Experience Counts

NHS

Central Midlands
Commissioning Support Unit

futurefit
Shaping healthcare together

Concise summary of rapid evidence reviews to support the case for change

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Introduction

This is an abridged summary of three rapid evidence reviews completed for the Future Fit programme on: acute and episodic care; long term conditions and frailty; and planned care. This summary has been structured to map to the headings of the *Future Fit: Clinical Design Workstream: A report of output, November 2013-March 2014*. Where gaps have been identified, additional information has been sourced from other recent reviews undertaken by the CSU. Some gaps remain and can be addressed by further work to find relevant evidence, if required.

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Challenges

Changing patterns of illness

In their work on the House of Care model for patients with long term conditions, Coulter et al (2013) note: "Chronic diseases are now the most common cause of death and disability in England. More than 15 million people have a long-term condition such as hypertension, depression, asthma, diabetes, coronary heart disease, chronic kidney disease, or other health problem or disability for which there is no cure. These people tend to be heavy users of health care resources, accounting for at least 50 per cent of all general practitioner (GP) appointments, 64 per cent of outpatient appointments and 70 per cent of all inpatient bed days (Department of Health 2012a)".

In 2012, the Royal College of Physicians published their report, *Hospitals on the Edge?*, noting the changing needs of patients driving a need to redesign services: "People aged 60 or over make up nearly a quarter of Britain's population, and half of those aged over 60 years have at least one chronic illness. […] An increasing number of patients are older and frail, and around 25% of inpatients have a diagnosis of dementia. The reality of care in our hospitals has changed considerably. Nearly two thirds (65%) of people admitted to hospital are over 65 years old. People over 65 occupy more than 51,000 acute care beds at any one time, accounting for 70% of bed days. Hospital Episode Statistics (HES) show a 65% increase in secondary care episodes for those over 75 during the past 10 years, compared with 31% for those aged 15–59. People over 85 years old account for 25% of bed days – increased from 22% over the past 10 years. This equates to more than five bed days per annum, compared to only one fifth of a bed day each year for those under 65. People over 85 tend to spend around eight days longer in hospital than those under 65 – 11 days compared to three."

Higher expectations

A study commissioned by the Health Foundation in 2007 (Leatherman and Sutherland, 2007) explored patient and public experience of the NHS, including an analysis of what is important to patients and the public:

> "A distillation of data from multiple sources shows that patients and the public prioritise:
>
> - information and involvement in decision-making about care
> - being treated as an individual
> - choice where it makes a difference
> - predictable and convenient access
> - equitable treatment and health outcomes
> - being safe and protected from harm in healthcare settings".

The study concludes that at that time, improvements had been seen in access, through extended hours schemes; however, improvements were still needed in the following areas:

- better provision of information to and communication with patients
- engagement of the patient in shared decision-making about treatment options

- geographic convenience and ease of transport to health services
- improvements in patient safety.

In February 2013, NHS England set up the Seven Days a Week Forum. Chaired by Sir Bruce Keogh, the Forum has initially focused on urgent and emergency care services, reporting in December 2013 (NHS England, 2013a; NHS Services, Seven days a week, 2013a). The review notes the considerable variation in outcomes (mortality, patient experience, length of stay and readmissions) for patients admitted at weekends; the principle of 7 day working is supported by a range of professional bodies (NHS Services, Seven days a week, 2013b).

The review acknowledges the need for system change to address the issue of 7 day working: 'one part [of the system] cannot function efficiently at the weekend if other parts don't' (NHS Services, Seven days a week, 2013a). The evidence base report notes the need for improvements in the following areas:

- early consultant input;
- the use of multidisciplinary teams particularly in the care of older people with comorbidities;
- improving handovers between teams;
- access to diagnostic services to aid quicker decision making;
- access to interventional services such as surgery;
- access to mental health services;
- consultant delivered ward rounds;
- improving discharge.

A transition to 7-day working is supported by the Academy of Medical Royal Colleges (2012) and the Future Hospital report from the Royal College of Physicians (Future Hospital Commission to the Royal College of Physicians, 2013). NHS Improving Quality is delivering a programme to support 7 day working; there are now 13 early adopter health economies which will inform new models (NHS Improving Quality, 2013).

Clinical standards and developments in medical technology

The use of technology can help with assessing services and providing care closer to home. The Welsh Institute for Health and Social care (2012) found that while there is little evidence associated with the use of new technologies to support the delivery of health care services there is a general acceptance technology can be used in a number of important ways to support care closer to people's homes.

Increased use of technology is supported by the Future Hospital Commission (2013), for example:

- Technology can support community-based care by enabling self-management and support using telephone/text/email helplines, where possible linked to clinical coordination centres, enabling rapid advice and signposting for patients.
- Remote monitoring using telehealth devices can alert professionals to problems enabling rapid response, reducing the need for appointments and offering support between planned visits.
- Virtual clinics or ward rounds using teleconference, video conference or instant messaging could enable patients to remain in their home or care home whilst reviewing progress and agreeing care plans with clinical teams.

- Technology can make it easier for patients to book appointments, receive reminders, check investigation results online and record/upload their own findings (e.g. weight or glucose levels).

Increased sub-specialisation in medicine means that acute specialists often have less familiarity with other areas of medicine, necessitating more effective communication and collaboration between clinicians, often based in different locations. Telemedicine can facilitate effective networking between providers and allow patients to receive a wider range of clinical treatments in areas with less access to clinical expertise. (NHS England, 2013b).

Economic challenges

The Nuffield Trust (Curry et al, 2013) recently noted: "The NHS is currently facing an unprecedented financial situation. The 'Nicholson Challenge', first set out in 2009, identified the need to make £15-20 billion in efficiency savings by 2015. Ever since, the health service has been under pressure to close this productivity gap, which is driven by a combination of rising demand and rising costs. Recent analysis has found that the financial challenge may continue for much longer than previously anticipated and suggests that the NHS is actually facing a decade of austerity (Roberts and others, 2012)."

Opportunity costs in quality of service

Various Colleges have guidelines of expected A&E standards, including recommended consultant staffing levels needed to provide effective services:

Policy / Guidance	Key Recommendations
The Royal College of Surgeons of England, Emergency Surgery Standards for unscheduled surgical care (2011)	• As a minimum, a specialty trainee (ST3 or above) or a trust doctor with equivalent ability (ie MRCS with ATLSR provider status), is available to see/ treat acutely unwell patients at all times within 30 minutes and is able to escalate concerns to a consultant. • A consultant is available at all times for telephone advice. • The designated consultant is able to attend his/her base site within 30 minutes at all times. • Those considered at high risk (eg patients with a predicted mortality of ≥10% using the appropriate specialty risk scoring mechanism) are discussed with the consultant and reviewed by a consultant surgeon within four hours if the management plan remains undefined and the patient is not responding as expected. • In cases with predicted mortality of >5%, a consultant surgeon and consultant anaesthetist are present for the operation except in specific circumstances where adequate experience and the appropriate workforce is otherwise assured.
The College of Emergency Medicine, Emergency Medicine Consultants Workforce Recommendations (2010)	• Minimum recommendation of 10 WTE Consultants per ED and up to 16 Consultants in larger departments, with up to 16 hours EM Consultant presence per day, 7 days a week • 10 wte consultants can achieve 16/7 cover in EDs with attendances up to 80,000 per annum. Above this additional consultants would be required • For 24/7 on site clinical cover a minimum of 18 wte consultants participating fully in the out of hours rota would be required (on a basis of three shifts at weekends on a 1 in 6 rota rather than 1 in 5 because of the higher intensity of a rota that includes nightshifts). • For 24/7 cover in sites with high attendances (100k+) such as major trauma centres more consultants would be required.
The College of Emergency Medicine, Emergency Medicine Operational Handbook The Way Ahead (2011)	***Observation Medicine & Ambulatory Emergency Care:*** • Regular review by a senior ED doctor is recommended and a consultant led ward round must take place twice in 24 hours

Policy / Guidance	Key Recommendations
The College of Emergency Medicine, Emergency Medicine Operational Handbook The Way Ahead (2011)	***Paediatric Emergency Medicine:*** • All EDs should have a named consultant who leads for children‟s issues in the department • The College recommends that every ED with more than 16,000 childrens‟ visits per annum must have a minimum of one PEM-trained consultant. This equates to almost 50% of Emergency Departments in the UK

Table 1 : Recommendations for Consultant staffing levels in the Emergency Department

Impact on accessing services for populations living in two urban centres and much more sparsely populated rural communities

The accompanying evidence base to the Emergency and Urgent Care review led by Sir Bruce Keogh (NHS England, 2013b) found variation across the country in the proportion of emergency admissions to hospital, with people from lower socio-economic groups being more at risk of emergency admission to hospital. The review also found that those who live in urban areas have higher rates of emergency hospital admission than those in rural areas; however there is uncertainty about whether this difference is due to better management of patients in the community in rural areas, demographic factors or because patients who live further from secondary care have more difficulty accessing services.

The majority of evidence on the use of technology and access to services has focused on telehealthcare and the potential of the technology to reduce admissions and empower patients. Telehealthcare is recommended by a number of NHS bodies including the Department of Health and more recently NHS England; the accompanying evidence base to the Emergency and Urgent Care review led by Sir Bruce Keogh reported that "there is broad agreement that the use of telemedicine to support specialised treatment has significant potential for improving access to safe, high quality emergency medicine, particularly in rural and remote areas" (NHS England, 2013b).

Furthermore, telehealth has been supported by medical organisations and professional bodies in the jointly produced "silver book' guidelines for the emergency care of older people (British Geriatric Society, 2012) which includes the use of a telecare system as a recommendation for major incident planning; 'access to a telecare system in rural and remote areas that will permit professional health and social care workers to reach housebound older people in the event of a major incident should be provided'. The guidelines also state the use of telehealth and telecare may help support older people in their own homes, especially to anticipate problems and to support treatment and monitoring.

To date the evidence on the effectiveness of telehealthcare is limited to certain settings or with selected patient groups; the evidence suggests telehealthcare may be effective heart failure; diabetes; hypertension; frail elderly. There is no evidence to suggest possible cost savings; within the NHS the Whole Systems Demonstrator has recently reported which found reduced service use but no evidence of cost savings.

Acute and episodic care

Key principles

Care closer to home

A recent evidence summary from the Kings Fund (Bennett and Humphries, 2013) notes the need for a focus on prevention, to reduce demand for services and improve efficiency and effectiveness, suggesting partnership working and systematic health impact assessments as key areas for development. Bennett and Humphries also point out the importance of falls prevention programmes; and discharge planning. Da Silva (2011) notes the need to educate patients with long term conditions on their condition and how to manage the social, emotional and physical impacts. Corben and Rosen (2005) emphasise the need for patients to have clear information and guidance on how to access information.

Sir Bruce Keogh's vision for urgent and emergency care (NHS England, 2013c) proposes that improvements in urgent but non life-threatening care will relieve hospitals of some pressures to enable greater focus on more serious and life threatening needs. This vision depends on some of the care currently managed within hospital settings being shifted into a community setting, thus creating a networked system of care; Keogh sets out 5 key elements to achieve this:

1. Better support for people to self-care
2. Providing people needing urgent care need with the right advice in the right place, first time
3. Alternatives to A&E in the form of highly responsive urgent care services outside of hospital
4. Ensuring people with more serious or life threatening emergency care needs receive treatment in centres with the right facilities and expertise, including the introduction of two levels of emergency centres (Emergency Centres and Major Emergency Centres)
5. Connecting services within the urgent and emergency care system together through networks

A needs led service

The Future Hospital report (Future Hospital Commission, 2013) suggests that a patient-centred service would provide early assessment by the right clinician first time. This may require doctors working across emergency and acute care and the report advises that barriers to this are explored and removed. The report notes the benefits of ambulatory emergency care (AEC): improved patient experience; avoidance of admission; more efficient use of resources. Further detail is reproduced in Table 2.

