CARING FOR PEOPLE

KEEPING PEOPLE WELL

Shaping Our Future Wellbeing

Supporting the Case for Change

December 2014

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Caerdydd a'r Fro
Cardiff and Vale University Health Board

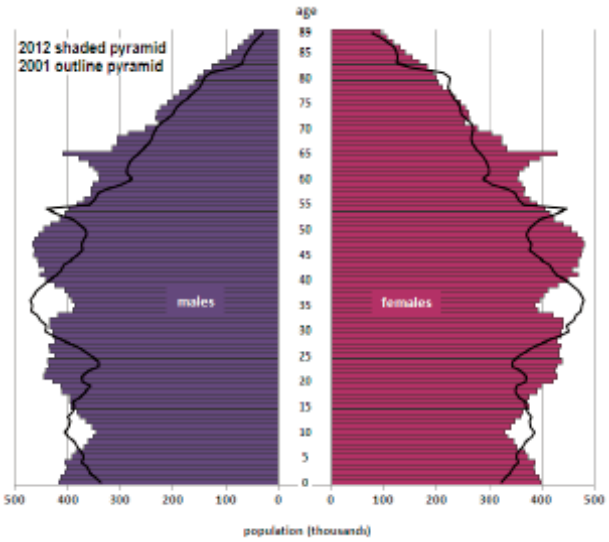
Contents:

Shaping our Future Wellbeing:
The 10 year Clinical Services Strategy for Cardiff and Vale UHB

Introduction

The population of Great Britain has changed substantially since the inception of the NHS in 1948: the population size has increased by 12 million; we are living longer, with an increased life expectancy at birth of around 12 years; people aged 60 or over make up nearly a quarter of Britain's population and half of those aged over 60 years have at least one chronic illness (Figure 1).[1] Delivery of health care must therefore adapt to the changing needs of society and to the perpetual advances in medical capability.

Figure 1: Changing Demographic of Great Britain. Source: Office for National Statistics, National Records of Scotland, Northern Ireland Statistics and Research Agency



The World Health Organisation (WHO) lists obesity, cancer, cardiovascular disorders, respiratory disorders, mental health and dementia as global public health priorities. These globally impacting health issues are clearly affecting our local population. They have been highlighted as health priorities by Welsh Government, NHS Wales and by Cardiff and Vale UHB itself. With an ever growing demand for high quality health care from both patients and health care providers, in an economic climate which demands prudence, health care organisations around the world are examining the ways in which they deliver care. Models of care are evolving to be patient centred, whilst eliminating waste and variation, with the intent to demonstrate improved quality.

Although Cardiff and Vale has local, unique factors, many of the issues we face are common to those experienced elsewhere in the UK and beyond. In preparing the Clinical Services Strategy we have therefore reviewed documentation from a wide number of sources, including the UK medical Royal Colleges and publications from health care organisations both in the UK and in countries with similar demographics. We have engaged with two of our neighbouring health boards - Aneurin Bevan and Abertawe Bro Morgannwg, with the Community Health Council, Cardiff Council (the Cardiff debate), the Vale of Glamorgan Council (Viewpoint Survey), the 3rd Sector Health and Social Care Networks, as well as clinicians of all disciplines in the Health Board to determine our health priorities for the next 10 years.

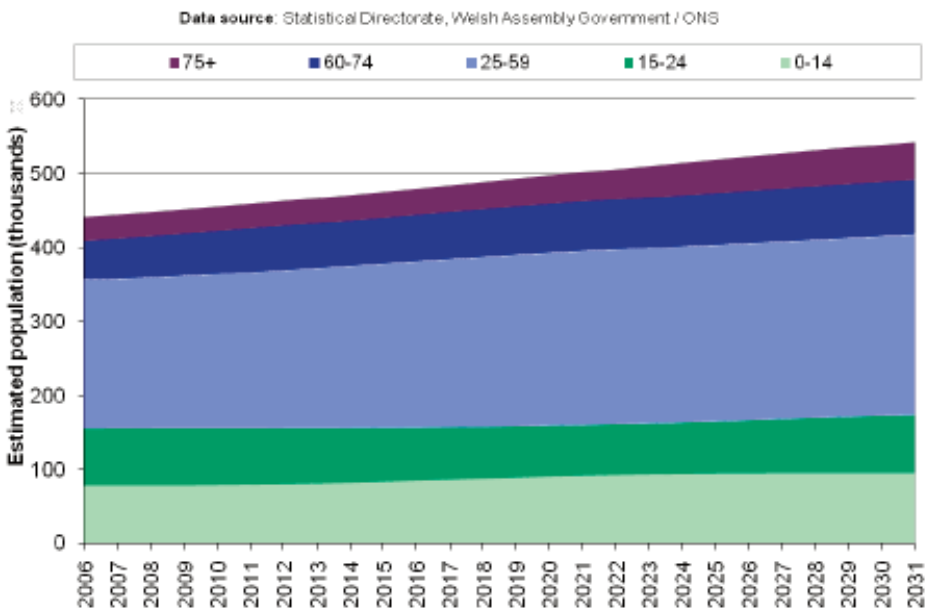
This document provides an overview of the evidence, both for the need to change, and for the mechanisms of that change. It explains the process undertaken by the UHB with regard to public and health professional engagement, as well as the design principles and the template for each model of care within the clinical services strategy.

Drivers for Change

The Changing Population of Cardiff and the Vale

The population of Cardiff and Vale is growing rapidly in size and is projected to increase by 10% between 2015 and 2025, which is significantly higher than the average growth across Wales (Figure 2). An extra 50,000 people will live in Cardiff and Vale and require access to health and wellbeing services; this is the equivalent to an additional population the size of Barry.

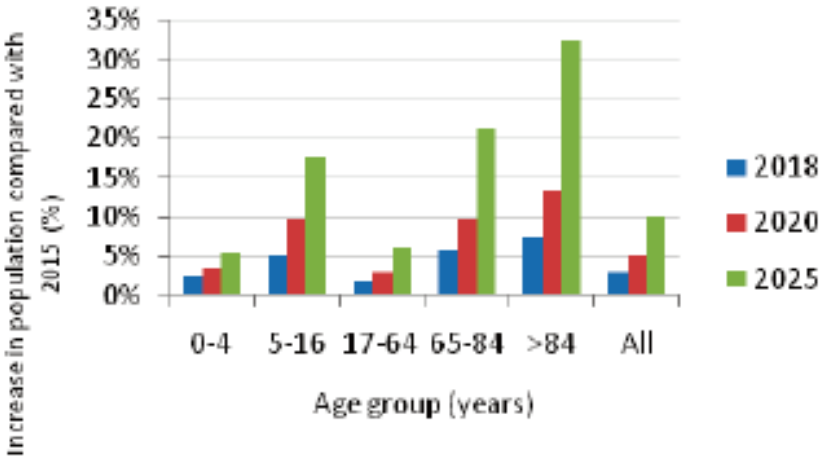
Figure 2: 2006-based population projections for Cardiff and Vale University LHB, persons: 2006 to 2031



The ethnic diversity is also growing in Cardiff and Vale, in keeping with Cardiff's status as a major UK city. Arabic, Polish, Chinese and Bengali are the four most common languages spoken after English and Welsh.

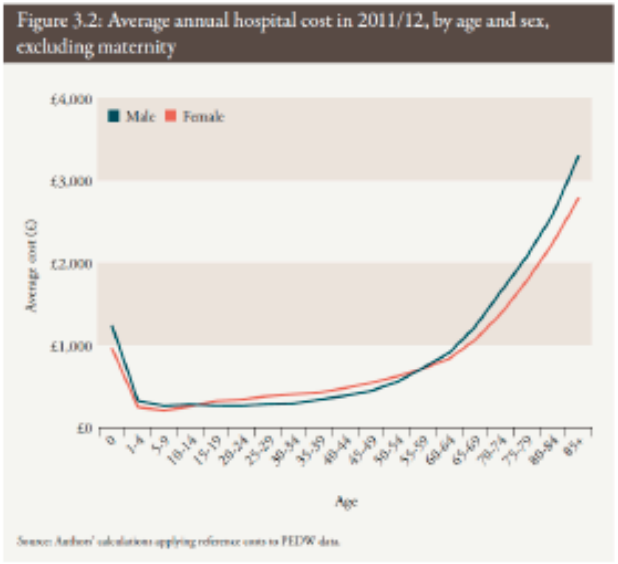
The population of Cardiff is continuing to age, with the number of people over 85 years old increasing at a much faster rate than the rest of the population (a projected 32.4% increase between 2015 and 2025) (Figure 3).

Figure 3: Increase in Population of Cardiff and the Vale of Glamorgan by age group between 2015 and 2025



Currently the NHS in Wales spends on average £1700 per person per year on health and wellbeing services, however significantly more is spent in the first year of life and on people over the age of 65. Since Cardiff and Vale has a projected population increase in both of these population groups, its health services are going to be under increasing financial pressure.

