

Hospital Electronic Prescribing and Medicines Administration (HEPMA) in NHS Forth Valley

Key Learning from Rapid Roll-Out

March 2018



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Foreword

NHS Forth Valley successfully implemented Hospital Electronic Prescribing and Medicines Administration (HEPMA) across the acute hospital (726 beds) (Forth Valley Royal Hospital) in 11 months. This was followed by full roll-out to four community hospitals and three community mental health units in six months¹.

A project of this scale and complexity is a rich source of learning and therefore NHS Forth Valley in partnership with Healthcare Improvement Scotland has commissioned a formal assessment of 'lessons learned' to share with colleagues in other NHS boards.

The case for change was built on improving patient safety, with high level strategic and clinical leadership secured from the outset. The implementation was tightly governed through a senior level Project Board who, with clinical support from the Acute Drug and Therapeutics Committee, drove the project plan with enthusiasm and commitment. Project timescales were constructively challenged by the Project Board to minimise the risk of operating dual systems (electronic and paper) for prescribing and administration of medicines and to minimise disruption to the existing capacity and patient flow challenges across the hospitals.

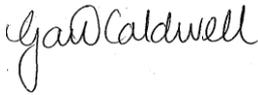
Local champions guided the selection of early adopter wards (Mental Health and Paediatrics) to start the formal process of implementation. The success in the early adopter wards provided a platform to promote HEPMA and to effectively engage with staff groups from all other specialties. Based on advice from critical friends in other NHS boards and given the prevailing patient safety benefits, HEPMA went live across the front door of the acute hospital on 6 June 2016 (70 beds). This was a major challenge so early in the implementation process, and required significant effort from the highly skilled Project Team, front door medical and nursing colleagues, with additional capacity and resilience provided by all Forth Valley Royal Hospital pharmacy staff, eHealth and practice development nurses. HEPMA implementation at the front door was everyone's business with high visibility, 24/7 support and robust planning. This resulted in a highly successful implementation in a significantly challenging clinical environment. The front door implementation allowed a very high percentage of prescribers across the hospital to be trained reducing the training burden in the downstream wards.

The roll-out plan to downstream wards continued at pace and was primarily based on the flow of patients. Up to six medical wards went live in one day (172 beds) with Go-Live planning for wards and areas supported by the development of a systematic Go-Live assessment framework, providing robust assurance to all involved that each clinical area was truly ready to go.

¹ See Appendix 1: Supporting information.

Through qualitative analysis, this was deemed to be a highly successful implementation, a true multidisciplinary team effort, with effective leadership and joint working between eHealth and pharmacy at the heart of the success. It was an implementation with pace, delivered on time and in budget with no patient harm or safety issues reported. It was hard work, highly rewarding and great fun!

This report summarises the key findings of the full report of the NHS Forth Valley implementation.



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Approach and method

The assessment of 'lessons learned' was through extensive interviews and focus groups which engaged 182 individuals at strategic and ward levels, following the process of implementation through the main acute hospital (Forth Valley Royal Hospital) and then the local community hospitals (September 2016 – August 2017).

Interviews and focus groups were structured through a topic guide which was informed by the Healthcare Improvement Scotland 2014 report: *Implementing an Electronic Prescribing and Medicines Administration System: A Good Practice Guide*⁴, and developed to take account of NHS Forth Valley's specific context.

Key lessons

Ownership and leadership

- HEPMA requires a whole system approach: implementation needs to be visibly and effectively owned and led by a senior multi-professional team; in particular medicine, pharmacy, nursing, IT and finance.
- The impact of HEPMA on nursing staff is significant, so invest in extensive engagement with strategic and operational nursing colleagues.
- Involve strategic and operational primary care staff in the implementation of HEPMA from the outset, as it may impact on discharge processes and communication with GPs.
- Set out clear responsibilities for HEPMA Project Board members to communicate with and feedback issues from their respective clinical areas to increase engagement with operational teams.
- Ensure that the strategic and operational leadership for HEPMA has a positive and upbeat approach, focused on the patient safety benefits of HEPMA.
- Prove the utility and safety of HEPMA by providing data on benefits as soon as possible.

“It was important to have a positive attitude from everyone right from the beginning: not sugar coated, but recognising that this is going to be hard work, but it will be good when it's done.”

