Health Service Executive

Improving Safety and Achieving Better Standards
An Action Plan for Health Services in the North East

Report by Teamwork Management Services Limited
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Setting the scene

TIME FOR ACTION NOT DEBATE
We recognise that people care passionately about the current and future healthcare they receive, about their local hospitals and about the staff who work in healthcare. We hope this report will lead to improved safety and achieve better standards of acute healthcare in the North East where there is a history of high profile serious and fatal incidents.

Teamwork Management Services Limited were asked to report to the Chief Executive Officer of the Health Service Executive, providing an action plan for achieving, by 2015, the best possible acute care for patients in the North East counties of Cavan, Louth, Meath and Monaghan based on international evidence and practice.

We have identified best acute healthcare for the future, examined how good local hospital services are, prepared a local action plan and developed a proposal for one new public regional hospital in the North East.

Our understanding of the current position of healthcare has been informed by demographic and hospital discharge data for patients resident in the North East and patients in North East hospitals, published healthcare reports, policy documents provided by the Health Service Executive and fact-finding interviews with a number of national organisations.

We have been on familiarisation visits to the hospitals in Cavan, Drogheda, Dundalk, Monaghan, and Navan together with the Connolly and Beaumont hospitals in north Dublin. We were asked to prepare this report on an independent basis without formal engagement and consultation with the public, patients, staff, hospital organisations and other stakeholders in healthcare in the North East.

A consistent message we have received from people we have met through this review is that something must be done now to improve the current acute health services in the North East. We set out in the next section a summary of our findings and proposed action plan.
International health system reforms signal a big ‘shift’ in acute healthcare and will include:

- the transfer of as much acute care as possible to local hospitals and centres to minimise the need for patients to travel for treatment;
- establishing new regional hospitals with fewer acute beds which deal with more complex acute illness and injury; and
- developing formal clinical networks so that the local and regional elements of healthcare operate as one service.

The present health system, whereby five local hospitals in the North East deliver acute care to small populations, has exposed patients to increased risks. This has to change.

These small populations are not generating enough emergency work to justify a full team of consultants ‘on the doorstep’ and, if such a team were to be placed in such circumstances, they would progressively lose their skills due to lack of work.

As a result, there are serious current patient and staff safety issues to address in the North East, notably in accident and emergency, critical care and general surgery.

Local hospitals and new local centres form the focus for expanding the workforce and developing new roles, so that many more patients are safely managed at home or in the community setting.

A new regional hospital is proposed located in the southern part of the North East, with further work required on the implications for residents and hospitals of north Dublin.

An action plan is set out for the Health Service Executive.
We set out below the summary of our findings.

**Identifying best acute healthcare for the future**

We have reviewed current international health system reform in Australia, Canada, New Zealand and the United Kingdom identifying major changes to the delivery centred on transferring substantial amounts of care from acute hospitals into local hospitals and centres.

The review shows fewer larger acute 24/7 regional hospitals providing accident and emergency, critical care and specialist services, with sufficient patient volumes drawn from a catchment population of between 300,000 and 500,000 providing specialist care to seriously and critically ill patients.

These reforms, which result in the transfer of as much acute care as possible to local settings, are significantly different from the usual expectations of centralising all acute care and closing local hospitals.

There is a substantial reduction of about 30% of current acute beds as patients are treated in alternative settings and spend less time in hospital. Resources released from bed reductions are available to employ new local primary and community clinical and social care staff.

We examine how this means very different roles for regional hospitals, reusing existing local hospitals and developing new local care centres.

The delivery of acute healthcare is organised into clinical care networks centred around the patient.

At the centre of improving emergency services are new lead roles for ambulance paramedics and nurse practitioners in providing an immediate, tailored local response, managed by an Emergency Care Network for the region and supported by real time telemedicine links to expert clinicians based at the regional specialist hospital.

**How good are current local hospital services?**

The Health Service Executive asked us to look at how good current local hospitals services are in the North East and how to improve patient and staff safety at local hospitals in the short term. We highlight the following immediate concerns for the Health Service Executive:

- Providing acute services with insufficient patient volumes and unsustainable staffing arrangements;
- Examples of repeated failure of recruitment and retention;
The multiple critical care units;
• The problem of the occasional major planned operation;
• The increasing risks to acute medical services;
• The deskilling of staff;
• The absence of any formal clinical governance or peer review;
• Limited accreditation for post-graduate surgical & medical training; and
• None of the five acute hospitals have been accredited by the Irish Health Services Accreditation Board.

It is not appropriate to simply continue to bolster up services when the low level of clinical activity does not provide the necessary critical mass required to justify the presence of a full consultant team.

Some improvements have been made to current services, but we find that the way that some critical elements of acute care are organised and distributed across the North East hospitals are creating additional substantial professional risks for staff, and worrying clinical risks for patients. In particular:

• There is a non-viable emergency general surgery service at Our Lady’s Hospital, Navan;
• None of the A&E services are sustainable in their present form;
• The critical care units are too fragmented and too small to work effectively; and
• Major planned surgery in the region should not be undertaken on an occasional basis.

However, these service shortcomings are largely a reflection of shortcomings in the system, the way it is organised, distributed and the way it continues to be protected in its present form. The present system itself is a key source of the increased risks.

Our report examines these concerns in more detail and sets out an action plan to address today’s issues and ‘improve patient safety and achieve better standards’ for the future.
New public regional hospital

The population of the North East is forecast to increase substantially to 432,241 by 2015, with a 35% increase in the elderly, based on Central Statistics Office (CSO) estimates. Future activity and acute bed requirements have been identified including population growth, together with the impact of achieving clinical best practice for admissions avoidance, higher day case rates, transfers of care, clinical throughput and length of stay. Acute bed requirements are forecast to reduce by 120 beds after allowing for a 16% growth in the total population, a 35% growth in the elderly and the transfer of acute care into the local community setting.

The North East, with a forecast population of 432,241 by 2015, based on CSO estimates, requires one public regional hospital based on international norms for catchment populations of regional hospitals of between 300,000 and 500,000. This is on the basis that a substantial amount of current North East planned inpatient work will transfer from Dublin hospitals to a new North East regional hospital. Similarly much of the day case work currently undertaken in Dublin hospitals will transfer to a new regional hospital and other standalone day case facilities in the North East, some of which will be on current local hospital sites.

We examine patient choice factors and whether all patients will go to a single regional hospital in the North East, which includes reviewing the close interdependence of the North East and north Dublin. We identify that the 2015 forecast population for north Dublin will grow from 514,453 to 588,044, which is more than the maximum catchment for one regional hospital and less than the requirement for 2 regional hospitals. Applying clinical best practice assumptions to north Dublin indicates a reduction of 295 beds by 2015.

The combined 2015 forecast population for the North East and north Dublin of 1,020,285 is sufficient for 2 or a maximum of 3 regional hospitals based on the international catchment norm of between 300,000 and 500,000. Some of the current north Dublin hospitals also provide tertiary and other services to other parts of Dublin and the country, which may provide further catchment to suggest that 3 rather than 2 regional hospitals should be considered for the combined North East and north Dublin area.

On this basis one new regional hospital in the North East is proposed, provided key locational factors are used to determine the precise site including:

- A minimum catchment population of 300,000 is robustly identified for the new hospital;
• The location is sufficiently to the south of the North East region to attract patients who would otherwise use north Dublin regional hospitals, while also ensuring that most of the residents in the north of the North East will also use this same regional hospital; and

• The interdependency of the location in the south of the North East with the locations and catchments of current hospitals and future regional hospitals in north Dublin is clearly established.

A detailed site location study will be required including mapping of population growth and catchments, a review of current and future transport plans and, in particular, road networks, together with considering the longer term strategy for the development of regional hospitals in north Dublin.

We make recommendations in our action plan about final site selection and the process for developing the plan for a new public regional hospital in the North East.
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Our action plan for the North East

IN SUMMARY
Immediate actions for the Health Service Executive to take:

- Secure engagement, ownership and leadership from the health professionals themselves to take forward this agenda
- A three month urgent action programme to reduce risks
- A first 12 month work programme for the clinical networks group
- A work programme for the national standards co-ordination group.

There is a huge amount of work to be done to achieve safe local best practice in acute care healthcare in the North East. This will mean frontline health professionals being prepared to challenge the status quo, to work differently, to ignore the confines of present sites, estate, and to work on the imperative to improve patient safety not withstanding any local agendas not in tune with this.

We have provided the headlines from our action plan below.

Immediate actions for the Health Service Executive

Adopt a best practice framework for acute healthcare as the basis for system change and service improvements.
Establish a programme structure for leading and directing the work requirements. We have illustrated our suggestion for this structure as follows:

- Health Service Executive
- Chief Executive Officer
- North East Health Services Steering Group
- Clinical Networks Group
  - Project Director
  - Clinical Director
  - Regional Hospital Director
  - Network Directors for Emergency care
  - Critical care (Intensivist)
  - Planned care
  - Primary care
  - Chronic disease
  - Pathology
  - Radiology
We suggest the following actions for implementing this structure:

- Establish the membership and terms of reference for a North East Steering Group;
- Establish the membership and terms of reference for a Clinical Networks Group, including in the first instance appointing a:
  - Project Director to oversee the whole programme of change;
  - Clinical Director to get on with the urgent programme to reduce today’s clinical risks, engage frontline clinicians and support clinical network development;
  - Emergency Care Director to take the lead role in developing the emergency care network;
  - Consultant Intensivist to lead on service improvement in critical care and lead role for developing the critical care network;
  - Primary Care Project Manager to accelerate the implementation of the primary care investment strategy and lead on the further integration of primary care with other local emergency and planned care services; and
  - Regional Hospital Project Manager to oversee the detailed planning and business case for the proposed new regional hospital and ensure that the services, design and estate conform to international best practice standards.