Figure 4: Average annual hospital cost, by age and sex (excluding maternity)
Graph courtesy of Nuffield Trust



The general challenges faced by the UK associated with unhealthy lifestyles, such as obesity and diabetes, alongside addiction to alcohol and recreational substances are evident in Cardiff and the Vale. Over half (53-56%) of all adults are overweight or obese, increasing to two thirds (64%) among 45-64 year olds. Nearly half (45-46%) drink above alcohol guidelines and nearly two thirds (65-68%) don't eat sufficient fruit and vegetables. Around three quarters of residents (71-75%) don't get enough physical activity and just over one in five (21%) smoke. We are seeing the adoption of unhealthy lifestyles in childhood where two thirds (66%) of under 16 year olds don't get enough physical activity and nearly a third (31%) of under 16 year olds are overweight or obese.

Figure 5: Alcohol Consumption in Wales

% of persons aged 16-24 who reported drinking above the recommended guidelines on at least one day in the previous week, 2008-2011

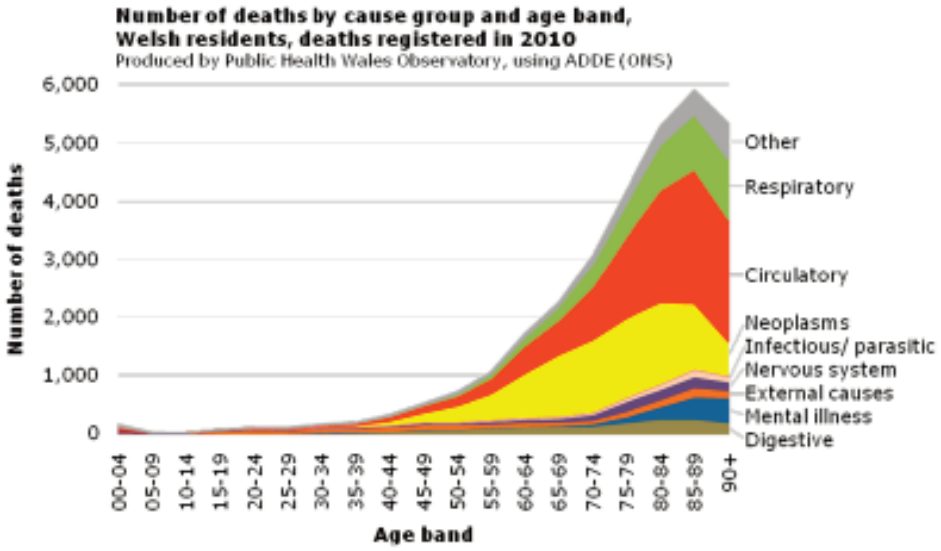
The consequent health issues of these lifestyle factors are immense, and impact everyone, from children to the elderly. This is demonstrated in the changing disease profile for Cardiff and Vale where:

- Chronic conditions including diabetes, respiratory conditions and heart disease are now common.
- Around 1 in 10 (9.4%) people report their day-to-day activities to be limited by a long-term health

problem or disability, although many people with chronic conditions are not diagnosed and do not appear on official registers.

- Due to changes in the age profile of the population and risk factors for disease, new diagnoses for conditions such as diabetes and dementia are increasing significantly.
- Heart disease, lung cancer and cerebrovascular disease are the leading causes of death in men and women.

Figure 6:



In addition, there are stark inequalities in health outcomes in Cardiff and Vale:

- Life expectancy for men is nearly 12 years lower in the most-deprived areas compared with those in the least deprived areas.
- The number of years of healthy life experienced varies even more, with a gap of 22 years between the most and least deprived areas.
- Premature death rates are nearly three times higher among the most-deprived areas compared with the least deprived.

Figure 7: Infant Mortality by fifth of deprivation, Wales, rate per 1000 births (2006-2010)

There are also significant inequalities in the 'wider determinants' of health, such as housing, household income and education. For example, the percentage of people living without central heating varies by area in Cardiff and Vale from one in a hundred (1%) to one in ten (13%). There are also inequalities in how and when people access healthcare.

All these projected population changes, accompanied by the increasing burden of chronic disease and widespread health inequalities are a stark reminder of the challenges faced by our current healthcare services. Continuing with our current healthcare model will not cope with the changing landscape. We must therefore find new ways of working to tackle the rapidly changing health demographic, and effectively improve the health and wellbeing of our local communities.

Government Publications / Legislation

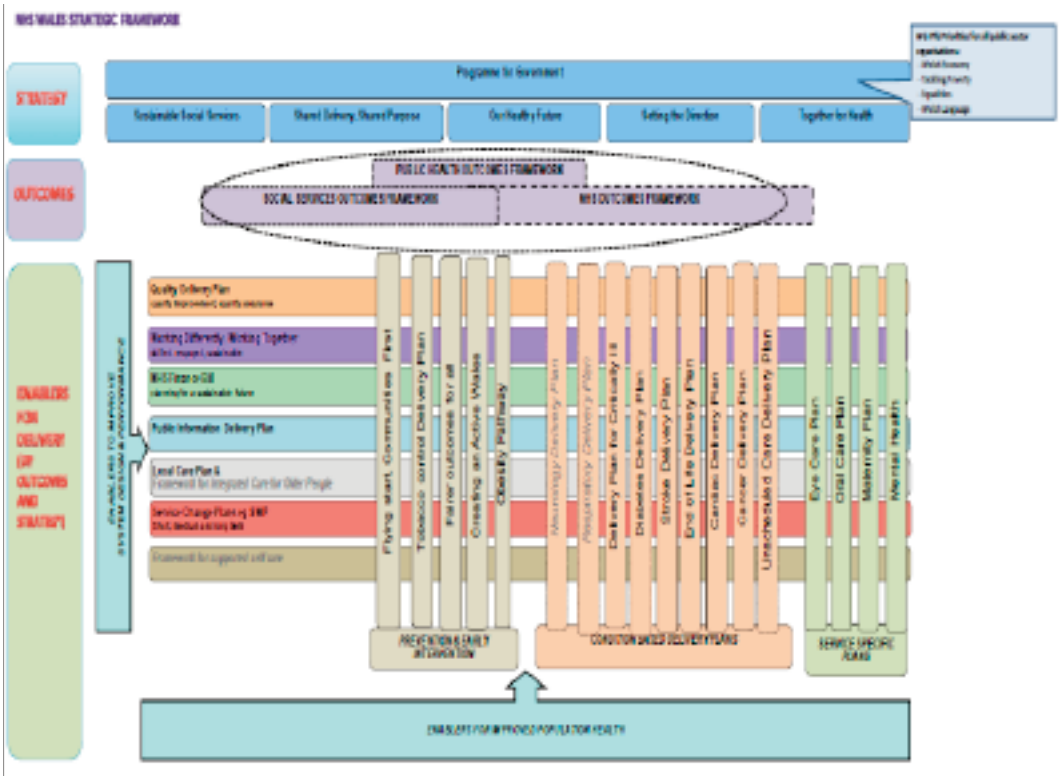
The Well-Being of Future Generations (Wales) Bill

Now passed by Welsh Government, the Well-Being of Future Generations Bill places a duty on public bodies; including Welsh Government, local authorities, national parks, fire and rescue services, and Health Boards, to make decisions that leave a positive legacy for future generations. With reference to health, it is the responsibility of Health Boards to enable a society in which people's physical and mental well-being is maximised, and in which choices and behaviours that benefit future health are understood.

NHS Planning Framework

The NHS Wales Planning Framework[4] (figure 3) is intended to support the implementation of integrated health care plans by Welsh Health Boards, between the years 2014 and 2017. It supports the Welsh Government's previously published vision for health care entitled 'Together for Health' and aims to help the Health Boards to not only address areas of population health need and improve health outcomes, but to also improve the quality of health care and ensure best value is obtained from available resources.

Figure 8: NHS Wales Strategic Framework



Together for Health

In their document 'Together for Health'[5], the Welsh Government identified key action areas requiring development in order to achieve their ultimate goal of the Welsh NHS being comparable to the best health care providers in the World. These action areas include:

- Improving health as well as treating sickness.
- The development of one system for health, whereby all public services act as one, providing more integrated care within a 24/7 health system with delivery plans in place for all major services.
- The development of a fully integrated network of care, with services across Wales. All services to be planned around groups of GP practices where the local communities work with the NHS to get services right.
- Making every penny count, combining value for money and service excellence.

Since publication of this document a number of health strategies (delivery plans) have been published , focusing on specific disease areas or processes to improve and monitor quality. These areas are as follows:

1. Delivery plan for the critically ill.
2. Delivery plan for diabetes.
3. Delivery plan for stroke.
4. Delivery plan for end of life care.
5. Delivery plan for cardiac conditions.
6. Delivery plan for cancer.
7. Delivery plan for unscheduled care.

These delivery plans are all health priority areas for Welsh Government.

Prudent Health Care[7]

This year the Minister for Health in Wales, Mark Drakeford, launched his campaign for "prudent health care". He said:

"There is no choice but change in the Welsh NHS. The only choice is between planned change, in which we attempt to take our destiny into our own hands and shape our collective futures, or change that will happen to us in an unplanned, unpredictable, ungovernable way. The choice is not between change and no change, it's about the sort of change we want to have and how we go about it."

"I am keen that the NHS in Wales embarks on shaping our future on the basis of the principles associated with prudent medicine and prudent health care."

