ordination centre, bringing disparate data together to improve the patient experience and prevent unnecessary hospital and GP referrals.
The ambitious project, launching in October 2015, will serve 260,000 patients registered with GPs in Trafford, south Manchester, central Manchester and Salford.

While it will offer a face-to-face service, at the heart of the Trafford Care Co-ordination Centre (TCCC) will be a digital portal to help clinicians to direct individuals to relevant services and monitor the patient journey.

Information will feed in from several sources: GPs, out-of-hours providers, community hospitals, mental health trusts, acute trusts and social care providers. But it is not simply about sharing data with clinicians and patients, says Paul Hulme, associate director of corporate services and organisational development at Trafford CCG.

“One of our key challenges is how we manage and enable the transfer of activity away from hospitals and acute care. It’s about how best to wrap care around the individual. The centre will act as a single point of access for providers and patients travelling through Integrated Care Pathways,” says Hulme.

Hulme says that the CCG has struggled to optimise take-up of Integrated Care Pathways, the process of managing, monitoring and recording of care within a timeframe. “TCCC is intended to fill the gap. We’re trying to actively manage pathways; to proactively manage instead of reacting to events”.

At the front end of the portal will sit Microsoft Dynamics, channelling vital, non-clinical information like missed appointments, individuals’ support networks, age, social care packages and transport details, or, as Hulme puts it, “Things that allow us to build knowledge of that individual and how they need to be looked after”.

He describes Dynamics as “a sophisticated front end tool to allow us to better record and track patients through the system. We’re working around the patient, rather than around the system”, he says.

Dynamics will also be the entry point for an innovative Directory of Services the centre will offer. This searchable taxonomy and clinical decision-making tool will form the basis upon which a GP referrer could take alternative decisions to hospital admission, based on information the directory serves up, including available treatment courses, suitable locations and information from social care and the third sector.

By building a broader picture of patients in this way, the CCG aims to: cut non-attendance and duplication; reduce hospital admissions and A&E visits; better co-ordinate transport services; and cut the length of hospital stays by making sure there is appropriate home care ready. More broadly, Dynamics’ ability to clearly present performance data will also let TCCC staff gain insight into trends and provide a more effective response to demand.

In future, Trafford CCG plans to enable remote access and access by third parties to the system, including charities such as Age UK, which could refer individuals directly.

The launch of the TCCC is a “critical” part of meeting significant financial savings within a five-year period and Hulme doesn’t believe it would be possible without “disrupting the system” in this way.
“It’s about introducing a completely new way of working,” he says. “Without it, there’d be inertia.”

The risks

History suggests that large scale attempts to change behaviour in the NHS based on new technologies have at least a 50% chance of failure. We could argue that this is in line with large projects anywhere and thus, given the lack of resources in the NHS, its high political visibility and the extraordinary complexity of health services in general, this is not a bad record. Nonetheless the Power of Information revolution cannot be allowed to fail.

An extensive library of past project experience provides a good set of elephant traps to avoid.

- **Lack of engagement.** The lessons have been demonstrated over and over again that unless the professionals at the heart of the health service see value in a system, it will not be implemented wholeheartedly. For decades, efforts to computerise the NHS proceeded with little engagement with either clinicians or patients. Managers and civil servants tended to promote technology – patient administration systems, order communications, electronic medical records – almost as an end in themselves.

- **The quest for the perfect technology and rejection of “not invented here systems”.** For a successful NHS implementation, technology does not have to be 100% perfect. Early GP systems lagged far behind consumer PCs yet were enthusiastically adopted because they collected patient data in a way that benefited the practice. Likewise, electronic diagnostic imaging was successfully introduced using screens on the wards that provided less resolution than film X-rays but provided immediate advantages for A&E specialists.

- **Resources being diverted elsewhere.** When a health service comes under financial strain, resources dedicated to IT investment programmes tend to be redirected to more urgent priorities. (This was one reason why the 1998 Information for Health strategy for electronic health records did not get off the ground.)

- **Components arriving out of phase.** Classic examples are handheld computers being delivered ahead of the systems they were supposed to support, and thus being obsolete when the software is developed.

Conclusion: the consensus

These elephant traps can be avoided by working at the right scale. This means around local health economies rather than nationally. Clinical engagement is most easily secured when professionals who are asked to put in a little more effort - for example ordering a test via a keyboard rather than a casual verbal instruction - personally know the colleagues who will benefit. Patients are more likely to consent to their records being shared across a local health economy, where the benefits are obvious (and indeed almost universally expected) rather than nationally.
Working locally also ensures that technology procurements can be appropriately timed, and that senior managers will become aware quickly when systems fail. It also greatly reduces the temptation to try and design the perfect “NHS IT solution” from scratch.

NHS organisations have the freedom to make their own technology choices. Highly specialised clinical solutions and the emerging potential of mobile and the internet of things will be prominent in their thinking, but CRM is also poised to play an important role. The technology has developed to the point where it provides the variety and flexibility for healthcare organisations to use it in many contexts, and to provide the breadth of information, transparency and efficient processes that are necessities for the modern health service.

After many false starts, the NHS is ready for a power of information revolution. We have the imperative for change - the burning platform - we have the technology. We have the cultural will, and at least for the time being, the political leadership.

The next NHS IT revolution will not be easy, but we are in a good place to start get it started.