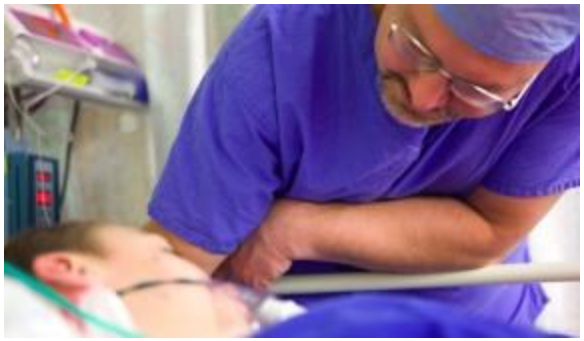
English Health Informatics Strategy and relevance to e-Prescribing and Medicines Administration



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NHS England 17th June 2013

THE NHS CONSTITUTION
the NHS belongs to us all

The Information Strategy vision

• **Joined up systems and shared data standards** will facilitate and drive **integration** within and between organisations and care settings to ensure that care is focused around the person and their health and care needs. This is why the strategy spans the **NHS, public health** and **social care.**

• Getting the right information to the right people at the right time – in a form they can understand, engage with and contribute to – will help individuals take **control** of their own care, improving **self-management**, **shared decision making**, and more **informed choices**.

• Needs support and advocacy to help people in all sectors of society to make meaningful use of it, harnessing modern technology where that is helpful.

2

Main ambitions

- **Information used to drive integrated care**
  across the entire health and social care sector

- **Information regarded as a health and care service in its own right**
  with appropriate support in using information available for those who need it, so that information benefits everyone and helps reduce inequalities

- **A change in culture and mind set**, in which our health and care professionals, organisations and systems recognise that information in our own care records is fundamentally about us - so it becomes normal for us to access our own records

- **Information recorded once, at our first contact with professional staff**, and shared securely between those providing our care – supported by consistent use of information standards that enable data to flow between systems whilst keeping our confidential information safe and secure

Main ambitions

- **Our electronic care records become the source for core information** used to improve our care, improve services and to inform research, etc. – reducing bureaucratic data collections and enabling us to measure quality

- **A culture of transparency**
  where access to high-quality, evidence-based information about services and the quality of care held by Government and health and care services is openly and easily available to us all

- **An information-led culture** where all health and care professionals take responsibility for recording, sharing and using information to improve care

- **The widespread use of modern technology**
  to make health and care services more convenient, accessible and efficient

- **An information system built on innovative and integrated solutions and local decision-making**, within a framework of national standards that ensure information can move freely, safely, and securely around the system

the vision: modern convenient information

1. Accessing your GP record online will give you more control over your care

2. Booking appointments will be quicker when you can do it online

3. You'll need **fewer phone calls** when you can communicate with professional teams electronically

4. You'll have **less paperwork** in your life when your healthcare letters are available online

5. You'll know where to go for health and care information when there is **one trusted website**

6. Services will do more to **offer you support** to use and understand information if and when you need it.

7. You won't have to repeat yourself when your **information is shared** between health and care professionals

8. You'll be confident that your **feedback is being listened to** and helping to improve services

9. You will have more information to help you **choose the best services** and treatments for you

The Importance of this strategy to medicines use

Medicines safety is a key concern

Errors do occur, UK studies show that:

- Prescribing errors occur in 1.5-9.2% of medication orders written for hospital inpatients
- Dispensing errors are identified in 0.02% of dispensed items
- Medication administration errors occur in 3.0-8.0% of non-intravenous doses and about 50% of all intravenous doses

The use of e-Prescribing can help reduce such errors

Source: Vincent C, Barber N, Franklin BD, Burnett S.The contribution of pharmacy to making Britain a safer place to take medicines. Royal Pharmaceutical Society of Great Britain: London; 2009.