"The prudent health care approach is already well established in some aspects of contemporary clinical practice in our own country, as well as being widely rehearsed in other jurisdictions such as Canada."

"We need to work to a principle of what is often called minimum appropriate intervention. Who actually, in practice, would wish to undergo a greater level of treatment than that necessary for addressing their condition?"

"Let me be absolutely clear, the prudent approach to medicine is not about rationing; instead it aims to deliver health care that fits the needs and circumstances of patients and that actively avoids wasteful care that is not to patient's benefit. It is an ethical approach to treating patients in which clinical need and clinical prioritisation determine how services are provided."

"We cannot simply stand back and watch the unfolding film of the NHS in Wales. We will now work on a set of guidelines of prudent health care for use on the ground."

"NHS staff provide the key to success in the future. Every single day, right across Wales, huge efforts are made to provide the services people rely on. Together, we are capable of facing the future, of solving the problems and the challenges the NHS faces."

The Welsh Government expressed prudent healthcare as delivering three objectives:

- Do no harm.
- Carry out the minimum appropriate intervention.
- Promote equity between professionals and patients.

The statistics associated with 'imprudent' healthcare are difficult to comprehend. Approximately 10% of all healthcare interventions are associated with some harm[8]. Around 20% of all work carried out by the health service has no effect on outcomes[9]. Some studies suggest that only 18% of time spent in clinical environments offer immediate value to patients – the rest is spent waiting for the next step in the process[10]. Through prudent healthcare, services can be improved whilst at the same time making financial savings.

The Equality Act 2010

The Equality Act 2010 requires NHS bodies (including commissioners and providers) to promote age equality and, since October 2012, to eliminate age discrimination in the provision of services. In preparation for the ban on age discrimination, a range of initiatives have been undertaken to help the NHS prepare. For example:

- A review by Sir Ian Carruthers into age equality in health and social care, details the process required to implement the legal requirements of the Equality Act[11].
- The National institute for Health and Care Excellence (NICE) quality standards include active treatment rates for older people[12].
- The Department of Health, the National Cancer Action Team and Macmillan Cancer Support are working together to test new approaches to clinical assessment for older patients[13].

Evidence from Public Inquiries

The Francis Report / The Andrew's Report

The public have been made aware that the care of older patients within the NHS may be sub-optimal:

- Unnecessary pain, indignity and distress have been recorded by the Parliamentary and Health Service Ombudsman[14].
- The independent public inquiry, chaired by Robert Francis QC, into care at Mid Staffordshire NHS Foundation Trust found that for many elderly people the most basic elements of healthcare were neglected and staff displayed insufficient care for patients' dignity with some left in degrading conditions and others 'inadequately dressed'. This inadequacy resulted in 'horrific experiences that will haunt many patients and their loved ones for the rest of their lives'[15] .
- A report by Professor Andrews on care provided at two neighbouring Welsh Hospitals, The Princess of Wales and Neath Port Talbot Hospitals (Trusted to Care)[16] examined the culture of the care of older patients. Particular attention was paid to the medical wards, the administration and recording of medicines, how medicines were administered to patients who are cognitively impaired or have other challenges taking medicines orally, how professional nursing standards are protected and delivered consistently and how the Health Board responds to lapses in delivery of these standards, the response to complaints, how they are handled by the Health Board and how professionals are held to account for lapses in care identified through investigation, including Protection of Vulnerable Adults (POVA) investigations. The report identified:

    - Variable or poor professional behaviour and practice in the care of frail older people.
    - Deficiencies in elements of a culture of care based on proper respect and involvement of patients and relatives.
    - Unacceptable limitations in essential 24/7 services leading to unnecessary delay in treatment and care.
    - A lack of suitably qualified, educated and motivated staff particularly at night.
    - Adversarial and slow complaints management.
    - Disconnection between front-line staff and managers and confusion over leadership, responsibilities and accountability.
    - Problems with organisational strategies on quality and patient safety, capacity development and workforce planning.

Cardiff and Vale UHB has responded to the Andrew's report and pledged to ensure that it will continue to take steps to provide safe, high quality care. This will enable the public to have confidence in the services it provides. Cardiff and Vale UHB has published its assurance framework[17] to demonstrate how the concerns identified elsewhere in the UK are being addressed locally.

Evidence from the Royal Colleges and other professional bodies

Junior Doctors - The Shape of Training Review[18]

Chaired by Professor Greenaway 'The Shape of Training Review' investigated the desired outcome of training, including what kinds of doctors are needed, and how to train them accordingly. The intention is to allow the medical workforce to continue to meet patient and service demands now and in the future.

The key messages in the report are:

- Patients and the public need more doctors who are capable of providing general care in broad specialties across a range of different settings. This is being driven by a growing number of people with multiple co-morbidities, an ageing population, health inequalities and increasing patient expectations.
- The UK will continue to need doctors who are trained in more specialised areas to meet local patient and workforce needs.
- Postgraduate training needs to adapt to prepare medical graduates to deliver safe and effective general care in broad specialties.
- Medicine has to be a sustainable career with opportunities for doctors to change roles and specialties throughout their careers.
- Local workforce and patient needs should drive opportunities to train in new specialties or to credential in specific areas.
- Doctors in academic training pathways need a training structure that is flexible enough to allow them to move in and out of clinical training, whilst meeting the competencies and standards of that training.
- Full registration should move to the point of graduation from medical school, provided there are measures in place to demonstrate graduates are fit to practise at the end of medical school.
- Patients' interests must be considered first and foremost as part of this change.

The impact of the changing training requirements of the Wales Deanery is already being felt, and was one of the driving forces behind the need to change some of our acute in-patient services taken forward through the South Wales Programme.

Modernising Scientific Careers

In 2008 the Chief Scientific Officer (CSO) led a Department of Health programme for modernising scientific careers called '*The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps*[19]'. There was recognition that the NHS scientific community faced huge challenges in terms of future scientific and technological advances as well as meeting the demographic, epidemiological and financial challenges facing the health and social care system in the UK. In order to deliver high quality services in healthcare science, consistency and coherence were needed across the range of scientific specialist training programmes and this led to the development of the Modernising Scientific Careers (MSC) programme. MSC also ensured that the education and training of healthcare science workers kept track with the training of other healthcare professionals within the NHS.

'Liberating the NHS: Developing the healthcare workforce from design to delivery'[20] sets out the policy framework for the new approach to workforce planning, education and training of the health and public health workforce, including healthcare science. It aims to ensure that the NHS attracts, develops and retains

some of the brightest science graduates and young people in the UK. The MSC healthcare science provider framework is designed for use by service commissioners, employers and providers to understand:

- What workforce is needed to deliver safe and effective scientific services?
- How to use the healthcare science workforce more effectively.
- What skills and talents the healthcare science workforce possesses and how they can be deployed more effectively in clinical multi-disciplinary teams.
- What education and training is needed for safe and effective working at different levels.
- The opportunities to develop the careers of this workforce.

As outlined by the Department of Health in *Modernising Scientific Careers: The England Action Plan*[21], successful delivery of the MSC programme will be evaluated using the following success criteria:

- A workforce able to respond quickly to service needs.
- Better trained staff with the skills to deliver high quality care.
- Better value for money (workforce, training and education costs) while maintaining or improving quality of patient care.
- More motivated staff delivering better quality care and reduced risk of workforce or skills shortages or oversupply.
- An improved training experience and better outcomes for trainees.

Chartered Society of Physiotherapists

In 2010, an independent report[22] highlighted concerns over the future physiotherapy workforce. It was recognized that with an ageing population, and the shift towards care being provided closer to home, the demand for the services of physiotherapists in the NHS was likely to continue to grow. Unfortunately, in recent years the number of physiotherapy training places across the UK had dropped dramatically – falling by 30% since 2005 in England alone. The report highlighted this recent decrease in physiotherapy training places and predicted that if they decreased any further the NHS physiotherapy workforce would decline in numbers from 2012.

The key points of the report were as follows:

- Physiotherapists support self-management, promote independence and help minimise episodes of ill health developing into chronic conditions requiring hospital admissions. They have a central role to play in enabling people to remain healthy at work and to support individuals' return to work, thus reducing current levels of sickness related work absence and incapacity benefit claims – both major Government objectives.
- Physiotherapists are already developing and focusing their practice demonstrating both clinical and cost effectiveness. They are assuming greater responsibility for complex, non-routine caseloads, taking on activity previously undertaken by medical colleagues and overseeing the delivery of care by others.
- Demand for physiotherapy staff in the NHS has risen steadily in recent years. Since 2000 the FTE of qualified physiotherapists employed by the NHS in England has increased by 48%.
- The CSP is extremely concerned by recent severe cuts to commissioned undergraduate training places. Since 2004 there has been a 30% cut in places at English HEIs despite clear rising demand for their services. Intakes for 2010 are now back to the intakes of 2000, before the beginning of the expansion of the physiotherapy workforce recognised as urgently needed in the NHS Plan. Today we have an NHS physiotherapy workforce which is 48% larger than it was in 2000, with larger replacement needs.
- Further cuts in the student intakes in England would be disastrous and could not be justified. The constant danger is that in the search for cost saving physiotherapy is seen as an easy target for cuts by commissioners as one of the largest professions.

