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Making the most of your electronic patient record system

DIGITAL

BOARDS

MAKING THE
MOST OF YOUR
ELECTRONIC
PATIENT RECORD
SYSTEM

About us

This guide has been prepared jointly by NHS Providers and Public Digital as part of the Digital Boards programme.

Digital Boards has been commissioned by Health Education England as part of their Digital Academy programmes and is supported by NHS England.

Through good practice sharing and peer learning, the programme aims to build board understanding of the potential and implications of the digital agenda and increase the confidence and capability of boards to harness the opportunities it provides.

Alongside our guide series, a number of webinars and events are available to trust leaders, focusing on case studies of digital leadership in the NHS and other sectors and practical take-homes for boards. The programme also offers free board development sessions on a bespoke basis to reflect the development needs of your organisation. To find out more please contact us.

CONTENTS

EXECUTIVE SUMMARY

This guide is based on the insights shared by trust leaders. Those we spoke to have mature EPR systems that continue to be optimised into clinical practice. They shared the previous mistakes they made during their EPR development to help others earlier in the journey:

- **Business cases**. Avoid a business case that only resources licensing the EPR. You will only achieve your ambition if you factor in the human dimensions of change and infrastructure over the full EPR lifecycle.

- **Benefits realisation**. Avoid an overly optimistic benefits case. Many of the benefits will take at least five years to achieve. Make sure you create a baseline and measure impact from the outset.

- **Don't try to do it all at once**. Try to implement infrastructure upgrades and software sequentially.

- **Enabling change**. Do the hard work around change management before you go live. Get people to work differently before you introduce the new technology; you can then focus on the technical bits required during the switch over.

- **Over-engineering**. Avoid over-engineering your EPR at the outset by trying to make it solve every problem – you'll only have to simplify it later. Engage with staff to identify the most important functionalities and prioritise those first; create a roadmap for future improvements and ensure everyone has sight of them.

- **Information governance**. Trust staff and avoid being heavy handed. However, make clear you will hold people to account who handle data inappropriately.

- **Set the direction of travel and stick to it**. There will be colleagues who wish to optimise the EPR in ways which suit their specific needs or speciality. However, it is important to balance local wishes with trust-wide consistency to avoid complexity and data silos. Stick with a consistent approach or you will end up with unmanageable complexity.

- **Clinical champions**. Avoid creating clinical champions with no dedicated time and back-fill. Their day job will take precedence which means they won't be able to properly lend their support.

- **Learning and development**. Avoid creating training that teaches features and functions but isn't situated in clinical practice – it will be meaningless to end users.

> *A trust board needs to have a digital vision. Where do they want to be in five years? Once you have an EPR it's going to take at least a year for the organisation to adjust and then it's about actually using the data to make things better. You can't just stop there – benefits realisation is a big piece that the board needs to be thinking about.*
>
> Dr Rakesh Patel, Chief Clinical Information Officer,
> The Hillingdon Hospitals NHS Foundation Trust

- **Transformation**. Avoid siloing your digital team from your quality improvement and transformation team. Bringing them together maximises the opportunity for joined up transformation. See our previous guide on how trust leaders can build and enable digital teams.

- **Procurement and contracting**. Know your supplier and their business model. Be conscious of hidden supplier costs and fair development clauses during contracting and procurement.

- **Accept speed bumps, but don't let them turn into roadblocks**. As a board, you need to understand your starting point and then prioritise. Your digital teams will have a forensic understanding of the problems and also the solutions. Encourage the quick wins that will make the biggest difference to people. When challenges do occur, talk to your key stakeholders and make sure your rationale for solving the problem is widely understood with a robust communications plan.

> *If you haven't got executive leaders on board with an EPR implementation, you're onto a losing battle. The messages need to come down from the top as well as through working with people on the ground.*
>
> Corrina Hulkes, Chief Nursing Information Officer,
> London North West University Healthcare NHS Trust

Your role as a trust board

It is the collective responsibility of the trust board to lead these changes. Board leaders should keep focused on the fact that optimisation is ultimately about fully realising the benefits that were agreed in the EPR business case. Through our interviews we identified a list of questions that all board members – both executive and non-executives – may find useful to assure themselves on EPR optimisation:

- Do you understand how the EPR will enable your trust's organisational strategy?
- Is your organisation tracking the promised benefits in the EPR business case?
- Is your board discussing your EPR as an investment opportunity rather than an ongoing cost?
- Is your trust properly resourcing the EPR and the team around it?
  What else does the team need?
- What are the key issues your clinicians currently face when using the EPR?
  What is the organisation doing to address them?
- Are your EPR improvements clinically-led and designed for usability?

- Do you have a data plan (this may be part of your digital strategy) that will help your trust to fully utilise information from your EPR?

- As an executive director, do you understand how improving the trust's EPR will help the functions and teams you are responsible for?

- As a non-executive director, do you understand how improving the trust's EPR will improve the overall performance of the trust?

- As a board, do you acknowledge the hard work of EPR optimisation, do you celebrate the wins, recognise progress and are you keeping everyone focused on the benefits to patients and staff alike?

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Who is this for?

This guide is for trusts who have an electronic patient record system (EPR) already in place and want to realise the transformational opportunities it presents. It focuses on the role of the board in leading these changes. In December 2022, NHS England estimated that 181/211 trusts in England had some form of EPR and it is expected that at least 90% of trusts will have implemented an EPR by December 2023.

A well implemented and optimised EPR improves patient safety, staff satisfaction, patient flow and data quality. But this can only be achieved with continuous optimisation and investment. A poor EPR implementation, followed by a lack of investment in its ongoing development, can frustrate staff and create disillusionment. This in turn leads to poor usage and unsafe workarounds. In time this will negatively impact productivity and result in substandard data informing clinical decision making.

If you are part of an integrated care system (ICS) looking to share or align EPRs across a number of organisations, this guide will also help you consider issues of convergence, scale and shared governance. It does not address procurement and implementation. Please see our previous leadership guides for content and case studies that explore these areas.

