SAME DIFFERENCE

A COMPARISON OF INTERNATIONAL HEALTH SYSTEMS

ENGLAND • U.S. • GERMANY

BDO

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INTRODUCTION
A CHANGING LANDSCAPE

Healthcare stories dominate headlines around the world. Recently there has been a focus on increased demand caused by growing and ageing populations, the introduction of new technologies and the need to contain spread of conditions such as obesity and diabetes.

Whether it's the Affordable Care Act in the U.S., reforms of the English National Health Service (NHS) or the Hospital Structure Act in Germany, healthcare systems are constantly evolving their local responses to address these international problems.

Using BDO's experience working with and advising clients in these countries, this paper provides an insight into factors that are currently impacting on their healthcare systems and how the countries are adapting to meet the common challenges.

The paper identifies three key themes which are significantly impacting the design and delivery of healthcare across the three countries:

01 **CHANGING ENVIRONMENT**

Significant demographic shifts, financial and political pressures and disruption through new market entrants and technology.

02 **CHANGING PAYER/COMMISSIONER BEHAVIOUR**

A shift in how those who commission and pay for healthcare organise coverage that incentivises improved quality and safety outcomes.

03 **CHANGING CARE MODELS**

A trend towards integrated working across acute, community, primary and mental health settings which breaks down traditional silos and promotes place and person-centred care.

Although there will always be local differences, we think the paper reveals a significant degree of similarity between the challenges facing England, the U.S. and Germany and the approaches that can be taken to address them.

We hope the paper will facilitate the transfer of learning between these nations and to other areas facing similar challenges with their healthcare systems.

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HEALTHCARE IN ENGLAND, THE U.S. AND GERMANY

We have chosen to compare healthcare systems in England, the U.S. and Germany because they have broadly similar cultural, political and economic systems. However they operate completely different funding and delivery processes for their healthcare commissioning and provision and there may be benefits from understanding the approaches being developed in each country in dealing with the challenges they face.

ENGLAND

The National Health Service is the public healthcare system in the United Kingdom. One of the key pillars of the welfare state, it was introduced in 1948.

Funded largely through taxation, medical treatment in the NHS is free at the point of delivery for patients who are UK citizens and those 'ordinarily resident' in England, which includes citizens of the European Economic Area (EEA).

There are limited exceptions where patients may be charged for pharmacy prescriptions, dental treatment and certain non-routine blood tests.

Approximately 15% of healthcare spend in the UK is by insurers and private consumers. Two-thirds is private medical consumption eg pharmacy, and the rest is private medical insurance.[1]

Health policy in England is directed by the Secretary of State for Health, an elected Member of Parliament, and implemented by the Department of Health (DH).

Readers should note that only the NHS in England is under direct purview of the national government. The NHS in Scotland, Wales and Northern Ireland are accountable to their own governments and have slightly different systems. This paper will focus on England. Where possible it will use data from England, however there are cases where this is unavailable and so the UK figure has been used.

CLINICAL COMMISSIONING GROUPS

Clinical Commissioning Groups (CCGs) purchase medical treatment and related services from healthcare providers, including but not limited to:

- Urgent and emergency care
- Elective hospital care
- Rehabilitation care
- Community health services
- Mental health and learning disability services.

CCGs were established under the UK's Health and Social Care Act 2012 to assume the role of primary payer/commissioner for health services. CCGs are clinically led groups that include all of the General Practices (GPs) in their geographical area. The aim of this is to give GPs and other clinicians the power to influence commissioning decisions about local services for their patients. There are 209 CCGs covering the whole of England.

CCGs receive their share of national funds for purchasing healthcare from the DH based on a formula which includes population, morbidity and economic indicators.

PRIMARY CARE

Primary care is most people's first point of interaction with health services, and accounts for 90% of patient interaction.[2] The term is often used interchangeably with GP Practices, however it also includes dental practices, community pharmacies and optometrists with retail outlets.

Initially primary care was commissioned by NHS England but increasingly this is being undertaken by CCGs, with some specialist services continuing to be commissioned centrally.

TRUSTS

Hospitals and other healthcare providers in England are mainly managed by NHS Trusts or NHS Foundation Trusts (FTs). These Trusts provide a wide spectrum of care, including acute, community, mental health and ambulance services.

All NHS Trusts and NHS FTs are publicly owned and managed. Foundation Trusts differ from other Trusts in that they are independent legal entities and have unique governance arrangements, enabling greater decision making over finances. However, regulators may remove these 'freedoms' if their financial or quality performance is assessed as 'inadequate'.[3]

At time of writing, there are:

- 154 acute non-specialist trusts (including 101 NHS FTs) - Hospitals employ a significant part of the NHS workforce, with some providing regional and specialist services
- 56 mental health trusts (including 43 NHS FTs) - Mental health trusts provide health and social care services for people with mental health problems, delivering care in primary, community and acute settings
- 35 community providers (11 NHS trusts, 6 NHS FTs and 18 social enterprises) – Community providers work across the local health economy to deliver a range of community based services including district nursing, community clinics and rehabilitation
- 10 ambulance trusts (including 5 NHS FTs) – Ambulance trusts deliver urgent and planned healthcare and transport services to patients, taking an average 17.1 emergency calls per minute in 2014/2015.