The Royal College of Surgeons

Reshaping Surgical Services: Principles for Change[23]

In this document the innovations in delivery of care and financial constraints are addressed and principles of change outlined. At least 2 of these principles are ubiquitous to all aspects of health service change:

> *"Reshaping of services should be based on sound clinical evidence that it will be beneficial to patients and staff, rather than it being considered for purely economic or administrative reasons"*
>
> *"The requirement for, and implications of, service change, needs to be thoroughly and exhaustively researched. If services are to be changed, the whole pathway of care for patients with specific conditions must be considered. This should encapsulate how a patient would access services from primary care, to initial secondary care referral, diagnostic tests, hospital treatment, discharge, follow-up and rehabilitation"*

With regards to the ageing population it is also noted that the majority of hospital users and their carers may be concerned about access and transport to facilities, particularly if they rely on public transport or on others to take them to hospital. This must therefore be a key factor to consider when restructuring services.

Access All Ages[24]

This document addresses the issue of access to surgical treatments/services on the basis of biological rather than chronological age. It highlights the decline in surgical procedures for patients in later older age (with or without co-morbidities) in spite of rising incidences of the underlying conditions in that age group. In the UK, older people with cancer, stroke or heart disease have poorer outcomes than their counterparts in other countries[25].

The college of surgeons acknowledges that, in view of the changing demographic, delivery of care to those over 65 will require specialised training for clinicians of all disciplines with regard to pre, peri and post operative care. New models of care must consider the impact on the training requirement for clinical staff in training, as well those in existing positions. Engagement with the schools of nursing, midwifery, medicine and each of the therapies, as well as with the post graduate training programmes is essential in order to successfully deliver care to this age group.

The British Geriatrics Society

The National Confidential Enquiry into Patient Outcomes and Death Report: an Age Old Problem highlights the benefit of input from Medicine for the Care of Older People clinicians in reducing mortality in the first 30 days after surgery. This enquiry focussed on patients aged over 80 years who had died within 30 days of elective and emergency surgery. The primary finding was that less than one third of patients received good care, consequent to poor recognition of risk factors specific to the older population, poor decision making, and inadequate and untimely escalation of care. The report recommended increased input from elderly medicine physicians and for an emphasis on the geriatric syndromes of frailty and delirium.

The British Geriatrics Society has published a guideline entitle 'Role of geriatricians in optimising pre and post operative care for elderly patients' . This focuses on 4 domains: pre-operative assessment and optimisation; postoperative management; education and training; governance and research. In all domains there is an emphasis on multidisciplinary working, between surgeons, anaesthetist, geriatricians, nurses and therapists in surgery, care of the elderly and community teams. It also promotes the use of research and audit data to inform both service delivery and training programmes. A model of care from St Thomas' hospital is also provided in this guidance.

The Royal College of Physicians

The Royal College of Physicians report 'Hospitals on the Edge?'[28] states that:

> *"It is increasingly clear that we must radically review the organisation of hospital care if the health service is to meet the needs of patients. We must act now and we must act collaboratively if we are to ensure patients receive the care they deserve now and in the future".*

The demographic of society has changed greatly in the 64 years since the NHS was created so has the demographic of hospital inpatients changed.

- Nearly two thirds (65%) of people admitted to hospital are over 65 years old.
- An increasing number of patients are older and frail, and around 25% of inpatients have a diagnosis of dementia.
- Hospital Episode Statistics (HES) show a 65% increase in secondary care episodes for those over 75 years old during the past 10 years, compared with 31% for those aged 15–59 years old[29].
- People over 65 years old occupy more than 51,000 acute care beds at any one time, accounting for 70% of bed days[30].
- People over 85 years old account for 25% of bed days – increased from 22% over the past 10 years.This equates to more than five bed days per annum, compared to only one fifth of a bed day per annum for those under 65 years old.
- People over 85 years old tend to spend around eight days longer in hospital than those under 65 years old – 11 days compared to only 3.
- Areas with integrated services for older people have lower rates of bed use. These hospitals also tend to have lower admission rates and deliver good patient experience[31].
- The number of general and acute beds has decreased by a third in the past 25 years[32].
- In the past 10 years there has been a 37% increase in emergency hospital admissions and a 65% increase in secondary care episodes for those over 75 years old in the same period (compared with 31% increase for those aged 15–59 years old)[33].
- Emergency hospital admissions account for nearly all hospital admissions[34]. Hospitals have coped with the increase by reducing length of stay over the past 10 years. However, this fall in length of stay has begun to flatten, and has slightly risen for people over 85 years old, as the numbers of admissions have continued to rise.
- In 2010–11, 3.6 million (21.9%) people who attended accident and emergency departments (A&E) required hospital admission. 57.4% (9.3 million) of people who attended A&E were discharged and required either no follow up or follow up from their GP[35].
- Integration of primary and secondary care, as well as primary and social care have both been shown to reduce hospital admissions[36].

The report 'Hospitals on edge' went on to define 10 priority areas for action:

1. We must promote dignity and patient-centred care.
2. We must redesign services.
3. We must change the way we organise hospital care.
4. We must review medical education and training.
5. We must ensure the right mix of medical skills.
6. We must renegotiate the New (Consultant) Deal.
7. We must ensure the availability of primary care services.
8. We must revolutionise the way we use information.
9. We must embed quality improvement across the system.
10. We must show national leadership.

The Royal College of General Practitioners (RCGP)

Primary care and the concept of integrated care.

There are many perceptions of the term 'integrated care' and what that means to a health care organisation. In their document "a vision of integrated care" the RCGP defined integration (when related to primary care) as "patient centred, primary care led shared working, with multi-professional teams, where each profession retains their autonomy but works across professional boundaries, ideally with a shared electronic GP record" . The RCGP notes that integration may be vertical or horizontal.

> Vertical integration is concerned with the coordination of services providing care at differing levels of intensity according to the severity and complexity of healthcare need. Its main benefit is in ensuring that services are provided at the *right time and in the right place, as close to the patients' home as possible.* Although it is often associated with the concept of a single patient pathway, the challenge is to ensure that patients with multiple conditions receive appropriate referral and management.
>
> Horizontal integration concerns the co-ordination of care across the whole range of a person's health conditions and the services they receive, spanning both primary and secondary care and beyond this to social care. The most important benefit of horizontal integration is its ability to take a whole person approach and to deal effectively with multi-morbidity.

The vision of successful integration outlined by the RCGP is one to which Cardiff and Vale UHB should aspire and is quoted in full here:

"Successful integration of care would ensure:"

- Patients are much less aware of the organisational boundaries between services.
- Patients feel in control of their care and empowered to share decisions about it.
- Patients are fully aware of their care plan and where they are at every step of the process.
- Patients experience transfer from one service to another as straightforward and timely, within both health and social care.
- Clinicians and other staff at all stages have the necessary information about the patient and care is therefore tailored to the patient's precise needs.
- The patient experience is better and patient safety and health outcomes are also improved.
- Better outcomes and quality of care for patients with multi-morbidity.
- A reduction in health inequalities as the most vulnerable patients receive better access to holistic person centred care.

Integrated care would also be assessed on its more cost-effective use of resources, since:

- Patients would be far less likely to be referred for unnecessary treatment.
- Better use of information would ensure that conditions could be managed with fewer visits to secondary care.
- Resources would used more efficiently with less duplication.
- Patient care would be delivered in the community, or even at home, wherever possible, and there would not be incentives in the system to stop this happening.
- Care would be delivered by the most appropriate person in the most appropriate setting at all times.

We would expect that this would result in greater satisfaction for clinicians and other care staff, since:

- Staff would waste less time in duplication of information and chasing referrals.
- Staff would have better communication with colleagues in other areas, so that there are shared goals rather than a silo mentality as so often is present.
- There would be greater opportunities for shared learning and development."

Teams without Walls

The RCGP's joint paper 'Teams without Walls' presented a model of health care whereby:

- Services would be designed around patient pathways, with the right balance between prevention, early identification, assessment, and long term support.
- Generalists and specialists would work together in new ways as part of multi-professional teams, establishing clinical networks.
- The emphasis would be on keeping patients out of hospital and managing outpatient care and minor complications in the community, but teams would also have the skills to enable them to support patients during hospital admissions if required.

In developing integrated services both documents alluded to the following requirements:

- Shared electronic patient record systems.
- The development of new community based and intermediate services, such as outpatient clinics, hospital at home and reablement schemes.
- Employment of generic care workers who can undertake basic health and social care tasks.
- Initiatives to promote more timely hospital discharge.
- The use of best practice clinical guidelines and the development of clinical protocols to spell out who has responsibility for different elements of the care pathway.
- Establishment of common intervention thresholds and needs assessment frameworks.
- The introduction of new structures for clinical governance and leadership.
- Systems to allow GPs to obtain easier access to specialist advice, including through the use of online technology.
- The development of disease registers and the employment of risk stratification techniques to identify those most likely to benefit from proactive intervention

Challenges for Primary Care

In his paper addressing the challenges for primary care over the forthcoming years, David Oliver provides us with many concepts for consideration . He identifies three levels of prevention that should be offered in primary care:

Primary Prevention:	Preventing the onset of long term conditions, frailty, or disability (with some of the broader solutions lying in communities, housing, or technology rather than health services).
Secondary Prevention:	Helping those with these problems to remain well.
Tertiary Prevention:	Ensuring that when people do suffer acute crises or complications they recover well.