NRLS Medication Error Reports 2005 – 2010 By Stage Of Drug Use

Stage of process	Level of harm					N/A	Incident Total	%
	Death	Severe	Moderate	Low	No Harm			
Administration / supply of a medicine from a clinical area	**137**	**276**	9891	40509	212415	139	263367	50.0
Prescribing	**60**	**120**	3141	11452	82324	40	97137	18.5
Dispensing and preparation of medicines	**18**	**63**	1934	8359	76683	7	87064	16.5
Monitoring / follow-up of medicine use	**17**	**34**	946	2866	19785	9	23657	4.5
Supply or use of over-the-counter (OTC) medicine, advice, (blank) and other	**39**	**58**	1509	5392	48111	45	55154	10.5
Total	**271**	**551**	17421	68578	439318	240	526379	100.0

Cousins DH, Gerrett D, Warner B. A review of medication incidents reported to the National Reporting and Learning System in England and Wales over 6 years (2005–2010). Br J Clin Pharmacol 2012;74(4):597–604

NRLS Medication Error Reports 2005 – 2010 By Error Category

Error category	Incidents	%
Omitted medicine / ingredient	**82028**	**15.58**
Wrong / unclear dose or strength	**80170**	**15.23**
Wrong drug / medicine	**48834**	**9.28**
Wrong frequency	**44165**	**8.39**
Wrong quantity	**28764**	**5.46**
Mismatching between patient and medicine	21915	4.16
Wrong / transposed / omitted medicine label	13755	2.61
Patient allergic to treatment	11695	2.22
Wrong formulation	11254	2.14
Wrong / omitted / passed expiry date	10998	2.09
Wrong storage, unknown, wrong method of preparation/supply/wrong route/Contra-indication to the use of the medicine in relation to drugs or conditions/Adverse drug reaction (when used as intended)/Wrong / omitted verbal patient directions/Wrong / omitted patient information leaflet/(blank)/other	172801	32.82
Total	526379	100.00

Cousins DH, Gerrett D, Warner B. A review of medication incidents reported to the National Reporting and Learning System in England and Wales over 6 years (2005–2010). Br J Clin Pharmacol 2012;74(4):597–604

NRLS Controlled Drug Incident Reports 2005 – 2007 By Qualitative Theme

	Level of harm			%
Qualitative theme	Death	Severe	Incident total	
Overdose	**37**	**51**	**89**	**69.5**
Wrong medication	1	8	9	7.0
Possible never event	3	5	8	6.3
Known adverse drug reaction	2	2	4	3.1
Self-harm (abuse)	3		3	2.3
Wrong medication name	1	2	3	2.3
Medication administration by carer	2		2	1.6
Communication failure	1	1	2	1.6
Omitted and delayed medication administration	1	1	2	1.6
Poor clinical management		2	2	1.6
Precipitated withdrawal		2	2	1.6
Known drug-drug interaction	1		1	0.8
Insufficient information to specify	1		1	0.8
Total	54	74	128	100.0

Cousins DH, Gerrett D and Warner B. A review of Controlled Drug incidents reported to the National Reporting and Learning System (NRLS) over seven years (2005 – 2011); implications for safer practice. Submitted Pharmaceutical J 2012(10)

Allergy status not considered nor documented

- *"Patient was prescribed Flucloxacillin 250mg (capsules) one to be taken four times a day by general practice . General Practice had received a discharge flimsy for a previous admission which stated penicillin allergy and this was not coded on the records . Patient had an allergic reaction and required hospitalisation" . .* ***(Severe)***
- *"Patient transferred from [hospital name] . On [date] was noticed that patient had received at least 2 doses of Augmentin duo when she has a documented penicillin allergy . This was discontinued as soon as the error was noticed"*

Incorrect documentation of units

“As I was checking the charts I noticed that fluoxetine liquid had been written as 10mls instead of 10mg. I notified the pharmacist who discussed it with the medic on the ward . also discussed with nursing staff”.

Overdose of oxycodone

“Dose of oxycodone mr was increased from 80mg in morning and 60mg at night to 120mg twice daily on [date] . The prescriber discontinued the old morning dose but failed to stop the 60mg night time dose . Consequently the patient received an additional night time dose of 60mg mr on

Omitted medicine

"This lady was admitted on [date] and had her drug chart written up - she did not receive at least two of these drugs for 48 hours and became profoundly hypernatraemic as a result . this led to rapid fluid administration and she is currently life threateningly ill and may die as a consequence of this omission."