Systems of Ambulatory Emergency Care (AEC) are continuing to evolve and the Kings Fund review of Urgent and Emergency Care in the South of England (2013) recommends that AEC should be provided were appropriate. The NHS Institute (2012) state AEC could be the norm for the following 4 groups:

- patients presenting with a variety of symptoms where a specific potentially life threatening condition needs to be excluded (eg acute coronary syndrome, pulmonary embolism or sub arachnoid haemorrhage).
- patients presenting with a range of conditions where after appropriate risk stratification and observation they can be safely discharged back into the community, for example: syncope, minor head injury, self harm; elderly patients who require multidisciplinary assessment prior to safe discharge.

- patients who would benefit from a period of short term therapy and observation prior to discharge back for community follow up, for example: moderate asthma; cellulitis; pain control following soft tissue trauma; pneumothorax.
- patients requiring a specific procedure / treatment which enables early discharge, for example: pleural effusions.

AEC can be provided in dedicated Ambulatory Care units (which may be community based) as well as assessment units, urgent care outpatient ('hot clinic') settings, and emergency departments (and associated ward areas/clinical decision units). It is recognised that implementation requires new ways of working; for example, new pathways will require real time information sharing to enable effective assessment, diagnostics and interventions (NHS Institute, 2012). The extent to which this can be delivered is dependent on improved integrated working across the whole system and the potential could be extended by innovations such as remote monitoring and other technological advances (NHS Institute, 2012).

Patient category	Initial assessment on AMU by	Placement	Ongoing care
Internal medicine not requiring admission (with early review in ambulatory care unit)	Acute medical team	Home – next-day return to ambulatory care	AMU consultant[a]
Specialty medicine not requiring admission (next-day review in ambulatory care)	Specialty team ± acute medical team	Home – next-day return to ambulatory care	Specialty consultant
Specialty medicine requiring front-door assessment to decide on admission or alternative (eg older people with frailty)	Specialist team at the front door (eg acute frailty MDT service)	Home or community placement or admission direct to elderly care	Geriatrician
Internal medicine predicted short stay <48 h	Acute physician	Transfer to AMU (Acute Care Hub)	AMU consultant[a]
Internal medicine predicted longer stay >48 h	Acute physician	Transfer when stable to medical ward	Consultant practising in internal medicine (general internal medicine, GIM) running ward
Primarily internal medicine with some specialty problem(s)	Acute physician[a] specialty team review/advice	Transfer when stable to medical ward	Consultant practising in internal medicine (GIM) running ward
Specialty medicine: need for specialty ongoing care identified by local agreed criteria	Acute physician (or specialty team according to local protocol)	Fast track to specialist bed (same day)	Specialty consultant
Deterioration in AMU and critically ill	Acute physician[a] specialty team	Level 2/3 bed (co-located with hub)	Intensive care medicine

AMU = acute medical unit; MDT = multidisciplinary team.
[a]AMU consultant can refer to either an acute physician (acute internal medicine) or a (general) internal medicine physician.

Table 2 : Patient flow and designated consultant responsible for assessment and ongoing care (Future Health Commission, 2013)

Integrated care

Purdy (2010) suggests integrating primary and secondary care can be effective at reducing admissions but the reduction seems to be limited to patients with certain conditions: "There is evidence from The King's Fund review that integrating primary and secondary care to provide disease management for patients with certain conditions can reduce unplanned admissions." Purdy also suggests integrating health and social care may be effective (such as joint teams for older people pioneered in Torbay and elsewhere) but research is ongoing.

A recent review (NHS Confederation, 2013) found integrating primary and secondary care (managed disease networks, shared care and disease pathways) to be effective at reducing unplanned admissions, however the cost effectiveness is less certain. This is reflected to an extent in an earlier review by Purdy (2010) who suggests integrating primary and secondary care can be effective at reducing admissions but the reduction seems to be limited to patients with certain conditions. The Kings Fund (Ham and Curry, 2011) highlight the importance of integrating not just at the health system level, but also at disease management and individual patient levels, citing the example in Torbay where integrated care has delivered a lower rate of emergency admissions and readmissions and low delayed transfers of care.

The Nuffield Trust (Bardsley et al, 2013) has generalized some key lessons in their report *Evaluating integrated and community-based care*:

- Allowing sufficient time to implement and embed large-scale change, pointing to examples such as Kaiser Permanente and Trafford which have taken years, as opposed to months, to demonstrate success.
- Ensuring clarity on eligibility criteria for different services and focusing on patients who may benefit most, such as patients at high risk of admission.
- Considering early indicators and outcomes which may demonstrate an impact, for example, a reduction in HbA1c may be an early indicator of reduced admissions for interventions aimed at patients with diabetes.

The Future Hospitals report (Future Hospitals Commission, 2013) emphasises the importance of information, as near to real-time as possible, to deliver improved models of care for patients, noting that "absence of information on the patient's usual health status and level of dependency can lead to a decision to admit when alternatives to admission (such as rehabilitation in the community or enhanced social suport) would have met the patient's requirements more effectively and safely".

The Future Hospitals report (Future Hospitals Commission, 2013) also notes the importance of routine and immediate access to records to improve care for vulnerable patients – currently, information on recent admissions or outpatient attendances may not be available, leading to delays in decision making. Holistic care is seen as part of a new model providing seamless care to patients.

Sheffield Teaching Hospital NHS Trust found that by providing a dedicated a multidisciplinary team of occupational therapists, a social worker and general and mental health nurses working in the Frailty Unit teamwork was much more cohesive thus benefiting patients (Health Foundation, 2012). Previously the team was dispersed often leading to delays in assessing the service once the patient had been identified for discharge.

Care by experts

Consultant-led care is a strong theme in the recent Future Hospitals report (Future Hospitals Commission, 2013) which highlights the issue of continuity of care in the management of acutely ill patients, proposing that care should be coordinated and delivered by a single consultant-led team which should continue post-discharge.

The effectiveness of consultant-led care is supported by several studies and reports:

- A report from the Royal College of Physicians (Lambourne et al 2012) concluded:
  - hospitals in which admitting consultants have no other fixed clinical commitments while on acute take had a lower adjusted case fatality rate
  - hospitals in which the admitting consultants work blocks of more than 1 day had lower excess weekend mortality
  - hospitals where the admitting consultant was present for more than 4 hours for 7 days per week had a lower 28 day readmission rate
- Fielding et al (2013) compared outcomes for 260 general medicine patients managed by two consulted delivered multidisciplinary teams (CD MDT) and 150 patients by a standard consultant led team of junior doctors (from December 2011 to April 2012). The study found reduced length of stay in the CD MDT teams (4-5 days versus 7 days, $p<0.001$) and no differences in readmission rates, patient safety or mortality.
- A retrospective study (Sen et al, 2012) analysed activity data over a year, comparing workload and admission rates between consultants, middle grade doctors and senior house officers. The results, although limited, suggest that consultants saw more patients; during night shifts, they admitted fewer (25.2% vs 30.3%, p¼0.026), had fewer leaving without treatment (1.6% vs 5.1%, $p<0.001$), discharged more outright (59.8% vs 47.5%, $p<0.001$), referred fewer to clinic (5.7% vs 6.6%, p¼0.49) and had a faster turnaround time ($p<0.001$: Priority 2, 3 and 4) for every triage category.
- Geelhoed and Geelhoed (2008) noted increased consultant numbers coincided with improved outcomes. The authors note that the increase in consultants proved cost effective ($A10.48 million by reduced admissions by over 2000 a year, compared with $A1 million for the 3.6 FTE additional consultants).
- White et al (2010) explored the impact of senior clinical review finding that inpatient admissions were reduced by 11.9% and admissions to the acute medical assessment were reduced by 21.2%. Inappropriate discharges were prevented in 9.4% and appropriate use of outpatient facilities led to a 34.6% increase in appointments. The authors suggest this may be due to improved risk assessment from greater experience; clinical judgement; confidence in clinical assessment; and knowledge and utilisation of alternatives to admission. Junior doctors will often seek advice from specialists by phone; the early involvement of senior consultants prevented 61.5% of such phone calls.

Early senior review in the emergency department has been shown to reduce generic admissions, and is a recommendation in guidance from the Emergency Care Intensive Support Team (ECIST) and findings from research by The Kings Fund (Kings Fund, 2013). The involvement of senior doctors 24 hours a day and consultant presence at times of peak activity seven days a week to ensure timely patient care and flow in an A&E department is also highlighted in the accompanying evidence base to the Emergency and Urgent Care

review led by Sir Bruce Keogh. Assessing patients in real time can avoid duplication and thus patient flow can be improved.

Specialist senior engagement may provide additional benefits. Sheffield Teaching Hospitals NHS Foundation Trust created a system where geriatric medicine specialists are available 'at the front door' to assess patients as soon as investigations have been done and enough clinical information is available. This is 10 to 20 hours sooner than in the previous system of the post-take daily ward rounds. Faster turnaround for diagnostic tests and a clear plan of care by consultants has increased the number of patients who can be discharged on the day of admission (The Health Foundation, 2012).

Consistent and consolidated services

Sir Bruce Keogh's vision (NHS England, 2013c) for urgent and emergency care proposes for people with :

- Urgent but non-life threatening needs , highly responsive, effective and personalised services outside of hospital should be provided, delivering care in or as close to people's homes as possible , minimising disruption and inconvenience for patients and their families.
- More serious or life threatening emergency needs, should ensure they are treated in centres with the very best expertise, facilities in order to reduce risk and maximise their chances of survival and good recovery.

The report includes a blueprint to share the look and design of the new system (future model of care):

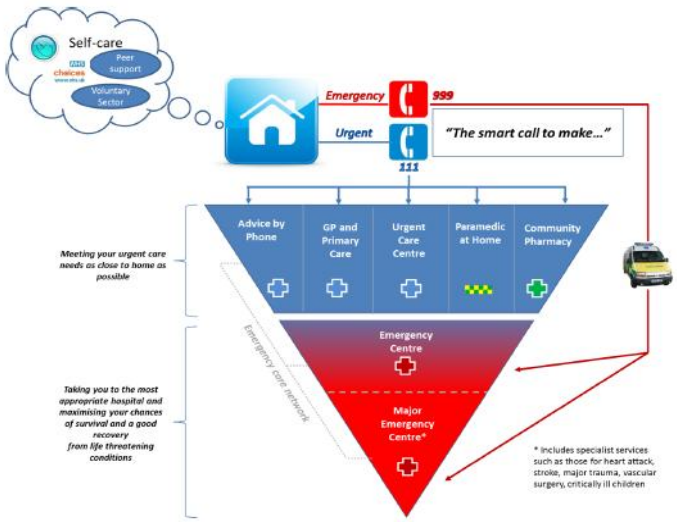


Figure 1

Sustainable systems

The accompanying evidence base to the Keogh review (NHS England, 2013b) notes: "Recent drives to deliver consistent care seven days a week, together with a recognised need for consultant-delivered care mean that recruitment issues represent a serious threat to the sustainability of A&E services. In 2011 and 2012, less than 50 per cent of ST4 posts for the A&E specialty were successfully filled. This has raised serious concerns over the supply of future consultants and the ability of A&E services to maintain current standards of care, which require consultant presence for 16 hours, seven days a week."