There is also a relatively small private sector delivering diagnostics, elective care and rehabilitation.

SOCIAL CARE

The majority of social care is currently commissioned by municipal councils which are not part of the NHS. Councils may also provide social care themselves our outsource services to the private sector.

U.S.

While both England's and Germany's healthcare systems are largely publicly funded, the U.S. healthcare system is supported through private insurance and government insurance programmes as well as people paying for services 'out-of-pocket'.

Total private health expenditures in the U.S. represented approximately 33% of total healthcare spend in 2014. Most Americans access private health insurance through their employers as well as through state sponsored health exchanges. The federal government remains the largest payer for services for the provision of care under the Medicare and Medicaid program, which covers almost 25% of Americans.[4]

Medicaid is a federal and state programme administered through the Centers for Medicare and Medicaid Services (CMS) and provides publicly funded healthcare coverage to low-income individuals that financially qualify. Medicaid is jointly funded by the federal and state governments and administered by state governments. Medicaid provides payment for medical and behavioural health care from primary care to long-term medical coverage and custodial care costs.

Medicare is a federally funded and administered programme also administered by CMS and provides publicly funded healthcare coverage to individuals over the age of 65

HEALTHCARE IN ENGLAND, THE U.S. AND GERMANY

as well as coverage to individuals under the age of 65 with certain disabilities and all individuals with End-Stage Renal Disease. Medicare is provided in four parts, with each part providing coverage for specific services including:

- Medicare Part A: Hospital Insurance, which covers inpatient hospital stays as well as care in Skilled Nursing Facilities (SNFs), hospice and some home healthcare.
- Medicare Part B: Medical Insurance, which covers doctors' services including outpatient care, medical supplies and preventative services.
- Medicare Part C: Medicare Advantage Plans, a health plan offered by a private company contracting with Medicare to provide Medicare Part A and Part B benefits including prescription drug coverage and coverage for most healthcare services.
- Medicare Part D: Prescription Drug Coverage, provides prescription drug coverage to Medicare plans and is offered through private insurance companies approved by Medicare.

HOSPITALS

Hospitals have traditionally been at the center of driving change as well as providing care to the U.S. population. In fact, the U.S. hospital industry is worth $883 billion, comprising 5,627 registered hospitals.[5] The U.S. healthcare system has a number of different types of hospitals ranging from non-governmental not-for-profit, state and local government, federal government, religious and for-profit run hospitals. Community hospitals can serve as academic medical centres or teaching hospitals providing ambulatory and general healthcare services to the public, while other hospitals provide specialist services including obstetrics, gynaecology, rehabilitation and orthopaedic services among others.

PRIMARY CARE

Outside of the hospital setting, primary care represents the most common care setting in the U.S. for patients to receive services. Primary care represents more than half of total patient visits but represents only a small portion of the total U.S. healthcare spend. Primary Care Providers (PCPs) include Family Physicians, Internists, Paediatricians, and Nurse Practitioners and are typically the first line of contact a patient has with the healthcare system. Primary care can be accessed through both not-for-profit and for-profit practices, hospitals and community health centres.

PATIENT-CENTERED MEDICAL HOMES (PCMH)

Building upon the provision of primary care services, the PCMH is an innovative care delivery model coordinating patient care through an existing PCP to ensure that a patient is accessing care when appropriate and when needed. The PCMH offers patient-centric services connecting patients to clinicians and assisting them in navigating the healthcare system and addressing their care needs.

POST-ACUTE CARE (PACS)

Following discharge from the hospital, patients are often transitioned to PACs to ensure that they are receiving proper treatment and care including adequate time to heal and transition back into a home or community-based setting. PACs include both not-for-profit and for-profit Home Health Agencies, SNFs, Rehabilitation Facilities, and Long-Term Care Hospitals. SNFs provide short-term skilled nursing care as well as rehabilitation services, including physical, occupational and speech therapy. Home Health Agencies are the second most widely used PAC and primarily provide skilled nursing and therapeutic services in the home setting.

ACCOUNTABLE CARE ORGANISATIONS (ACOS)

ACOs are care models typically organized by a group of providers. Under this model, organisations are charged with providing care to a group of patients in which quality metrics and reduced spending are tied to payment for services. ACOs adopt alternative forms of payments than the traditional fee-for-service model, are held accountable for the quality of care delivered to patients, and can differ in design based on the type of healthcare programme being provided.

BEHAVIOURAL HEALTH

Behavioural health encompasses mental health and substance abuse treatment. Behavioural health providers treat mental health issues and disorders, eating disorders, and substance abuse and addiction. A significant portion of providers are not-for-profit community health centres while others include acute inpatient facilities and residential treatment facilities. Outpatient/community-based care and schools provide screenings and assessments, medication management and therapy for patients with a mental health or substance abuse diagnosis.