Most people over 75 years have at least three long term conditions, often including diabetes, respiratory and cardiac disease. However, they often suffer additional co-morbitidies which are often less clearly prioritised clinically[40], such as incontinence, mobility problems, visual and auditory impairment, and osteoporosis. A less common condition associated with ageing, but one with significant morbidity is *'Frailty Syndrome',* defined by weight loss, muscle weakness, slow walking speed, and fatigability. This syndrome is associated with high resource utilisation and requirement for institutional care. Understanding the complex needs of those with multiple morbidities is essential and the process of horizontal integration is vital in the planning and provision of care to the elderly,

The paper also alludes to the alarming statistics regarding dementia:

- There are already an estimated 800 000 people in Britain with dementia, projected to double over the next two decades.
- Dementia has been estimated to cost more to society than heart disease, stroke, and cancer combined[41].
- Dementia complicates many other conditions, so that one in four adult hospital beds is occupied by someone with dementia — with half never diagnosed before admission to hospital in crisis.
- Approximately two-thirds of long-term care residents have dementia or cognitive impairment.

Provision of care for those with dementia and planning for the care of additional co-morbidities is an essential component of planning healthcare for the future.

Finally the paper highlights the concerns regarding elderly people who are in nursing and residential homes who have multiple comorbidities, disability, a high prevalence of dementia, poor mobility, or continence problems, and often harmful polypharmacy. They are often admitted to hospital as an unplanned emergency, and on many occasions this admission may have been avoidable if only other, pro-active and reactive systems were in place[42]. New processes must therefore be created that maximise the quality of care elderly people receive in nursing and residential homes, with processes in place to minimimise their transfer to the acute hospital setting.

Royal College of Obstetricians and Gynaecology (RCOG)

The 2011 RCOG report 'High Quality Women's Health Care: a Proposal for Change' describes a model that focuses on the needs of the woman and her baby by providing the right care, at the right time, in the right place, provided by the right person in order to enhance the woman's experience[43]. Their good practice guide for implementation of this proposal, *'Reconfiguration of women's services in the UK*: Good Practice No. 15 (December 2013)' references the many policy drivers which support good practice in maternity care. These include:

- Extending women's choice of type and location of maternity care.[44,45,46]
- Extending patient choice of provider.[47]
- Shifting care from the hospital to the community.[48]
- 2009 Department of Health (DH) report '*Delivering High Quality Midwifery Care: the Priorities, Opportunities and Challenges for Midwives*'.[49]
- 2008 RCOG Working Party report '*Standards for Maternity Care*' (Royal College of Obstetricians and Gynaecologists, Royal College of Midwives, Royal College of Anaesthetists and Royal College of Paediatrics and Child Health.)[50]
- 2009 RCM report '*Standards for Birth Centres in England*'.[51]

Key principles of care supported by the RCOG include:

- Delivery suites supporting large numbers of births (over 5000 a year) and/or a complex caseload should be moving towards a 168-hour-per-week consultant-based service.[52]
- A 24-hour, 7-day-a-week consultant-led service for women requiring obstetric care improves patient safety and enhances women's experiences.[53] Women have stated they would prefer to have this level of care available at any time of day/night.[54]
- There should be a lead consultant obstetrician on the delivery suite.[55,56,57,58]

Finally, it urges health care providers to consider:

a) What services could be best delivered within the community rather than on an acute hospital site?
b) What services are required on all hospital sites? These services are likely to be those with a low complexity but high patient numbers.
c) Which services would be better delivered on fewer hospital sites? These services are likely to be more complex or specialised services or those with smaller patient numbers.
d) Are there any opportunities to provide local access to services for which patients currently have to travel out of the area?

Royal College of Paediatrics and Child Health (RCPCH)

In 2010, the RCPCH published '*Facing the Future: Standards for Paediatric Services*' [59] which outlined 10 standards for acute, general paediatric care. The standards were followed, in 2011, by '*Facing the Future: A Review of Paediatric Services*', which provided workforce and service provision modelling around their implications. The report made five interlocking recommendations:

1. Reduce the number of inpatient sites.
2. Increase the number of consultants.
3. Expand significantly the number of registered children's nurses.
4. Expand the number of GPs trained in paediatrics.
5. Decrease the number of paediatric trainees.

In February 2014, the RCPCH Executive Committee requested that the *'Facing the Future*' standards be reviewed and these revised standards are currently out for consultation[60].
The proposed standards of care are based on 3 key principles:

- Consultants are responsible and accountable for the children and young people admitted under their care.
- Children and young people must be seen by the correct person, with the appropriate skills, as soon as possible.
- There must be sufficient staff across all rotas to deliver the standards.

The proposed standards are:

1. A consultant paediatrician* is present *and readily available* in the hospital *for a minimum of 12 hours a day, seven days a week.*
2. Every child or young person who is admitted to a paediatric department with an acute medical problem is seen by a *healthcare professional with the appropriate competencies to work on the middle grade paediatric rota* within four hours of admission.
3. Every child or young person who is admitted to a paediatric department with an acute medical problem is seen by a consultant paediatrician* within *12 hours of admission, with the provision for more immediate review as required according to illness severity.*
4. At least two medical handovers every 24 hours are led by a consultant paediatrician*.
5. Every child or young person with an acute medical problem who is referred for a paediatric opinion is seen by, or has their case discussed with, *a clinician with the necessary skills and competencies before they are discharged. This could be:* a paediatrician on the consultant rota, a paediatrician on the middle grade rota, or a registered children's nurse who has completed a recognised advanced children's nurse practitioner programme and is an advanced children's nurse practitioner.
6. Throughout all the hours they are open, paediatric assessment units have access to the opinion of a consultant paediatrician*.
7. All general paediatric inpatient units adopt an attending consultant* system, most often in the form of the 'consultant of the week' system.
8. All general paediatric training rotas are made up of at least ten whole time equivalent posts, all of which are compliant with the Working Time Regulations.
9. Specialist paediatricians are available for immediate telephone advice for acute problems for all specialties, and for all paediatricians.
10. All children and young people, children's social care, police and health teams have access to a paediatrician with child protection experience and skills (of at least Level 3 safeguarding competencies) who is available to provide immediate advice and subsequent assessment, if necessary, for children and young people under 18 years of age where there are child protection concerns. The requirement is for advice, clinical assessment and the timely provision of an appropriate medical opinion, supported by a written report.

* or equivalent staff, associate specialist and speciality doctor who is trained and assessed as competent to work at the level of a consultant paediatrician.

College of Emergency Medicine

When facing challenges of changing population sizes and demographics, health services must often consider how its emergency care is configured. This can sometimes involve downgrading, transferring or even closing Emergency Departments. This position statement by the College describes the principles that relevant stakeholders must consider when such decisions are being made.

10 key principles[61]:

1. Safe, effective and accessible delivery of emergency care must lie at the heart of all decision making in reconfiguration.
2. Commissioners must fully understand the complexity of the emergency care case-mix and its distribution over a 24 hour period.
3. The competencies and skill-sets of the clinical decision makers in the emergency care system must be considered before any reconfiguration proposals are allowed to proceed. Commissioners and providers are strongly recommended to work towards meeting the minimum of 10 consultants in Emergency Medicine / department. Additional guidance on extended hours of coverage by senior EM clinicians is provided in the College of Emergency Medicine's recommendations on workforce planning (Emergency Medicine Operational Standards Handbook - The Way Ahead).
4. Close collaboration with local clinical experts in Emergency Medicine are vital in any discussions. Further advice and guidance documents can be provided by the Dept of Health's National Clinical Advisory Team (NCAT) and the College of Emergency Medicine itself. NCAT will ask stakeholders to consider the four keys tests for service change: support from GP commissioners, strengthened public and patient engagement, and clarity on the clinical evidence base and consistency with current and prospective patient choice.
5. Any proposed models for care delivery must be clinically led by EM Consultants and other stakeholders with adequate time set aside in EM consultant job plans specifically for service re-design, collaborating with other clinical colleagues and consideration given to the beneficial role of other integrated co-located services (e.g. Urgent Care Centres) where deemed necessary.
6. The training and education of the emergency care workforce must lie at the heart of the service to help optimise the quality of care delivered. This can only occur where the clinical staff and especially the trainees rotate through all relevant areas of the ED and time is embedded for teaching and work place based assessment.
7. A high quality clinical governance and risk management programme must be built into any proposed reconfiguration with a set of metrics that can be shared between all relevant stakeholders to ensure the pursuit of excellence in emergency care.
8. The ED must have a cohesive 24/7 support service structure from key specialties and services including acute medicine, intensive care/anaesthesia, diagnostic imaging and appropriate laboratory services.
9. Ideally paediatrics, general surgery and orthopaedics should also be on site. If they are not, then safe care pathways with robust governance processes linked to corporate responsibilities must be in place for the management and safe transfer of patients with obvious or occult severe illness or injury in these groups. This may mean ambulances by-passing the nearest ED or clear procedures for rapid stabilisation and summoning of retrieval teams.
10. Detailed modelling of the potential impact of any reconfiguration proposal on the local population and healthcare economy is vital in order to maximise the likelihood of creating a high quality emergency care system service.