Model of care

Patient flows

Improving performance requires a whole system approach to patient flow, matching capacity and demand and removing some of the visible and hidden backlogs along the patient system (NHS Institute for Innovation and Improvement, 2008). The Health Foundation has explored this concept through their 'Flow Cost Quality' programme, focusing on the relationship between patient flow, costs and outcomes in two NHS hospital trusts: South Warwickshire NHS Foundation Trust and Sheffield Teaching Hospital NHS Trust. Their research has examined patient flow through the emergency care pathway and reports ways in which capacity has been developed to better match with demand, to prevent queues and poor outcomes for patients.

The two trusts in the Health Foundation's' Flow Cost Quality' programme report improving patient flow by making changes across the patient pathway. Changes include:

- meeting demand in real time at the front door and improve care through a single multidisciplinary assessment process
- speeding up patient flow by:
    - improving the turnaround time of core processes,
    - improving the flow into post-discharge care.

The Health Foundation report, *Improving Patient Flow* (2012) reports how South Warwickshire Foundation NHS Trust use daily visits by senior clinicians to MAU to decide discharge/follow-up outpatient or transfer to specialist ward. This was trialled in cardiology and now a range of other senior clinicians (including geriatric medicine specialists, gastroenterologists and chest physicians) have changed their working pattern and use this approach to care.

The vision outlined in the Keogh review (NHS England, 2013a) of urgent and emergency care proposes an enhanced role for the 111 service to provide a '24 hour, personalised priority contact service'. The review includes a commitment to work a new service specification for 2015/16 within 6 months of publication of the review (November 2013). The review suggests this new specification will describe a service which has access to patient records (subject to consent) which will enable an improved service for patients with long term conditions, end of life requirements or rare conditions; offers patients the option to speak directly to a health professional for advice and to book appointments at local facilities. A key aim is to avoid people feeling they are "bounced around the system". The new specification will require much more integrated working between general practice, out of hours services, community-based teams, urgent care facilities and the 111 service.

Turnbull et al (2014) conducted a research study into the work, workforce, technology and organisational implications of the 111 service, noting some of the implications of moving towards a more integrated model, including the importance of "understanding and trusting relationships between different providers" noting the impact of mistrust in some areas.

One emergency centre

The Keogh review (NHS England, 2013a) proposes a new system with two levels of hospital based emergency centres**:**

- Emergency centres- capable of assessing and initiating treatment for all patients; however those requiring specialist treatments after assessment will be transferred; thus critical care transfers will have to be a core part of the new proposed system.
- Major Emergency Centres- larger units, capable of assessing and initiating treatment for all patients as well as providing a range of specialist services. These will need to have consistent levels of staffing, access to specialist equipment and expertise. The report envisages that transfers from such centres will be rare, however with the exception of patients returning to community settings closer to home, post recovery from major illness and injury.

Assessment units

Assessment Units have been proven to show reductions in admissions to general wards however the results have been limited to a small number of systematic reviews undertaken in the early 2000s. The evidence suggests the importance of retaining clear models of care in times of pressure. The Kings Fund supports the use of MAUs however errs on the side of caution, stating they might be causing an increase in admissions as trusts try to avoid breaching four-hour wait target for emergency departments. Benefits can be realised by units that focus on specific conditions e.g. frail older people.

The Kings Fund paper *Urgent and Emergency Care: A review for NHS South of England* (2013) has shown how Acute Medical Unit (AMUs) can build clinical relationships and promote better risk sharing across the emergency care system. An AMU consultant on call takes GP referral calls directly, preventing 40% from being admitted.

Medical Assessment Units (MAU) focusing on medical admissions of particular medical specialties have shown to reduce overnight admissions. The Health Foundation report, *Improving Patient Flow* (2012) cites how an MAU focused on frail older people has reduced unnecessary overnight stays for people who were able to return home with support. MAU co-locates specialists: medical, nursing and therapist staff who deal with frail older people are in the same place, thus improving communication and team working.

For disease specific assessment better risk stratification may be beneficial; a viewpoint written by Collins et al (2013) estimate that up to 50% of patients with heart failure could be safely discharged from the emergency department after a brief period of observation, thus avoiding admission. Low-risk and intermediate-risk patients often only require observation however more precise risk stratification is required to determine this. This is further supported by a literature review by Fermann et al (2010) which suggests that observation units for acute heart failure syndromes (AHFS) have proven to be effective in reducing heart failure admissions and may reduce costs, however better prediction models are needed to make the important decision whether to admit or discharge patients.

Ambulatory care

Combining outpatients geriatric referrals and emergency patients at Sheffield Teaching Hospitals NHS Foundation Trust has proven successful in managing patient flow and reducing unplanned admissions; due to a backlog of referrals to outpatient services, patients were often admitted to hospital as emergency admissions before receiving / attending outpatient appointments; providing same day outpatient services has reduced unplanned admissions (The Health Foundation, 2012).

The NHS Institute for Innovation and Improvement has published two successful case studies that have helped reduced unplanned hospital admissions: the Weston Experience, and the Middlesbrough experience:

- A medical day case unit run by physicians where patients are assessed and treated on the same day (Weston Experience).
- An ambulatory care service adjacent to the hospital; clinical risk scores are used to identify which conditions can be treated in an ambulatory way (Middlesbrough experience).

The NHS Institute for Innovation and Improvement (2012) further explores the significant proportion of adult patients requiring emergency care that can be managed safely and appropriately on the same day either without admission to a hospital bed, at all, or through admission for only a few hours.

Diagnostic services

Diagnostic services, in particular blood sciences and imaging, are key to timely diagnosis and monitoring of treatment. Poor availability of these services can lead delays elsewhere in the system. Seven days a week services could help manage patient flow more efficiently and help reduce bottlenecks. Changes to diagnostic services require coordination of a number of staff, including phlebotomists, porters, and laboratory technician staff, which requires an understanding of the role each person plays in achieving patient flow improvements. Diagnostics are two of the seven key specialities the College of Emergency Medicine recommend that as a minimum an A&E department must have to support them.

The Kings Fund paper *Urgent and Emergency Care: A review for NHS South of England* (2013) has reported many of the ECIST reports highlighted the impact of reduced diagnostic services on emergency departments during weekends and also over lunchtime. For example, in one trust, pleuritic chest pain patients admitted over a weekend have to stay until a CT scan is available on Mondays. They concluded 7 day a week services would facilitate discharges and reduce bed days.

The Health Foundation report, *Improving Patient Flow* (2012), cites how co-ordinated changes in working patterns for phlebotomist, porters, and laboratory technician staff at South Warwickshire Foundation NHS Trust increased the number of same-day blood test results available on ward rounds from less than 15% to over 80%; phlebotomist working hours changed to coincide with end of the nursing handover. Changes to the portering routine enabled two porters to 'shuttle' between the phlebotomist and the laboratory, delivering small quantities of blood samples in real time. One laboratory technician changed their working day to start at 8.00am and finish earlier in the afternoon laboratory enabling staff to process blood samples as they came in.

'Some' urgent care centres

NHS England (2013c) recommends the co-location of community-based urgent care services in coordinated urgent care centres. This is to replace the multitude of confusing terms that are available at present, and would include walk-in minor illness and minor injury services, and be part of the wider community primary care service including out-of-hours GP services. The current fragmented service is confusing and is dependent on patients and 'external' healthcare professionals having knowledge of both their existence and their service, which can subsequently lead to patient safety issues as a result of patients presenting at services that do not best suit their needs. This is similar to a model that is increasingly being used in the Netherlands with GP co-operatives and emergency departments integrating, with one front office for patients - following triage patients are sent to a primary physician in the co-operative or a specialist in the emergency department (CRD, 2013).

An evidence summary by the Centre for Reviews and Dissemination states efficient triage and managing the flow of patients through appropriate urgent care services will be important in developing an urgent care hub (CRD, 2013). A report by the Primary Care Foundation concluded that the initial reception process is critical to ensuring that patients are directed to the correct service (Carson, Clay, and Stern, 2010). The use or triage liaison physicians, working in a team or alone, and fast tracking patients with less serious systems both reduce emergency department waiting times and length of stay (CRD, 2013). Primary care gate keeping or simply triaging the patients out of emergency departments can reduce the numbers but the safety of such a system is not known (Evidence Adoption Centre, 2011).

A study of a Swiss Hospital Emergency centre has shown that triaging non-urgent cases attending A&E towards hospital GP services has the potential to reduce waiting times, improve resource use and reduce treatment costs (Eichler et al, 2013).

The co-located urgent care centre relies on accurate triage by an 'in house' healthcare professional and arguably can provide effective services without the patient even knowing of its existence, stand alone and restricted case mix centres are entirely dependent on patients and 'external' healthcare professionals having knowledge of both their existence and their services (NHS England, 2013b).

- Urgent care centres may be advantaged by co-location with hospital service, particularly in urban areas (NHS England, 2013c).
- Although the evidence base is not strong for locating GPs alongside EDs this is the most common approach adopted as it is relatively easy for PCTs to set up and commission these services (Evidence Adoption Centre, 2011).
- The initial reception process is critical to ensuring that patients are directed to the correct service (Carson, Clay, and Stern, 2010; CRD, 2013).
- A review of primary care and emergency departments by Carson, Clay and Stern (2010) conclude there are a number of aspects that commissioners and providers need to address if they are to be successful in implementing primary care clinicians within or alongside emergency departments:
    - Ensuring early clinical engagement
    - Establishing working groups
    - Creating models and an ethos of care
    - Addressing all aspects of the service
    - Recognising that there are no quick solutions
    - Improving the linking IT systems
    - Exploring more collaborative ways of funding
    - Looking at the urgent care system

Partnership care

The Future Hospital Commission (2013) proposes a new model of care focused on integration:

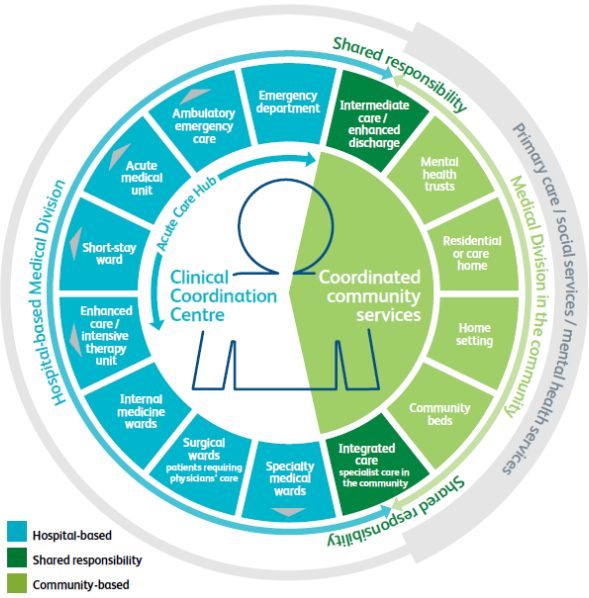


Figure 2

The report suggests a Medical Division is created to manage all medical services across the hospital and into hospital-led services in the community. A key aim of this division will be to design services to anticipate or prevent acute illness, which will require integration and seamless care. In this model, the hospital is seen as the hub of an integrated system. Specialty services would deliver both hospital and community based services via the Medical Division, attending handover meetings and providing outreach services (helplines, "hot" clinics, frailty units, ambulatory emergency care).