GERMANY

Germany has one of the world's oldest national social health insurance systems with origins dating back to Otto von Bismarck's social legislation in the 1880s.

Health insurance is compulsory for the whole population in Germany and consists of two major types:

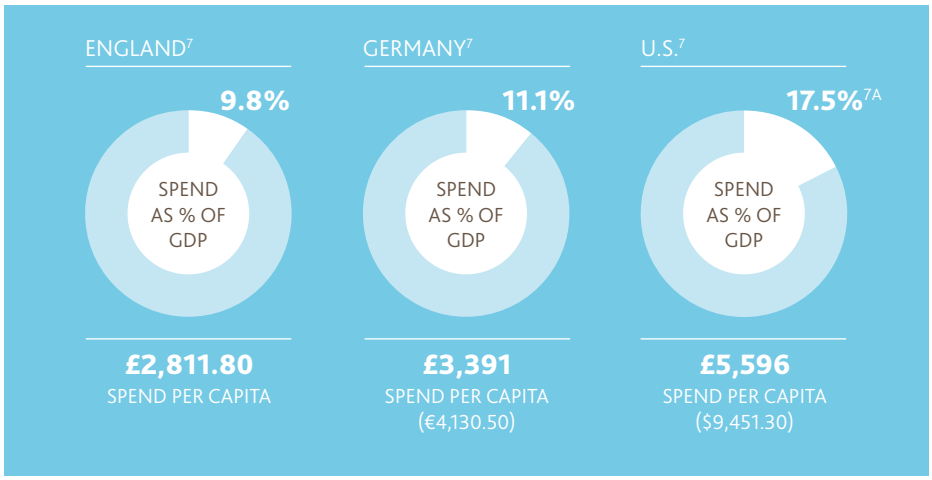
- Statutory health insurance (SHI) - Contributes to 86% of healthcare spend.[6]
- Private Health Insurance - Covers the remaining 14% of healthcare expenditure.[6]

Salaried workers and employees below a certain income threshold can choose one of currently around 130 public not-for-profit SHI companies ("Sickness Funds") at common rates for all members. The Sickness Funds are financed by joint employer-employee contributions, amounting to 14.6% of gross salary. Thus SHI-insured employees pay a health insurance contribution based on their salary whereas private insurers charge risk-related contributions. Only the population with a yearly income above the income threshold and civil servants can opt for private health insurance.

The SHI System is characterised by the solidarity principle: insured persons receive the benefits from statutory health insurance which are medically necessary, regardless of income or of the amount of premiums paid and despite their morbidity risks. Increasing competition between Sickness Funds is currently incentivised by co-payments and out-of-pocket payments for certain specialised healthcare treatments.

Another main characteristic of the German healthcare system is the principle of subsidiarity. Although legislation is passed by the central Ministry of Health and the healthcare system is regulated by the Federal Joint Committee in Berlin, all major representatives have the mandate to negotiate and organise (inpatient and outpatient) healthcare delivery on a central and federal state level.

There is large variation in spend per head of population and as a proportion of GDP:



However all three countries are facing financial pressures caused by the demographic changes, costs of new technology and above average inflation for health services to which their governments are having to respond. These issues are explored in more detail in the following pages.

HEALTHCARE IN ENGLAND, THE U.S. AND GERMANY

These representatives are as follows:

- (Central and federal state) Association of Hospitals
- (Central and federal state) Association of Physicians
- (Central and federal state) Association of Dentists
- (Central and federal state) Association of Sickness Funds
- Association of patient representatives (Officially on a central and also federal state level since 2004).

The pharmaceutical and medical technology industry are not officially involved in organising healthcare delivery and negotiating contracts but have strong influence, lobbying parties on all regional levels.

The German healthcare system is, due to the above mentioned associations and structures, still characterised by strong silos between outpatient and inpatient care, between healthcare providers and payers and between healthcare and social care. There are current legislative initiatives which, if enacted, will transform healthcare delivery in Germany to a more patient-oriented and integrated system.

HOSPITALS

There are 1,956 hospitals[8] in Germany accounting for €85 billion healthcare expenditures (26% of all healthcare expenditure). 30% of these hospitals are public, managed by local governments and municipalities. 35% are private not-for-profit (owned by churches and private foundations) and 35% are private for-profit organisations (mostly hospital chains listed on the stock exchange).

Hospitals have to register for the federal state administered 'hospital plans' to receive funds from the states and budgets from the Sickness Funds. The 'hospital plans' are set up on a federal state level based on the current and prospective demographic situation and morbidity of the state population. In fact, every hospital receives an individual order regarding their individual healthcare delivery components (basically the amount of beds per medical area) and then negotiates its budget with the local Sickness Funds. Hospitals are compensated by lump-sum payments (German Diagnosis Related Groups (G-DRG)). From 2017, German hospitals will also be financially rewarded or penalised based on the quality of care provision. A list of quality indicators (outcome, process and structure) is being developed by the Federal Joint Committee in Berlin.