NHS Outcomes Framework

NHS England

1 Preventing people from dying prematurely

Overarching indicators

1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare
1b Life expectancy at 75 i males ii females

Improvement areas

Reducing premature mortality from the major causes of death
1.1 Under 75 mortality rate from cardiovascular disease*
1.2 Under 75 mortality rate from respiratory disease*
1.3 Under 75 mortality rate from liver disease*
Cancer
1.4 i One-and ii five-year survival from colorectal cancer
iii One-and iv five-year survival from breast cancer
v One-and vi five-year survival from lung cancer
vii under 75 mortality rate from cancer*

Reducing premature death in people with serious mental illness
*1.5 Excess under 75 mortality rate in adults with serious mental illness**

Reducing deaths in babies and young children
1.6.i Infant mortality* ii Neonatal mortality and stillbirths

Reducing premature death in people with learning disabilities
1.7 An indicator needs to be developed

2 Enhancing quality of life for people with long-term conditions

Overarching indicator

2 Health-related quality of life for people with long-term conditions**

Improvement areas

Ensuring people feel supported to manage their condition
2.1 Proportion of people feeling supported to manage their condition**

Improving functional ability in people with long-term conditions
2.2 Employment of people with long-term conditions*

Reducing time spent in hospital by people with long-term conditions
2.3.i Unplanned hospitalisation for chronic ambulatory care sensitive conditions (adults) ii Unplanned hospitalisation for asthma, diabetes and epilepsy in under 19s

Enhancing quality of life for carers
2.4 Health-related quality of life for carers**

Enhancing quality of life for people with mental illness
2.5 Employment of people with mental illness **

Enhancing quality of life for people with dementia
2.6 An indicator needs to be developed

3 Helping people to recover from episodes of ill health or following injury

Overarching indicators

3a Emergency admissions for acute conditions that should not usually require hospital admission
3b Emergency readmissions within 30 days of discharge from hospital

Improvement areas

Improving outcomes from planned procedures
3.1 **Patient Reported Outcomes Measures** (PROMs) for elective procedures
i Hip replacement ii Knee replacement iii Groin hernia
iv Varicose veins

Preventing lower respiratory tract infections (LRTI) in children from becoming serious
3.2 Emergency admissions for children with LRTI

Improving recovery from injuries and trauma
3.3 An indicator needs to be developed.

Improving recovery from stroke
3.4 An indicator to be derived based on the proportion of stroke patients reporting an improvement in activity/lifestyle on the Modified Rankin Scale at 6 months

Improving recovery from fragility fractures
3.5 The proportion of patients recovering to their previous levels of mobility / walking ability at i 30 and ii 120 days

Helping older people to recover their independence after illness or injury
3.6 Proportion of older people (65 and over) who were i still at home 91 days after discharge into rehabilitation*** ii offered rehabilitation following discharge from acute or community hospital ***

4 Ensuring that people have a positive experience of care

Overarching indicators

4a Patient experience of primary care
i GP services ii GP Out of Hours services iii NHS Dental Services
4b Patient experience of hospital care

Improvement areas

Improving people's experience of outpatient care
4.1 Patient experience of outpatient services

Improving hospitals' responsiveness to personal needs
4.2 Responsiveness to in-patients' personal needs

Improving people's experience of accident and emergency services
4.3 Patient experience of A&E services

Improving access to primary care services
4.4 Access to i GP services and ii NHS dental services

Improving women and their families' experience of maternity services
4.5 Women's experience of maternity services

Improving the experience of care for people at the end of their lives
4.6 An indicator to be derived from the survey of bereaved carers

Improving experience of healthcare for people with mental illness
4.7 Patient experience of community mental health services

Improving children and young people's experience of healthcare
4.8 An indicator to be derived from a Children's Patient Experience Questionnaire

5 Treating and caring for people in a safe environment and protecting them from avoidable harm

Overarching indicators

5a Patient safety incidents reported
5b safety incidents involving severe harm or death

Improvement areas

Reducing the incidence of avoidable harm
5.1 Incidence of hospital-related venous thromboembolism (VTE)
5.2 Incidence of healthcare associated infection (HCAI) i MRSA ii C. difficile
5.3 Incidence of newly-acquired category 2, 3 and 4 pressure ulcers
5.4 Incidence of medication errors causing serious harm

Improving the safety of maternity services
5.5 Admission of full-term babies to neonatal care

Delivering safe care to children in acute settings
5.6 Incidence of harm to children due to 'failure to monitor'

One framework
defining how the NHS will be accountable for outcomes
Five domains
articulating the responsibilities of the NHS
Twelve overarching indicators
covering the broad aims of each domain
Twenty-seven improvement areas
looking in more detail at key areas within each domain
Sixty indicators in total
measuring overarching and improvement area outcomes

The NHS Outcomes Framework 2012/13 at a glance

**Shared responsibility with the public health system and Public Health England and local authorities - subject to final publication of the Public Health Outcomes Framework.*

*** A complementary indicator is included in the Adult Social Care Outcomes Framework*

****Indicator replicated in the Adult Social Care Outcomes Framework*

Indicators in italics are placeholders, pending development or identification of a suitable indicator.