The Kings fund recent paper 'Urgent and Emergency Care: A review for NHS South of England' (Kings Fund, 2013) has shown how AMUs can build clinical relationships and promote better risk sharing across the emergency care system. In some AMUs the acute consultants are increasingly used by GPs to provide advice on seriously ill patients, developing closer working with the community. For example, in one trust the AMU consultant on call takes GP referral calls directly, preventing 40% from being admitted. This has led to better communication with GPs and although it is time consuming (and has resulted in GPs calling for advice more often), the acute consultants have found it useful to get to know the GPs and found that it prevents unnecessary admissions or patients being admitted for more targeted treatment. For example, anaemia patients staying at home under the care of the GP will have blood taken by the GP cross-matched and then the patient will come into the hospital for a transfusion when the treatment is lined up. The closer working with GPs has also promoted better risk sharing across the emergency care system, and has increased confidence that sick patients can be looked after in the community.

Professional navigation

The Future Hospitals report (Future Hospitals Commission, 2013) proposes a model including a Clinical Coordination Centre : "the physical area from which all hospital and associated community care is coordinated for all patients with active clinical needs that fall within the remit of the organisation". It is

suggested the Clinical Coordination Centre will coordinate access to electronic patient records, standard clinical referral, diagnostic and management protocols and integrated care pathways. Access to this information should also be available in clinical areas throughout the hospital. This will include data relating to community services (intermediate care, rehabilitation etc) and social/domiciliary care. The Centre will also manage telemonitoring, telephone and email helplines for patients and professionals 7 days a week and linked where appropriate with primary care.

The report recognises that the model of integration should fit with the local context – examples of possible models include shared information channels, multidisciplinary teams working across inpatient and outpatient care; the goal should be improved coordination as opposed to structural/organisational integration. It is noted that access to specialist care needs to be provided outside of the hospital walls, predicting that "physicians in the future hospital system working in the community and more closely with community colleagues to provide direct patient care, advice and education"; there are already examples of this in palliative care, geriatrics, respiratory medicine and diabetic medicine (Chapter 3, page 24 includes information on Community Consultant Diabetologist). A key goal will be to prevent avoidable admissions through an integrated approach to anticipate and prevent crises or exacerbations.

Integrated community care

The Kings Fund (Ham and Curry, 2011) conclude the evidence supports integration and highlight the importance of integrating not just at the health system level, but also at disease management and individual patient levels. The authors cite the example in Torbay where integrated care has delivered a lower rate of emergency admissions and readmissions when benchmarked to similar areas (demographically) and low delayed transfers of care.

In a recent report, Edwards (2014) outlines the need to remove complexity thus creating "a simple pattern of services [...] based around primary care and natural geographies and with a multidisciplinary team. These teams need to work in new ways with specialist services – both community and hospital based, to offer patients a much more complete and less fragmented service", noting the importance of involving mental health and social care services. A key focus for these simpler services should be on rapid response and enabling quicker discharge from hospital settings.

Sheffield Teaching Hospital NHS Trust describe how a new system was introduced in which patients are discharged once they are medically fit and have an assessment with the appropriate members of the social and community intermediate teams in the patient's own home (Health Foundation, 2012).

Long term conditions and frailty

Key principles

Enabling patient responsibility

Self management has been shown to be effective when based on an agreed action plan and educational interventions, for patients with long term conditions such as asthma, COPD and heart failure. Studies have shown benefits to patients (e.g. improved health outcomes such as less exacerbations, improved confidence) and the NHS (e.g. reduction in unplanned admissions) although the outcomes do vary across settings. Many of the NICE quality standards emphasise self management (Diabetes in Adults, Chronic Heart Failure, COPD, Asthma, The epilepsies in adults, Rheumatoid arthritis). Self management and care planning is seen as central to the House of Care model, which aims to improve service provision to people with long term conditions (Coulter et al, 2013) and is also supported strongly in the Kings Fund 10 priorities for commissioners (Naylor et al 2013).

Partnership care

The Royal College of Physician's Future Hospitals Commission published a report last year making 50 recommendations (Future Hospitals Commission, 2013) for how hospitals should adapt to meet changing needs of patients. The report predicts a future where "Much specialized care will be delivered in or close to the patient's home. Physicians and specialist medical teams will expect to spend part of their time working in the community, with a particular focus on caring for patients with long term conditions and preventing crises."

The report notes the need to increase clinical expertise in managing patients with frailty and dementia, suggesting that workforce needs to be organized around:

- Specialisation of care
- Intensity of care
- Coordination of care

The adoption of integrated care planned around the needs of the patient and coordinating multidisciplinary teams providing timely access to specialist care is believed to be a key driver in the challenge of improving diabetes care. The recent publication of 'Admissions avoidance and diabetes: guidance for clinical commissioning groups and clinical teams' (JBDS-IP, 2013) states that "clinically led managed networks for diabetes in England is the approach needed to practically organise the system of diabetes care to reduce admissions by delivering high quality coordinated care using care pathways, guidelines, monitoring outcomes and team-working across the different providers and commissioners to make improvements".

In the move towards integrated care it is recognised that an increasing number of community diabetes consultants are employed to deliver and co-ordinate services in a community setting only (Diabetes UK, 2010). As well as direct clinical care, the Royal College of Physicians, Royal College of General Practitioners, and Royal College of Paediatrics and Child Health (2008) 'Teams without walls' integrated model of care conclude that the role of the specialist in population-based healthcare covers the seven areas:

1) Healthcare delivery planning: advisory role across the whole population to enable the translation of clinical evidence into practice.
2) Clinical advisory role: development of guidelines and related documents.

3) Educational role: use of multiple formats to educate non-specialists and trainees in clinical and related specialist area.
4) Community role: to champion the treatment of disease or other areas within the community, and form links with community groups.
5) Remote clinical role: provision of clinical advice about patients to other practitioners.
6) Direct clinical care
   a) Joint consultation: together with generalist clinicians where the need for combined skills and knowledge will complement clinical care
   b) Direct clinical care: where specialist skills and knowledge are required that are beyond those of generalist practitioners.
7) Research: to advance understanding in the specialist area by direct or indirect involvement in research, or evaluation of research and appropriateness of translating research into practice.

Shifting care into the community

A review of the evidence base on moving services (Health Foundation, 2011) into the community concluded that:

- primary care may be an effective alternative to admission for some patients, especially the elderly and patients with long term conditions
- intermediate care may improve quality of life and reduce risk of mortality for acutely ill elderly patients
- patients seem to prefer home-based to hospital-based care
- early discharge is associated with higher quality of life and satisfaction
- patients undergoing community based minor surgery report ease of access, shorter travel times and reduced waiting times; however, the impact on quality was unclear.

The Royal College's report, on the work of the Future Hospitals Commission (Future Hospitals Commission, 2013) notes that: "care must be delivered in the setting in which patients' clinical, care and support needs can best be met, and not merely delegated to the acute hospital site 'where the lights are on'". Collaboration will be critical and the report suggests that hospitals need to reconsider their role within the health economy. The report notes that poor collaboration and integration means that vulnerable patients experience a lack of urgency in setting up social care support. The report proposes 4 principles of patient-centred care:

- Continuity of care: across acute illness and chronic disease management, this requires effective information sharing across clinicians and services.
- Patient-centred care: individualized and holistic care, requiring collaboration across services.
- Patient experience: noting that patients often experience moves within the hospital, the report suggests patient experience is measured alongside clinical outcomes and effectiveness.
- Vulnerable patients: noting that poor standards of care leads to missed opportunities to prevent crises or exacerbations, the report highlights the need for high quality care across multiple domains, engaging effectively with carers.

From reactive to proactive care

Georghiou et al (2011) conclude that the reliable way to identify patients at risk of future unplanned admissions is to use a predictive risk model. The limitations of the alternative models of case findings are discussed below.

Georghiou et al (2011) conclude that for a preventative service to be financially viable it must generate net savings after taking into account the success rate of the intervention and the costs for running the service. Targeting low risk patients with high cost interventions is not likely to be cost-effective and therefore careful consideration must be given when matching hospital avoidance interventions to at risk patients. Low risk patients may benefit from relatively cheap interventions such as self management, whereas high risk patients need more co-ordinated care across multiple providers.

Only targeting high-risk patients however might not yield significant savings due to the low volume of high risk patients. An analysis by Roland and Abel (2012) concludes "that in order to reduce emergency admissions by 10% by concentrating just on the 0.5% at highest risk of admission, more than the total number of admissions in this group would need to be avoided (107.5%). If the next group down were the focus of an intervention (the 4.5% of the population at high risk), 40% of their admissions would need to be avoided to produce an overall 10% reduction in admissions, which is still an improbably large figure". Furthermore, Roland and Abel (2012) have analysed these figures with regards to resource and capacity of case management: "And even with the high risk group, the numbers start to cause a problem for any form of case management intervention—5% of an average general practitioner's list is 85 patients. To manage this caseload would require 1 to 1.5 case managers per GP".

The use of some types of impactibility models within the NHS could be controversial. Georghiou et al (2011) report that models that prioritise patients with ambulatory care sensitive conditions or patients with multiple 'gaps' may be expected to help reduce health care inequalities, since higher prevalence of ambulatory care sensitive conditions and lower quality care can be associated with more deprived populations and areas, however other applications of impactibility modelling may worsen inequalities if they are allowed to develop unchecked e.g. impactibility models that exclude patients with mental health problems, or those that exclude patients with poor English language skills. Coulter et al (2013) cited a recent analysis by Branett et al (2012) of patient data from Scotland that found that most people aged over 65 had multi-morbidities, but the onset of multi-morbidity occurred 10–15 years earlier among those living in deprived areas; people in these areas were also more likely to experience mental health problems alongside physical illness or disability than people in more affluent areas. By excluding patients with mental health problems increases in health inequalities are likely to be seen.

The Future Hospitals report (Future Hospitals Commission, 2013) cite the support of the British Geriatrics Society for a collaborative approach built on primary care with specialist input, suggesting that links between community geriatric services and acute services, including the sharing of care plans, would enable more effective care to care home residents. There is also a suggestion that involving geriatricians in training care home workers can have a positive effect on care.

The Kings Fund, in their review (Kings Fund, 2013) for the South of England, summarise the evidence in relation to care homes, noting that the low levels of clinical care available in nursing and care homes has a knock on effect on resources. The report suggests that addressing this shortfall can reduce emergency attendances and admissions, quoting a study estimating "between 8% and 40% of patients seen in the emergency department coming from care homes could have received care or treatment outside of A&E". The report recommends:

- provision of end of life education, training and support to nursing and care homes

- the use of advanced care plans
- regular case reviews and medicines reviews
- increase access to medical (and specialist) advice
- provision of IV support.

A systematic review (Davies et al, 2011) of 17 studies explored the effectiveness of integrated working between care homes and health services. The study found considerable variation across services in how integrated care was designed and implemented, for example, the frequency of multidisciplinary team meetings; however, there was some consistency in that these were generally led by healthcare professionals not care home staff. Increased access to healthcare professionals and training were seen in many of the studies. Key enablers were noted as: support from care home senior managers; protected time; and involvement of care home staff at all levels.

The Silver Book (British Geriatrics Society, 2012b) is a key source on urgent and emergency care for older people. The guidance states that 'A whole systems approach with integrated health and social care services strategically aligned within a joint regulatory and governance framework, delivered by interdisciplinary working with a person centred approach provides the only means to achieve the best outcomes for frail older people with health and social crises'. One of the recommendations for discharge planning is that 'Care home providers should be treated as equal partners in the planning and commissioning of care both for individuals and for ensuring the correct processes and procedures are in place in care homes to support best practice'.

One of the key standards of the 'Silver Book' (British Geriatrics Society, 2012b) is that 'Older people coming into contact with any healthcare provider or services following a fall with or without a fragility fracture should be assessed for immediately reversible causes and subsequently referred for a falls and bone health assessment using locally agreed pathways.' This is also one of the recommendations of the NICE Clinical guideline 161 - Falls: assessment and prevention of falls in older people (2013).