OUTPATIENT SECTOR

In Germany there are 148,000 physicians (of a total of 365,000 physicians) working in a doctor´s office in an outpatient setting (without dentists). These physicians are mostly specialised doctors. Only 49,000 physicians in the outpatient sector are General Practitioners (GPs). Doctors' offices contribute to 15% of all healthcare expenditures, in total € 50 billion. Physicians need to register with the federal state Association of Physicians who assigns the budget to the doctor´s office. The budgets themselves are negotiated between the Association of Physicians and the Sickness Funds. The doctor´s budget is set up as a pay-for-service model but is capped to a certain amount for SHI insured patients.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THE CHANGING ENVIRONMENT

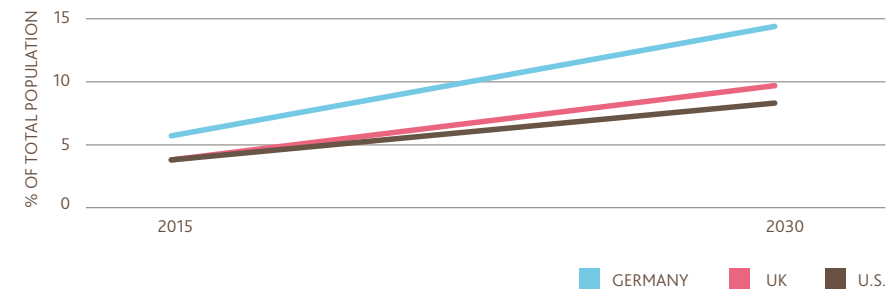
RISING POPULATION, AGE AND DEMAND

Healthcare systems across the western world are undergoing significant change. Policymakers and health professionals are questioning unsustainable siloed care delivery and, with more money unlikely, changing the way healthcare is delivered is critical. We've identified the key challenges presented by the changing environment in England, the U.S. and Germany.

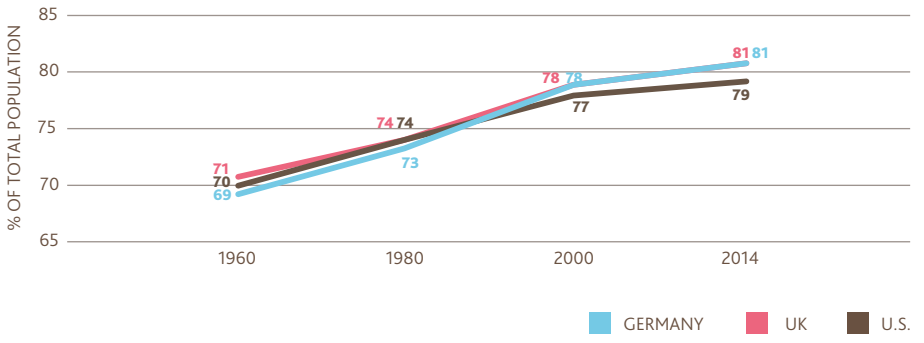
DEMOGRAPHICS

All three countries face material demographic changes. England and the U.S. expect increases in total population while Germany is projecting a slight decrease. Life expectancy is similar and growing. Each country is forecasting people aged 80+ to grow at the highest rate to 2030, resulting in a rise in each country's median age. Providing care for this population segment is more expensive and policy makers predict will lead to increased strain on the current healthcare systems, unless there is a significant transformation in the design and delivery of services.

PEOPLE AGED 80+ AS A % OF TOTAL POPULATION BY 2030[9]



LIFE EXPECTANCY[10]



HEALTHCARE UTILISATION

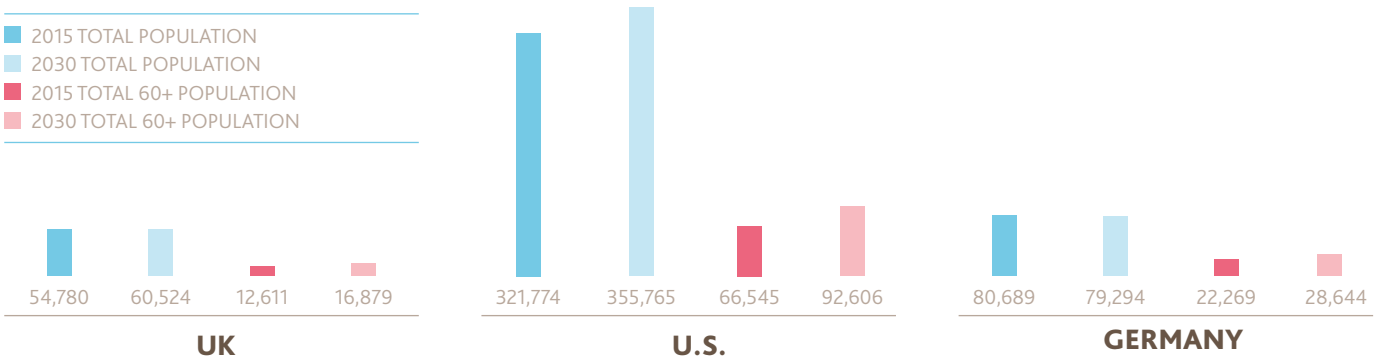
These population changes are impacting on demand for healthcare services and are likely to continue to do so for the foreseeable future. In England, Accident & Emergency (A&E) had 22 million visits in 2014/2015, with approximately 3,500 more visits every day than five years ago. There is evidence that increased demand has led to falling quality and missed performance targets such as longer waiting times to see a clinician in A&E departments. Waiting times for admission for planned inpatient procedures are also getting longer.