Royal College of Nursing (RCN)

In 2012, the RCN published recommendations regarding mandatory nursing staff levels in health care . These recommendations followed recognition that nursing staff levels were often very variable across institutions, and that the skill mix between registered nurses and health care assistants was often heavily weighted towards the minimally qualified. Nursing staff to patient ratios matter. There is a rapidly increasing evidence basis to support mandatory nurse staffing levels. Higher nursing staff levels are linked to:

- Improved patient outcomes.

  The higher the number of patients assigned to each nurse on a shift, the more frequently care is compromised. Patients and staff that work in hospitals with better nurse to patient ratios have consistently better outcomes, with a 31% difference in mortality between hospitals where each nurse looked after 8 patients, and hospitals where each nurse looked after only 4 patients. A cross national review of nurse staffing outcomes in Canada, America, England, and Scotland revealed a higher level of staff satisfaction and reduced staff burn-out when nurse staffing levels were higher.

- Improved recruitment and retention of nursing staff.

  Nurses who work in a low nurse-to-patient ratio environment are twice as likely to suffer job related 'burn-out' and twice as likely to report job dissatisfaction. The RCNs employment survey 2011 identified the worsening morale of the NHS nursing workforce. 50% of respondents said that they were too busy to give the care that they would want to give. Improving nursing staff levels would improve job satisfaction and therefore nursing staff morale and retention.

- Economic benefits to employers and communities.

  A literature review covering 16 years of research for cost-benefit outcomes related to higher nurse staffing, showed that a registered nurse workforce with higher levels of knowledge and skills led to more effective patient care.

In March 2014 the National Assembly for Wales agreed a Proposed Member's Bill to move forward with minimal nursing staff levels in all Welsh hospitals.

Discussion

Need for Change

It is clear from a wide variety of sources that over the next 10 years Cardiff and the Vale of Glamorgan is going to see a dramatic growth in population size. This population growth will be accompanied by an aging of the population. This in turn will lead to an increase in the incidence of conditions associated with older age, such as cancer and dementia, as well as chronic disease. Unhealthy lifestyles, including poor diet, excessive alcohol consumption, drug misuse and smoking, all contribute to already high levels of diabetes, cardiovascular disease and other long term conditions. The increasing prevalence of long term conditions, accompanied by the increased utilisation of health services by the general public is making the traditional model of hospital-centric health care unsustainable. Current services are also failing to address clear health inequalities across the Cardiff and Vale region. New services must therefore be developed that have a greater emphasis on community delivered care.

Population changes provide a strong driver for change. Change is further encouraged by recent high profile public enquiries which have highlighted how easy it is to become complacent in the care that we provide and to lose sight of what is important to individuals and their local communities. Although change is clearly needed in Cardiff and Vale UHB to both meet the changing needs of our population and also to improve the quality of healthcare, this change must not compromise the core principles of the care we provide. All healthcare providers must learn important lessons from the Francis and the Andrews reports. The 'Trusted to Care Assurance Framework' details how Cardiff and Vale UHB has responded to the Andrew's report recommendations and highlights how seriously Cardiff and Vale views its responsibility to provide a caring environment.

The message that is clear from all the Royal College and other professional body publications is how changing health demographics and health needs are having a major impact on the functioning of existing services, workforce planning and their training. Public expectation around consultant presence is growing. As we move towards 24 hour a day, seven day a week consultant working, care must be taken that safety is maintained and training is still a priority as service commitments increase. New ways of working must be found that more effectively use resources. Boundaries between different specialties must become blurred as teams work closer together, both within hospital care as well as between primary and secondary care, to provide a more integrated service allowing flow through the health care services to be maximised.

Nevertheless, any future changes in the provision of health care must also be matched by changes in the attitudes and behaviours of health care users. Current trends of increased user expectation must be matched by a move towards co-produced care, where individuals are empowered to take on some responsibility for their own wellbeing, both in health but also during disease.

Over the next 10 years Cardiff and Vale University Health Board has a clearly defined mission entitled "Caring for people; keeping people well"; this is matched by our ambition to become the UK's leading integrated healthcare organisation. To achieve this goal the Health Board must face up to the challenge of its changing population whilst not losing sight of what matters to the users of its services. As a 10 year clinical services strategy is developed, it is vital that the Health Board retains principles which focus on assuring person centred care. We must ensure that we continuously refer to these principles in the subsequent design of service delivery models and that all subsequent service development plans for the Health Board align to these principles until such time as they are revised.

Principles for the Clinical Services

When determining the principles of Cardiff and Vale UHB's clinical services strategy, a comprehensive process of engagement was carried out with clinicians of all disciplines in the Health Board, as well as representatives from the Community Health Council, Cardiff Council, the Vale of Glamorgan Council, the 3rd Sector Health and Social Care Networks and two of our neighbouring Health Boards (Aneurin Bevan and Abertawe Bro Morgannwg). The overwhelming feedback was a need to focus on people's wellbeing. This involves promoting and supporting healthy lifestyles, encouraging independence by maintaining quality of life throughout the course of a disease, and by enabling the individual to take responsibility for their own care as far as possible. The importance of avoiding unnecessary harm, and reducing waste were also highlighted. These latter principles fit well with the Welsh Governments drive for 'prudent healthcare'. Using this feedback, 4 principles were created (Figure 9).

Figure 9: Principles of the Clinical Services Strategy

High Impact Service Framework

Using these 4 principles, Cardiff and Vale UHB will look to develop new models of care for the clinical services it provides. Although ultimately aiming to redesign all of its clinical services, the 10 year clinical services strategy needed to have an initial focus, from which a culture of change could be established. The World Health Organisation (WHO) lists obesity, cancer, cardiovascular disorders, respiratory disorders, mental health and dementia as global public health priorities and these globally impacting health issues are clearly affecting our local population. Indeed many of these issues have also been highlighted as health priorities by Welsh Government, NHS Wales and by Cardiff and Vale UHB itself due to the current or anticipated burden they will place on local healthcare resources. We recognise that many of these diseases have overlapping risk factors that could enable a unified approach when developing a new model of care. On the other hand, other diseases, although appearing to be very different, already have synergy in the components of their current delivery models and therefore have the potential to be developed in similar ways in the future.

Following further consultation, 6 health areas were identified that were felt to currently be having or would be anticipated to have the greatest impact on local health services. These areas were cancer, dementia, dental and eye care, long term conditions, maternal health and mental health. These wide ranging health areas are not intended to cover all services provided by Cardiff and Vale UHB, although they do encompass a large proportion. Any models of care developed for these health areas would act as a starting point for the clinical services strategy and could in the future be transposed to other areas as the 10 year strategy evolves. Some of the key drivers for these 6 areas of health were as follows:

1. Cancer

Cancer prevention and the delivery of world class care for people with cancer, remains a top priority for Wales. Over the coming years, around 1 in 3 people will be diagnosed with cancer before age 75 and around 4 in 10 at some stage during their lifetime. The incidence of cancer is increasing – there has been around a 10% rise in cancer in Cardiff and the Vale of Glamorgan in the last 10 years[69]. Cancer accounts for nearly 7% of all NHS expenditure in Wales[70].

2. Dementia

By 2021, the number of people with dementia across Wales is projected to increase by 31 per cent and by as much as 44 per cent in some rural areas . Cardiff and Vale UHB's projected increase between 2015-2015 is 27% [72].

3. Dental and Eye Care

There is a great deal of research showing the links between dental health and general health[73]:

- The mouth can be an entry as well as the site of disease and infection that affect general health, with studies linking dental diseases and diabetes, cardiovascular disease, stroke, and adverse pregnancy outcomes;
- The mouth and its functions can be impacted by many pharmaceuticals and other therapies commonly used in treating long term conditions;

Currently, nearly 100,000 people in Wales are living with sight loss. By 2020, this is predicted to increase by 22 per cent and double by 2050. Importantly, more than 50 per cent of sight loss can be prevented through early identification and intervention[74].

4. Long Term Conditions

Long term conditions can include; chronic obstructive pulmonary disease, heart failure, diabetes, inflammatory bowel disorders, musculoskeletal conditions, alcohol and other addictions, as well as many others. According to the Welsh Government[75]:

- one third of adults in Wales (an estimated 800,000) report having at least one long term condition;
- of people aged over 65 in Wales, two thirds report having at least one long term condition, and one third have multiple long term conditions; and
- more than three-quarters of people aged 85-plus in Wales reported having a limiting long-term illness.

5. Maternal Health

The Cardiff and the Vale of Glamorgan Councils' Local Development Plans will impact significantly on the UHB, adding significantly to a population with a birth rate already three times higher than the rest of Wales. Developments in services for maternal health are also closely linked to the implementation of the work by the South Wales Collaborative to reconfigure consultant-led maternity services.