The summary below categorises evidence of falls prevention interventions for three main areas of interest; 1) People in the community, 2) People in hospital, 3) People in care facilities. The summary is based on evidence in NICE clinical guideline 161 and two Cochrane reviews for preventing falls, one for the people living in the community, and one for people in care facilities and hospitals (Gillespie et al, 2012; Cameron et al, 2012):

- Recommend intervention – Both NICE and Cochrane provide supporting Evidence
- Consider intervention –Either NICE or Cochrane provide supporting Evidence
- Do not recommend intervention – Neither NICE nor Cochrane provide supporting Evidence

	Recommend	Consider	Do not Recommend
Community	• Multifactorial interventions	• Falls prevention programmes (including education and information giving) • Professional education • Multiple-component group exercise	• Brisk walking • Low intensity exercise combined with incontinence programmes • Group exercise (untargeted) • Cognitive/behavioural interventions • Referral for correction of visual

	Recommend	Consider	Do not Recommend
		• Home safety assessment • Pacemakers (people with carotid sinus hypersensitivity) • Medication Withdrawal / Review	impairment • Vitamin D • Hip protectors • Tai Chi
Hospital	• Increase patients awareness / Support and Information	• Multifactorial interventions • Environmental assessment and interventions • Exercise (physiotherapy)	• Use fall risk prediction tools or processes to target patients
Care Facility		• Vitamin D • Multifactorial interventions	• Exercise interventions • Multiple interventions

Table 3

Timely response, enhanced recovery and rapid reablement

In the Future Hospitals (Future Hospitals Commission, 2013) vision, patients who experience acute illness will be assessed through a series of questions:

- If the patient is acutely unwell, what assessment is required, by whom and where?
- What is the acute diagnosis? Are there any other problems?
- What new treatment is required and can it be delivered at home?
- What else is required to restore the patient to their usual function?
- How best can the whole care system keep the patient well?

Patients who do not meet criteria for a specialist pathway would be cared for by a trained generalist team, with specialist intervention where required. For frail elderly patients, there are risks associated with prolonged hospitalisation which need to be managed. Continuity of care is currently often lacking and the report recommends comprehensive geriatric assessment on arrival into hospital resulting in an agreed plan to promote recovery and regain independence.

The report recognises that the model of integration should fit with the local context – examples of possible models include shared information channels, multidisciplinary teams working across inpatient and outpatient care; the goal should be improved coordination as opposed to structural/organisational integration. It is noted that access to specialist care needs to be provided outside of the hospital walls, predicting that "physicians in the future hospital system working in the community and more closely with community colleagues to provide direct patient care, advice and education"; there are already examples of this in palliative care, geriatrics, respiratory medicine and diabetic medicine (Chapter 3, page 24 includes information on Community Consultant Diabetologist). A key goal will be to prevent avoidable admissions through an integrated approach to anticipate and prevent crises or exacerbations.

The last year of life

The End of Life Care Strategy (Department of Health, 2008) sets out a pathway aimed at helping commissioners and others with a framework to design and deliver services. For many patients, the preferred place of death is home; it is estimated up to half of those who died in hospital could have died at home. Commissioning is seen as a key mechanism for making sure that the right services are available to meet local need, and that they are sensitive to the needs of those approaching the end of life regardless of their condition. (Thomas K and Paynton D, 2013). Meeting patient needs could help reduce costs; reducing deaths in hospital by delivering more care outside the acute setting could save £180m per year (Addicott R and Hiley J, 2011). However current funding and contracting mechanisms can work against service integration, with hospitals rewarded for activity rather than supporting patients in the community, and block contracts limiting choice and discouraging integration (Addicott R and Hiley J, 2011).

An evaluation of a service providing integrated care at end of life (Chitnis X et al, 2012) showed that key success factors were:

- facilitation of discharge by ensuring there is adequate capacity to provide end-of-life care outside of the hospital setting;
- rapid response services being available during periods out of hospital to prevent emergency admissions to hospital at the end of life centralised co-ordination of care provision in the community;
- 24/7 care outside of hospital to prevent emergency admission and facilitate discharge from hospital at the end of life.

Model of care

Prevention

High-risk patients who have complex needs and have the highest risk of needing more intensive care and support tend to be high users of both health and social care. Coulter et al (2013) found that some of the primary care teams involved in the Year of Care programme felt that linking in social care data to risk stratification models would produce a more complete picture of what is going on across their locality. This might enable commissioners to integrate care and target resources more accurately with the 'gold standard' being a fully interoperable system that allows data to be shared between different local services. This is also a view supported by Ross et al (2011); "Social care data can also add predictive power".

Coulter et al (2013) cited a recent analysis by Branett et al (2012) of patient data from Scotland that found that most people aged over 65 had multi-morbidities, but the onset of multi-morbidity occurred 10–15 years earlier among those living in deprived areas; people in these areas were also more likely to experience mental health problems alongside physical illness or disability than people in more affluent areas. By excluding patients with mental health problems increases in health inequalities are likely to be seen.

Partnership care

The management of assessment is one of the themes addressed in the Future Hospitals report (Future Hospitals Commission, 2013), with the recognition that early specialist input is essential to promoting recovery and maintaining/recovering independence. Access to specialist care in the community is part of a vision for preventing exacerbations or crises, thereby avoiding potential admissions. This requires close

working between general practice and specialist services. The model proposed in the report suggests "an enhanced role [for the hospital] as the hub of an integrated healthcare system" requiring staff to be deployed in community as well as hospital settings, working in an integrated model with primary and social care on a 7-day basis.

Early senior review is a recurring theme in the report with the recommendation that elderly patients with comorbidities have access to comprehensive geriatric assessment.

Self management and care planning

The Health Foundation's Co-Creating Health model (Newbronner et al, 2013) incorporates self management training for people with long term conditions, training for clinicians to support patients, and a service improvement programme to establish enabling processes and systems. Co-production is a key component of the model, with training designed and delivered jointly by professionals and patients.

The NHS Confederation (2013) reported that much of the evidence tends to relate to specific conditions; the report suggests that patient self-management can be beneficial but reports mixed findings on the impact on admissions and costs; for example, initiatives such as the expert patient programme, while increasing patient confidence, do not appear to show much impact on hospital admissions.

Social deprivation has been shown to be a barrier to self management (Parsons et al, 2010) and better coordination is needed to join up the often fragmented services, and it is suggested that primary care could take on this coordinating role.

Evidence of effectiveness	Evidence is inconclusive
• Lay led education programmes (short-term effects) • Computer-based interventions (diabetes) • Written personalised action plans, by clinicians with expertise • Innovative approaches for adolescents (web-based, peer delivered within schools) • Education including communication skills, at least 3 months in duration, and delivered by a professional (adolescents) • Advice to recognise and manage problems with 2-3 actions points if condition deteriorates • Patient education on equipment and medicines • Specialist nurse education of adults/school-age children at/shortly after hospital attendance (asthma) • Specific packages for different conditions and different stages of disease • Group based training (diabetes)	• Lay-led education programmes (long term effects) • A different approach may be needed for pre-school children with asthma • The evidence on programmes specific to ethnic minority groups is inconclusive. • There is not yet enough robust research on the use of smartphone and tablet apps.

Evidence of effectiveness	Evidence is inconclusive
• Coordination across services and sectors • Storytelling groups (diabetes)	

Table 4 - Summary of key messages relating to self management from the evidence base

Integrated teams

In a recent report, Edwards (2014) states the importance of integration across acute and community services, to provide specialist support in the community for the care of people with long term conditions. This suggests an enhanced role for acute-based specialists to provide to clinical support, education, clinical governance and specialist consultations to primary and community clinicians.

A collaborative culture is noted as critical to establishing teams to support integrated working: a recent report from the Kings Fund (Goodwin et al, 2013), which shares lessons from several case studies, describes "'an energy for change' through an ability to build social capital and promote engagement and learning between partners in care across the local community". The authors emphasise the time taken to build this culture and whilst it may slow progress, it is seen as a "catalyst for change".

Increased levels of care

The vision outlined in the Future Hospitals report (Future Hospitals Commission, 2013) would envisage admission as only one step in a "smooth and efficient" pathway starting and ending at the patient's usual place of residence. Home-based care, for example, intravenous antibiotics, subcutaneous therapy and nebulised treatments, should be offered. The report outlines an ambulatory emergency care facility which could handle further diagnostic and medical needs, on a day case or hospital-at-home model. Functional ability would be monitored by physiotherapists and occupational therapists in the patient's usual place of residence, to give a truer picture of ability to cope.

The evidence base is supportive of the impact of discharge planning on avoiding admissions but there is the risk of readmissions when associated with hospital at home care. There are a number of reviews of discharge planning, including several focused on specific patient populations.

The Future Hospitals report (Future Hospitals Commission, 2013) recommends increased collaboration to facilitate discharge with planning starting at the first consultant review. This should include a provisional discharge date as well as outlining how clinical and support needs are to be met and how deterioration is to be managed. This would require transition planning to be incorporated into daily ward rounds and reviews. Integration is needed to ensure support services are in place as soon as the acute bed is no longer required; hospital-delivered specialist care should continue in the community particularly for patients experiencing exacerbations of long term conditions or frail elderly patients. Inadequate integration and collaboration leads to avoidable admissions.

Purdy (2010) reports a positive association between structured discharge planning and unplanned hospital admissions, in particular the use of individualised discharge plans, quoting a Cochrane review from 2010 which found re-admissions to hospital were significantly reduced by around 15 per cent for patients allocated to structured individualised discharge planning. This Cochrane Review has since been updated (Shepperd et al, 2013) and concludes: "The evidence suggests that a discharge plan tailored to the individual patient

probably brings about reductions in hospital length of stay and readmission rates for older people admitted to hospital with a medical condition." A meta review of systematic reviews (Mistiaen, 2007) of discharge interventions for adult populations found that discharge planning worked most effectively as part of a package of care and when discharge planning and discharge support are combined; the reviewers concluded that evidence seems to support a reduction in readmissions but is limited as to effect on length of stay and health care use after discharge.

This is supported by Scott (2010) who reviewed 7 systematic reviews of a range of discharge interventions: "With the exception of intense self-management and transition coaching of high-risk patients, and nurse home visits and telephonic support for patients with heart failure, single-component interventions were ineffective in reducing readmissions. Multicomponent interventions demonstrated evidence of benefit in reducing readmissions by as much as 28%, with best results achieved in populations of older patients and those with heart failure".

Reablement and rehabilitation

SCIE (2012a) note that in 2010, the majority of reablement services are delivered inhouse with only a minority of local authorities opting to outsource. SCIE (2012b) cite an example from mid-Surrey - in 2010, of the 3896 individuals referred for reablement, 69% were referred as an alternative to acute hospital admission. SCIE (2012b) cite an unpublished randomised controlled trial which demonstrated greater improvement in Activities of Daily Living in a group receiving reablement than the control group up to 12 months later. The trial also showed that the reablement group was less likely to use hospital emergency services.

Glendinning et al (2010) conducted a longitudinal study, following up a group receiving home-care reablement and a control group receiving conventional home care. They noted satisfaction from service users and carers who reported improved confidence and independence and a desire for more support to improve mobility and undertake activities outside the home. Reablement was associated with a decrease in subsequent use of social care services: the costs for the group receiving reenablement were 60% lower than for those receiving conventional home care. However, the authors note this was offset by the initial cost of reablement. Initially (the first 8 weeks), the reablement group had higher healthcare costs, which may have been because this group included more people referred from hospital discharge. For the remaining 10 months, there was no statistically significant difference in healthcare costs between the two groups.