The Health Service Executive to provide funding for the project team, to support risk reduction and the development of best practice clinical pilot programmes.

3 month urgent action programme to reduce risks

Improve critical care by centralising all level 3 care at Our Lady of Lourdes, Drogheda, at the same time ensuring effective throughput of such patients and providing the necessary retrieval and transport of patients.

Improve clinical outcomes by immediate arranging for all patients who need major planned surgery, particularly cancer, to be operated on by sub-specialist surgeons working in teams.
Relieve the excessive pressures on the general surgery service at Our Lady’s Hospital, Navan by arranging for it to become an planned general surgery service only, with transfer of all emergencies to Our Lady of Lourdes, Drogheda.

Improve the capacity and capabilities of the ambulance response to emergencies by increasing the deployment of advanced paramedics and ambulances, starting with County Cavan and County Monaghan.

Start building up the present A&E services by the recruitment of senior emergency nurse practitioners, with deployment initially at Cavan and Monaghan General Hospitals.

Develop proposals to extend the coverage of advanced paramedics and emergency nurse practitioners to the A&E services at Navan, Dundalk and Drogheda.

Build up the capacities of the existing General Practitioner out-of-hours service to support closer working with the advanced paramedics and emergency care practitioners.

Improve the quality of emergency care, clinical decision making and the early development of the emergency care network by urgently procuring a real time telemedicine system that links all frontline staff and all A&E services together.

Reduce unnecessary attendances to the A&E services by ensuring that General Practitioners have more, preferably full, direct access to diagnostics.

Define the consequences to acute general medicine / elderly medicine services from the progressive centralisation of emergency general surgery services and take action to protect patient safety.

Develop a much better understanding of the pressures upon the present emergency services by conducting a snapshot study of the patient populations and activity at all hospitals, covering all acute, critical care, coronary care and community beds and accident and emergency.
First 12 month work programme for the clinical networks group

Set up the clinical networks group and appoint clinical leads to initiate moves towards best practice and workforce development for emergency care, critical care, planned care, cancer care, radiology, pathology and chronic disease. The emergency care and critical care networks should be established first.

Use the results from these clinical groups to inform the development of the workstreams of two sub-groups: one for local services development and the other for regional services and hospital development, with each substantially supported by workforce development expertise.

Local implementation

Develop and implement on a local basis the resulting plans, networks and infrastructure for, emergency care, critical care, planned care, cancer care, radiology, pathology, primary care and chronic disease management.

Accelerate the implementation of the existing primary and community programmes including expanding the admissions avoidance programmes for patients with chronic diseases.

Develop an understanding of what current community and social service teams need in order to provide a 24/7 emergency response capability in support of the frontline emergency services.

Regional hospital

Develop the clinical specification, based on clinical network plans, for the new public regional hospital in the south of the North East identifying in more detail the clinical content, workforce and size as well as the clinical relationships to other existing and planned hospitals in north Dublin.

Develop the outline business case for the new public regional hospital for the North East including commissioning a detailed site location study.

Review the future provision of best practice acute care in north Dublin and the impact on the current and future north Dublin hospitals of establishing a new public regional hospital in the south of the North East.
A programme for the national standards co-ordination group

In addition, the Health Service Executive to establish, with relevant national bodies, a separate national standards co-ordination group to address the following:

- The accelerated introduction of clinical standards, and clinical governance at all public and private hospitals working with the Department of Health and Children, the Medical Council, recognised training bodies and the Health Information and Quality Authority.

- The development of a comprehensive approach covering the registration and service training accreditation of all consultant and doctors, working with the Medical Council and the national training bodies.

- The development plans for substantial workforce redesign and reskilling at a national level including a major role for the ambulance service in leading ambulatory care at home and emergency care networks.

We recommend that the Health Service Executive takes immediate steps to implement this whole action plan.
Identifying best acute healthcare for the future

**WHAT IS BEST PRACTICE IN ACUTE HEALTHCARE?**

Providing best practice in acute care 24 hours a day, 7 days a week is all about the health system being organised to ensure that all patients are treated in an appropriate healthcare setting by clinical staff who are supervised, well trained, alert, keep up-to-date with their skills, work in a multi-disciplinary team and have a fair share of the workload.

We have set out our approach to identifying best acute healthcare for the future, our findings of best practice in representative countries and our own views of what best practice is really all about. We describe first Teamwork’s credentials in this area.

**Our best practice credentials**

**Our stance on best practice**

Teamwork’s clinicians, senior finance professionals, operational researchers and information analysts have developed a unique understanding and expertise in mentoring health planners and hospital organisations through the whole best practice cycle, from understanding, to clinical engagement, action planning and on into implementation.

This experience has given us an inside track when it comes to helping clients to take the best practice agenda forward. In essence:

- Best practice is about people, about clinical engagement and about persuading clinical staff to ‘own’ the change;
- Best practice is not about bricks and mortar. Optimising acute care is about changing professional behaviour. Changing the estate is the by-product of changing the people, not the other way around;
• It is therefore a process, not a solution in itself. It is driven by the evidence of benefits of change and the patient needs, NOT by the needs of the service or its staff or its estate;

• It is a catalyst, it enlightens and motivates the operational workforce to work differently, certainly more effectively, and in a dynamic, seriously progressive manner;

• What constitutes best practice is not necessarily a clear-cut, black and white argument. Even after consulting the range of evidence available, there is usually a professional judgement to be made;

• Best practice is dynamic. In our experience, each new programme being developed adds a new twist to the story. It is not just about reproducing developments piloted elsewhere; and

• Finally, in our experience, it has often been possible to achieve substantial clinical progress towards best practice within very short timescales. Quick wins are a key element of the roll out of best practice.

Our own experience in assisting organisations to deliver best practice

Our views expressed on best practice are not just derived from desktop research and analysis. We argue that our comments have added weight as a result of working with frontline staff of many different organisations seeking to deliver today’s best practice. Our experience is largely drawn from England and Wales and we believe the principles for redesigning healthcare are readily transferable. Examples of these include:

• Incorporating best practice into health strategies for the future: The Black Country, Sandwell, Coventry & Warwickshire, North Wales, Trent region, Isle of Wight;

• Improving the health system: Healthcare Commission;

• Emergency Care: Southport, Carmarthenshire, West Hertfordshire;

• Planned Care: Diagnosis & Treatment Centres, Cancer networks, Vascular networks, Cardiac networks, Out-patient services;

• Building up local services: Southport, Dudley, Hampshire, Innovation in Primary Care;

• Developing specialist acute care in regional hospitals: Greater Manchester (neonatology), Swansea (acute), Wolverhampton (acute), Southampton (acute), Leeds (trauma & orthopaedics), London (acute, theatres, workforce reviews); and
An overview of international health system reforms

A review of health care reforms and strategy across the various countries of Australia, Canada, New Zealand and the United Kingdom, finds that they are characterised by consistent themes of change, with greater emphasis towards a community integrated approach to health promotion and ill-health prevention. A key priority within service provision is towards treating patients with long term conditions, ensuring continuity and provision of care at home or as close to home as possible. They give a clear message that, overall, healthcare needs to be integrated around the patient, not around service and organisational structures or sectors within the health services.

THE FUTURE IS ALL ABOUT A SINGLE STRATEGY FOR

- Investing in local services so that:
  - the vast majority of the population, who only need ‘routine’ planned care and minor acute care, are indeed managed locally, at home or close to home as is safe and appropriate;
  - the whole population have immediate access to life saving emergency management, as the first step in transfer to the regional service;
- Investing in regional services to ensure that the small minority of the population who need more complex, specialised planned care and major acute care are referred to a senior, dedicated workforce available round the clock and supported with the appropriate resources and facilities; and
- Binding these local and regional services together into formal clinical networks.

This international consensus emphasises that the drivers for change are equally global. No service is untouched by these problems. They are well recognised, urgent and are now driving changes in national policies, strategic planning, and in the way frontline services are delivered.
THE GLOBAL DRIVERS FOR CHANGE

- The recognition that current services in their present form are just not sustainable;
- The need to incorporate the rapidly increasing progress in healthcare knowledge and expertise into normal clinical practice;
- The impact of patient knowledge, demands and their rising expectations; and
- Keeping pace with the greatly increasing growth in the health and social needs of the elderly.

Australia

In Australia, the Government states of both New South Wales and Victoria have produced future plans for health care. In New South Wales, the state Government is currently out to consultation on its proposals to ‘shift focus more towards promoting health, preventing injury and illness, intervening early, providing continuing care and delivering a greater proportion of services outside hospitals in the community’. This would see primary and community health services working in collaboration with more specialised services that can support people with chronic and complex conditions and their carers to maintain their quality of life and independence in the community. There would be a strong integrated network of primary and community health services with other parts of the health service including hospital inpatient care.
The strategy in the Australian state of Victoria\(^3\) is centred on creating a new approach to the provision of ambulatory care services, with the development of community based ambulatory care services taking precedence over hospital based development. There are to be improved methods and facilities to care for older people, emphasis on substitution and diversion initiatives to reduce unnecessary hospital admissions, redistribution of local services and a new policy for specialist hospitals. To achieve this, it states that effective relationships and integration between the hospital services and the primary and community health services are needed.

**Canada**

The collaboration between the Canadian Healthcare Association, Canadian Medical Association, Canadian Nurse Association and Canadian Pharmacists Association in 2004\(^4\) resulted in a common vision document which states that to meet the health care needs in the future, the health care continuum must be expanded. This expansion begins with home care substitution for hospital care, moving on to care that reduces the need for hospitalisation, including better chronic disease management and better access to mental health services. These measures are seen to contribute to the appropriate utilisation of acute care beds.