> *The starting point for the chief executive is to really understand what the organisational needs are. Basically, you want to optimise care for patients and make things as easy as possible for clinicians, and so my role is really about specifying the functionality and what's really important and making sure there's a line of sight to that.*
>
> Julian Emms, Chief Executive Officer, Berkshire Healthcare NHS Foundation Trust

What you will learn

This guide is based on interviews with clinical and operational digital leaders who have told us how their board has supported the ongoing development of their EPR. It is supplemented by conversations with board members from trusts which have already gone some way to optimising their EPR, along with a review of key literature.

The insight, case studies and resources in this guide are intended to equip trust executive and non-executive directors with the knowledge and understanding they need to ensure the board prioritises and resources the ongoing optimisation of their EPR. Ultimately this is about improving clinical care and enabling service transformation.

It's not about putting more and more forms on your electronic system. What you've got is an opportunity to work out how pathways and journeys start to change using technology and data as a catalyst, and then you reimagine that component and the wider experience. That's what optimisation is.

Mike Cavaye, Director of Digital Strategy and Transformation, Surrey and Borders Partnership NHS Foundation Trust

CASE STUDY

Doing the hard yards of transformation to unlock benefits

"While everyone accepts that digital presents huge opportunities for the NHS, doing the hard yards of transformation is difficult. There is a difference between digitising an existing paper process, such as scanning a prescription and saving it as a PDF, and fundamentally using your EPR to change the way services operate. The board must be aware of its own leadership role in enabling these changes to take place."

DR AFZAL CHAUDHRY, CHIEF MEDICAL INFORMATION OFFICER
CAMBRIDGE UNIVERSITY HOSPITALS NHS FOUNDATION TRUST

Following Cambridge University Hospitals' (CUH) deployment of its EPR in 2015, the following benefits are now being achieved:

- **electronic prescribing**: at least 850 significant adverse drug reactions prevented each year with electronic allergy-related prescribing alerts (saving 2,450 bed days/£0.98m a year)
- **automatic EPR alerts**: In 2018/19 at least 64 lives saved because of sepsis alerts improving the more timely administration of antibiotics
- **physiological devices in theatres**: saving £2.6m through the EPR automatically recording data and 18% increase in main theatre case volume through faster theatre turnaround and analytics in EPR
- **EPR - Pharmacy integration**: 50% reduction in time it takes to prepare discharge medications because the EPR 'talks' directly to medication dispensing robots.

The trust shared their lessons for achieving these benefits over time. Building the EPR vision at CUH was important in underpinning digital transformation. This was initially focused on quality, but then broken down into different components, such as safety, patient centredness, timely care and sustainability. The trust then began exploring the ways digital could support each of these.

Changes to the EPR are managed through a number of design authorities, composed of clinical groups with senior oversight. At board level, digital, transformation and improvement reports to one executive director. The 'binding' of these disciplines gives the trust a better sense of how to prioritise. It also means there is a free flow exchange of ideas. The operational and clinical teams focus on the who, what, when and why, to describe 'what the ideal circumstance is'. And then it is determined how digital can support that process from start to finish.

There is an embedding of clinical and operational staff within the digital team, which include nurses, pharmacists, AHPs and junior doctors. But increasingly CUH wants more digital personnel embedded in clinical and operational teams too. The result is that requests for digital changes are becoming more sophisticated, for example from changing the colour of buttons to now redesigning care pathways such as those in the diabetes out-patient clinics.

At an ICS level, staff have developed an even greater appreciation for standardising and the consistency of data and documentation structure and content because of the increased information sharing with primary care, social care and other providers in support of driving up the quality of delivered care.

WHAT IS OPTIMISATION?

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Key takeaways

- **Every EPR requires adjustment and improvement once it has been successfully implemented.**
- **Optimisation is a continuous process which should be planned over the life cycle of the EPR contract.**
- **Ongoing optimisation is underpinned by an empowered digital team.**
- **A non-optimised EPR creates burnout and frustration for staff.**

Optimising is asking the question 'What helps to make your day as productive as possible while delivering safe care?'

David Chalkley, Associate Chief Clinical Information Officer,
Somerset NHS Foundation Trust

Investing in continuous improvement and optimisation

An EPR deployment journey starts with board approval of a business case through to the point at which the system goes live. The lead up to implementing an EPR takes a huge effort from everyone involved, with executive and non-executive directors focused on ensuring the organisation is prepared for go live.

At this point, the project team typically tapers off their support and eventually withdraws. The responsibility of the EPR is handed over to a business-as-usual team whose key responsibilities are to handle change requests and manage the supplier relationship.

However, the point of go-live is just the start of the EPR journey. Beyond the initial planning, testing and training, the EPR needs to continually adapt and evolve as clinical practice and business intelligence requirements change.

It is only after go live that further requirements emerge, things that never would have been picked up at the outset. Leaving these issues unresolved will impact both the workforce and workflow. Recent research has found that over a third of staff in acute settings were frustrated by the EPR system operating within their trust.

The promised benefits set out in the initial business case will only be achieved if a concerted effort is sustained to optimise the EPR over the life cycle of the contract. Digital leaders have told us that the real benefits of an EPR may take five years or more to be fully realised and

have factored this in accordingly. For example, Sussex Community NHS Foundation Trust has set out their EPR optimisation plan as part of their latest digital strategy.

Optimisation is a continuous process which improves an EPR's usability and functionality over time. This may mean adding features to the EPR. But it is just as likely to mean removing features, making it simpler and easier to use. Successful trusts make judicious use of benchmarking tools such as HIMSS EMRAM for technical infrastructure, but optimisation is ultimately about a usable system that makes the lives of staff easier and helps manage change on the basis of data insights.

Rather than thinking of optimisation simply in terms of functions and features, it can be more helpful to think of it through the lens of quality and improvement. Improving the EPR means improving the experience of those who use it every day. It is the digital backbone to clinical and operational practice.

If a trust does not understand the importance of continually improving the EPR, it will have invested a substantial amount of money in a system that creates frustration and burnout rather than value.

> *Optimisation is a dynamic, continuous process to enable your EPR to support an efficient and well-designed workflow that allows the ability to record the right things in the right way.*
>
> Dr James Woollard, Chief Clinical information Officer, Oxleas NHS Foundation Trust

CASE STUDY

Optimisation is a continuous process

"You don't just put something in and expect it to work. It's a constantly evolving environment with new user requirements, new technologies that need to be introduced, inevitable policy and legislative changes."