⁴http://www.healthcareimprovementscotland.org/our_work/technologies_and_medicines/electronic_prescribing/good_practice_guide.aspx

Governance and risk management

- Implementation should be as quick as is safely possible, taking into account available resources to support implementation.
- Before Go-Live in each area, ensure that relevant senior staff review and make a considered positive decision to confirm that it was safe to implement HEPMA in that area.
- Following implementation in the early adopter wards in NHS Forth Valley, HEPMA was implemented at the front door of the acute hospital so that implementation followed patient flow. It is important to support non-HEPMA areas receiving patients from HEPMA areas by:
 - effective communication about the implementation of HEPMA upstream, and the impacts of this on downstream wards
 - ensuring that paper print-outs of HEPMA records are as similar to the paper prescribing system as possible
 - having easy to use guides for handover from HEPMA to non-HEPMA areas, and
 - supporting non-HEPMA areas by using ward-based pharmacy teams.
 - Where areas did not have ward-based pharmacy teams, NHS Forth Valley generally sent a clinical pharmacist to support the area/ward during implementation.
- Ensure that the HEPMA system is easy to access across all areas.
- Ensure that logout times following a period of inactivity reflect both clinical use and information security concerns.
- Ensure that all staff are familiar with contingency and disaster recovery protocols through testing and simulation.
- Communicate the clinical decision support benefits of HEPMA whilst ensuring that HEPMA users understand that they are accountable for clinical decisions.
- Effectively engage and consult HEPMA users in the development of Standard Operating Procedures to ensure their usability, and consequently their effective implementation.

“It was important to have that number of people available to support roll-out: nursing practice development, pharmacists, HEPMA team. This took away the anxiety.”

Organisational effort and resource capacity

- Secure effective organisational support for HEPMA from the outset by developing a successful business case for a dedicated project resource.
- Establish a strong core operational team, including pharmacy, eHealth/IT and administrative support.
- Increase capacity to support implementation by involving all ward-based pharmacy staff in supporting the core operational team to:
 - increase resilience and build knowledge, and
 - develop a critical mass of staff to support ongoing utilisation of HEPMA.
 - In NHS Forth Valley, a specific training package was developed and delivered for all pharmacy staff.
- Ensure clinical staff appropriate to where implementation is occurring are effectively engaged in the work of the HEPMA team.
- Establish and support local HEPMA clinical champions in each area to support implementation. The clinical champion's role is to continue to provide evidence of the benefits of HEPMA, help to ensure that all relevant staff are trained in use of HEPMA, and be involved in the assessment of hardware needs.
- Recognise that HEPMA will (positively) impact on long-standing working practice.

“Have a properly resourced project team, with a dedicated and strong project manager, and full-time people from pharmacy and eHealth.”

Communications

- Communications about the implementation of HEPMA should be proactive and upbeat. It should provide:
 - a very clear articulation of the benefits (and limitations) of HEPMA
 - information about the purposes of HEPMA to all staff who are involved with prescribing, including AHPs, and
 - early 'warning' of HEPMA, followed up with regular reminders of key implementation dates.
- Information should be provided in a variety of ways, with email/intranet communications backed up by direct face-to-face communication through local champions; regular scheduled meetings and huddles are helpful conduits.
- Managers need to be proactive in cascading information about HEPMA to their staff.
- HEPMA users have a professional responsibility to read, understand and implement HEPMA operating procedures.

“The morning hospital huddle (involving a very broad range of clinicians, including pharmacists, senior doctors, managers) was helpful to communication, resolving issues (and it was never longer than 17 mins!).”

Engagement and involvement

- Ensure that HEPMA users understand what is and is not possible to change in the HEPMA design, in particular the implications of the national multi-supplier HEPMA procurement framework.
- The network of HEPMA clinical champions is helpful in securing engagement at operational and strategic levels.
- Work hard to engage medical staff at all levels, including consulting on:
 - the system configuration of HEPMA, and
 - suitable hardware.
- Ensure that pharmacy stores and dispensary (as well as ward-based clinical pharmacy teams) are fully engaged in implementation, in particular in relation to pharmacy workflow management.
- Ensure that the HEPMA implementation has – and demonstrates – a good understanding of the specific local area when planning for and supporting Go-Live.
- Establish an effective and ongoing feedback process for HEPMA users to make suggestions for potential improvement and developments. Use this to inform HEPMA development using governance arrangements such as the local Area Drug and Therapeutics Committee.

“There needs to be time to go around and persuade [medical] colleagues, show them the benefits of HEPMA.”