In Germany, long-term care and disparities between urban and rural settings will be on-going issues. Between 1999 and 2013, those requiring long-term care rose from 2 million to 2.6 million and are forecast to reach 4.7 million by 2060. As evident from the table below, Germany is facing a population decline by 2030, and an increase in the proportion of elderly people.

MENTAL HEALTH

Approximately 26%of adult Americans[14], 25% English[15] and 32% Germans[16] are estimated to suffer from a diagnosable mental disorder. With an estimated global disease burden of £1.6 trillion[17], mental health is becoming the single largest health burden.

POPULATION FIGURES IN 000s[11, 12]



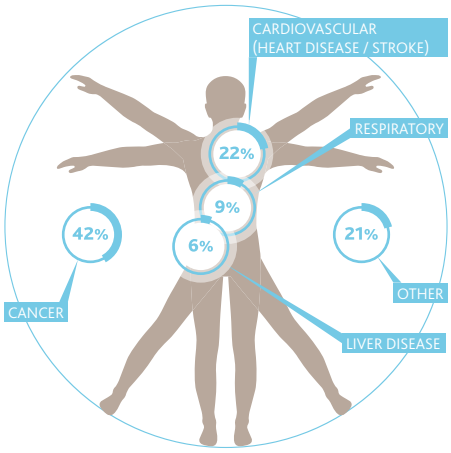
Figures are predicated on UK remaining in the EU. As Brexit and the question of the freedom of movement of people have not been resolved, these figures assume Britain remaining a part of the EEA. Should Britain leave the EU, this number may decrease slightly.[13]

THE CHANGING ENVIRONMENT

RISING POPULATION, AGE AND DEMAND

ENGLAND

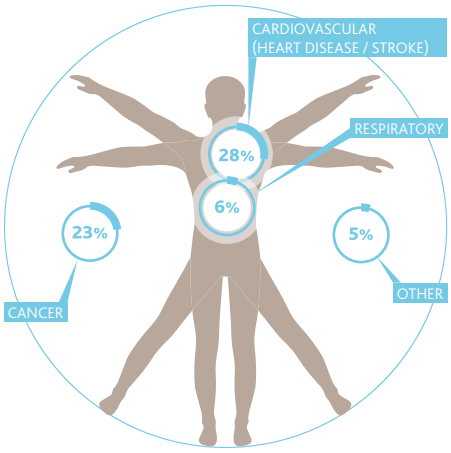
One in three deaths in England are before the age of 75 and more than three quarters of these premature deaths are as a result of the five big killers: cancer, heart disease, stroke, respiratory disease and liver disease. Approximately 150,000[18] deaths per year are related to these diseases.



U.S.

In the U.S., approximately 117 million people have one or more chronic health conditions with one in four adults having two or more chronic health conditions. Seven of the top 10 causes of death in 2010 were chronic diseases, and two of these—heart disease and cancer—accounted for nearly 46% of all deaths.

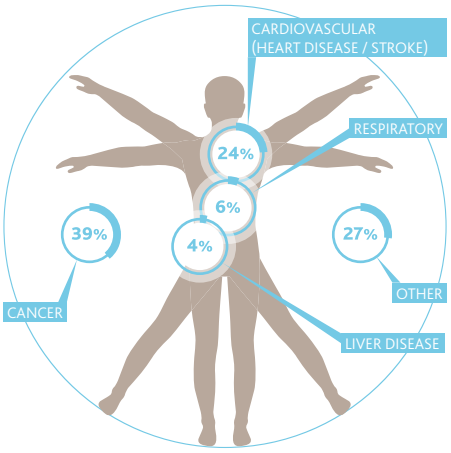
Approximately 62% of all deaths (1,622,304) are related to the 5 main causes of death:



GERMANY

Like in England, one in three deaths are before the age of 75 (279,000). 39% of these die of cancer.