6. Mental Health

According to the World Health Organisation, mental health problems account for 20% of the overall "burden of disease", a larger share than any other single health problem, including cardiovascular diseases (16.2%) and cancer (15.6%). Poor mental health and mental illness have a significant impact on individuals, society and the economy overall. Statistics provided in the Welsh Government's Together for Mental Health document show[76]:

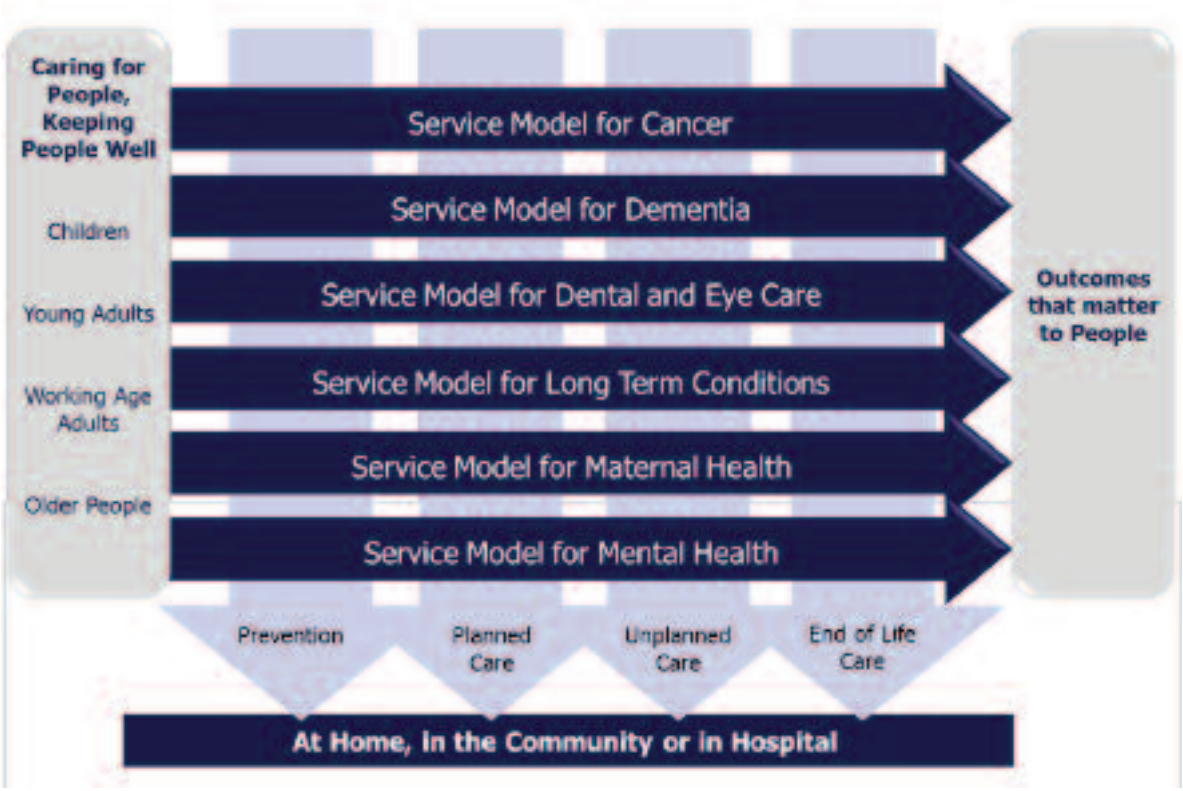
- 1 in 4 adults experiences mental health problems or illness at some point during their lifetime.
- 1 in 10 children between the ages of 5 and 16 have a mental health problem and many more have behavioural problems.

Approximately 50% of people with enduring mental health problems have symptoms by the time they are 14.

Designing new models of care

When designing new models of care, it is important to modernise our thinking with regards to how that care is delivered. It is clear that there are distinct differences between different age groups in our population, for example children and adults. However, the aims and key concepts of the care that we provide are likely to be the same regardless of age. We therefore felt it was important to take a life course approach and consider how a new model of care would impact on all age groups, defined as children, young adults, working age adults, and older people. Each model of care should be made up of four elements of equal importance, addressing illness prevention, planned care (including rehabilitation), unplanned care and end of life care. These elements should easily flow into each other as a person's journey through the health service evolves (see figure 10).

Figure 10: High Impact Service Framework



The overall aim of the clinical services strategy will be to provide integrated care, across a range of public services and seamlessly provided within the health care sector. Subsequently a user of our services will not be so aware of the traditional boundaries between agencies, even if they still persist for financial accounting.

Conclusion

Ultimately, as we look to the future of our health care system, the need for change is not an option but a necessity. Through working closely with service users we can develop new models of care that are person centric and empower people to responsibly manage their own health. In a tight financial environment we must find new ways to use our resources to provide a safe and effective service that can adapt to our changing population needs. We must look to embrace technology and new ways of working to enable the delivery of a world class health service that anticipates and prevents disease occurrence and progression rather than a reactionary service that responds too late. Changing the way we deliver care must result in a change in the amount of care delivered in the acute hospital setting and this reconfiguration of services into primary and the community care setting must be appropriately resourced. Cardiff and Vale UHBs 10 year clinical service strategy aims to develop new service models that, through a life course approach, seamlessly integrate care across boundaries and deliver outcomes that matter most to the users of our services.

References

[1] Ipsos MORI. Britain 2012. Who do we think we are? London: IpsosMORI, 2012. www.ipsosori.com/researchpublications/publications/1481/Britain-2012.aspx [Accessed 3 September 2012].

[2] http://nww2.nphs.wales.nhs.uk:8080/PubHObservatoryProjDocs.nsf/85c50756737f79ac80256f2700534ea3/fb70c15bb236e1fe80257765005085c2/$FILE/Cardiff%20and%20Vale%20University%20Local%20Health%20Board%20Demography%20Profile.pdf

[3] http://wales.gov.uk/topics/sustainabledevelopment/future-generations-bill/?lang=en

[4] http://wales.gov.uk/docs/dhss/publications/140523strategyen.pdf

[5] http://wales.gov.uk/docs/dhss/publications/120220tfhsummaryen.pdf

[6] http://wales.gov.uk/topics/health/publications/health/strategies/?lang=en

[7] Bradley, P. & Willson, A. (2014) Achieving prudent healthcare in NHS Wales (revised). Cardiff: Public Health Wales.

[8] Vincent C, et al (2001) *Adverse events in British hospitals: preliminary retrospective record review* BMJ2001;322:517.

[9] MacArthur H., Phillips C., *Simpson H. (2012) Improving Quality Reduces Costs. Cardiff: 1000 Lives Improvement.*

[10] The Health Foundation (2013) *Learning report 'Improving Patient Flow. How two Trusts focussed on flow to improve the quality of care and use available capacity effectively'* London: The Health Foundation www.health.org.uk/publications/improving-patient-flow

[11] Carruthers I, Ormondroyd J. Achieving age equality in health and social care. London: CPA; 2009.

[12] National Institute for Health and Clinical Excellence. Breast cancer Quality Standard (QSABC). London: NICE; 2011.

[13] Department of Health. The impact of patient age on clinical decision-making in oncology. London: DH; 2012.

[14] Care and compassion? Report of the Health Service Ombudsman on ten investigations into NHS care of older people. London: PHSO, 2011. www.ombudsman.org.uk/care-and-compassion/home [Accessed 3 September 2012]

[15] Trusted to Care An independent Review of the Princess of Wales Hospital and Neath Port Talbot Hospital at Abertawe BroMorgannwg University Health Board http://wales.gov.uk/docs/dhss/publications/140512trustedtocareen.pdf

[16] Trusted to Care An independent Review of the Princess of Wales Hospital and Neath Port Talbot Hospital at Abertawe Bro Morgannwg University Health Board http://wales.gov.uk/docs/dhss/publications/140512trustedtocareen.pdf

[17] Cardiff and Vale University Health Board. Trusted to Care Assurance Framework. http://www.cardiffandvaleuhb.wales.nhs.uk/document/242723

[18] Securing the future of excellent patient care: Final report of the independent review Led by Professor David Greenaway http://www.shapeoftraining.co.uk/static/documents/content/Shape_of_training_FINAL_Report.pdf_53977887.pdf

[19] Department of Health (2008). *The Future of the Healthcare Science Workforce. Modernising Scientific Careers: The Next Steps* https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/139529/dh_115144.pdf

[20] Department of Health (2012). Liberating the NHS: Developing the Healthcare Workforce. From Design to Delivery. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/216421/dh_132087.pdf

[21] Department of Health (2010). *Modernising Scientific Careers: The England Action Plan. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/139529/dh_115144.pdf*

[22] Chartered Society of Physiotherapists (2010). Submission to the Centre for Workforce Intelligence on the future physiotherapy workforce. http://www.csp.org.uk/documents/csp-response-cfwi-physiotherapy-workforce-report

[23] *The Royal College of Surgeons of England: Reshaping surgical services: principles for change https://www.rcseng.ac.uk/publications/docs/reshaping-surgical-services/@@download/pdffile/reshaping_surgical_services_2013.pdf*

[24] Access all ages: Assessing the impact of age on access to surgical treatment https://www.rcseng.ac.uk/publications/docs/access-all-ages

[25] Health and Social Care Bill: Memorandum submitted by Age UK (HS 25). UK Parliament http://www.publications.parliament.uk/pa/cm201011/cmpublic/health/memo/m25.htm (cited August 2012).