This collaborative common vision fits well with the Canadian Government’s future strategy for health\(^5\). This examined the need to change the scopes and patterns of practice of health care providers to reflect how health care services are delivered; particularly new approaches to primary health care. Investments for change are centred on primary health care transfer and home care transfer. It states that “by making primary health care the central point of our health care system, it can:

- Take immediate action to prevent illness and injury, and improve the health of all Canadians;
- Reduce costly and inefficient repetition of tests and overlaps in care provided by different sectors and different providers;
- Replace unnecessary use of hospital, emergency, and costly medical treatments with comprehensive primary health care available to Canadians 24 hours a day, 7 days a week; and

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3. Directions for your health system, Metropolitan Health Strategy, State of Victoria, 2003
4. Common vision for the Canadian Health System, 2004
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• Break down the barriers between health care providers, facilities and different sectors of the health care system and concentrate on the common goal of improving health and health care for Canadians”.

Primary health care also places an emphasis on flexible responsibilities and the importance of multidisciplinary teams and the use of networks of providers working together to meet patients’ needs.

This strategy further states that, with effective primary care, there is likely to be less reliance on emergency departments to get advice or assistance with relatively minor ailments or persistent health conditions, in particular, for heart disease, cancers and other illnesses that are related to lifestyle factors; the long term result will be less need for hospital treatments. Effective primary care would also ensure that post-hospital care is well co-ordinated with home care and rehabilitation to minimise the need for re-admission to hospital.

Home care is seen as a means of allowing more people to be cared for, or recover, at home. This is considered as a cost effective means of delivering services to prevent or follow hospitalisation.

New Zealand

The New Zealand Health Strategy was published in 2000. This strategy’s aims include meeting the needs of the population, reducing health inequalities and improving the co-ordination across the health sector so that the system works for patients. Progress towards implementing the objectives and service priorities has been identified in a progress report. This includes the enhancement of primary care through the development of primary care organisations, which are seen as a key means for delivering the continuity of care required for chronic disease management and for collaborative action, and in the prevention of cancer through increased health promotion activities.

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6 The New Zealand Health Strategy, New Zealand Government, December 2000
7 Implementing the New Zealand Health Strategy, 2005
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United Kingdom countries

The UK Government recently produced a White Paper on the future of community services\(^8\). This paper sets out a new direction for the whole health and social care system and aims to achieve four main goals:

- Better prevention services with earlier intervention;
- More choice and a louder voice for patients;
- More on tackling inequalities and improving access to community services; and
- More support for people with long term conditions.

In delivering these aims, resources are to be shifted into prevention and health promotion with more care provided in more local, convenient settings, including the home and a new generation of local community hospitals.

The NHS Scotland set out its vision for the future\(^9\) with the need to:

- Ensure sustainable and safe local services;
- View the NHS as a service that is delivered predominantly in local communities rather than in hospitals;
- Preventative, anticipatory care rather than reactive management;
- Galvanise the whole system to more fully integrate services;
- Become a modern NHS;
- Develop new skills to support local services; and
- Develop options for change with people, not for them.

Some of the key proposals outlined in its vision are to:

- Manage those with long term conditions at home or in the community and reducing the chance of hospitalisation;
- Target action to prevent future ill-health and help reduce health inequality;
- Support for patients and their carers to manage their own health care needs and to help others with similar conditions;

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\(^8\) Our health, our care, our say: a new direction for community services, UK Government White Paper, January 2006

\(^9\) Building a Health Service Fit for the Future, NHS Scotland, 2005
Empower multi-disciplinary teams in community casualty departments to provide the vast majority of hospital-based unscheduled care, which are networked by telemedicine to consultant led emergency units;

Shorten waiting times and inform patient choice by separating planned care from urgent cases, treating day surgery as the norm rather than inpatient surgery; and

Concentrate specialised or complex cases on fewer sites to secure clinical benefit and manage clinical risk.

The implementation of this new direction of service delivery is dependent on whole system improvement and new ways of working requiring an integrated, collaborative and co-ordinated approach. Managed clinical networks are seen to play a key role in this development.

Similarly in Wales and Northern Ireland, recent models for healthcare reform have been produced. In Wales, the vision for 2015\textsuperscript{10} aims to achieve three design aims:

- Lifelong health – focussing on health and well-being, not illness;
- Fast, safe and effective services – with better demand management at primary and secondary care level and with services where and when they are needed and to meet the highest standards of safety and quality; and
- World class care with services to support people at home or as close to home as is safely possible, and services that are accessible, fast, safe and effective and responsive to changing needs.

This vision sets out different levels of service provision from services that can be safely provided at home or in the community, through to local acute, specialist services, and finally tertiary and highly specialised services. The aim is to reduce barriers between services and increase integration using the managed clinical network model, thereby providing ‘care services that work in unison, to agreed common standards and driven by the clinical needs of the patient’.

\textsuperscript{10} Designed for Life: Creating world class Health and Social Care for Wales in the 21\textsuperscript{st} Century, Welsh Assembly Government, May 2005
This pattern of service provision has also been identified by NHS Scotland and the Northern Ireland Government. In Northern Ireland, the vision\textsuperscript{11} is that over the next 20 years, ‘two distinct forces will shape health services’:

- Greater provision of generalist services within communities or on a day patient or out-patient basis than is the case at present, including primary care services, chronic disease management and social services to maintain and enhance independence and much of surgery currently provided on an inpatient basis; and

- Greater specialisation within acute hospital services, ensuring that professionals deal with a ‘critical mass’ of similar cases to achieve sufficient expertise. The current configuration of 15 acute hospitals will be replaced by a network of 9 acute hospitals supported by 7 local hospitals, with additional local hospitals in other locations as appropriate.

Hospitals will provide support to the community-based care services through a system of integration, including managed clinical networks, sharing good practice and resources for the benefit of the patient.

### Vision for the Irish health system

The health care reforms identified in the Australia, Canada, New Zealand and the UK show a close affinity with the direction of travel identified within the health strategy produced by the Department of Health and Children in Ireland\textsuperscript{12}. The underlying principle of this strategy is that care is provided in the most appropriate care setting at the right time.

The vision is to deliver ‘a healthier population and a world-class health system’. The strategy centres on a whole-system approach to tackling health in Ireland in which best health and social well-being are valued and supported.

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\textsuperscript{11} Developing Better Services: The Model for Future Health Care Services, Northern Ireland Government, February 2003

\textsuperscript{12} Quality and Fairness: A Health System for You, Health Strategy, Department of Health and Children, Republic of Ireland Government, 2001
An underlying principle is that access to health care should be fair, responding to the needs of the people rather than access, which is dependent on geographic location or ability to pay. The organisation, location and accessibility of services are required to take greater account of the evidenced based needs of the community they serve.

Assuring the quality of health care services is a further important principle. The strategy states that ‘improving quality in the health system requires implementation of internationally-recognised evidence based guidelines and protocols, and on-going education and commitment from health-care institutions and professionals. The development of a quality culture throughout the health system can ensure the provision of homogeneous, high-quality, integrated health-care at local, regional and national level. This involves an inter-disciplinary approach and continuous evaluation of the system’.

The strategy sets out four broad goals, which are:

- Better health for everyone;
- Fair access;
- Responsive and appropriate care delivery; and
- High performance.

A further key aim of the strategy is to develop the capacity of primary care to deliver a wider range of care. This includes the creation of an inter-disciplinary team based approach to primary care provision with members of the team including GPs, nurses/midwives, health care assistants, home helps, physiotherapists, occupational therapists and social workers. A wider primary care network of other primary care professionals will also provide services for the enrolled population of each primary care team.

The Health Service Reform Programme sets out an ambitious programme of change to be undertaken by the Irish health Service which includes the reconfiguration of hospital services.

Lack of integration of care between services is seen as an issue. It sets out the need for greater communication and liaison between individual clinicians within services and across services and the development of care management approaches.
In response to this, the Health Service Executive has set out its vision and mission. Its vision is ‘to consistently provide equitable services of the highest quality to the population we serve’. This will be provided through “high-quality, integrated health and personal social services built around the needs of the individual and supported by effective teamworking”.

Conclusion – the future role of acute based hospital services will be very different

Based on the international and national evidence of providing care locally and the changing and expanding role within primary and community services provision, the future role of acute based hospital services will be very different. The focus for acute hospital services will be on providing complex planned and emergency services, which require a full range of 24/7 emergency and clinical support services, which could not be provided at a more local level.

Given this concentration of services, there will be a requirement for centres serving a larger population catchment than has been the practice in acute hospitals in Ireland. There has to be a sufficient ‘critical mass’ of patient volumes and clinical activity to ensure patient safety, high quality and sustainability.

Finally, although the future roles of local hospitals and regional hospitals will be very distinct from each other, nevertheless they will need to operate as formal clinical networks if they are to provide best quality, seamless care to the patient.

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13 Health Service Executive Service Plan, 2005-2008
Developing local hospitals and local services for best acute healthcare

DEVELOPING LOCAL HOSPITALS AND LOCAL SERVICES IS ALL ABOUT

“Ensuring that the vast majority of the population, who only need routine planned care and minor acute care, are managed at home or as close to home as possible AND that the whole population has immediate access to life saving emergency management, as the first step in transfer to the regional service”

All services will operate as members of the relevant clinical network, with routine access to 24/7 consultant advice, including telemedicine, to assist with clinical decision making and local management and integrated, again on a 24/7 basis, with the primary care, ambulance, community and social service teams.