Approximately 200,000 deaths per year (75% of the deaths under age 75) are attributed to the five main causes:



Overall chronic cardiovascular diseases are the most frequent cause of death among men and women (39%, 338,000) and the number of people living with cardiovascular diseases remain unchanged despite the high amount of work in prevention.[20]

THE CHANGING ENVIRONMENT

ECONOMIC CHALLENGES AND POLICY RESPONSES

ECONOMIC CHALLENGES

ENGLAND

In England the NHS has a total budget of £117.31bn[21] in 2015/2016 but the majority of Trusts are forecasting deficits or significantly reduced surpluses. The NHS estimates a funding gap of £30bn per annum by 2020. The Government has committed to a further £8bn funding by 2020/2021 with the remaining £22bn to be released through efficiencies and new models of care.

U.S.

As a result of the 2010 Patient Protection and Affordable Care Act (ACA), healthcare spending has increased, primarily due to increased care coverage for Medicaid and private health insurance. In 2013/2014, there was a 5.3% increase in healthcare spending totalling £1.76 trillion ($3 trillion)[22].

GERMANY

Germany had total budget of £266.78bn (€315bn) in 2013.[23]

Expenditure per insured is set to increase by 1.9% per annum until 2040. Costs are rising faster than corresponding contributions, so the SHI system is expected to experience a funding gap.

POLICY RESPONSES

As a result of increased financial pressure, the way in which healthcare services are delivered is being challenged. Political drivers have impacted healthcare delivery and all three countries are working within the context of significant policy shifts.

In England, the Health and Social Care Act 2012 has paved the way for private funding and 'marketisation' of healthcare services with commercial contracting to supplement public provision. Further, the NHS '5-Year Forward View' promotes new models of care involving integration of providers to cover whole pathways in all settings from prevention through treatment, rehabilitation, reablement and discharge. These are being piloted with funding provided by the 'Vanguard' programme which will disseminate learning throughout the system.

To provide more comprehensive and effective care options, England is also taking steps to integrate healthcare with social care, which is commissioned by local authorities or Councils.

Further, the devolution of political power away from London-based politicians in some areas will drive decentralisation of decision-making to cities and regions and significantly impact health and social care planning. Devolved regions and cities will be given greater autonomy to define healthcare strategy and allocate financial resources based on local needs. For example, in the Greater Manchester area, the devolution package integrates 38 health and social care organisations to create a unified public health system and develop new care models spanning the health economy.

In addition, 44 Sustainability and Transformation Plans (STPs) covering the whole of England are being prepared to establish system-wide strategies for bridging the forecast financial, care and quality challenges.

Similarly in the U.S., the passing of the Patient Protection and Affordable Care Act (ACA) was to address rising costs, an ageing population and increasing patient acuity. This has led to redesign of the healthcare delivery system by making providers more accountable for improving health and clinical outcomes for a defined population.

The ACA, also referred to as Obamacare, is a federal statute enacted by Congress and signed into law by President Barack Obama on March 23, 2010 and represents the most significant regulatory change to the U.S. healthcare system since 1965, which saw the introduction of Medicare and Medicaid.

A primary goal of the ACA, as the name suggests, is to increase the affordability of health insurance and reduce total costs of providing healthcare through the expansion of insurance coverage, ultimately lowering uninsured rates in the U.S. Under the ACA, insurance exchanges were introduced to the healthcare marketplace to facilitate purchasing of healthcare coverage as well as mandates that require insurers to accept all applicants, which also included expanding coverage for applicants with pre-existing conditions, expanding Medicaid eligibility and requiring most employers to offer healthcare coverage as an employment benefit.

The ACA has also led to the redesign of the U.S. healthcare delivery system in which healthcare providers are being held

THE CHANGING ENVIRONMENT

ECONOMIC CHALLENGES AND POLICY RESPONSES

accountable for improving clinical outcomes and reducing healthcare spend. As a result, healthcare providers are being encouraged to fundamentally rethink how healthcare is delivered and are thus transforming their practices on a clinical, operational, financial, and technical level with the goals of driving down healthcare costs, enhancing the patient experience and ultimately improving health outcomes for the U.S. population.

In Germany, laws such as the 2015 Hospital Structure Act (KHSG) are transforming healthcare into a more patient-oriented and integrated system. Budgets are being capped so that hospitals treating more patients will not benefit financially. Furthermore, hospitals delivering poor quality care will be financially penalised or even excluded from the federal state's hospital plan. It is expected that this will put all German hospitals under very high pressure, not just the smaller rural hospitals but also the bigger urban facilities.

The primary goal of the KHSG is to redesign healthcare delivery and structures. Accompanying this law, there are two funds that are supposed to facilitate this structural changes:

- Structure Fund (€1 billion budget) – Assigned to projects that simply guarantee hospital closing or reductions in the portfolio of the hospital
- Innovation Fund (€1.2 billion budget) – For projects that focus on integrated, patient-oriented healthcare models and e-Health solutions. These projects can be either related to special patient/disease groups or to certain (healthcare) regions. Like in England, it is expected that this will drive decentralisation of decision-making to cities and regions.