ADRIAN BYRNE, CHIEF INFORMATION OFFICER,
UNIVERSITY HOSPITALS SOUTHAMPTON NHS FOUNDATION TRUST

University Hospital Southampton is a large acute trust in the south east which has a bespoke EPR configuration around an open platform strategy using some procured product, some development and an integration engine. The in house developed part that brings all of this together is called CHARTS. The trust has focused on open standards and open platforms to ensure that data is owned by the NHS rather than by a supplier and can be readily accessed for primary and secondary purposes.

The trust has been working to optimise its EPR over the last 20 years since its introduction. A key focus has been designing an interface that is easy to use and saves clinicians' time. As a result of this focus on usability, the trust is in the lower quartile of total spend on their EPR but higher in terms of quality and staff satisfaction.

The platform based bespoke EPR approach means that the trust is in control of delivering new user requirements. It is however a challenge to avoid over customisation which can create a burden on development resources; instead teams have had to compromise on the specific requirements of speciality units.

The digital team has found that users don't always know what they need or the possibilities afforded by new technologies. It is for this reason that they approach optimisation by observing clinicians using technology in practice. This allows the team to interpret their requirements and test before mass rollout and means all can be confident the change will add genuine value. Southampton has learnt that it takes takes a number of iterations before a development is optimised.

As an example of responding to user needs, the trust recently updated the order communications functionality to give clinicians the ability to select an immediate alert in Microsoft Teams when a test result is ready. The Teams link was used during the pandemic to push Covid-19 test results out and this has now been brought into the order comms as a core function and will in some cases mean that patients can be discharged faster.discharged faster.

What does good optimisation look like?

Put simply, optimisation is about reaching the full potential of what an EPR is able to deliver for high quality and safe clinical care. Everyday optimisation is about tweaking and improving the EPR in small ways that make it as easy as possible to use (for example, a new field or form). It is about fixing errors and scaling what works.

There are more significant changes that may have larger costs. For example, a mature system tends to be accompanied by a patient facing portal that typically enables patients to access test results and communicate with their healthcare team. A systematic review of patient access to their data found positive benefits including self-care, outcomes, quality and cost.

Whatever the scale of change, trusts should approach optimisation by building teams rather than projects. This will enable an ongoing process of improvement and refinement by teams who understand clinical services and have built trusted relationships over time. Trust boards need to empower these teams and give them the space to identify priorities and deliver changes.

As well as having a well-designed process in place to identify and prioritise improvement opportunities, it is also crucial to have sufficient resources in place to deliver, and sound governance to ensure good, accountable decision making. This is covered in later chapters.

It's not going to be easy all of the time – so as a programme board and for those involved it's important to keep the energy high, be sure to celebrate the wins and keep going. Put amazing people around it – it's all about remembering the 'why' and for us that's around supporting exceptional care for our children and young people and creating a great experience for our colleagues. Our away days are held with 160 staff across the whole digital service and give space to have time together for the cultural piece, team building and to have some fun along the way.

Kate Warriner, Chief Digital Information Officer,
Alder Hey NHS Foundation Trust

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Standardising ways of working

Regardless of whether a trust chooses a big bang EPR launch or gradual deployment, the organisation will be asking staff to change the way they work. For many trusts, this is about standardising processes and workflows across a large workforce, spread over disparate sites or working remotely.

But just because your EPR is underpinned by standardised operating procedures, it does not mean that everyone will behave in the same way. For example, it is not uncommon for there to be more than one way to record the same piece of information. Busy staff may learn workarounds or input the same data in different places and in different ways. This results in not only poor searchability and discoverability, but also duplication of effort and wasted time. Data being documented in different places also introduces clinical risk.

It is important to remember that assimilating and adapting to change is an emergent process that happens over time. The groundwork for much of this can be laid in the run up to an EPR go live, but it will then need constant attention over the life of an EPR. It will be impossible to second guess these workarounds at the outset.

With more complex EPRs there's always more than one way of doing something. Staff will find a way with less clicks that bypasses some of the processes […] but they don't realise the downstream effects that these workarounds have.

Corrina Hulkes, Chief Nursing Information Officer,
London North West University Healthcare NHS Trust

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CLINICAL LEADERSHIP
OF THE EPR

Key takeaways

- **Properly resourced and credible clinical leadership is key to EPR optimisation.**
- **Clinical leadership should represent all professions so their respective needs and goals are met.**
- **Clinical leaders need to understand change and transformation as well as the basics of the underlying technology.**

NHS trusts which are successfully optimising their EPR have dedicated clinical leadership and strong clinical engagement at every level. This means more than simply appointing a chief clinical information officer (CCIO). Ideally trusts should have a dedicated team with representation from different professional groups along with divisional roles and deputies as appropriate.

Credible clinical leadership is key. Leaders need to be experienced in their clinical field and be able to translate clinical needs into technology solutions. They hold the voice of the user and are able to understand the functionality and limitations of the EPR. For example, North West London NHS Foundation Trust has set up a sector wide junior doctors EPR group chaired by a deputy chief information officer (CIO) at Hillingdon who is also a junior doctor.

Clinical leaders need to understand not only the basics of technology but must also be conversant in change and transformation. As such they can influence and coach their peers to find solutions to challenges. Most clinicians we spoke with fell into their digital role and we heard a need to consider career development and progression in order to retain and support them.

Growing successful clinical digital leaders

Any EPR team needs to engage with different clinical roles which represent the breadth of the workforce. Digital leaderships roles should be properly resourced and built into a clinical leader's job description and work plan so they are able to consistently commit.

More broadly, clinical leadership also plays an important role in coordinating training, clinical safety and acting on the insights from the data created by the EPR. The Faculty of Clinical Informatics published its findings into what makes successful digital clinical leaders, along with a model job description for recruiting a CCIO.