The listings below provide a general guide at this stage and will, of course, be subject to detailed needs assessment and location planning to ensure that there is equity of local access for all patients and sufficient patient demand to justify each element of the local service.

Core services at local care centres

The trend is for all local services to provide the following:

Emergency Care

- An emergency ambulance service, staffed by front line advanced paramedics, skilled and competent in the delivery of:
  - Emergency assessments and definitive treatment in the home, with selective transfer to hospital only as clinically necessary; and
  - Immediate emergency resuscitation, stabilisation and triage to the nearest appropriate regional service.

- Specialist nursing teams, based in the local hospital, will provide:
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- A minor injuries and illness service, including an observation unit for the urgent assessment and initial management of selected adults and children; and
- ‘Hospital at home’ service to safely avoid admission to acute care or allow earlier discharge from acute care.

In Australia, Hospital at home is well established for the management of both acute care and planned care conditions including intravenous therapy (antibiotics, chemotherapy, inotropes, blood products), DVT management, complex wound care and to deliver outreach management following A&E assessment, where the A&E consultant has continuing clinical responsibility. In the UK, Hospital at home developed from the need to reduce the length of stay for acute care by offering nursing and rehabilitation at home for selected post-surgical patients (earlier discharge) and those with chronic conditions, such as respiratory failure (admissions avoidance). A systematic review concluded that Hospital at Home services were effective, patients liked it but the economic case remained unproven.

Planned care

- Out-patient clinics, with all major specialties providing an outreach service from the regional hospital;
- Physiotherapy, occupational therapy and podiatry services; and
- Admissions avoidance services for chronic disease and long term conditions including mental health liaison and outreach.

Diagnostics

Local services will be supported by a wide range of diagnostics, including near patient testing, ‘hot lab’, plain X-ray, ultrasound, basic physiological measurement tests, etc.

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14 Montalto M et al. Acceptability of early discharge, hospital at home schemes. Treatments that can be safely managed at home need to be defined. BMJ 1998:317:111652


Additional local services at local hospitals

Local hospitals may, in addition to the core emergency, planned care and diagnostic services outlined above, offer some more local services where there is sufficient catchment population to justify a wider range of planned care treatment and diagnostic investigations. Again, all these additional services will be delivered under the management of the relevant clinical network.

Planned care

- Minor surgery under local anaesthetic. GP trained surgeons may undertake this range of procedures;
- Day surgery/23 hour surgery led by visiting consultants from the regional hospital, for conditions suitable for local or regional anaesthesia, including superficial hernia, selected laparoscopic cholecystectomy, cataracts, and simple foot operations.
  
  A day surgery theatre can offer 10 sessions per week and needs sufficient local population to generate sufficient workload for appropriate and effective use;
- Ambulatory services for a range of conditions, for example, chemotherapy and blood transfusion.

Local non-acute bed base

- A local bed base, providing short term care for:
  - Specialist rehabilitation, for example, stroke and trauma management after an episode of critical care in the regional hospital;
  - Step down, for the early transfer of patients nearer to home after receiving acute care at the regional hospital; and
  - Extending the role of the local primary care services, where they have facilities to manage a selected range of conditions that presently are routinely admitted to acute hospitals.

Diagnostics

- CT scanning, MRI (either fixed or mobile) and contrast X-ray service; and
- Routine diagnostic endoscopy services for gastro-enterology, urology, orthopaedics, gynaecology, chest medicine, including gastroscopy, flexible sigmoidoscopy, colonoscopy, flexible cystoscopy, flexible bronchoscopy, colposcopy, hysteroscopy, etc.
This guide list covers today’s approach to invasive diagnosis. The trend to less invasive diagnostic modalities, for example, virtual colonoscopy replacing endoscopic colonoscopy, mirrors the trends in surgical techniques for them to delivered increasingly less invasively. Therefore, it can be safely predicted that best practice in diagnostics will change rapidly in the next 5 to 10 years.

Developing regional hospitals for best acute healthcare

DEVELOPING REGIONAL HOSPITALS IS ALL ABOUT

“Investing in regional services to ensure that the small minority of the population who need more complex, specialised planned care and major acute care, are referred to a senior, dedicated, workforce, which is available round the clock and supported with the appropriate resources and facilities”

There is a clear international trend towards the centralisation of specialist acute services to ensure there is a sufficient concentration of a ‘critical mass’ of patient volumes to optimise the provision of safe, effective and high quality services through a well resourced and highly trained workforce. There is evidence to suggest the minimum size of catchment population for a regional hospital delivering best acute healthcare is at least 300,000 but could be as much as 500,000. This is examined in more detail in later sections of the report.

Typically, acute regional hospitals will provide co-located 24/7 services for:

- Accident and emergency;
- Trauma;
- Emergency medicine, including cardiology, gastro-enterology, respiratory medicine, endocrinology, rheumatology;
- Emergency surgery, including general, trauma, urological, vascular, ENT and ophthalmology;
- Complex planned surgery, applicable to all acute surgical specialties;
- Critical care;
- Cancer services;
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- Maternity;
- Acute psychiatry;
- Paediatrics; and
- Neonatology.

These acute services will have a full range of 24/7 clinical support services, in particular, ‘high tech’ diagnostics and pathology services.

The regional hospital will provide 24/7 specialist support and advice across the region through the clinical network system.

In turn, the regional hospital will be supported by tertiary, highly specialised services, with individual services provided to catchments of 1 to 4 million plus, dependent on service. These include neurosurgery, cardiac surgery, transplantation surgery, plastic surgery and certain children’s services.
What makes a viable Accident and Emergency service?

"..... hospitals with fewer than 40,000 attendances per annum, should be supported if they can demonstrate their safety, effectiveness and quality, and if the department has adequate support from other specialties and there are no problems with recruitment and retention of staff.17 "

In 1996, the Audit Commission, UK18, recommended that there should be fewer, larger A&E departments, each treating at least 50,000 patients each year in order to maintain quality of care. In 2004 the Royal College of Surgeons of Ireland calculated future surgical services on the basis of an A&E department seeing 70,000 attendances each year. In 2005, the British Association of Accident & Emergency Medicine (BAEM)19, in their major review 'The Way Ahead', categorised emergency departments according to their annual workload of new attendances:

- Less than 40,000 p.a. = small hospital
- 40,000 – 70,000 p.a. = medium sized hospital
- 70,000 – 100,000 + p.a. = large hospital

The BAEM and College of Emergency Medicine support the development of minor injuries units / urgent care centres where appropriate, staffed by non-consultant career grade medical staff and emergency nurse practitioners.

A large proportion of attendances to an A&E service, generally reckoned to be around 30%, are not true emergencies and have problems that can be managed in primary care. The Kerr report on the future of services in Scotland studied this issue and identified that some 60 – 80% of attendances did not need A&E management.20

18 By Accident or Design - Improving A&E Services in England and Wales The Audit Commission report, 1996
20 Building a Health Service Fit for the Future, NHS Scotland 2005
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A fundamental element of applying best practice standards is that all minor emergencies will no longer attend the A&E department but will be managed in appropriate primary care and community settings. For example, in 2004, there were a total of 95,848 new attendances to the A&E services across the North East.

If best practice was able to achieve a 50% reduction, it would have a major impact upon the size of any future regional A&E.

**Making sure that the local and regional hospitals work together to deliver best acute healthcare**

A managed clinical network has been defined as “linked groups of health professionals and organisations from primary, secondary and tertiary care, working in a co-ordinated manner, unconstrained by existing professional and organisational boundaries, to ensure equitable provision of high quality, clinically effective services”\(^{21}\)

All the evidence points to clinical networks being the key vehicle for enabling the delivery of best acute healthcare. The key networks are emergency care, critical care, planned care, cancer care, radiology, pathology and chronic disease.

Firstly, we take a look the workforce considerations, requirement for formal networks and the parameters for assured quality, all of which underpin each network.

**Workforce considerations**

A comprehensive workforce redevelopment programme, and the positioning of that workforce across the clinical network, is a pre-condition to the service being able to deliver the best acute healthcare.

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\(^{21}\) NHS Management Executive, NHS Scotland, 1999
We have already emphasised that delivering best practice is about staff, not bricks and mortar. Redeveloping the workforce, with new skills, new roles and new ways of working together is an essential first step in empowering the staff to deliver best acute healthcare.

For a service to be able to deliver that level of quality of care on a 24/7 basis, and in relation specifically to the medical consultants, it means that:

- Every acute specialty and their clinical support services need to be built around teams of consultants, available round the clock;
- Each specialty has a sufficient flow of acute clinical activity to keep both the consultant team and the wider multidisciplinary team gainfully occupied, productive and able to maintain their skills and competencies;
- Each consultant has an equitable share of the 24/7 commitment; and
- Each consultant is compliant with the European Working Time Directive.

For nursing, allied health professionals and ambulance staff, it means the enhancement and development of clinical career pathways into advanced nurse practitioner roles, emergency nurse care practitioners, advanced paramedics, clinical nurse specialists, and nursing and therapy consultant roles. These roles will provide and lead a range of care locally, including nurse led minor injury units and outpatient clinics.

The Primary Care Strategy also sets out the development of primary care teams and networks. As part of the implementation, the resource requirements, both in terms of physical premises and workforce, are identified. This assumes an additional 500 general practitioners and 2,000 nurses/midwives over the next 10 years. These additional resources are key in enabling the transfer of care away from acute hospital settings.

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22 Primary Care A New Direction, Department of Health and Children, 2001
Today’s trend is for acute specialties to develop teams with at least 8 consultants to provide a consultant driven service and to comply with European Working Time Directive regulations. The same trend applies to junior / supporting medical staff.