[26] Wilkinson K, Martin IC, Gough MJ, et al. An Age Old Problem: A review of the care received by elderly patients undergoing surgery. London: National Confidential Enquiry into Patient Outcome and Death; 2010.

[27] Dhesi et al Jan 2013 British Geriatrics Society http://www.bgs.org.uk/index.php/topresources/publicationfind/goodpractice/2402-bpg-pops

[28] Hospitals on the edge? The time for action. A report by the royal college of physicians. September 2012 https://www.rcplondon.ac.uk/sites/default/files/documents/hospitals-on-the-edge-report.pdf

[29] Imison C, Poteliakhoff E,Thompson J. Older people and emergency bed use. Exploring variation. London: King's Fund, 2012

[30] Cornwell J et al. Continuity of care for older hospital patients: a call for action. London: King's Fund, 2012.

[31] Imison C, Poteliakhoff E,Thompson J. Older people and emergency bed use. Exploring variation. London: King's Fund, 2012

[32] Cornwell J et al. Continuity of care for older hospital patients: a call for action. London: King's Fund, 2012.

[33] Hospital Episode Statistics. www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937 [Accessed 3 September 2012]

[34] Blunt I, Bardsley M, Dixon J. Trends in emergency admissions in England 2004–2009. London: The Nuffield Trust, 2010.

[35] Blunt I, Bardsley M, Dixon J. Trends in emergency admissions in England 2004–2009. London: The Nuffield Trust, 2010.

[36] The King's Fund. Avoiding hospital admissions. What does the research evidence say? London: King's Fund, 2010. www.kingsfund.org.uk/publications/avoiding_hospital.html [Accessed 3 September 2012].

[37] RCGP – vision of integrated care http://www.rcgp.org.uk/policy/rcgp-policy-areas/~/media/Files/Policy/A-Z-policy/General_Practice_and-the_Integration_of_Care%20_An_RCGP_Report.ashx

[38] Report of a Working Party of the Royal College of Physicians, the Royal College of General Practitioners and the Royal College of Paediatrics and Child Health. (2008) Teams without walls - the value of medical innovation and leadership.

[39] D Oliver 21st century health services for an ageing population: 10 challenges for general practice Br J Gen Pract v.62(601); August 2012 PMC3404305

[40] The Kings Fund. The management of people with long term conditions. London: Kings Fund; 2010. Barnett K, Mercer S, Norbury M, et al. Epidemiology of multimorbidity and implications for healthcare, research and medical education: A cross-sectional study. Lancet. 2012 [Epub ahead of print]http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)60240-2/fulltext (accessed 9 Jul 2012).[PubMed]

[41] Alzheimer's Society. Counting the cost of care for people with dementia on hospital wards. London: Alzheimer's Society; 2009.

[42] British Geriatrics Society. A quest for quality in nursing homes. London: BGS; 2011

[43] Royal College of Obstetricians and Gynaecologists. High Quality Women's Health Care: a Proposal for Change. London: RCOG; 2011 [www.rcog.org.uk/files/rcog-corp/HighQualityWomensHealthcareProposalforChange.pdf].

[44] *Equity and Excellence: Liberating the NHS*. NHS White Paper. Norwich: TSO;2010 www.gov.uk/government/uploads/system/uploads/attachment_data/file/213823/dh_117794.pdf].

[45] 2010 NHS White Paper *Healthy Lives, Healthy People: Our Strategy for Public Health in England HM Government. Healthy Lives, Healthy People: Our Strategy for Public Health in England*. NHS White Paper. Norwich: TSO; 2010 [www.gov.uk/government/uploads/system/uploads/attachment_data/file/136384/healthy_lives_healthy_people.pdf].

[46] National Institute for Health and Care Excellence (NICE) outcomes framework National Institute for Health and Care Excellence (NICE). Quality and Outcomes Framework [www.nice.org.uk/aboutnice/qof/qof.jsp]. and quality standards]

[47] Department of Health. *Liberating the NHS: Greater Choice and Control*. Government response. Extending patient choice of provider (Any qualified provider). London: DH; 2011 [webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_128539.pdf].

[48] Department of Health. *Shifting Care Closer to Home*. Care Closer to Home demonstration sites – report of the speciality subgroups. London: DH; 2007 [webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_079801.pdf].

[49] Department of Health. *Delivering High Quality Midwifery Care: the Priorities, Opportunities and Challenges for Midwives*. London: DH; 2009 [http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_106064.pdf].

[50] *Standards for Maternity Care: Report of a Working Party*. London: RCOG Press; 2008 [www.rcog.org.uk/files/rcog-corp/uploaded-files/WPRMaternityStandards2008.pdf].

[51] St*andards for Birth Centres in England: a Standards Document*. London: Royal College of Midwives Trust; 2009 [www.rcm.org.uk/EasySiteWeb/GatewayLink.aspx?alId=103143].

[52] Royal College of Obstetricians and Gynaecologists. *The Future Role of the Consultant*. Working Party report. London: RCOG Press; 2005 [www.rcog.org.uk/files/rcog-corp/uploaded-files/ WPRFutureRoleConsultant2005.pdf].

[53] *High Quality Women's Health Care: a Proposal forChange.* London: RCOG; 2011 [www.rcog.org.uk/files/rcog-orp/HighQualityWomensHealthcareProposalforChange.pdf].

[54] Royal College of Obstetricians and Gynaecologists. *Tomorrow's Specialist*. Working Party Report. London: RCOG; 2012 [www.rcog.org.uk/files/rcog-corp/Tomorrow%27s%20Specialist_FullReport.pdf].

[55] RCOG Good Practice No. 10 (2010) *Labour Ward Solutions*

[56] RCOG Good Practice No. 8 (2009) *Responsibility of Consultant On-Call*

[57] RCOG Working Party report (2009) *The Future Workforce in Obstetrics and Gynaecology:England and Wales*

[58] College of Operating Department Practitioners, Royal College of Midwives, and Associationfor Perioperative Practice (2009) *Staffing of Obstetric Theatres – A Consensus Statement.*

[59] Facing the future: Standards for paediatric services. April 2011. http://www.rcpch.ac.uk/facingthefuture.

[60] Consultation on the Implementation of the Revised Facing the Future Standards: www.rcpch.ac.uk/sites/default/files/page/Consultation%20document%20for%20PDF%20(Members).pdf

[61] College of Emergency Medicine 2012. Reconfigureation of Emergency Care system services – 10 Key Principles: A position statement from the College of Emergency Medicine. http://secure.collemergencymed.ac.uk/code/document.asp?ID=6413

[62] Royal College of Nursing 2012. Mandatory Nurse Staffing Levels. http://www.rcn.org.uk/__data/assets/pdf_file/0009/439578/03.12_Mandatory_nurse_staffing_levels_v2_FINAL.pdf

[63] Ball, J. Pike, G. (2009). Past imperfect, future tense – nurses employment and morale in 2009. London: RCN

[64] Rafferty et al. 2007. Outcomes of variation in hospital nurse staffing in English hospitals: cross sectional analysis of survey data and discharge records. *International Journal of Nursing Studies* 44(2): 175-182.

[65] Aitkin, LH et al. (2002) Hospital staffing, organisation and quality of care: cross-national findings. *International Journal for Quality in Health Care* 14(1): 5-13

[66] Aitken, LH et al. (2002) Hospital nurse staffing and patient mortality, nurse burnout, and job dissatisfaction. *Journal of the American Medical Association* 288(16): 1987-1993.

[67] Royal College of Nursing 2011. Views from the frontline – RCN employment survey 2011. London: RCN.

[68] Thungjaroenkul, P et al. (2007) The impact of nurse staffing on hospital costs and patient length of stay: a systematic review. *Nurse Economics* 25(5): 255-265.

[69] Welsh Cancer Intelligence and Surveillance Unit. *Cancer in Wales, A summary report of population cancer incidence, mortality and survival*. Cardiff: Public Health Wales; 2014.

[70] Welsh Government. *Together For Health: Cancer Delivery Plan, A Delivery Plan up to 2016 for NHS Wales and its Partners*. Cardiff: WG

[71] Welsh Government. *National Dementia Vision for Wales*. Cardiff: WG; 2011

[72] Public Health Wales Observatory. *Older people indicators 2012, using data from Daffodil (WG) & 2008 LA Population Projections (WG)*. Cardiff: Public Health Wales; 2012

[73] Welsh Government. *Together for Health: A National Oral Health Plan for Wales.* Cardiff: WG; 2013 http://www.nidcr.nih.gov/datastatistics/surgeongeneral/sgr/chap5.htm

[74] Welsh Government. *Together for Health: Eye Health Care Delivery Plan for Wales.* Cardiff: WG; 2013

[75] Public Health Wales Observatory. *GP Cluster Profiles, Cardiff and Vale UHB.* Cardiff: Public Health Wales; 2011.

[76] Welsh Government. *Together for Mental Health: A Strategy for Mental Health and Wellbeing in Wales.* Cardiff: WG; 2012