Boards shouldn't underestimate these skills and should actively support and empower their clinicians to seek development opportunities. For example, Health Education England's Digital Health Leadership Programme is specifically designed to develop capability and capacity of digital change leaders. The Shuri Network's Minerva Women's Leadership programme is designed to empower women to understand their unique abilities and how they can use them to improve their digital leadership skills, while the grassroots One HealthTech community look to improve diversity in healthtech.

If recruiting new clinical leadership externally, trusts will want to ensure their recruitment processes reflects best practice in attracting a diversity of applicants. This may include, for example, checking job adverts for language that is biased.

Clinical leadership is also required at board level to ensure that the EPR is understood as a clinical concern and not solely that of the IT department. It is the responsibility of the whole board, and in particular the chief medical and nursing officers, to explain any EPR changes, benefits or delays to the clinical workforce.

We can only [optimise the EPR] by actually sitting down and really understanding the processes. A lot of it is around process mapping [...] and many specialties have sector wide clinical working groups that meet regularly [...] and then drive change jointly.

Dr Rakesh Patel, Chief Clinical Information Officer,
The Hillingdon Hospitals NHS Foundation Trust

CASE STUDY

Leadership helps bring people on the journey

"I see the CCIO role as the bridge between the doers and the digital team. There's lots of people in the trust with ideas about how a digital solution would make life easier and improve care for patients. I often find myself directing them to something we already have they didn't know about or putting them in touch with the people who can make their vision a reality."

DR CHRIS GRIME, CHIEF CLINICAL INFORMATION OFFICER,
ALDER HEY CHILDREN'S NHS FOUNDATION TRUST (ALDER HEY)

Alder Hey Children's NHS Foundation Trust is a specialist NHS trust in the North West that cares for over 330,000 children, young people and their families each year. In 2015 they opened a state-of-the-art hospital alongside a brand-new research, innovation and education centre which aim to bring together excellent care, technology and design and provide the best possible healing environment for children and their families.

The trust has focused on clinical leadership to ensure the development of their next generation EPR improves the working lives of its users. This has meant ensuring attention on things that improve staff experience such as the number of clicks needed to achieve a task whilst keeping an eye on innovations and the future. Focusing on the experience of clinicians and what is most important to them has meant that the next generation EPR aims to meet their needs, resulting in better data entry, data quality and staff buy-in.

Alder Hey has a growing team of medics, nurses and allied professionals who work as clinicians but also have dedicated time to work with the digital team to ensure optimisation efforts are clinically useful. The trust has created associate clinical digital roles for each of their clinical divisions after recognising that one CCIO was not sufficient. This approach recognises that there are different challenges and opportunities in each specialty and that optimisation requires a deep clinical understanding of the particular clinical areas in question.

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REVIEWING BUSINESS CASES AND REALISING BENEFITS

Key takeaways

- **The EPR should be continuously improved throughout its lifecycle.**
- **EPR optimisation is not just about configuration, you need to pay attention to human dimensions of change.**
- **The benefits set out in an EPR should be realistic, measurable and aligned with available resources.**
- **It can take 5-10 years for benefits to be realised from your EPR.**
- **Some benefits are unintended or cannot be known from the outset.**

The process of optimisation is never finished and requires continuous investment. We heard from digital leaders that the ongoing effort it takes to optimise an EPR is almost always underestimated by boards and as a result the full benefits are not realised.

Understanding the true costs of EPRs

When you receive a business case for an EPR you should already be thinking about the resources required not only for implementation, but to improve and adapt the EPR over time. Board leaders should try to distinguish between the different types of costs that may be encountered during the life cycle of an EPR:

- **Running the operation**. Perhaps including the cost of running a support desk.
- **Essential investment and renewals**. For example new hardware needed to run the EPR.
- **Digital development**. The cost of the EPR team driving through changes and seeking improvements.
- **Transformation enhancement**. The cost of bringing in further expertise and tools, such as artificial intelligence and population health management.

> *The big agenda in digital deployment is transformation and bringing the organisation with you. If you shortcut that then you'll fail to achieve your change objectives and outcomes. Mapping processes and redesigning services with clinicians can be difficult, but you have to do it […] Focus on what staff need to make it easier. We [digital services] are here because patients need treating by staff who need technology.*
>
> Mark Davison, Chief Information Officer,
> Berkshire Healthcare NHS Foundation Trust

A business case should incorporate both sufficient resources for the technology itself and the human dimensions of change. In practice this means providing the expertise, time and headspace for colleagues to learn new skills and contribute to improving the EPR over time.

The board needs to be confident it has factored in all dependencies for the EPR to function properly. This might include Wi-Fi coverage, having devices that can properly run new software, installing plug sockets in the correct place and integration with medical devices.

In our conversations, we heard of community staff being given smart devices for an EPR that only operates on a laptop or computer. We heard of the need for medical device integration on an intensive care unit that had never been accounted for, thus creating new manual entry work. Where possible, all of these problems should be avoided at the outset or failing this, quickly resolved as a result of maintaining a focus on user needs.

What benefits can a board expect to be realised from optimisation?

Trust leaders have to balance competing priorities about where and how to commit finite resources. As such, boards need to have a clear understanding of the benefits from investing resources into EPR optimisation.

EPR business cases tend to contain unrealistic expectations. This can be driven by a desire to demonstrate cash releasing benefits in order to secure additional investment from central pots. Some have described it as a game that has to be played to secure the cash. It is based on an assumption that those benefits will not be tracked or accounted for.

As a board it is therefore important to be realistic about the benefits you expect to see in a business case. But it will also require board leaders to understand that transformation benefits can take a long time to fully realise – in some instance five to ten years.

For example, many EPRs include digital support tools. Upon implementation, the EPR may push an alert to the user if a patient has any allergies, and perhaps recommend specific tasks. This could represent a core level of digital capability expected of the system and will begin to generate some improvements (for example in clinical safety). However, a more optimised EPR may generate alerts to other internal and external clinical systems (such as in primary care), which saves the time of clinicians working within the trust and in other organisations.

The real benefits of an EPR will only start to be realised once the system has been successfully implemented and begun the ongoing process of optimisation. It is therefore important to set out an EPR benefits case that is not only credible and achievable, but which is measurable and can be tracked over time.

The disadvantage of not optimising the EPR should also be set out. Trusts need to invest dedicated resources and expertise to gather and analyse data to evidence benefits. It is also important to note that some benefits may be unintended or not initially anticipated.