Medication error

NHS England

5 Treating and caring for people in a safe environment and protect them from avoidable harm

Overarching indicators

5a Patient safety incidents reported
5b Safety incidents involving severe harm or death
5c *Hospital deaths attributable to problems in care*

Improvement areas

Reducing the incidence of avoidable harm
5.1 Incidence of hospital-related venous thromboembolism (VTE)
5.2 Incidence of healthcare associated infection (HCAI)
- i MRSA
- ii C. difficile

5.3 Incidence of newly acquired category 2, 3 and 4 pressure ulcers
5.4 Incidence of medication errors causing serious harm

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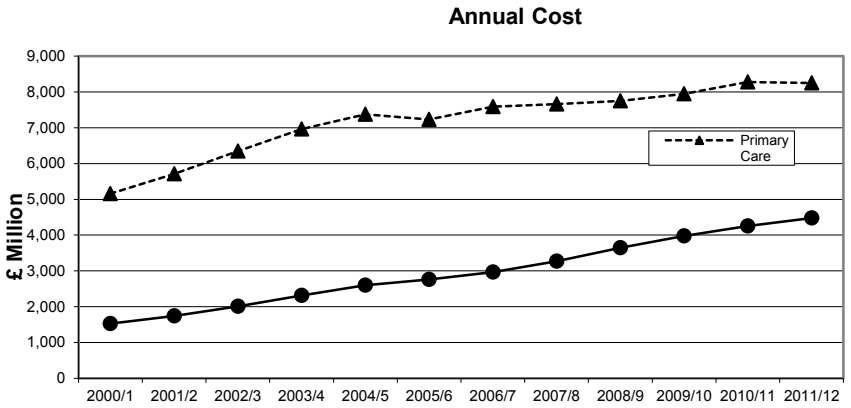
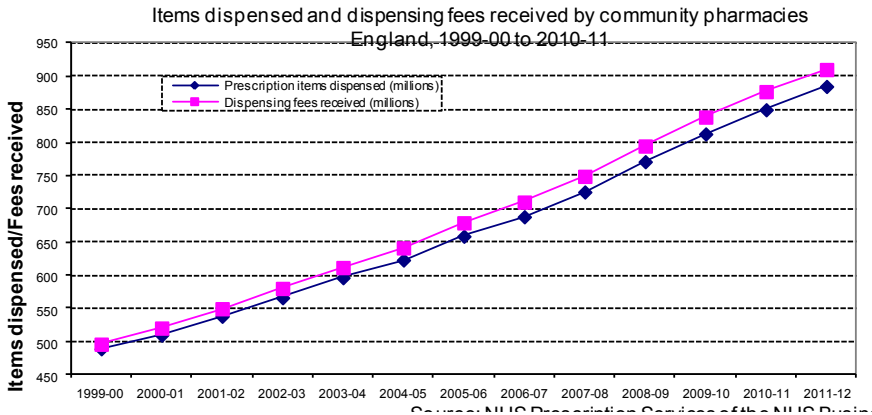
Medicines Utilisation in Practice