The European Working Time Directive is therefore not only dictating the minimum number of consultants in a team needed to deliver a continuous 24/7 commitment that complies with the regulations, but, by inference, is also dictating the minimum workload required to justify a team of that size being grouped together in that manner.

Therefore, the acute teams in the regional hospitals of the future, for A&E, medicine, surgery, trauma, etc., will be based upon this consultant profile of 8 or more in the specialty grouping. We will pick up the critical mass argument later, when we come to consider regional hospitals and the evidence surrounding what size of catchment population they need in order to deliver best acute healthcare.

Redesigning acute services for best acute care, therefore, needs to take account of critical mass, the combination of grouping sufficient numbers of consultants together and making sure they have sufficient workload to justify that grouping. This balance is no longer achievable in the traditional small and medium sized hospital.

Requirement for formal networks

We have summarised the key requirements drawn from current international best practice which are needed to support formal networks as follows:

- Whole system integration of hospitals, general practitioners, community teams, social care, patients and carers;
- The international research and practice highlights the central role of managed clinical networks as key to engaging and empowering frontline staff, developing new skills and roles, providing the engine room for quality clinical improvement and the redesign of service and clinical pathways;
• Whole system diagnostics and other clinical support services including more locally based diagnostics, recognising both technology advances in the tests themselves, changes in processing, and the potential to separate undertaking the test from the reporting of results;

• Fully wired network with an information and communications system enabling a real time, high quality, teamworking approach to acute care through the use of:
  - Electronic patient records including prescribing, pathology, radiology and other test results;
  - Clinical telemedicine, telediagnostics, telecare and smart home services;
  - Picture archiving and communications (PACs);
  - Electronic prescribing;
  - Electronic booking;
  - Patient access via broadband to their electronic patient record; and
  - Official websites to develop self-care and health promotion.

While these key requirements may appear comparatively straightforward, they provide both the opportunity through the managed clinical networks and the ‘glue’ through diagnostics and information and communications to support a fully integrated healthcare system, without which best practice will be unable to achieve its full potential.

Requirements for assured quality

We have summarised the key requirements for ensuring assured quality of future healthcare delivery as follows:

• Sufficient and appropriately trained and accredited workforce which is able to:
  - Engage in redesigning and delivering services through new patterns, locations and times of delivering healthcare with new technologies;
  - Develop new extended roles for nurses and allied health professionals, while recognising the significant time lag often present in retraining;
Meet European Working Time Directives on maximum working hours through appropriately staffed and designed rotas;

- A formal system of clinical governance and peer review to ensure an effective quality of patient and staff safety through a cycle of audit, feedback and improvement. This includes the balance of safety, quality, volume and risk and evidence about better clinical outcomes from higher volumes, for example for specialist procedures such as paediatric surgery, some cancers, certain types of trauma and vascular surgery;

- Having access to systematic and routine horizon scanning for the impact of service and clinical developments across therapies, procedures, drugs, imaging and devices, including:
  - Diagnosis and treatment on a minimally invasive basis;
  - Surgery being replaced by drugs and other interventions;
  - Implantable devices;
  - New less invasive imaging technologies; and
  - Genetic testing supporting individual specific drug treatments.

Patient scenarios have been included to illustrate how clinical networks, technology and flexible working practices will provide a patient centred responsive approach in the future.

It is not easy for every reader to understand the implications of moving to best practice and how that differs from today’s approach. Scenarios have been included in the rest of this section in an attempt to paint a picture of best practice patient journeys for a variety of common presenting symptoms and conditions. They represent the ideal, with the system, workforce, networks, resources and infrastructure in place to make it all happen in a fluid, seamless manner.
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Emergency Care Network (Adult and Children)

The ambulance service is the nerve centre of a 'real time' emergency care network, linking the whole workforce on emergency duty and providing a uniform, measured emergency response, from the patient’s home through to critical care and beyond into tertiary care.

By 2015, the emergency care network will be the primary network running the emergency element of acute care services. It will liaise formally with its close partners, the critical care network and the planned care network. We describe the likely future shape of these services, operating as mature, formal clinical networks 23 24 25 26 27.

An overview of how patients will access the emergency services and how they will be managed by the Emergency Care Network follows.

23 Acute Services Review. Scottish Office 1998
25 The provision of emergency surgical services: an organisational framework, Senate of Surgery of Great Britain and Ireland, 1997
26 Reconfiguration of surgery, accident and emergency and trauma services across the UK. Senate of Surgery of Great Britain and Ireland, 2004
27 The future of surgical services in Ireland. Royal College of Surgeons of Ireland, 2004
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Patient/carer seeks urgent help

POINTS OF ACCESS

999 patient
Urgent call centre for network

attendance at:
- minor injuries unit
- GP urgent Care centre
- GP surgery (in hours)

THE REFERRAL 'CASCADE'

Telephone advised and self help

Patient managed at home
by GP (in hours, out-of-hours) or advanced paramedic by 999 triage,
24/7 support from community teams

Admit to non-acute bed in local hospital
Refer to local minor injuries service

Transfer to relevant regional service, e.g.
A&E, medicine, coronary care, surgery, trauma, vascular surgery, paediatrics, obstetrics, etc
There are excellent examples of emergency care networks being developed in numerous countries, concentrating developments around clinical integration, networks, workforce development and expanding the role of the emergency ambulance services. The UK has 12 national pilot sites under development. For example, the Coventry & Warwickshire Ambulance Services is developing a new front-line workforce of 130 emergency care practitioners to cover its population of over 800,000, with plans for formal networking across all the acute services.

The Health Service Executive strategy for the development of ambulance services reflects innovative service developments happening internationally in the pre-hospital services. Their implementation plan includes:

- One integrated ambulance service for the whole of Ireland, controlled via 4 control centres;
- A workforce development programme for ‘Advanced Paramedics’, with a view to some 30% of staff eventually being trained to that level. Nationally, there are now 29 staff who have competed training and there is capacity to produce 48 new trained staff per year; and
- A research and development programme to test the feasibility of closer working and formal integration between the general practitioner out-of-hours services and the emergency ambulance service.

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28 Taking Healthcare to the Patient – Transforming NHS Ambulance Services, DOH June 2005
29 Roadside to Bedside: A 24 hour clinically integrated acute management system for New Zealand 1999
31 Improving access to emergency services: A system commitment. A report of the Hospital Emergency Department and Ambulance Effectiveness Working Group. Ministry of Health & Long Term Care, Ontario July 2005
We list below the likely characteristics of a 2015 emergency care network:

**The local elements of the network**

- The advanced paramedic workforce will be in the vanguard of the local emergency response for all major, life-threatening events, strategically deployed to be accessed locally by the whole population. They will immediately assess, resuscitate, stabilise, triage and transfer the patient directly to the appropriate emergency service. They will be in constant clinical communication, including real time remote physiological monitoring as necessary with the hospital team;

  This approach helps solve the perennial argument about travel times to A&E centres and the concern about missing the ‘golden hour’ when lives can be saved.

- This mobile emergency response is tailored to fit the urgency of the patient’s needs. Definitive emergency management begins in the home, and if clinically safe, the patient remains at home, with arrangements for continuing care as necessary by the general practitioner, public health nurse, local community health and social service staff;

  Experience to date from the UK national pilot sites indicates that emergency care practitioners already substantially reduce the rate of conveyance of emergency patients to hospital\textsuperscript{32}.

- The mobile emergency service is complemented by a string of local emergency care units across the region, providing local services for:
  - The management of minor injuries and illnesses;
  - Patient observation, assessment and treatment over the extended day, to ensure that patients are only transferred to the regional service if they truly require more specialised care;

- These units are directly managed by the network:
  - They are staffed by senior emergency nurse practitioners, professionally accountable to the regional A&E team for the quality of service;

\textsuperscript{32} Data from Coventry & Warwickshire Ambulance Service. UK Teamwork Communication 2005
The staff are supported by ‘hot lab’ facilities, plain X-ray, and 24/7 telemedicine and telediagnostic linked to the regional A&E duty team;

They deal definitively with a wide range of minor injuries, urgent conditions and superficial lacerations. This range of competencies will continue to expand under the aegis of the regional A&E team, for example to include the management of simple fractures;

- Both the advanced paramedic and emergency nurse practitioners are formally integrated with the general practitioner emergency service and consult routinely to optimise each individual emergency response;

- The local general practitioners themselves have an enhanced range of resuscitation skills, competencies and equipment to complement those of the advanced paramedics and emergency nurse practitioners; and

- All the above services are integrated with, and have 24/7 access to, local community nursing, social care, and voluntary sector teams.

The regional elements of the network

- There is one regional A&E centre, with a multi-disciplinary team, led by a group of 8 or more consultants providing 24/7 supervision, input and specialist advice across the whole network;

- The regional centre manages some 70-90,000 new accident and emergency attendances per year;

- The A&E centre is geographically co-located with the acute secondary care specialities; and

- Patients being transferred from the local service for more specialised care are triaged directly to most appropriate emergency unit, for example, medical assessment, coronary care, trauma unit, and critical care.
Scenario: Marie has a fall at home

Marie is 84. She lives alone. She has a history of having dizzy turns. This time she fell and could not get up. She was found in that state the next morning when the home help arrived and made a 999 call. The advanced paramedic (AP) assessed Marie and found her condition stable, with no evidence of serious injury. She was alert again and able to walk unaided, without any pain.

The AP decided Marie could safely stay at home, with appropriate support. He made three referrals, one to the consultant in care of the elderly who operates the falls clinic at the local hospital, one to the duty community team to arrange a follow up visit later that day and one to the local home telecare service. Four weeks later, Marie is receiving more help from the community team and is being monitored 24/7 by the telecare call centre. Marie knows she will still fall, but she feels well supported, can call the telecare centre anytime and that help will come when she needs it.