It is likely that benefits will cover a number of domains which include, but are not limited to the quadruple aim:

- **Patient safety and satisfaction** – improved through synchronous data entry at the point of care.
- **Staff satisfaction** – usability of the system in terms of entering, searching for and discovering data.
- **Productivity** – time spent by colleagues entering, searching for and discovering data.
- **Population health management** – recognising trends to inform service transformation to meet the needs of your population.

There are also a range of interim benefits that include but are not limited to:

- **Audits and governance** – productivity of audits and other forms of clinical governance using searchable and discoverable data.
- **Business intelligence** – for reporting and performance improvement.
- **Clinical pathway redesign** – improving pathways and workflows.

At the point when anticipated benefits have been set out, it is important to set a baseline against which to measure improvement over time. This will be an iterative process, so leaders should look for evidence that improvements are embedded as part of a continuous improvement cycle.

> *[A key benefit is] you'll only need to enter information once, and it will be clearly visible throughout the EPR […] so if we say allergies, you input them once and then if the patient arrives in A&E, is admitted as an inpatient or visits an outpatient clinic, all you have to do is validate themwith the patient.*
>
> Corrina Hulkes, Chief Nursing Information Officer,
> London North West University Healthcare NHS Trust

CASE STUDY

Funding transformation to focus on strategic priorities

"While it is our frontline teams who understand what the potential is for transformation, as a chief executive I want to see changes in action. That way I can understand the teething issues and what the reality is for our staff on the ground."

JULIAN EMMS, CHIEF EXECUTIVE OFFICER,
BERKSHIRE HEALTHCARE NHS FOUNDATION TRUST

Berkshire Healthcare NHS Foundation Trust (Berkshire Healthcare) provides both community and mental health care services in the South East. They are in the process of optimising their EPR, Rio.

Berkshire Healthcare's digital strategy is a critical subset of the organisational strategy and an enabler to its delivery. When it comes to key strategic challenges, such as workforce shortages, the board identified advancing the trust's EPR as an investment in addressing the problem rather than a cost.

The board recently decided to agree a five-year funding plan for infrastructure. This means board level strategic discussions focus on transformational change rather than the nuts and bolts of new kit.

The trust has also invested in a transformation team. They understand it is critical for the digital team to keep focused on the organisational strategy to ensure they deliver what matters for the organisation rather than simply what might be technically possible.

The key lessons the board has learned:

- making things simple with 'one click' solutions where possible
- try to road test on a small scale
- make sure the transformation team talk in a normal language.

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GOVERNANCE AND WORKING WITH OTHER TRUSTS

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Key takeaways

- **Clear governance with delegated authority from the board is key to ensuring clinically-led improvements to the EPR.**

- **Governance arrangements should be underpinned by a team with clinical and design expertise to manage the flow of EPR improvement.**

- **Standardisation of clinical practice enables data to flow between clinical services, pathways and between different EPRs.**

- **Unwarranted variation in EPRs creates complexity and downstream configuration and maintenance costs.**

Effective governance helps create the right conditions for EPR optimisation, empowering teams to prioritise requests and deliver changes across multiples sites and pathways.

Managing change requests

Over the course of the EPR life cycle, staff will submit ideas to change aspects and functions of the EPR. To manage these, many trusts have put in place an accountability group to review and approve requests. Sometimes this is called a clinical design authority.

This clinically led group should have delegated authority to make decisions about optimisation and prioritise changes. Using a value versus cost matrix can be a good way to make informed decisions about prioritisation within limited resources. The group should meet regularly with attendance mandatory to minimise any backlog in improvement requests.

Where an EPR is being optimised across a number of NHS trusts, this group should represent each organisation and have shared delegated authority as well as clear escalation routes in case of disagreement. A board level senior responsible officer from each organisation is critical to ensuring top level steer and accountability.

Along with a decision-making group, a defined process should be put in place to develop as well as assess change requests, calculate cost implications and map out unintended consequences (including the inter-relationship between proposed changes).

Clinical colleagues need to have the opportunity to work through challenges and disagreements so they own the change and its implementation in practice. This should all be codified in Terms of Reference that are agreed and reviewed on a regular basis.

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CASE STUDY

Governance across London trusts to drive change

"One thing I always wish we'd done in advance [of scaling] is outline the governance for escalation. The change board was always there, and everyone agreed as long as the change wasn't too controversial, but we realised we needed something more robust for when we have divergent views. Now we have a route to the executives and a route to go down when we don't agree. My learning is, sort that out and everything else becomes easier."

JAMES BIRD, JOINT CHIEF NURSING INFORMATION OFFICER,
IMPERIAL COLLEGE HEALTHCARE NHS TRUST,
CHELSEA AND WESTMINSTER HOSPITAL NHS FOUNDATION TRUST,
THE HILLINGDON HOSPITALS NHS FOUNDATION TRUST

All four acute NHS Trusts within the North West London ICS are in the process of joining a shared version of Cerner by the end of 2023. The decision to converge in this way was driven by a desire to enable care to span the four trusts, develop shared care pathways, reduce costs along with the ability to merge the digital teams. Key to realising the benefits of convergence has been creating common ways of working that drive shared benefits.

Clear accountable governance is key to facilitating consistency across sites. Chaired by the CIO, the Change Board meets weekly for two hours and is attended by clinical, IT and operational staff from the four trusts. The EPR supplier also attends the board. The breadth of representation ensures that interdependencies and unintended consequences are identified early.

All trusts are required to agree on a change before it is implemented. If agreement can't be reached, the case for variation has to be made, citing evidence and national guidance where appropriate. Cases for non-standardisation are considered by the trusts' chief executives and are the exception rather than the rule. The leadership of the boards has been pivotal in enforcing the position to avoid non-standardisation wherever possible. This has been driven by medical directors, chief nurses and the non-executives.

Any business case for optimisation needs to have funding agreed in order for it to become a project. Funding is in addition to the business-as-usual EPR team so that they can continue their everyday operations.