Glendinning and Newbronner (2008) conclude there is strong evidence to suggest that home care reablement can reduce subsequent use of home support services and for some individuals, the benefits of reablement can last up to one year.

Considerations include: unintended consequences (SCIE, 2012b) which may mean service users have less direct contact with health and social care professionals which could lead to isolation; handover of patients to standard care following the completion of reablement (Francis et al, 2011); management overhead (Francis et al,2011); uptake and completion rates (Hall and Glasby, 2010); training to ensure staff understand the ethos behind reablement (SCIE, 2012a).

Reablement teams can be strengthened by occupational therapists and other specialist staff (Glendinning and Newbronner, 2008). SCIE (2012a) point out that this can be achieved through collaboration rather than recruiting directly into teams. In order to effectively measure the impact of reablement, there is a need to

join up records and systems to enable long term follow up and monitoring of subsequent use of health and social care services (Glendinning and Newbronner, 2008). SCIE (2012a) also note the importance of baselining and benchmarking.

Planned care

Key principles

Patient empowerment and navigation

Improving patient flow is one way of improving health services. The Health Foundation (2013) uses the 'quality triangle' to illustrate the relationship between patient flow, quality and cost in a system of care:

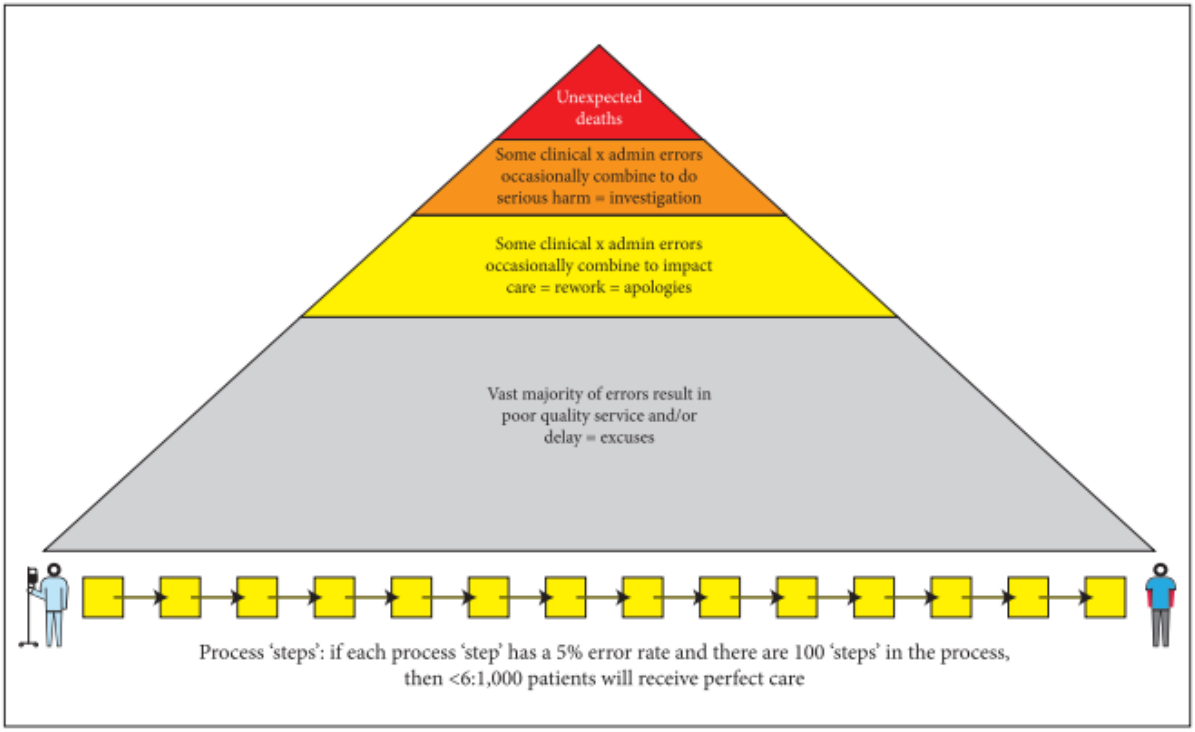


Figure 3

The process, or journey, that a patient experiences is depicted at the bottom of the triangle. Each yellow box represents a task. A patient journey may involve hundreds of clinical and administrative tasks and the same tasks can happen at different times and in different places. The number of tasks in a process affects the quality of care**.** If we assume that every task in a 100-step process is performing to the quality standard accepted in clinical trials – ie a 95% probability of it being done correctly – this means that fewer than 6 in 1,000 patients going through that process will receive 'perfect' care (the right care, first time, on time, every time, in full).

The grey base of the quality triangle reflects the usual working environment, in which many errors are detected but lead to poor quality service and/or delays. Patients, relatives and staff become so used to this level of quality that it becomes accepted as normal. However, many of these constantly occurring errors are not spotted and corrected (represented by the yellow part of the triangle). These errors can combine to cause a problem which impacts on patient care, such as medication errors, delays or repeated investigations. The same errors can also result in serious harm (orange) and, more rarely, in an unexpected death (the red tip of the triangle). However, there is no way of predicting how and when errors will combine to cause harm.

Improving the quality of each task by 1% and removing 10% of tasks in a 100-step patient journey would result in 25 out of 1,000 patients receiving perfect care. This represents a five-fold increase in quality, or a five-fold decrease in risk at the base of the triangle. Ultimately this will impact the small number of serious incidents and unexpected deaths at the top of the triangle.

Pathways

A number of key lessons from redesigning services and improving patient flow were highlighted through the Flow Quality Cost Programme led by the Health Foundation (2013), including:

- Looking at problems and potential solutions within health and social care systems through the 'lens' of patient flow will help not only to improve the efficiency of care processes, but also the quality of the overall system.
- Organising healthcare systems into organisational and departmental silos contributes to poor flow. Rather than optimising the utilisation of individual units in the system, there needs to be a focus on optimising the flow of patients through the system. True capacity constraints (ie average capacity not meeting average demand) are rare. The key issue is the mismatch between variations in capacity and the largely predictable variations in demand. Using the principle of 'doing today's work today', we can understand and manage variations in demand, and match capacity to meet it.

Levels of care

Enhanced recovery has been promoted widely within the NHS, with a national programme from 2009-2011 (Enhanced Recovery Partnership Programme) and a signed consensus statement in 2013 from various professional bodies. There are now numerous studies and reviews on enhanced recovery and increasing examples of implementation but the evidence base remains patchy. The concept of enhanced recovery originates from colorectal surgery in Denmark (Kehlet and Wilmore, 2008) and many of the studies focus on this specialty.

There are a number of studies, synthesized most recently in an NIHR-funded review (Paton et al, 2014a, 2014b). Much of the evidence stems from colorectal surgery, understandable given its origin, suggesting a reduction in length of stay by 0.5 days compared to conventional care, with no significant difference in readmissions or mortality. The findings in relation to patient experience and quality of life are less clear. The ERPP programme focused on four surgical specialties; colorectal, gynaecology, musculoskeletal and urology. A recent report from NHS IQ (2013) notes that enhanced recovery initiatives are now being seen in maternity and acute care.

NHS IQ (2013) suggest pathways should follow the 5 Ps:

- Primary care "fitness for referral" to manage risks
- Patient involvement to encourage shared decision making
- Prehabilitation, assessment and care planning
- Pain relief, fluid management and anaesthetics
- Preparation for discharge

In their forthcoming review, Paton et al (2014b) include a summary and appraisal of 10 economic evaluations of enhanced recovery. The evaluations suggest that programmes achieving lower lengths of stay are cost

saving and do not impact negatively on complications, readmissions or quality of life; however, the authors caution that the evaluations are based on relatively low quality research.

Model of care

Patient portal

'Digital First: Clinical Transformation through Pathology Innovation' is a newly published reported by NHS England (2014). The report suggests that as the pace of change in the NHS accelerates, pathology services are well placed to create and facilitate a new vision for patient-centred healthcare. A vision for the future might include:

- People will manage their own health, and will have access to their records and test results through their own health portal accessed online or on personal digital devices. They will commission their own health services, and will seek support and advice from the most appropriate specialist.
- Digital technology will increasingly enable cheap and easy point of care testing, in health environments or by patients themselves. Results will be automatically directed to the appropriate specialist and uploaded into peoples' health and care record – an EPR 'plus' which will cover every aspect of their health and wellbeing and will form the core of their personal health portal.

The report showcases an innovative project supporting patient self-management. The Renal PatientView project helps patients with long-term conditions to self-manage their disease. The project has developed, Renal PatientView (RPV) - an online patient portal that allows kidney patients to access their test results along with information and advice on their condition.

Pathways

The Royal College of Surgeons of England (2007) endorses the separation of emergency and elective surgery:

> "Separating elective care from emergency pressures through the use of dedicated beds, theatres and staff can if well planned, resourced and managed reduce cancellations, achieve a more predictable workflow, provide excellent training opportunities, increase senior supervision of complex/emergency cases, and therefore improve the quality of care delivered to patients".

In addition to reduced cancellations, the guidance highlights other improvement leading to enhanced patient experience and safety, including:

- earlier investigation,
- definitive treatment and better continuity of care
- reduced hospital-acquired infection risks
- reduced length of stay
- improved supervision of trainees

As well as separating emergency and elective care, units will need to stream elective care into minor, intermediate and complex and will need to consider post-operative arrangements for recovery depending on the 'level' of elective surgery provided (Royal College of Surgeons of England, 2007). The Royal College of Surgeons of England and Association of Surgeons of Great Britain and Ireland (2013) guidance on 'Emergency General Surgery' commends the collocation of higher risk elective procedures in the same hospital as emergency surgery.

Some of the challenges noted include: staffing and resource implications (Royal College of Surgeons of England, 2007); duplication of resources (e.g. non-medically qualified practitioners to support theatre work, allied health professionals to support diagnostics and laboratory work, and administrative staff to facilitate scheduling and patient bookings (Royal College of Surgeons of England, 2007); increased costs initially (Royal College of Surgeons of England, 2007).

The separation of elective and emergency care is a recommendation of the better service better value programme for South West London as highlighted in the Planned Care Clinical Working Group - Final Clinical Report (2012).

In a proposed new model for planned care provision in south west London (Better Service Better Value, 2012) the Planned Care Clinical Working Group agrees that day-surgery should be the default, and admission as the exception. The model shows that the majority of elective surgical care should take place in one of three settings: a day surgery unit, an elective surgery centre and in a major acute or specialist centres, anticipating that the majority of elective spells will occur as day cases in their current location. The remaining care will be broadly split into equal proportions and occur in an elective centre/centres and in major acute/specialist centres.

The NHS Institute (2008) Quality and Service Improvement Tool 'Treat day surgery as the norm for elective surgery' high impact change states "Switching to day case supports the national imperative of giving patients more choice and reducing waiting times. There are enormous benefits in adopting this approach. There is clear evidence to show that patients who have day surgery have an overall better experience, improved clinical outcomes and less risk of hospital acquired infections."

The lessons from South East London reconfiguration of hospital services state that there is an urgent need to develop new models of out-of-hospital care that aim to keep patients out of hospital for longer; however Palmer (2011) argues that shifting non-admitting hospital services into non-hospital settings should be subject to rigorous review as re-providing services in the same way in non-hospital settings is unlikely to improve quality or reduce costs and suggests an alternative model of care "The proposals to shift care out of hospital are unlikely to improve the quality of outpatient care or bring about the planned sharp reduction in the growth of hospital admissions. Given the projected excess estate in hospitals, it would be more cost-effective and probably result in higher quality care if increased intermediate care bed capacity and outpatient services were located in 'voids' within existing hospital sites."