The organisational infrastructure

- There is formal, ‘real time’ integration across the whole workforce on duty, i.e. general practitioners, paramedics, emergency nurse practitioners, A&E staff, on-call hospital consultants, emergency assessment units, coronary care units, critical care, duty community nursing, social care and voluntary sector teams;

- The smooth day-to-day running is the responsibility of the regional arm of the national ambulance service. It manages all staff deployment, and is supported by real time monitoring of status, access to care and available acute beds;

- There is a single point of entry into the emergency care system and a single assessment and triage process across the network;

- All the frontline workforce rotate regularly through all the service elements of the network for wider experience and professional development;

- The advanced paramedic workforce is strategically deployed across the network to provide a local first response service for life-threatening patient events;

- The network is technology enabled to provide:
  - A system for staff ‘in the field’ to communicate across the whole network, seek urgent specialist advice, use telediagnostics, telemonitoring; and
  - Support for training and development through tele-education.

- The emergency care network liaises closely on a daily basis with its ‘partner’ network responsible for critical care.
Scenario: Tommie has a heart attack

It’s 2.00 am. Tommie, aged 52, has been working too hard and eating too late. He is wakened from his sleep with a pain in his chest. He thought it was bad indigestion as usual, but the antacids made no difference. Five minutes later he is in agony and collapses, the pain is so bad. He manages to make a 999 call. The regional call centre triages the call as emergency and dispatches an ambulance, staffed with a skilled advanced paramedic (AP). It arrives within 10 minutes. The AP finds Tommie looking seriously ill, pale, in shock and complaining of severe crushing chest pain and breathlessness. He has a rapid pulse, 135 per minute and a low blood pressure of 85/50. The AP diagnoses a likely myocardial infarct, starts ECG monitoring, gives Tommie oxygen and places a cannula in a vein for giving drugs. The AP gives pain relief and Tommie is moved to the ambulance, for transfer to the regional coronary care centre. En route, the AP interprets the ECG as indicating a possible myocardial infarct and assesses him to see if he meets the criteria for commencing thrombolysis. Not being 100% sure about the ECG findings, the AP establishes a real time telemedical link to alert the duty cardiologist about the referral, describe the clinical circumstances and transmit the ECG to get a second opinion. This confirms an acute myocardial infarct and the AP starts the thrombolysis. On the way, the AP and the cardiologist jointly monitor the pulse, blood pressure, ECG and pulse oximetry. Now 45 minutes into the journey and Tommie’s condition deteriorates. The duty cardiologist decides to proceed to an immediate coronary angiogram and alerts the duty team. The ambulance arrives at 4.00 am and Tommie is taken directly into the angiography suite. Three hours after the onset of his heart attack, the cardiologist inserts a coronary artery stent across the blockage to restore the circulation. This results in immediate improvement in Tommie’s condition. He is admitted to coronary care for observation and monitoring. Tommie is discharged home 3 days later, to start his cardiac rehabilitation programme at his local hospital.

Critical Care Network

The critical care network integrates the delivery of Level 3 care at the regional centre, all local Level 2 units, the local critical care rehabilitation programme and the ‘early warning’ service to detect ‘at risk’ patients in acute hospital beds.
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The recognised ‘direction of travel’ in adult critical care is towards regionalisation and development of formal clinical networks in order to concentrate the expertise and resources necessary to deliver high quality Level 3 care. These regional networks are now being added to, with work in progress on developing two complementary programmes designed to reduce the demand and the pressures on Level 3 care:

- A proactive 24/7 outreach service to prevent ‘at risk’ patients from deteriorating to the point of needing critical care; and
- A critical care rehabilitation programme to improve recovery and the final clinical outcome.

**The local elements of the network**

- There is no provision of acute critical care of any nature at the local level;
- The local hospital is still a key member of the critical care network. It provides a post-acute /step down / rehabilitation programme that:
  - Enables the safe, early transfer of the patient closer to home; and
  - Optimises the patient flow through the acute regional critical care service, ensuring the most effective use of these beds.

**At the regional hospital level**

- There is one regional critical care centre, co-located with the acute specialties most likely to need immediate access;

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33 Critical to Success: The place of efficient and effective critical care services within the acute hospital. Audit Commission, UK 1999
34 Comprehensive critical care: A review of adult critical care. DOH, UK May 2000
35 An acute problem? A report of the National Enquiry into Patient Outcome and Deaths in relation to critical care services. 2005
36 Intensive care services in New Zealand. Ministry of Health, 2005
37 Standards for adult critical care in Wales: All Wales Critical Care Development Group 2003
38 Final report of the Ontario critical care steering committee. Ministry of Health & Long Term Care March 2005
39 Critical care outreach: Modernisation Agency, DOH, UK October 2003
40 Quality Critical Care: Beyond ‘Comprehensive Critical Care’. DOH, UK September 2005
There is a full multi-disciplinary critical care team, reflecting the complexity of patient illness, co-morbidities and management needs, including consultant intensivists, nurse intensivists, physiotherapists, respiratory technicians, clinical laboratory medicine specialists, nutritionists, pharmacists, radiographers, speech and language therapists, occupational therapists, medical physics and engineering and staff in training;

The centre delivers:

- A 24/7 system of comprehensive Level 2 and Level 3 critical care support for seriously ill patients and for patients undergoing complex planned or emergency surgery;

- Today’s best practice evidence confirms substantially improved surgical outcomes for all patients undergoing complex surgery if they have Level 2 care for the first 24 to 48 hours, with reduced rate of complications and shorter lengths of hospital stay 41.

- A 24/7 system of preventative critical care outreach surveillance to identify ‘at risk’ patients on the acute general wards; and

- A critical care rehabilitation programme, delivered across the whole network.

Organisational infrastructure

- The regional critical care centre is at the heart of the regional acute hospital;

- The service is led by a consultant team of 8 or more consultant intensivists, providing 24/7 consultant supervision and input across the clinical network, with some consultants full time and others supporting the hospital anaesthetic service;

- There is a dedicated operational management structure to ensure the smooth day-to-day running and organisation of the clinical network;

- There are dedicated robust triage, transfer and transport arrangements in place for both admission and transfer home of patients; and

41 Modernising care for patients undergoing major surgery, Improving Surgical Outcomes Group, 2005
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- The Intensivist team lead a system of critical care education and training for the whole network.

**Planned care network**

The planned care network ensures the delivery of routine day care and day case surgery at a local level with the concentration of complex planned care work at fewer and larger regional centres.

Planned care encompasses those healthcare services where the patient is scheduled for an appointment or admission and includes day surgery, planned inpatient, endoscopy services, diagnostic testing and outpatients.

There is international evidence for how best these services should be provided, which ensures the provision of locally accessible services and maintenance of formal networking and adherence to quality standards.

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Scenario: Tom ruptures himself

Tom is 42. He knew he shouldn’t have taken so much luggage when he went on holiday, it was just too heavy. He wasn’t surprised when he got a sharp stab of pain on the right side of his groin when he lifted it off the carousel at the baggage reclaim. He thought he had strained a muscle, but the pain didn’t go away, worse, the next day he had developed a swelling as well. His GP diagnosed an inguinal hernia and recommended operation as a day care patient. Tom thought that would mean being referred to the big hospital, 2 hours away, and no place to park, but his GP said no, the local hospital ran a day surgery service and that he could do his operation next Friday for him. “You?” exclaimed Tom, surprised. ‘Absolutely’ replied the surgeon, explaining that he was on the new Medical Council’s register of ‘GP surgeons’ and had been trained in minor surgery by the specialist team at the regional hospital. ‘Fine by me’ laughed Tom, ‘Now I just have to put up with the anaesthetic, people say it can make you really sick sometimes’. The GP laughed back. ‘No need, Tom, we do all our operations, well, not all, 98% to be precise, under local anaesthetic. You can even use your bike to come and go if you want’. ‘Now, that’s what I call a good service’ said a delighted Tom, ‘But I’ll pass on the bike’.

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42 Clinical Networks, NHS Confederation, 2002

43 Health Department Letter 69: Promoting the Development of Managed Clinical Networks in NHS Scotland, Scottish Executive, September 2002
The local elements of the network

- Through the development of primary care teams and networks, and investment in new infrastructure, the ‘polyclinic’ and primary care ‘office based’ models, successfully developed elsewhere, will provide a range of outpatient, minor day surgical services\(^4^4\), diagnostics and enhanced primary care\(^4^5\);

  The recent UK Government white paper\(^4^6\), states the intention to create many new local community hospitals, to offer increased day case surgery, more outpatient services, diagnostic tests and ‘pathways within primary care for dermatology, ENT, general surgery, orthopaedics, urology and gynaecology’. This type of model is closely aligned with the German and Russian model of polyclinics.

- Local hospitals would serve a new role of providing a range of ambulatory care and diagnostic services\(^4^7\)\(^4^8\)\(^4^9\). These locally based centres would provide a range of outpatients, day case and 23 hour short stay surgery, and diagnostic testing. The benefits of this centre is the provision of local access, the prevention of emergency work impacting on service delivery and the development of new models of care enhancing the quality of patient care;

\(^{44}\) Day Surgery – National and International. From the Past to the Future, L Roberts, Australian Academy of Medicine & Surgery, February 2005

\(^{45}\) About NHS LIFT, Department of Health website

\(^{46}\) Our health, our care, our say, White Paper, UK Government, 2006

\(^{47}\) Day Surgery – National and International. From the Past to the Future, L Roberts, Australian Academy of Medicine & Surgery, February 2005

\(^{48}\) Assessing the impact of ambulatory care, G Mould and JA Bowers, Department of Management and Organisation, University of Stirling

By 2015, the concept of extended nurse delivered (overnight / 23 hour) recovery in day surgery centres/units and post-discharge convalescent limited care accommodation facilities (medi motels) will be well embedded.