> *You need to use data to focus your optimisation, because otherwise you only ever optimise for whoever shouts loudest […] whereas actually a workflow is potentially broken and 90% of staff have just got used to the fact that it's broken and aren't telling you it's broken anymore.*
>
> James Bird, Joint Chief Nursing Information Officer, Imperial College Healthcare NHS Trust,
> Chelsea and Westminster Hospital NHS Foundation Trust,
> The Hillingdon Hospitals NHS Foundation Trust

How standardisation can transform services

A well optimised EPR containing high quality data is a firm foundation from which to create insight for service transformation across clinical pathways.

As discussed in earlier chapters, this foundation is built on standardisation of clinical practice which is codified in the EPR and enables data to flow between services, along pathways and between organisations. This data enables the entire patient journey to be understood when redesigning clinical workflows and patient journeys.

Standardisation makes it easy for colleagues to work across teams and for locums as well as students on rotation between services and trusts. It reduces the burden of learning a new system and improves productivity and satisfaction.

While an ICS may have a variety of EPRs, standardisation of pathways will enable the whole patient journey to be visualised and understood. A bespoke EPR creates upstream costs in configuration as well as complexity in ongoing maintenance.

However, these foundations are not easy to establish. There is wide variation in practice, not just between NHS trusts, but even between similar services within one trust. There is often an absence of national guidance on standards from which to agree consistent models of care (although work by the Professional Record Standards Body and others is looking to improve this).

Where there is a strong Quality Improvement (QI) culture, it can be helpful to frame standardisation in terms of warranted and unwarranted variation in clinical practice. Driving out unwarranted variation and complying with best practice standards should always be the aim of clinical services. Involving QI colleagues and user experience (UX) designers is invaluable in redesigning services that offer consistent models of care.

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Finally, whilst standardisation is key to EPR optimisation, we also heard that the ability to personalise the interface (for example, being able to set favourites) is an important facet of feeling positive about the EPR. It is therefore important that colleagues have the right support so that they know how to personalise the EPR interface to meet their preferences, where this is appropriate. The ISO for ergonomics of human system interaction is relevant here as well as the NHS design principles which are inspired by the NHS constitution.

I'd like to see a patient acuity dashboard that assigns a scoring system to flag clinical priority. We'd have prioritisation of workload and resources based on patient information, thus making our service delivery more targeted and user centred.

David Chalkley, Associate Chief Clinical Information Officer,
Somerset NHS Foundation Trust

CASE STUDY

Digital and data as an enabler to service transformation

"The biggest benefits [from a shared instance across four trusts] are going to be the fact that the EPR is integrated both within our organisation and across the sector, so the data will flow across the modules which is very different to what we currently have, which is many IT systems with information not flowing. The benefits to staff are that they'll only need to enter data once and the information will be clearly visible, whichever part of the system you're in."

CORRINA HULKES, CHIEF NURSING INFORMATION OFFICER,
LONDON NORTH WEST UNIVERSITY HEALTHCARE NHS TRUST

London North West University Healthcare NHS Trust is a large acute trust that has collaborated with the other three NHS trusts in the patch to implement Cerner Millennium.

The digital team has successfully collaborated with the QI team on projects such as patient flow to combine expertise and resources in order to transform services. Similarly they have found that the clinical safety team should collaborate more closely with the patient safety team to join up safety assurance for the trust as well as national reporting.

A big improvement from a converged EPR is that staff only enter information once and it will be visible in all parts of the system. Key to transformation has been engaging with clinical leaders, focusing on ensuring benefits are meaningful for them. As well as using data to inform improvement and service transformation, they have used quality improvement methods such as plan, do, study, act (PDSA) cycles to implement changes.

Key takeaways

- **Investing in a productive working relationship with a supplier is key to facilitating ongoing improvement in your EPR.**
- **Transparency and clarity over how you will work to improve the EPR avoids the risk of exponential costs to your trust.**
- **There are productivity benefits and savings to be made by cooperating with other trusts which have the same EPR.**

Developing and maintaining good working relationships with EPR suppliers is a critical ingredient of successful EPR optimisation.

Ideally you should be setting the foundations for a good working relationship from the earliest stages of market engagement with prospective EPR suppliers. This might mean asking them to describe how they work on ongoing optimisation with current NHS clients and then speaking with other NHS trusts to find out how this works in practice. If you can, arrange a board-to-board visit to understand the lessons learned by others.

You'll need to be clear what constitutes change requests that are included within the contract and those which will incur additional costs. It is also important to understand the extent to which the supplier will allow you to work with third party providers and the implications for device integration. Boards should seek assurance that these sorts of issues are identified and incorporated into contracts from the outset.

Fewer requests for bespoke configuration generally mean you'll experience fewer charges over time. But that doesn't mean you shouldn't ask for changes. As a board member, you should expect your CIO and procurement team to be assessing these factors from the outset to maximise optimisation opportunities and manage costs over the lifecycle of the contract.

> *Your strategic relationship with your suppliers [is critical], treat them as a commodity provider and you won't get much out of them or be successful in embedding their products constructively in your trust […] you need to bring your suppliers with you and help them to understand your business so they can contribute their best.*
>
> Mark Davison, Chief Information Officer,
> Berkshire Healthcare NHS Foundation Trust

There are productivity and cost savings to be made by collaborating with other NHS organisations to join up your optimisation requests so they only have to be done once by the supplier. The board should be aware which trusts are working with the same EPR supplier within their ICS and ideally across their region too.

Finally, investing time in a win-win supplier relationship can pay dividends and should not be underestimated. Having a dedicated product owner to do this is worth the time and effort.

CASE STUDY

Collaborating across trusts for cost-effective optimisation

"One of the things we have learnt is there are always going to be commonalities between trusts. When you start talking to other trusts you find they dislike a particular pain point as much as you do. So we've agreed that rather than us always doing our change requests individually, there are common requests that we can submit together. We all chip in and reduce the load."

JON YATES, PRODUCT MANAGER - EPCR,
LONDON AMBULANCE SERVICE NHS TRUST

London Ambulance Service (LAS) is the busiest emergency ambulance service in the UK, serving the nine million people who live, work in or visit the city. They were one of the last ambulance provider trusts to switch from paper to digital and are currently extending and optimising their Cleric Electronic Patient Care Record (ePCR).