REGULATORY RESPONSES

Across all three countries there is increasing regulatory attention on quality and financial sustainability. In England, the Care Quality Commission has prioritised quality improvement across organisations using an inspection process, while NHS Improvement is working to ensure financial sustainability using a risk assessment process and intervention where needed.

In the U.S., healthcare providers across all care settings are now being required to rethink delivery of clinical care, protocols and best practices as a reaction to new regulatory pressures that measure performance and ultimately determine payment based on operational outcomes and quality measures.

Germany's clinical quality measures are governed by law. These measures are established and maintained by the G-BA or Federal Joint Committee. The Medical Service of the Health Funds routinely checks quality measures and reported deficiencies are sanctioned by payment reductions.

See also our separate section on technology on p24.

COMMISSIONING RESPONSES
SHIFTING TO VALUE AND OUTCOMES

VALUE-DRIVEN COMMISSIONING

As a result of rising healthcare spend and demand in both England and the U.S, new payment models are being developed to incentivise providers to improve quality through a patient-centred approach while also lowering care costs. Outcome or value-based contracts represent a shift away from paying for acute hospital activity under traditional fee-for-service models, which incentivised increased activity by providers – whether or not this was better for patients and the most cost-effective approach for commissioners.

The new systems require all providers contributing to a patient's care to work together under a single contract, in an integrated way, and demonstrate that care meets a tangible set of quality, clinical and patient outcome measures.

By shifting away from a payment regime based on the volume of inputs (e.g. number of hospital stays and the length of stay) to one that focuses on achieving better outcomes for patients, providers have the opportunity to treat people in the most cost-effective manner without losing revenue. Further, under the payment system, providers have the opportunity to save money by working together to prevent duplication, ultimately lowering the cost of care.

ONE POSSIBLE SCENARIO - VALUE-DRIVEN DIABETES CARE

One example of how value-driven commissioning might make an impact is to consider diabetes treatment services. To reduce the need for costly in-patient stays and life changing procedures, sufferers could receive regular check-ups in the community. They would have their details and history recorded just once and would be given complete, consistent advice on how to manage their condition. The key benefits under this system would be improving patient experience of care, bettering their health outcomes and reducing costs for providers and commissioners at the same time. As the providers' income remains the same, they would have the incentive to provide more care on this basis as they retain the savings.

EXAMPLE OF MAXIMISING VALUE – CAMDEN CCG

BDO supported Camden Clinical Commissioning Group (CCG) in London who worked with patients, providers, the local authority and third sector organisations to develop an Integrated Practice Unit (IPU) for the frail and elderly population. The IPU is a patient-centred integrated service model designed around improving outcomes. The CCG and providers worked with patients to identify the outcomes that mattered most to them, such as time spent at home, and developed integrated care pathways in order to achieve them. This included initiatives such as multi-disciplinary teams, social workers in primary care and case management that encouraged preventative and community based care.

U.S. APPROACH TO VALUE-BASED CONTRACTING

Traditionally, the U.S. has had a fragmented funding system that separately pays providers through a fee-for-service model which rewarded high healthcare utilisation. However, with the introduction of healthcare reform under the ACA, payment models for the delivery of healthcare services across providers are transitioning to models that reward improved collaboration, health outcomes and reduced spending.

Value-based contracting rewards superior clinical performance but also financially penalises providers for poor performance metrics. Quality rating systems, benchmarks and key performance indicators are being embedded into payment schedules. For example, CMS has deployed an array of voluntary and mandatory payment innovation models to accelerate the transition to accountable payment models. CMS payment goals include 50% of Medicare reimbursement payments being tied to alternative payment models as well as a goal to transition 90% of payments linked to quality or value-based arrangements by 2018. BDO USA is currently working with a Performing Provider System or integrated delivery system as part of New York State's Medicaid Delivery System Reform Incentive Payment Program to develop a value-based contracting strategy to meet these requirements. For further information, please see the case study on p20.

COMMISSIONING RESPONSES

SHIFTING TO VALUE AND OUTCOMES

GERMANY – CONTRACTING FOR QUALITY

The German payment system is largely service-based through integrated care contracts between SHIs, hospitals, practitioners, pharmacies and medical device companies.

To address inefficient structures and processes the KHSG requires hospitals to take part in comprehensive quality practices. Under the KHSG, hospitals are evaluated on quality measures and are either financially penalised or rewarded based on quality rates.

Integrated care contracts, enabled through shared data and risk stratification, are increasing. Through sharing of electronic health records, medical claims data and integrated care pathways, health systems develop targeted strategies to improve care delivery.

The German payment system is currently still organised by outpatient, inpatient and other silos. Although financial pressure from capped budgets and DRG-lump sum payments have been in the system for years, there was no incentive to work together. The KHSG and the health planning reforms address these inefficient structures and processes. Assuming that higher patient volumes correlate with better quality, we will see intensified interaction between all hospitals and the outpatient sector.