A recent study suggested that 75% of planned patients in general surgery and ENT could be treated in an ambulatory care facility. There are examples of ambulatory care facilities in the UK. Amongst the first to be developed is the ambulatory care and diagnostic (ACAD) centre at Central Middlesex Hospital, which opened in 1999. The centre has the capacity to potentially deal with 23,000 procedures a year if it operated 24 hours, 365 days a year. Operating 9-5, Monday to Friday, it has the capacity to do about 13,000 procedures. More recent in the UK, has been the introduction and development of Diagnostic and Treatment Centres providing both inpatient and day case in a range of surgical specialties and diagnostic endoscopy. These are provided by both NHS provider organisations and by the private sector. There was expected to have been 80 treatment centres in England by the end of 2005.

Scenario: Richard presents with acute abdominal pain

Richard is 48 and keeps fit and well apart from the occasional bout of indigestion and the odd tummy ache here and there. It’s been a bit worse in the last few days. Suddenly, it gets much worse. It is now a sharp colicky pain, running across the top of his stomach, making up double up for a moment or two as each spasm comes. He vomits. Still in pain, he takes himself down to his local minor injuries service. It’s now 10.30 pm. The Emergency Nurse Practitioner (ENP) makes a clinical assessment. Richard has localised tenderness under the right ribs. The rest of his tummy is normal. The ENP suspects an acute gallbladder inflammation, a cholecystitis. The ENP orders chest and abdominal X-rays, an upper abdominal ultrasound and blood tests.

Thirty minutes later, the results are ready. The white blood count is elevated, suggesting possible inflammation. The ultrasound demonstrates stones lodged in the neck of the gallbladder and the gallbladder looks distended. Liver and bile duct system look normal. The ENP conducts an emergency teleconsultation with the duty general surgeon at the regional hospital to refer Richard for surgery and transmits the results of the clinical assessment and investigations for a second opinion. The surgeon talks with Richard, reviews the tests and agrees that the pain is consistent with an obstructive cholecystitis. The surgeon explains the

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50 Day Surgery – National and International. From the Past to the Future, L Roberts, Australian Academy of Medicine & Surgery, February 2005

51 Assessing the impact of ambulatory care, G Mould and JA Bowers, Department of Management and Organisation, University of Stirling

52 Assessing the impact of ambulatory care, G Mould and JA Bowers, Department of Management and Organisation, University of Stirling

53 Running on empty, Seamus Ward, Public Finance, December 2004

54 Department of Health, UK, 2006
operation, Richard consents to surgery and arrangements are made for urgent surgery the next morning. The ENP now confirms that Richard is fit for operation, starts him on antibiotics and painkillers and books an ambulance to take Richard directly to theatre for an 8.00 am booking for operation the following morning. Richard reports to the theatre reception, has a final check by the new duty surgeon and anaesthetist, already fully informed by the electronic records, and undergoes an uneventful laparoscopic cholecystectomy. He is discharged home the day after surgery. The GP receives an electronic summary the same day. There are no stitches to be removed and no follow up is required.

At the regional hospital level

- Major planned services, that cannot be decentralised and provided at a more local level, should be centralised in an acute setting. This ensures the provision of robust and sustainable services facilitating sub-specialisation, higher clinical standards, clinical training, new legislation and other workforce pressures 55, 56;

- These centralised services would provide services to a catchment population which is larger than that traditionally being served by local hospitals 57, 58, 59;

59 Building a Health Service Fit for the Future, A National Framework for Service Change in the NHS in Scotland, NHS Scotland
• There should be separate streaming of planned inpatient and emergency admissions. This will minimise the potential disruption to both services, provide a ring fenced complement of elective beds and result in fewer cancellations of planned inpatient admissions\(^{60}\) \(^{61}\); and

• Tertiary and highly specialised services will be further concentrated onto fewer sites in order to develop and maintain the expertise of clinical staff. There is evidence to suggest a positive relationship between large volumes of activity and clinical outcomes, particularly for highly specialised surgical interventions\(^ {62}\). These tertiary and highly specialised services would include cancer, plastic surgery and burns, neurosurgery, cardiac surgery, renal transplant, and specialised children’s services\(^ {63}\).

Cancer care network

Integrated network spanning primary, community, social, regional hospital and tertiary care services, ensuring the continuum of care. Surgical oncology services concentrated at regional and tertiary hospitals

The local elements of the network

• Day case and outpatient medical oncology services to be provided locally in local hospital settings;

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\(^{61}\) Building a Health Service Fit for the Future, A National Framework for Service Change in the NHS in Scotland, NHS Scotland


\(^{63}\) Designed for Life: Creating world class Health and Social Care for Wales in the 21st Century. Welsh Assembly Government, 2005
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- Appropriate care closer to home or at home, with access to supportive and rehabilitative services including pain management, psychosocial support and end of life care\(^\text{64}\); and

- Integrated, multidisciplinary team working involving primary, community and social care services\(^\text{65}\);

The regional elements of the network

- Site specific cancer procedures undertaken by appropriately trained surgeons. The concentration of critical mass of patient volumes will ensure better outcomes and quality of care for patients\(^\text{66, 67, 68}\);

- Sufficiently numbers of trained oncologists, clinical nurse specialists and radiologists and radiographers; and

- Integrated working between the regional and tertiary service and the local hospital and community services.

How many cancer operations does a surgeon need to perform each year to be considered a specialist cancer surgeon?

A report produced by the Clinical Oncological Society of Australia, the Cancer Council Australia and the National Cancer Control initiatives\(^\text{69}\), states that “there is increasing evidence that outcome of cancer care, particularly for difficult primary surgery, is linked to volume of interventions undertaken”.

\(^{64}\) Canadian Strategy for Cancer Control: Treatment Working Group, Final Report, January 2002

\(^{65}\) Optimising Cancer Care in Australia, A consultative report prepared by the Clinical Oncological Society of Australia, The Cancer Council Australia and the National Cancer Control Initiative, February 2003

\(^{66}\) Optimising Cancer Care in Australia, A consultative report prepared by the Clinical Oncological Society of Australia, The Cancer Council Australia and the National Cancer Control Initiative, February 2003

\(^{67}\) Canadian Strategy for Cancer Control: Treatment Working Group, Final Report, January 2002

\(^{68}\) The NHS Cancer Plan, Department of Health, UK, 2000

\(^{69}\) Optimising Cancer Care in Australia, A consultative report prepared by the Clinical Oncological Society of Australia, The Cancer Council Australia and the National Cancer Control Initiative, February 2003
As part of the NHS Cancer Plan in the UK\textsuperscript{70}, reference is made to minimum number of surgical procedures which should be undertaken to ensure maintenance of skills and expertise and provide quality of care working in a specialist centre. For breast cancer, a minimum of 30 new cases per year for a surgeon and for colorectal cancer, each surgeon should carry out 20 resections a year. This is not as single-handed surgeons working independently, but only as members of a multi-disciplinary team and with the formal approval of both the hospital service and the surgeons themselves by the cancer care network. For example, the 34 formal cancer networks in the UK set the standards of care by:

- Ensuring each site is visited, audited for compliance with standards and confirmed to be undertaking sufficient procedures each year, at least 1 or 2 per week for breast and colorectal cancer;
- Preventing individual surgeons and hospitals undertaking occasional surgery;
- Ensuring that the surgeon works as a key member of a multi-disciplinary team;
- Ensuring that all patients have the management regularly reviewed by case conference across the network;
- Implementing standard clinical pathways that set the standards of care; and
- Ensuring the results of all clinical outcomes are formally audited.

The evidence for centralising breast cancer was such that in 2003, the European Parliament proposed a strategy for centralisation\textsuperscript{71} that stated: ‘Each breast centre must perform a minimum of 150 primary breast cancer operations per year, and the surgeons specialising in benign and malignant diseases of the breast must perform at least 50 operations themselves and that the surgeons must only perform breast surgery’. For example, a 2003 study from the USA\textsuperscript{72}, auditing the outcomes of 30,000 breast cancer patients over an 8 year period, concluded that “treatment by a surgical oncologist resulted in a 33% reduction in the risk of death at 5 years’.

\textsuperscript{70} The NHS Cancer Plan, Department of Health, UK, 2000


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Scenario: Andrew is diagnosed with a bowel cancer

Andrew is 54 and presents to his GP with a three month history of change of bowel habit, accompanied by bouts of mild abdominal colic and dark, altered blood in his motion. No other symptoms are offered and clinical examination was normal. The GP suspects a bowel cancer and investigates the patient according to the regional colorectal pathway from the cancer network service. Andrew attends the local diagnostic centre where the nurse endoscopist conducts a flexible sigmoidoscopy that identifies a cancer in the lower bowel. The radiographer confirms this with a barium enema, which finds the remainder of the colon to be normal. At the same session, the radiographer performs an abdominal ultrasound, which shows that there is no spread of the cancer to the liver. Andrew attends the GP the next day, when he calls up the results electronically and explains them to the patient. He then contacts the cancer care network and Andrew and the GP have a teleconsultation with the duty colorectal surgeon at the regional hospital. The surgeon reviews the videos of the endoscopy and X-rays, agrees with the teleradiology reports and recommends surgery. Andrew has another teleconsultation the following day, this time with the senior Colorectal Nurse Practitioner who takes him through all the steps of what surgery will entail, explain he will spend 3-5 days in the acute hospital, and after that, will either go home or go to the step down ward at the local hospital. The GP conducts a pre-operative assessment and confirms that Andrew is fit for surgery. Andrew takes his bowel preparation at home and reports to theatre reception on the day of surgery at 10.00 am, to be met by a member of the colorectal team for a final check. He proceeds to surgery at 12.00 am. After recovery from surgery, he attends his local hospital for chemotherapy. He has another teleconsultation, when Andrew and the local chemotherapy lead nurse discuss with the oncologist about the regime of treatment. The local service delivers the chemotherapy treatment and continues the follow up of the patient. All progress and outcome are reported to the GP, the surgeon and the oncologist. He got into trouble when his white count dropped too low and he got a nasty infection, but the local team dealt with it quickly and organised an urgent teleconsultation to let the oncologist know and to make sure no other management was needed. Two months later he starts a course of radiotherapy. For this, he has to travel to another, bigger hospital, the supra-regional centre. He does not need to travel backwards and forwards every day, or be admitted to hospital. The hospital provides simple overnight accommodation, because many patients have to travel a long way for this type of treatment.