A scoping review of research into strategies for improving outpatient effectiveness and efficiency (Roland et al, 2006) looked at approaches to reduce waiting times for specialist care using alternatives to outpatient treatment. The review focused on four broad strategies:

- Transfer: The substitution of services delivered by hospital clinicians for services delivered by primary care clinicians. This included: minor surgery, diabetes care, GPs with special interests (GPSIs), discharge from outpatient follow-up, and direct access for GPs to hospital tests and services.
- Relocation: Shifting the venue of specialist care from outpatient clinics to primary care without changing the people who deliver the service. This included: shifted outpatient clinics, telemedicine (as a 'virtual' form of relocation); and attachment of specialists to primary care teams.

- Liaison: Joint working between specialists and primary care practitioners to provide care to individual patients. This included shared care and consultation liaison.
- Professional behaviour change: Interventions intended to change the referral behaviour of primary care practitioners, including referral guidelines, audit and feedback, education and financial incentives.

The review found that there was a dearth of high-quality research for any one intervention, making it risky to draw firm conclusions; however the authors concluded that findings broadly suggest that transfer and professional behaviour change are generally effective strategies for reducing outpatient demand, whereas relocation and liaison are largely ineffective. A summary of the interventions reviewed:

	Effective	Promising (merits further Investigation)	Uncertain or low quality
Transfer to primary care	• Discharge of outpatients to: (i) no follow-up, (ii) patient-initiated follow-up, or (iii) general practice follow-up, as alternatives to routine follow-up in hospital outpatient clinics • Direct access for GPs to: (i) hospital-based diagnostic tests and investigations or (ii) hospital-provided treatments, without the prior approval of a specialist in an outpatient clinic	• GPSIs acting as substitutes for outpatient specialists • Transfer of medical care for common chronic conditions from secondary to primary care	• Transfer to primary care: Minor surgery (report decrements to the quality of care)
Professional behaviour change	• Structured referral sheets that prompt GPs to conduct any necessary pre-referral tests or treatments • Educational outreach by specialists	• 'In-house' second opinion prior to referral	• Passive dissemination of referral guidelines; audit and feedback of referral rates • Discussion of referral behaviour with an independent medical advisor
Relocation to primary care settings	• Attachment of physiotherapists to primary care teams		• Shifted outpatient clinic • Telemedicine • Attachment of mental health and epilepsy to primary care teams
Liaison with primary care			• Shared care • Consultation liaison

Table 5

Diagnostic services, in particular blood sciences and imaging, are key to timely diagnosis and monitoring of treatment. Diagnostics are often highlighted as a bottleneck in the patient pathways as speed of clinical investigation and clinical decision making depends upon diagnostic services and thus poor availability of these services can lead delays elsewhere in the system. Diagnostic services rely on a number of staff to deliver timely services; any changes to diagnostic services require coordination of a number of staff, including phlebotomists, porters, and laboratory technician staff, which requires an understanding of the role each

person plays in achieving patient flow improvements. The Health Foundation report, Improving Patient Flow (2013), cites how co-ordinated changes in working patterns for phlebotomist, porters, and laboratory technician staff at South Warwickshire Foundation NHS Trust increased the number of same-day blood test results available on ward rounds from less than 15% to over 80%; phlebotomist working hours changed to coincide with end of the nursing handover. Changes to the portering routine enabled two porters to 'shuttle' between the phlebotomist and the laboratory, delivering small quantities of blood samples in real time. One laboratory technician changed their working day to start at 8.00am and finish earlier in the afternoon laboratory enabling staff to process blood samples as they came in.

The Atlas of Variation in Diagnostic Services (NHS Right Care, 2013) highlights variations in diagnostics services and is a useful tool for clinicians and commissioners as it aims to encourage questions to understand if the variations are unwarranted. 'Digital First: Clinical Transformation through Pathology Innovation' (NHS England, 2014) highlights the role of pathology services in the care pathway: "Pathology's relevance to delivering better outcomes is due to its role throughout pathways, and not just at the point of diagnosis – 95% of clinical pathways rely on patients having access to efficient, timely and cost- effective pathology services". The report showcases innovation in the use of digital systems and processes used in pathology across the country to improve service delivery, patient safety and communication, among other things. Examples include:

- Transformative infrastructure – e.g. The National Pathology Exchange (NPEx), Virtual pathology, and Integrated management of test results
- Sharing information to improve patient care- e.g. Electronic referrals and sharing of electronic health records
- Supporting patient self-management – e.g. Renal PatientView project
- Business intelligence in pathology – e.g. Using information to improve services and outcomes
- Safer sample management – e.g. Managing samples from end-to-end with automatic identification, and RFID supports HTA compliance.

Benefits delivered from these service enhancements include:

- People feeling more in control of their health through better access to test results
- Multi-disciplinary teams having timely information and specialist advice to enable better treatment planning
- Better workflows between wards and labs to improve turnaround times and improve patient care
- Better identification and management of samples to enhance patient convenience and safety and reduce the cost impact of re-testing

NHS England (2014) suggest a future model that could assist in creating patient-centred pathways. By making appropriate test results reports available to the patient electronically (by email or text), at the same time as their GPs unnecessary loops in the patient's care pathway could be removed. Furthermore, the test report process could trigger further action within a pathway, where a diagnostic rule could show that this was appropriate, without the GP having to initiate it. Examples include:

- positive cervical smear generating a colposcopy appointment
- positive BNP result generating an ECHO cardiogram appointment
- positive calprotectin result generating a colonoscopy appointment
- positive Chlamydia or pre-op MRSA test triggering a prescription for an appropriate antibiotic

The report (NHS England, 2014) acknowledges that consideration would have to be given to the type of test being reported, and to making the commentary more understandable for non-experts, and there will have to be safeguards in terms of how information was presented to the patient.

Cross cutting themes

Embedding compassion and healthy relationships

Compassionate care has been a key theme in a number of recent reviews (including National Advisory Group on the Safety of Patients in England, 2013; Commission on Dignity in Care, 2012) and is one of the 6Cs of nursing and midwifery (NHS Commissioning Board, 2012). Each of these reviews comes with a set of recommendations for healthcare providers; however, the Delivering Dignity report notes: "Commissioning and delivering dignified care across health and social care is not something that can be achieved by a series of disconnected projects. Hospitals and care homes need to put in place integrated programmes to improve care, sustained by a long-term investment in energy, time and money to embed cultural and behavioural changes".

The Health Foundation has undertaken research on the impact of relationships in healthcare on quality, building on their work on person-centred care, shared decision making and self management. Their programme Closing the Gap through Changing Relationships explored the following interventions (Pederson et al, 2013):

- Patient self administration/medication
- Patient access to health records
- Addressing complaints about care received
- Involving women in decision making about antenatal care
- Use of peer support workers in healthcare and mental health
- Improving healthcare for homeless people
- Shared decision making in child/adolescent mental health

In terms of effectiveness, the research found relatively strong evidence for the following interventions: patient self administration; use of peer support workers; improving healthcare for homeless people. The evidence was mixed for other interventions; however, the researchers acknowledge the importance of local contexts. There was less consistent evidence in relation to patient-centredness (possibly due to differing definitions), equity and efficiency.

The researchers note: "Approaches to healthcare and associated patterns of behaviour have changed as a reflection of the changing burden of disease from acute to chronic, and this has influenced the nature of relationships between healthcare providers and users of healthcare. [...] There is a changing balance in the degree of professional and patient involvement in care, with many chronic conditions requiring significant participation by informed patients, calling for support from healthcare providers to inform and enable patients to self-manage their illness. This may also necessitate an ongoing collaborative process between patients and professionals to optimise long-term outcomes."

Rural and urban solutions

The recent review into urgent and emergency care (NHS England, 2013c) notes the importance of distance, balancing the care given en route and on arrival at hospital. The report refers to a study into severe trauma by Nicholl et al (2007) which suggests that there may be a 1 per cent absolute increase in mortality for life-threatening conditions with each extra ten kilometres in straight-line distance. However, Spurgeon et al (2010) report that it is the timing of the start of appropriate treatment, rather than the timing of arrival at

hospital that affects the outcome. Treatment by paramedics, or access to specialist care, can help address such risk. In service reconfigoration "it is important that clinicians are engaged from the start to help make this judgement. It is important to develop a plan that considers how the most serious conditions will be handled and to use this when highlighting to patients and the public that changes will not compromise clinical outcomes" (NHS Confederation, 2013). The review proposes a hub and spoke telemedicine system linking remote facilities with a central hospital providing specialist support. This would enable availability of specialist advice in rural locations.

Spurgeon et al (2010) report that the discussion on the clinical case for emergency care reconfiguration is based around the conflicting arguments of the advantages of specialist care versus the risks of delay in reaching a specialist centre. Spurgeon et al (2010) note: "Time matters in a large number of conditions and affects outcome (Cooke et al, 2005). Recently, Buchmueller *et al* (2006) have shown, using data on closures and distances travelled to hospital in Los Angeles between 1997 and 2003, that greater distance is associated with higher probabilities of death from heart attack and of unintentional injuries, with the most serious problems for older residents. A recent large scale study of over 10,000 cases of people with potentially life-threatening conditions (other than cardiac arrest) taken to hospital in four English ambulance trust areas found that increased distance to hospital was indeed associated with greater risk of mortality, at the rate of an additional 1% for every ten kilometre straight line distance, and the worst effects were for patients with respiratory emergencies (Nicholl *et al*, 2007)."

A recent report from the Health Foundation and Nuffield Trust (Roberts et al, 2014) explored the issues around distance from home to emergency care, noting a small increase in the average home-to-hospital distances since 2001/02 (from 8.3 km to 8.7 km). These figures represent the national average for England and therefore the distances in rural areas will be much further. The authors acknowledge:

> "There are no hard-and-fast rules to say at what point longer distance becomes a particular problem. Furthermore, consideration of how distance impacts on patient convenience, safety or reassurance needs to be offset by a range of other factors that influence choices about hospital facilities, such as:
>
> - whether there are enough staff to provide a safe service
> - how training is organised
> - whether there are sufficient support facilities for major A&E departments."

The authors recognise the importance of access to patients in determining their perceptions of the quality of services, and the importance of the effect on outcomes; choice; perceptions of safety and reassurance; benefits of larger hospitals (volume and scale).

Gouldie and Goddard's (2011) evidence review highlights that scale (and scope) may have implications on ensuring that staff giving advice or input into emergency care are trained and experienced in particular specialties, particularly if such training involves being able to see certain numbers or types of patients. In addition the withdrawal of some services may have an adverse impact on the ability of the hospital to train and retain staff required for another related service. For example, emergency care relies on intensive care which in turn relies on specialist anaesthetists. The Academy of Medical Royal Colleges Working Party (2007) view is that the sustainability of a critical care rota would be difficult if there was no need for any other

anaesthetic services in the hospital, for example the complete withdrawal of all operative surgery. The hospital would depend heavily on being part of a network with rotation of staff between that and other larger hospitals.

Palmer (2011), in his review of reconfiguration in South East London, notes evidence to support larger units serving a wider catchment area with better outcomes and improved cost effectiveness, pointing to examples A&E, maternity and neonatal services, hyper-acute stroke units and heart attack centres.

Imison (2011) reviewed hospital efficiency and found that "One of the most comprehensive assessments of hospital efficiency from the NHS Centre for Reviews and Dissemination (Aletras 1997) suggested that optimal hospital size lay between 200 and 600 beds. Normand (1998) suggested that there is no good evidence to demonstrate that closing small hospitals saves money but that merger of particular services (eg, intensive care, accident and emergency (A&E) services, cardiac surgery) could improve quality and save money. NHS London (Judd 2010) argues that the recent reconfiguration of stroke services has achieved improvement in quality as well as significant cost savings."