With four out of the ten NHS ambulance providers in England using Cleric EPR, they decided to come together to create a joint user group. Every two months they have a two-part meeting where the trusts meet to discuss their needs followed by a meeting with Cleric. In practice, this means that they agree and prioritise changes together, saving money whilst helping the vendor focus their resources on the most impactful changes.

As a result of coming together as a user group, Cleric and the trusts continue to optimise the EPR software based on user feedback, which means that emergency responders can easily use the ePCR on their iPads with a good user experience. It also allows the group to propose and debate large scale developments that might otherwise be too significant in scale or cost for any one of the trusts to consider alone.

USABILITY

Key takeaways

- **A user-centred design approach to EPR improvement helps you focus on human factors and change management.**
- **Designing with the staff creates benefits in terms of productivity and can reduce training and other costs.**
- **Most EPRs are not easy to use and training is required for their effective adoption in everyday practice.**

The usability of an EPR is not a trivial issue. A poorly designed and configured system will have a big impact on everything from productivity to patient safety. Poor usability results in workarounds, including the creation of what is known as shadow IT. That might include spreadsheets, word documents and other background systems that have no governance and create all sorts of unquantified risks.

A design-led approach to understanding users' needs is a proven way to making your EPR as usable as possible. This is often undermined when digital transformation is funded by one-off capital injections from the centre which encourages teams to focus on purchasing capital items rather than on optimising their systems.

The NHS user-centred design principles and manual provide guidance for how to design, build and implement digital services. Some NHS trusts (for example, Surrey and Borders Partnership NHS Foundation Trust) have incorporated user researchers and user experience designers into their teams to ensure usability is a key component of EPR optimisation. Other trusts, such as Moorfields Eye Hospital NHS Foundation Trust, have applied user centred design to other areas of their digital portfolio.

Understanding user needs and goals may take time, but we heard from our interviewees that it pays dividends in creating systems that people want to use and even love to use.

It is also important for equality, diversity and inclusion. For example, while a trust's EPR may be compliant with the accessible information standard, it may fail on other needs unique to certain groups. A user centred approach will help identify and address these needs.

Remember that whilst staff are the end users of an EPR, it is ultimately there to underpin patient care. Taking time to understand patient needs, goals and preferences can help you engage and involve staff in making changes to how they use the EPR in clinical practice.

CASE STUDY

Optimising your EPR through user experience

"It's a mindset shift more than anything else […] rather than trying to fund a technology implementation, we're really trying to fund a team that can think through how we need to use the product from an experiential perspective. And that has allowed us to drive change in a way that we weren't succeeding at before."

TOBY AVERY, CHIEF DIGITAL AND INFORMATION OFFICER,
SURREY AND BORDERS PARTNERSHIP NHS FOUNDATION TRUST

Surrey and Borders Partnership NHS Foundation Trust (SABP) is a leading mental health and learning disabilities provider in the South East. With SystmOne as their electronic patient record, the trust is in the process of optimising its EPR.

Following a difficult EPR implementation a few years ago, SABP decided to switch focus away from traditional programmatic approaches and towards user centred design to deliver a better user experience. They shifted their core focus to the usability of the product. By creating a design team, with user researchers, designers and developers, and involving operational teams better, it became possible to improve the EPR experience beyond the constraints of the system.

The SABP digital team has been nominated for awards for their fusion teams approach which brings together a range of skill sets to design for the desired outcome based on a deep understanding of users' needs. Designers customise an interface for the EPR which is bespoke to each team in order to make it as easy as possible for them to use. The EPR looks more like a website and presents the key features and functions needed to use in a user-friendly way. Behind the interface, the core EPR remains the same.

This approach started as an experiment that has paid off. The digital team began small to test the approach and has grown the team as it has created value. From clinical team feedback it is clear they are delighted with the results, with benefits in terms of satisfaction, efficiency and productivity.

Furthermore, SABP has focused on "unifying the tribes of change" in programmes by bringing quality improvement, digital, strategy/transformation and operational/clinical capabilities together to create the "fusion" team needed to achieve effective change. They have found that working in this way and designing for the outcome has resulted in more successful implementation and adoption of change.

Technology is not a passive agent in the system, it is persuasive.
If configuration and personalisation can increase the level of use
and compliance, then do it.

Dr James Woollard, Chief Clinical Information Officer,
Oxleas NHS Foundation Trust

Investing in learning and development – the benefits

The truth is most EPRs are not intuitive or easy to use. The more configured an EPR, the more
options there are to input data in different ways and in different places. All this variability has
implications for productivity, staff satisfaction and of course searchability and discoverability
of data for use both in clinical practice and for secondary purposes.

Results from the acute EPR usability survey showed that 46% of the variation in EPR satisfaction
can be attributed to the individual user (rather than attributed to the vendor or organisation).
This highlights the importance of training for adoption and effective use.

It is for these reasons that learning and development are key components of EPR optimisation.
If you don't have a consistent approach to teaching people how to use the EPR, it is likely that
busy staff will learn workarounds or input the same data in different places or in different ways.
This results not only in poor functionality but also duplication of effort and wasted time. These
bad practices emerge as busy clinicians look for the quickest and most convenient way to enter
data without appreciating the implications for data quality.

Learning needs to be meaningful, useful and accessible to busy EPR users. As well as the
content being designed with clinicians in mind, learning should align to people's personal
preferences and fit into their working day. Bite-sized learning, classroom sessions, e-learning
and drop-in refreshers can all be effective. The key is to keep learning relevant and easy to
digest. Handy resources such as user guides which have been designed by and with clinicians
can be useful on wards and clinics.

[The ePCR] is something that people are using every day. Downstream, the data that's captured is relied upon for audit, and identifying health outcomes at both local and national levels. So we need to get good data in and you only do that from having a usable product that users understand how to use..

John Yates, Product Manager - ePCR,
London Ambulance Service NHS Trust

It can be helpful to think of learning as creating rings of support for EPR users, from helplines through to floor walkers who can answer questions and solve problems as they occur. It is possible to use back-end data from the EPR to identify who might be having difficulties using it (for example, excessive time spent entering data) and provide additional targeted support to those who need it.