Role of telemedicine in the provision of international best practice

Telemedicine gives the front line health practitioner, and therefore the patient, immediate access to specialist clinical expertise and immediate access to better safety and quality of care.
Telemedicine has been around for a very long time and is well established, particularly in the USA where a 1999 survey recorded 132 active programmes, with activity in 48 states in over 1450 telemedicine equipped facilities. It cannot yet be considered mainstream in service delivery but it is being increasingly seen as an important tool to support the way that health services will need to change in the future in order to be sustainable.

There is therefore serious interest globally. Telemedicine and telecare is now addressed at the national level in some countries and is an element of most new regional service strategies under development. Telemedicine and telecare are regarded as a key enabler of clinical networks, bringing together the clinical expertise, specialist advice and decision making between services delivered locally with services delivered regionally.

Many hospital and community services are now using telemedicine for teleconsultation, telediagnostic, telemonitoring, telecare and tele-education purposes. Most progress has been made in radiology, dermatology, pathology and ophthalmology, where the imaging aspects lend themselves to electronic transmission. Other specialties are under development, including cardiac medicine, paediatrics, neonatology, neurology, psychiatry oncology, ENT, general surgery, etc., in other words, all specialties are now taking telemedicine on board and testing it as a mechanism to improve their current services.

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74 National Telemedicine System. DOH Republic of South Africa 1998
75 Delivering 21st Century IT support for the NHS. DOH 2002
78 The use of ICT to support independent living for older and disabled people. DOH UK 2002
79 Strategic Plan. VA Midwest Health Care Network. Department of Veterans Affairs 2006-2010
80 National Telemedicine and Telecare Strategy. Department of Health and Children & Health Board Executive, Ireland 2005
There is now evidence that the burden of chronic disease management on acute care services can be significantly lessened through telemonitoring to decrease the number of visits to the A&E department and admissions to hospital.\(^{81} \)\(^{82} \)\(^{83} \)

Of particular interest in this review of best practice in acute services is that there are many examples of real time telemedicine being used to support and unify the emergency response between regional A&E centres, minor injuries services and the ambulance services.\(^{84} \)\(^{85} \)\(^{86} \)\(^{87} \)\(^{88} \)\(^{89} \)

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**Scenario Maeve develops a fever**

Mum is worried. Her 4 year old, Maeve, does not look well. She didn’t sleep well, isn’t eating, complaining of a headache and looks a bit flushed. Mum takes her temperature. It’s high, so she calls the GP for advice. The GP refers her to the local minor emergency service, knowing that it offers paediatric assessment from 9.00 am to 9.00 pm and that it gets 24/7 specialist advice from the regional paediatric service through the paediatric clinical network. The Emergency Nurse Practitioner (ENP), trained to manage children as well as adults, takes a history, carries out a clinical assessment, sends bloods and urine for urgent testing to the ‘hot lab’ next door and orders a chest X-ray. Thirty minutes later, all the tests come back normal, but the ENP thinks it safer to observe her for a few hours, ‘to be on the safe side’. Maeve is placed in the paediatric assessment area for on-going clinical assessment and monitoring of vital signs. It’s 12.00 am, so that provides about 7 hours to keep her under observation before a decision needs to be made for either discharge home or transfer for admission to the regional hospital for further investigation. The ENP sets up a real time video-conferencing link to the paediatric duty team at the regional hospital so that the team can view the child, see the results.

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\(^{82}\) Vaccaro et al. Utilisation reduction, cost savings, and return on investment for Pacificare Chronic Heart Failure Programme, 'Taking Charge of your Health' Dis Manag 2002;4:131-42


\(^{84}\) Lambrecht CJ. Telemedicine in trauma care. Telemed. J. 1997;3:265-8


\(^{88}\) The Grampian Telemedicine Initiative links Aberdeen Royal Infirmary to 14 A&E departments across the region.

\(^{89}\) Pedley DK et al. Mobile telemetry for pre-hospital thrombolysis: problems and solutions 2005;11 (Suppl 1): 78-80
and monitor Maeve as a ‘virtual’ patient, and as ‘virtual’ members of the local team. By 6.00 pm, Maeve is feeling better, her headache has gone and her temperature is settling. The ‘network team’ agree that it is safe for Maeve to go home and to come back in the morning for follow up.

More recently, in keeping with the global strategy of keeping patients out of hospital and transferring care closer to home, or at home, strategies have been developed to stimulate the development of home telecare services to monitor the ‘at risk’ elderly safely at home, thus avoiding an acute admission to hospital or to institutional care. If the trend continues, by 2015, telemedicine and its applications will be the norm, an organisational infrastructure enabling the whole range of acute care, covering intensive and emergency care, specialist consultation and second opinions, disease monitoring and screening, patient to clinician communication and follow-up care, and web based health records, including multimedia and quality assurance and education.

**From health strategy to service change: a summary of the trends**

There are some very clear trends emerging as fundamental themes, to be incorporated into future service delivery that delivers best practice.

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90 Building Telecare in England. DOH July 2005

91 Telecare project: West Lothian Council, Scotland: A programme for the over 75s, the benefits of telecare so far, from 1200 homes being monitored are: reduced hospital admissions (savings equivalent to 9 acute beds), 50% reduction in the rate of delayed discharge, 50% reduction in average stay in nursing homes, and 10% of users staying at home as opposed to ‘institutional’ care.

92 Active Living Project: ‘Promoting security, independence and Quality of Life’. Kent County Council. UK. The county population is 1.34 million, the largest in the UK. The home monitoring project, launched in 2004, is an initial £2.25 million investment for the over 75s targeted to reduce the rate of admission to hospital.

93 Columbia project: Surrey Primary Care Trust: Telecare is being incorporated into an overall Managed Care Framework to deliver a population wide active prevention programme. This has 3 elements, supported self care for patients with ‘well-controlled’ conditions, Disease management for those with ‘high risk’ and Case management for the ‘highly complex’ patients.

94 Strategic Plan VA Midwest Health Care Network. Department of Veterans Affairs 2006 - 2010
**Trends in moving care out of acute hospitals:**

- Sophisticated admissions avoidance and disease avoidance programmes, including personal health promotion programmes, targeted support for self-care, comprehensive expert patient programmes;
- Growing evidence that a substantial number of patients with chronic diseases can increasingly be cared for at home or in the local community rather than in acute hospitals. This includes, for example:
  - Increasing support for self-care;
  - Strengthening and extending primary care;
  - Offering responsive specialist care; and
  - Managing vulnerable cases by anticipating patients’ needs;
- Substantial transfer of care out of hospitals to less intensive, more ambulatory settings, either at home or close to home in local hospitals or centres;
- Chronic disease management, day case surgery, outpatients, some diagnostics, dialysis, chemotherapy and rehabilitation being available at two local levels: grouping of GP practices / primary care health centres and / or in local hospitals;
- Development of minor injury units at a local level;
- Day surgery being considered as the norm, rather than as an inpatient procedure, much of which can be delivered in ‘standalone’ local hospitals; and
- Telemedicine enabling, for example, home monitoring and remote diagnosis and reporting.
To provide further evidence of the transfer from acute hospital care into primary and community settings, Teamwork has undertaken a ‘patient dependency census’ across 8 health communities in the United Kingdom. This census is a planning tool, which identifies the acuity levels of all patients using a hospital bed at a single moment in time. Findings from each review have consistently shown that between 30-35% of patients occupying an acute hospital bed could be cared for in a more appropriate care setting, if it were available. Of the 30-35%, around one third require the normal services of their general practitioner while the second third of patients require home based care provided by their general practitioner and community based nursing services. The final third of patients require ongoing care, largely rehabilitation services with some requiring long term nursing and residential home accommodation.

**Trends in centralising specialist acute services:**

- Traditional inpatient care being replaced through continuing clinical innovation with less invasive approaches to diagnosis, treatment and surgery;
- Fewer, larger, specialist hospitals with accident and emergency services caring for increasingly acutely and critically ill patients. This require hospitals to serve larger population catchments of a minimum of 300,000 to 350,000 and potentially up to 500,000;
- Separation of emergency care and complex planned surgery from routine planned and outpatient care. All complex surgery being carried out by specialised consultants in specialist regional hospitals; and
- Reduction in hospital share of total healthcare expenditure and transfer of resources to primary and home health care.

This model of transferring as much acute care as possible to local settings is significantly different from previous trends of centralising acute care and downgrading or closing local hospitals.

Having identified best acute care for the future, the next section looks at how good current local hospital services are.

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95 Patient Dependency Census projects – Isle of Wight, Southampton, Portsmouth, Milton Keynes, North Bristol, Bath, Swindon, Southport and Ormskirk, 2002-2005