Early adopter sites and sequencing roll-out

- Engage all relevant stakeholders in the selection of early adopter sites. Consider patient transfer into and out of early adopter site areas to minimise impact on the main hospital, prescribing volume and the nature of prescribing.
- Use implementation in early adopter sites to:
 - engage medical and nursing staff in other clinical areas to test the HEPMA system build suitability for other clinical areas therefore allowing more comprehensive testing of the file build and functionality
 - prove that HEPMA works in live situations against real circumstances, and
 - show that implementation is relatively painless.
- Engage all relevant stakeholders in the sequence of implementation following early adopters.
- The experience in NHS Forth Valley indicates that it is most effective to start roll-out in admissions. This follows patient pathways and provides the benefits of reaching the whole hospital through the majority of prescribing staff. However, it also provides a significant training burden given the number of staff who may prescribe in admission areas, the impact of twice yearly Doctors in Training (DIT) change over, patient flow, waiting targets and extended winter pressures.
 - If roll-out starts in admissions, ensure that staff in downstream areas – in particular nursing staff – have been effectively prepared to manage the transition to HEPMA, and are supported to manage two simultaneous prescribing systems.

“It was sensible to start at the front door after a test of change in mental health and paed. It was a brave and right decision, and meant that things would follow more easily. The Medical Director really pushed it, stopping procrastination and saying, no you can't have another month. She pushed people out of their comfort zone, and did it very well, encouraging/enabling others to also push.”

Go-Live support

- Identify and agree the key steps for successful implementation to develop a standardised approach.
- Plan adequate time for transcription from Kardexes® to HEPMA. Ensure Kardexes® are as accurate as possible before transcription to HEPMA starts, to limit need for corrections and speed up the process.
- Develop a HEPMA ‘brand’: for example, in NHS Forth Valley, the implementation team wore orange t-shirts while supporting each Go-Live to differentiate support staff and raise the profile of the programme.
- Provide skilled visible, accessible, responsive support during Go-Live. Support requirements need to be carefully assessed in relation to the specific area, for example, NHS Forth Valley provided 24/7 support during Go-Live in areas which receive direct admissions – Acute Admissions Units and maternity.
- Facilitate peer support so that more experienced HEPMA users support less experienced HEPMA users
- The implementation process is intense and demanding for all concerned: it is important to support the resilience of the core implementation team by planning some down time.

“They came with us for the first ward round, and then they sat back and let you get on with it: they're not all over you, but there when you needed support.”

Training

- Training should:
 - be as close as possible to Go-Live, using blended learning approaches, including face-to-face sessions and online learning
 - be realistic, scenario and role based, and use practical hands on demonstration and simulation as much as possible
 - cover potential benefits and limitations of HEPMA, and
 - adapt existing training materials to ensure that they are effective and user-friendly.
- Recognise the significant organisational effort in ensuring that all relevant staff must be trained in HEPMA, especially the following.
 - Managers need to provide time, direction and encouragement for staff to train in HEPMA, including by working with demonstrator models/simulations on wards.
 - Some staff do not have basic IT skills: this needs to be addressed before any HEPMA specific training.
 - Take account of the challenges in developing an accurate list of all staff who need to be trained in use of HEPMA.
 - If starting roll-out in admissions, as many prescribers as possible will need to be trained before Go-Live. However, this will ensure that most prescribers in the hospital will be trained and ready for Go-Live as implementation is rolled out to downstream areas.
 - Be prepared to provide very short notice training for some members of staff, for example medical locums.
 - NHS Forth Valley used the hospital at night teams to provide short notice basic training.
 - Consider training nursing staff in understanding the whole HEPMA system (not just the administration of medicines), so that they can support consultants and junior doctors in using the system.
- Ensure that Doctors in Training receive training and logins ahead of their first shift in their new NHS board, in particular when this is a night shift.
- Peer support and shadowing provide useful opportunities for learning about HEPMA: using local champions to help cascade training could be helpful. However, it must be noted that a key risk from peer learning is that staff learn bad habits/bad practices. As such – during implementation – the provision of consistent and quality assured training is essential.
 - NHS Forth Valley took the decision that training of prescribing staff should be undertaken by someone with clinical knowledge, and that training for medicines administration could be undertaken by eHealth staff.
- Following implementation, ongoing training – as ‘business as usual’ could be provided through online learning with peer support.

“On-site training is best: being able to play with the system, for example logging on and off - tell me, show me, then let me play.”