The evidence on the relationship between volume and outcomes is unclear. Halm et al (2002) indicated a statistically significant association between volume (physician and hospital) and outcomes. Although the evidence supports the proposition that higher volume is associated with better outcomes, the consistency and magnitude varies across specialties. The authors highlight some of the limitations in the research reviewed: there is a tendency to focus on a snapshot in time rather than trends over time, which doesn't allow for changes in caseload and case mix over time; the studies used differing definitions of "high" and "low" volume; and the authors cannot exclude the risk of negative publication bias.

Spurgeon et al , in their review of 2010, note: "What it [the evidence from the systematic reviews undertaken] does not provide is unambiguous evidence that only hospitals that can offer levels of activity above particular threshold levels can provide acceptable standards of care, not least because there is clear evidence that some larger volume centres do show poor outcomes". This perspective would seem to be supported by a review of the same year (Glanville et al, 2010) suggests that whilst there does seem to be a general consensus that higher procedure volume leads to superior outcomes, in many cases, there is no evidence to support this. There may be a correlation between lower mortality rates and higher volumes; however, the authors note issues with using mortality as an outcome measure. Some authors have hypothesised why outcomes may appear improved in higher volume centres, including, better adherence to clinical guidance and ability to deal with complications.

Glanville et al also note: "It is possible, with more resources, to provide clinically safe services at small sites, and this use of resources is a political decision. A safer solution can be a lower-cost solution only where it is possible to bring services together in a larger centre, which considerations of access and cultural significance may prevent." Ham et al (2012) discuss the issues around location of care and the relationship between volume and outcomes, citing evidence supporting the concentration of services in higher volume units and an association with better clinical outcomes (e.g. lower mortality rates); examples include vascular surgery, paediatric heart surgery; and stroke services. There is also an emphasis on providing care at the most appropriate location; for example, it is recognised that a hospital setting is not the best option for frail elderly patients and patients at the end of life. However, a lack of integration is often a barrier to providing alternatives to hospital based care.

Workforce issues

The Royal College of Physicians (2012) note the issue of recruitment into emergency medicine and general medicine at both training and consultant levels: "There were 0.8 applicants for every specialty training year 4 (ST4) post in 2011, compared with 5.0 for general surgery and 3.7 for geriatric medicine, resulting in partially filled training schemes. Numerous gaps have begun to appear in medical training programmes nationally and rota gaps are being plugged by locum staff on a regular basis. In addition, there are large numbers of unfilled consultant posts in emergency medicine".

Extended and weekend working for consultants was introduced at South Warwickshire Foundation NHS Trust; senior medical availability from 8.00am to 8.00pm ensured that patients were being assessed and put on the right care management plan on the day they presented. It took major delays out of the process and, crucially, avoided the need to 'store' patients overnight on the MAU (The Health Foundation, 2012).

Co-ordination, integration and consistency across the whole system

The Future Hospital report (Future Health Commission, 2013) proposes that hospitals start offering the same technology that patients now expect from other aspects of their healthcare or lives - for example, the ability to view their summary records, book appointments, receive reminders, report monitoring results and check test results. Use of text and email, and in particular recognising the increasing use of mobile devices (including apps), is recommended. It is acknowledged that use of technology (e.g. remote monitoring) and dissemination of information to provide support in the community could help to avoid admissions or attendances in hospital. The report mentions virtual clinics and ward rounds, using technology such as Skype. These themes will be explored further in the review on long term conditions and frailty.

Clinical data systems are seen as critical to effectiveness and efficiency, contributing to improved performance, audit, improved outcomes and improved quality and safety. Real time information on bed and clinical capacity is highlighted as important. The report acknowledges the role of Chief Clinical Information Officer who will help to link IT projects, clinical requirements and patient care, acting as the hospital's "information champion". The report notes the importance of service line management and reporting, reliant on robust information, but dependent on alignment of resources between elective and non-elective services. Improved access to information is needed not just for clinical care and service delivery - it is also critical for patients to support shared decision making.

Variations in outcome and costs among NHS providers for common surgical procedures was recently analysed in an NIHR-funded study (Street et al, 2014). The study uses Hospital Episode Statistics (HES) data combined with reference cost data and PRO (patient reported outcomes) data for patients who had these treatments between April 2009 and March 2010. The study found a significantly unexplained variation among hospitals in outcomes for patients undergoing hip replacement, knee replacement or varicose vein surgery, but not for hernia patients. For all four treatments there was a significant unexplained variation in resource use among hospitals. This variation persisted after controlling for a wide range of patient characteristics and is generally robust to the choice of instrument used to measure PRO and to whether resource use is measured by cost of treatment or length of stay.

The report also found that there was no general correlation between resource use and outcomes at hospital level across all four conditions; "Plots of the hospital-specific effects for both resource use and outcomes confirm this conclusion with, for many of the PROM and resource use combinations tested, the general mass

of points looking randomly distributed without any obvious systematic relationship". In the cases where a systematic relationship was identified, this tended to be negative. The authors concluded that this suggests that overall there is scope to improve technical efficiency in the provision of elective surgery.

Delivering effective high value care with no extra money

The Nuffield Trust (2011) noted recently: "Meanwhile, recent work by the Nuffield Trust has shown that although increasing pay costs have been limited by the wage freeze, labour productivity has generally continued to stagnate in the NHS since 2010 (Jones & Charlesworth, 2013), implying an overall reduction in output reflecting the reduction in spending on labour. Gains in productivity and efficiency which are fast enough to meet the cost pressures described above will require a shift to long-term, strategic transformation of services, creating savings by providing care differently rather than simply cutting down certain costs in a fundamentally unchanged system".

Ham et al (2012) ask how transformative change can be achieved in the NHS when public sector spending is not predicted to increase in the foreseeable future. Their report advocates learning and innovation as critical to change. It is recognised that change is not simply about introduction of the new but should also address the decommissioning of services, seen as essential to overcome inertia. The authors recommend iterative change, as an alternative to the traditional linear model, to see the health care systems as complex adaptive systems and to develop some risk-taking behaviours by testing innovations.

Social care

A report commissioned by the Association of Directors of Social Work (ADSW, 2013) highlights some key elements to be considered in an integrated model:

- a shared understanding of outcomes (patient-oriented such as greater independence as well as service-oriented such as a reduction in delayed discharges)
- a shared understanding of what the integration aims to achieve and why
- transformational leadership
- cultural change to align values, beliefs, assumptions
- a focus on how integrated teams will work, including processes, management arrangements, the degree of integration possible
- importance of the local context and understanding how models developed elsewhere need to be adapted to apply locally
- an appreciation of timescales, quoting the example of Torbay which evolved over 10 years and learning from the Department of Health pilots which suggests a 2 year period of development followed by a 1 year period of live running before significant change can be seen. This learning also suggests that strategies developed for quick wins may need modification to deliver sustained change.

A briefing from the Kings Fund and SCIE (SCIE, 2011) asks the following questions of commissioners:

- How can the joint strategic needs assessment and local health and wellbeing strategy help shape clinical commissioning plans?
- What kinds of service investments achieve the best outcomes and reduce demand for health and care? Examples might include falls prevention schemes, reablement and telecare, information and advice, carers support.

- What pre-existing joint working arrangements exist locally e.g. pooled budgets for particular services or groups? Do these need to be reviewed or extended to reflect new priorities? How can continuity of service for patients and their families be protected during organisational change?

The Local Government Association (Local Government Association, 2013) recently published an evidence review on integrated care. They note a lack of robust evidence and suggest this may be due to the length of time before longer term outcomes can be measured. The following key points are extracted from this review:

- case management has demonstrated some reduction in overall secondary care costs and some evidence of reduced bed usage; lower rates of emergency admissions for over-65s and lower delayed transfers of care
- person-centred and population-based care with both vertical and horizontal integration, with a single point of entry and one assessment process, was found to offer the greatest benefits
- implementing change takes time and relies on the contributions of many different people to succeed; one example given is the system studied in Canterbury, New Zealand which took 6 years to create one system and one budget
- personal health budgets were found to reduce costs of inpatient care and can lead to improved outcomes if used efficiently and effectively

Mental health

'Community services: How they can transform care' published by the Kings Fund (Edwards, 2014) highlights the importance of new models of community services to include both mental health and social care, including the management of the health and social care budget for the care of their patients. In order for the full potential of community services to be realised the report suggest that multidisciplinary teams should be wrapped around groups of practices, including mental health, social care, specialist nursing and community resources. The report also recognises that the community team will need generic mental health skills due to the high level of anxiety among patients with long-term conditions (and its concomitant impact on readmissions) and the growing number of patients with dementia.

NHS England has identified Rapid Assessment Interface and Discharge (RAID) for mental health as a high impact intervention in the Any Town model; "An effective liaison psychiatry service offers the prospect of improving health and wellbeing for patients with a mental illness and promotes early supported discharge from an acute setting" (NHS England, 2014). The Any Town model cites the Rapid Assessment Interface and Discharge (RAID) at City Hospital, Birmingham assessed by Parsonage & Fossey**.**

The current evidence base for the use of liaison psychiatry services remains limited or inconclusive, however it is important to note that whilst the evidence base for the use of liaison psychiatry services remains limited or inconclusive in a number of important respects this does not necessarily mean such services are ineffective. Parsonage et al (2012) conclude that there are genuine grounds for thinking that a well-run liaison psychiatry service can not only improve clinical outcomes among hospital patients but also promote significant savings in health care costs, citing that there are four related propositions that underlie this assessment:

1. The prevalence of co-morbid mental health problems among patients in general and acute hospitals is extremely high;
2. Many of these problems typically go undiagnosed and untreated;
3. In the absence of effective intervention, mental health co-morbidities lead to poorer health outcomes and significantly increased costs of care; and
4. Improvements in the identification, management and treatment of mental health conditions in hospital can significantly reduce the scale and cost of these problems.

Further research is required; a multi-site, cluster-randomised trial coupled with formal economic analysis appears to be the best design to evaluate liaison mental health services further. In June 2013 the National Institute for Health Research (NIHR) were seeking research proposals relating to psychiatric liaison services, specifically inviting research on activity, appropriateness, costs, quality and benefits of different models of delivering psychiatric liaison services in hospital settings.

Psychiatric liaison services can also extend to community settings. A recent HSJ article by Moulin and Parsonage (2014) reports the roles that liaison psychiatry in integrated community care can include:

- Diagnosis and formulation, particularly for patients presenting with complex psychiatric morbidity.
- Case management of complex cases including the provision of high intensity psychological interventions.
- Supervision and support for other professionals including GPs and Improving Access to Psychological Therapies professionals.
- Training of all staff working in integrated care services.
- Development of educational materials for supported self-care by patients.
- A focus on the needs of people with long term conditions and of those with medically unexplained symptoms.

Moulin and Parsonage (2014) also signpost innovations and developing models of community liaison services across England. The 3 Dimensions for Diabetes (3DFD) pilot programme is an example. The service is based in the inner London boroughs of Lambeth and Southwark and combines medical, psychological and social care (the three dimensions) to improve diabetes control and reduce complications in a diverse and growing diabetes population. The service is fully integrated into local hospital and community based diabetes services and consists of a consultant liaison psychiatrist and two social support workers from Thames Reach, a local third sector social welfare organisation. 3DFD provides a “wraparound” service based on intensive case management, which combines physical health interventions such as medication support, biomedical monitoring and diabetes education; mental health interventions such as medication and brief psychological treatment; and social interventions such as debt management and occupational rehabilitation.

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