While board members themselves will not be providing this support, it can often reassure staff that their needs are being taken seriously if they see leaders asking how they're finding the system, or even watching them use it.

Having one influential person on the board who is actively involved [not just in name only] taking a true interest and leading the programme board is really critical.

Robbie Cline, Joint Chief Information Officer,
London North West University Healthcare NHS Trust
and The Hillingdon Hospitals NHS Foundation Trust

WHERE TO START

DIGITAL BOARDS

MAKING THE
MOST OF YOUR
ELECTRONIC
PATIENT RECORD
SYSTEM

Key takeaways

- **You cannot rely on staff motivation alone for the EPR to be used as it is intended.**
- **Start by simplifying the EPR and making it as easy to use as possible.**
- **Take into account other factors and dependencies in EPR improvement.**

As explained earlier in this guide, EPRs are more-often-than-not over configured when they are first implemented. The process of optimisation is as much about simplification as it is about adding new fields and functions.

You cannot rely on motivation alone for the EPR to be used as it is intended - it is critical to ensure it is as easy as possible for colleagues to do the right thing.

It is important to use data to optimise your EPR or else you are in danger of being led by whoever has the loudest voice. You can analyse data from within the EPR to assess how well it is being used and what you need to do to improve.

It is also important to keep in mind that successful optimisation means having the wider infrastructure working effectively. This can be everything from devices and connectivity through to plug sockets and workstations. A rolling replacement policy for hardware is critical along with regular audits of IT service desk issues and clinical incidents to identify challenges around themes such as reliable Wi-Fi.

Where you are looking to scale across an ICS, it is important to consider different organisational cultures and ways of working from the outset. Remember change is a social rather than simply a technological process. Framing the change as an opportunity to unify good practice and learn from each other is a good starting point to create enthusiasm and focus on improving clinical practice. Ultimately, the great benefit of convergence across organisations is the ability to see the whole patient pathway and make improvements at each point.

> *Optimisation is about saying 'how can I take clicks out of your workflow?' Or 'how can I make whatever you're doing today easier?' At the beginning, everyone will over-engineer their EPR and the temptation is to make everything mandatory.*
>
> James Bird, Joint Chief Nursing Information Officer,
> Imperial College Healthcare NHS Trust,
> Chelsea and Westminster Hospital NHS Foundation Trust,
> The Hillingdon Hospitals NHS Foundation Trust

DIGITAL BOARDS

CASE STUDY

Optimising a home-grown EPR

"It's an amazing [EPR] team because people are invested in the product and people like it. We believe in what we're doing. You can't apply to a software developer for a change and then expect it to appear in the system within a few months. But in our systems, we've really got the leverage to do that. And also because we built the system, we can download all the data."

DR TANYA PANKHURST, CHIEF CLINICAL INFORMATION OFFICER,
UNIVERSITY HOSPITALS BIRMINGHAM NHS FOUNDATION TRUST

University Hospitals Birmingham (UHB) is a large acute trust in the Midlands with a home-grown EPR called *Prescribing Information and Communication System* (PICS).

Control over the development of every aspect of the EPR along with ownership of data, has resulted in a highly usable and well liked system. Not only does data follow the patient, but a data lake affords rich research and innovation opportunities.

In recent years PICS has developed the PHR through which patients can access results, upcoming appointments, letters and patient information leaflets as well as uploading information such as blood pressure readings to share with the clinical team. If patients are concerned about their results they have an easy way to get in touch with the clinical team directly.

The PHR is taken up by around 50% of patients to whom it is offered and is well liked and used by many. Uptake of the PHR is well spread across age ranges, although less used by people from ethnic minority backgrounds and those experiencing poverty and social exclusion. This raises the issue of digital inclusion for those less likely to access digital services, which the trust is looking to address.

As well as executive and clinical leadership, the trust has found that an EPR which people believe in has been key to successful adoption. Having the right infrastructure, including computers and Wi-Fi, has removed barriers to EPR uptake. Finally, realistic and properly funded management of change has ensured facilitated adoption.

DIGITAL BOARDS

MAKING THE
MOST OF YOUR
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SYSTEM

FURTHER READING

Usability and ergonomics

- *NHS design principles and service manual*
- *ISO 9241-220:2019*
  Ergonomics of human-system interaction – Part 220: Processes for enabling, executing and assessing human-centred design within organisations
- *Usability of electronic health record systems in UK EDs* – BMJ
- *techUK explores results of NHS EPR usability survey* – HTN article
- *Moving toward a sociotechnical systems approach to continuous health information technology design: the path forward for improving electronic health record usability and reducing clinician burnout* – JAMIA
- *Improving usability of Electronic Health Records in a UK Mental Health setting: a feasibility study* – Journal of Medical Systems

Digital transformation

- *Beyond Adoption: A New Framework for Theorizing and Evaluating Non Adoption, Abandonment, and Challenges to the Scale-Up, Spread, and Sustainability of Health and Care Technologies* – JMIR
- *Digital transformation in the NHS* – National Audit Office

Frontline digitisation

- *EPR implementation support hub* – Future NHS
- *Frontline digitisation minimum digital foundations* – Future NHS

Convergence and levelling up

- *Digital Health Networks debate on levelling up and convergence* – Digital Health

Personal health records

- *Standards for commissioning or developing Personal Health Records* – NHS Digital

Data

- *Data value chain*
  Describes the process of data creation and use from first identifying a need for data to its final use and possible reuse, with four major stages: collection, publication, uptake and impact

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NHS Providers (January 2023),
Making the most of your electronic patient record system.

Interactive version

This report is also available in a digital format via:
https://nhsproviders.org/making-the-most-of-your-epr

For more information

Please contact:
digital.boards@nhsproviders.org

NHS Providers is the membership organisation for the NHS hospital, mental health, community and ambulance services that treat patients and service users in the NHS. We help those NHS foundation trusts and trusts to deliver high-quality, patient-focused care by enabling them to learn from each other, acting as their public voice and helping shape the system in which they operate.

NHS Providers has all trusts in England in voluntary membership, collectively accounting for £104bn of annual expenditure and employing 1.4 million staff.

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