Technology

- The implementation of HEPMA supports the development of the hospital IT infrastructure – both hardware and software. It also supports the enhancement of a digitally literate workforce and culture that embraces evidence-based practice.
- NHS Forth Valley tested both the speed and Wi-Fi robustly off-site and then within the Go-Live area before Go-Live. They used Single Sign On for logging in to the device.
- Test hardware, including consideration of equipment storage and charging requirements, and physical protection and security of devices.
- NHS Forth Valley addressed business continuity by testing – this included forced downtimes to ensure that the system was fit for purpose.
- The HEPMA team tested a variety of different devices during the pilot phases of implementation. These included iPads, Surface Pros, laptops and ‘computers on wheels’ (CARTS).
- In planning for implementation in each area, the HEPMA team consulted with relevant staff to audit existing hardware and assess needs for new devices. This audit considered:
 - ward round times
 - concurrent ward rounds
 - existing provision of CARTs
 - drug round times, and
 - number of nursing trolleys (for case notes.)
- The outcome of each audit was a set of recommendations relating to need for:
 - CARTs and laptops
 - mobile devices
 - laptop clean utilities, and
 - locks.
- As roll-out progressed, the team began to develop evidence that the provision of laptops on height adjustable CARTs was most successful in all areas; with the following general indicative needs for each area:
 - HEPMA to be installed on all PCs in each area
 - Surface Pros for nursing staff (1 per drug administration round running concurrently in the ward), although CARTs are generally preferred if there is space for storage and charging
 - laptops on Carts (1 per ward round running concurrently), and
 - 1–2 laptops in each drug prep room.
- Ensure that sufficient devices installed with HEPMA are available.
 - Software:
 - initial worries about the look of the HEPMA interface (font, colour) will rapidly disappear
 - develop an effective process for reporting software performance issues, including feedback, and
 - continue to develop the drug file and decision support by making use of user feedback.

- Drug file:
 - recognise the practice change that the HEPMA drug file will necessitate, notably in relation to:
 - selection of medicines, and strength and frequency of dose by prescribers, and
 - regular review of ward stock lists.



“The IT is now really good: we now have mobile computers which are actually working. The improvement to IT was facilitated by HEPMA, but helps everything else.”

Conclusion

Through sharing these key lessons, the aim is to support other NHS boards to successfully implement HEPMA. Every context is specific, so the implementation of HEPMA in each NHS board will be different.

We wish you every success.

Appendix 1: Supporting information

Figure 1: NHS Forth Valley Implementation timeline



Staffing for the implementation of HEPMA in NHS Forth Valley included a combination of staff allocated under the formal business case for implementation together with staff who absorbed work to implement HEPMA, and staff who were co-opted to support implementation in specific areas for specific timeframes.

Table 1: NHS Forth Valley HEPMA Implementation staffing

	Job role	Professional group	WTE
Strategic leadership and responsibilities	Director of Pharmacy	Pharmacy	Absorbed costs
	Medical Director	Clinical	Absorbed costs
	Director of I.T/eHealth	I.T.	Absorbed costs
	Lead Pharmacist Acute Services	Pharmacy	Absorbed costs
HEPMA team	HEPMA Project Manager (Band 7)	eHealth	1 WTE x 2 years
	HEPMA System Manager (Band 7)	Pharmacy	1 WTE x 2 years then 1.0 WTE recurrent
	Pharmacy stock control system Manager (Band 7)		0.5 WTE Band 7 from existing resource for Pharmacy Stock Control

	Job role	Professional group	WTE
	HEPMA Clinical Pharmacist (Band 7) [initially supported by Band 8a]	Pharmacy	1.25 WTE x 2 years, then 1WTE recurrent
	HEPMA Project Officer (Band 5)	eHealth	Absorbed costs
	Administration support (Band 2)	n/a	Absorbed costs (not detailed in business case, but required)
	Trainer (Band 5)	eHealth	1 WTE x 2 years, then 0.5 WTE recurrent
	Interfacing	eHealth	Absorbed costs
	IT Technical support	I.T.	1 WTE x 2 year and then 0.5 WTE recurrent
	Information Services HEPMA Report lead (Analyst Band 6?)	Information Services	Part Time (not detailed in business case, but required)
	Co-opted staff from specific Go-Live areas, including medical consultants, junior doctors, senior nurses, nurse prescribers, ward nurses		
	Nursing Practice Development staff to be available to support drug administration and nursing staff during Go-Live		
The establishment of local champions in each area to support implementation was identified as a key success factor by stakeholders.			
Acute ward-based pharmacy teams were involved in all Go-Lives; and in areas without acute pharmacy team (generally community hospitals), support was provided using the community hospital managed service pharmacy team, HEPMA pharmacy team and eHealth trainer.			

Table 2: NHS Forth Valley – Areas where HEPMA not implemented

Area	Reason for non-implementation
Oncology	View-only access to HEPMA Has dedicated system, specific to oncology
X-ray	Trained for view-only access to HEPMA Will move to full HEPMA use in 2018
A&E	Limited use for head injuries only due to no Admission Discharge and Transfer (ADT) feed from existing Patient Administration System (PAS). Will be revised with the introduction of TrakCare

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