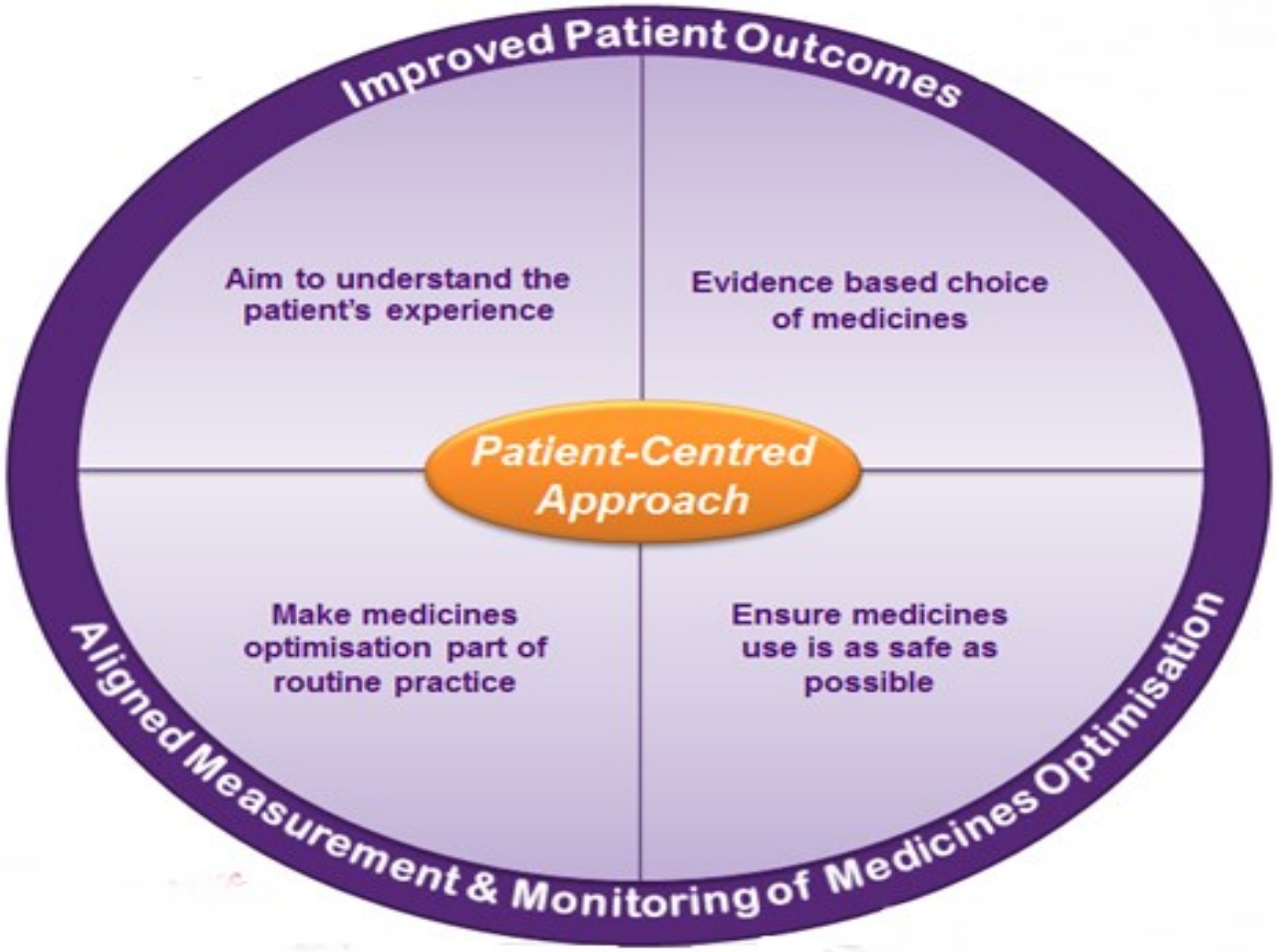




Source: NHS Prescription Services of the NHS Business Service

- Medicines still most common therapeutic intervention and biggest cost after staff, but, for example:
- -30 to 50% not taken as intended
- - Patients have insufficient supporting information
- UK Literature suggests 5 to 8% of hospital admissions due to *preventable* adverse effects of medicines
- Medication errors across all sectors and age groups at unacceptable levels
- Medicines wastage in primary care: £300M pa with £150M pa avoidable
- NHS Atlas of Variation
- Relatively little effort towards understanding clinical effectiveness of medicines in real practice
- The threat of antimicrobial resistance

Medicines Optimisation Principles



http://www.rpharms.com/promoting-pharmacy-pdfs/helping-patients-make-the-most-of-their-medicines.pdf

E-Prescribing

Defining ePrescribing

E-Prescribing: the utilisation of electronic systems to facilitate and enhance the communication of a prescription or medicine order, aiding the choice, administration and supply of a medicine through knowledge and decision support and providing a robust audit trail for the entire medicines use process.

(NHS Connecting for Health, 2007)

http://www.connectingforhealth.nhs.uk/systemsandservices/eprescribing/baselinefunctspec.pdf

Safety Case

- The medications we use have increased in number and complexity, demanding more knowledge and understanding from clinical staff.
- This also leads to greater concern over the risk of errors and the harm they cause
- Medication errors are identified as a major preventable source of harm in healthcare
- Research shows that a closed-loop electronic prescribing, dispensing and barcode patient identification system reduced prescribing errors by 47%, from 3.8% to 2.0%
- Dean Franklin B, O'Grady K, Donyai P, Jacklin A, Barber N; Qual Saf Health Care 2007;16:279–284.

E-Prescribing – reduction in risk of error

If e-Prescribing systems are developed and implemented effectively, they have the potential to deliver a wide range of benefits. These will include a reduction in the risk of medication errors as a result of several factors, including:

- more legible prescriptions
- alerts for contra-indications, allergic reactions and drug interactions
- Support of timely and complete medicines administration
- guidance for inexperienced prescribers.

E-Prescribing – process improvement

- E-Prescribing can also support process improvements as a result of:
  - improved communications between different departments and care settings
  - reductions in paperwork-related problems, e.g. fewer lost or illegible prescriptions
  - clearer and more complete audit trails of medication administration
  - improved formulary guidance and management, and appropriate reminders within care pathways.

E-Prescribing integrates the processes of medicines use

Linking people with interests in medicines use

- Doctors, nurses and pharmacists perform primary tasks as they prescribe, dispense, supply, check and administer
- Patients and carers are important too, they often need to know about their medicines eg at discharge
- Allied healthcare professionals may require read access to medicines information and on occasions may prescribe too
- Managers and researchers also need to access medicines data for review and audit

Support people who work with medicines

E-Prescribing systems help people perform their tasks:

- Legible instructions
- Reviewing medications history
- Indications of errors or omissions
- Access to further information
- Clear guidance on what to do next

E-Prescribing systems share data with other clinical information systems

- Data may flow to and from a large number of other systems
  - Patient administration system (PAS)
  - Pharmacy stock control
  - Electronic medical records (EMR)
  - Drugs information database
  - Chemical pathology
  - Discharge systems

But there are risks

- Systematic errors may be programmed in, e.g. terminating antibiotics without warning
- Assumption that ‘the computer must be right’, e.g. unthinking use of default doses
- Errors using drug selection drop-down lists
- Reduction in face-to-face communications within the care team
- Opioids carry particular risks as the doses at which they may be used can vary by 10 fold

Standards

- 2 key safety standards
  - ISB0129 – for suppliers – make a safety case for their products and hazard assessments
  - ISB0160 – for NHS Organisations – Safe implementation and operations e.g. NHS I.T.
- Suppliers and trusts must have clinical safety officers
- The more safety critical the product the more critical the safety case has to be
- ISB website – access standards – clinicians need to be actively involved in implementation
- There will be NHS England standards, written by clinical safety groups within CfH at the new Health and Social Care Information centre but they will be owned by NHS England

£260 million fund for hospitals to go digital

- “The fund will be used by hospitals to replace outdated paper based systems for patient notes and prescriptions, and is a critical stepping-stone in helping the NHS go digital by 2018”
- “The fund will help protect patients by ensuring that doctors and nurses are able to access accurate details about the care of a patient. And it will make a patient’s journey through different parts of the NHS much safer, because their records can follow them electronically wherever they go.”

£260 million fund for hospitals to go digital

This will be a major boost for the implementation of E-prescribing and administration systems which can significantly improve patient safety.

- The Safe Medication Practice and Medical Devices team plans to link with this initiative to help achieve the NHS Outcome Target of reducing the number of serious harms from medicines.
- The hope is that e-prescribing and administration systems such as the patient record are joined so that reconciliation across primary and secondary care is facilitated

Electronic Prescription Service

Electronic Prescription Service

The Electronic Prescription Service enables prescribers - such as GPs and practice nurses - to send prescriptions electronically to a dispenser (such as a pharmacy) of the patient's choice. This makes the prescribing and dispensing process more efficient and convenient for patients and staff.

EPS offers

- A national system to maintain patient choice and clinical safety that encourages local cooperation between prescriber and dispenser for the benefit of patients.
- The opportunity to reform working practices and cultures allowing the ensuing benefits to be realised.
- The chance to develop a patient led service that can grow at a pace the providers are comfortable with.
- A platform from which to develop even greater efficiencies and safety improvements, from a digitised supply chain through to patient administration and automated ID.

Consider the benefits of hospital prescribing for community dispensing.

NHS England

- EPS is being used successfully in primary care.
- Currently exploring the options for hospitals to use EPS for dispensing in the community.

Latest stats

- **798** general practices offer EPS.
- **9,848** dispensing contractors offer EPS.
- **Over 2 million** patients have nominated an EPS dispenser to receive their electronic prescriptions

Conclusion

- Yes some new risks are introduced – but on balance the benefits are significantly greater than the risks and the new risks can be managed.
- It is the view of the Safe Medication Practice Team – that the introduction of e-prescribing/administration is the single most important change to hospital medicines systems required to help reduce preventable harms from medicines

Thank you for listening

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