Integrated care contracts between SHIs, hospitals, practitioners, pharmacies and medical device companies - enabled through shared data and risk stratification - will increase. Through sharing of electronic health records, medical claims data and integrated care pathways, health systems will develop targeted strategies to improve healthcare delivery.

PRIVATE EQUITY TO THE RESCUE?

The U.S. and Europe have also experienced a rise in private equity funding to support healthcare sector ventures. In the U.S., numerous healthcare information technology start-up companies are developing innovative solutions to support healthcare transformation with a focus on population health. These companies are primarily funded through private equity investments, private health plans and commercial deals. In fact, venture deal volume for digital health companies exceeded $4 billion in 2014 which is nearly equal to combined funding over the prior three years. With funding to back development of healthcare technology and innovative solutions to improve healthcare, the role of private equity is likely to increase as transformation continues to evolve. Our Technology section has more information about healthcare start-ups and technology.

MENTAL HEALTH

Increased focus on addressing care gaps in the provision of mental health services has led to a change in how these services are funded.

Historically, mental health and substance abuse services were largely funded by the U.S. government or by out-of-pocket payments by private individuals. In response, The Mental Health Parity and Addiction Equity Act 2008 (MHPAEA) has required health plans to cover mental health services. Additionally, through the ACA, mental health benefits are deemed as being 'essential' and mandates that employer sponsored plans, Medicaid managed care programs and group health plans provide coverage for mental health services. The legislation has had a significant impact, with mental health services emerging as one of the fastest growing sectors in the U.S. healthcare industry.

Similar to the U.S., Germany introduced legislation to expand funding for mental health services. In 2012, the 'PEPP' system was introduced by the PsychEntgG to establish funding through the evaluation of disease severity. This type of funding model, linked to performance and transparency, has a number of challenges to overcome, including:

- Discharging patients at the right time
- Maintaining accurate records of planning and delivery
- Supporting treatment across sectors
- Putting the patient's interests first.

The German government and mental health providers are refining the funding mechanisms to ensure these challenges can be overcome.

NHS England has also expanded funding for mental health services with an additional investment of £1 billion to address increased demand. As more people use mental health services, work is being done to improve data capture to manage patient care more effectively.

CASE STUDY

STOCKPORT WHOLE SYSTEM TRANSFORMATION – BDO UK

BDO was engaged by partners in the Stockport Health Economy (Stockport Metropolitan Borough Council, Stockport CCG, Stockport NHS Foundation Trust and Pennine Healthcare NHS Foundation Trust) to support transformation of the health and social care system.

Stockport, with a population of 286,000, is on the southern perimeter of Manchester. The health economy has a higher-than-average segment of people aged 65+[24], and deprivation levels above the national average. It's 65+ and 80+ populations will increase 10% and 24% respectively by 2020, and with already high levels of unplanned care,[25] Stockport has to manage these demographic pressures whilst providing high quality care.

BDO supported our partners to develop a whole system and five-year strategy to address challenges, develop a financial framework to provide transparent and shared ownership of the impact, and organisational forms that were best placed to enable change.

Our engagement with the Stockport Health Economy consisted of six key phases, working closely with commissioners and providers:

01

ALIGNING VALUES

We supported leaders through working sessions and one-on-one coaching to collaborate and facilitate workshops to identify system-wide issues and agree on a unified approach. We co-designed joint governance structures across the organisations and identified a balanced scorecard to manage transformation, ultimately enabling the leaders of each organisation to sign a shared vision statement.

02

MODELLING THE IMPACT AND CASE FOR CHANGE

We quantified baseline activity, performance and financial positions of the partners, and co-designed a stakeholder engagement programme to understand needs. We carried out a current state analysis of Stockport Health Economy's health and wellbeing, benchmarking findings against best practice. BDO modelled forecast activity and financial projections identifying a £120 million gap. A data tool was created to model the impact of transformation on outcomes, activity and income flows, and co-produced quantified health, wellbeing, and financial benefits plans.

03

DESIGNING CLINICAL AND SERVICE MODELS

BDO led the design and delivery of workshops across service areas to build engagement and gain a shared understanding of drivers for change. We used our design methodology to develop service blueprints and business cases and developed detailed designs to meet the needs identified in modelled plans. We delivered and designed large scale 'consensus' events with stakeholder participation to check, challenge, and confirm design. BDO developed detailed models of care which informed the overarching system model of care and business case. The model of care formed the basis for the value proposition submitted centrally for next phase funding.

04

DEVELOPING THE BUSINESS JUSTIFICATION

We provided financial governance to each individual programme to ensure robust identification and verification of financial status, advising on development of compliant business justification cases. BDO created a 5 Year 'Blueprint' for the whole economy, which included modelled activity and financial impacts of overall strategy. We provided financial analysis to support Stockport's successful bid to become a Vanguard site.

05

ADVISING ON CONTRACTOR MODELS

BDO advised on various options for commissioning and contracting for a system model of care, thereby optimising outcomes and efficiency. Throughout the process, BDO provided leadership in outcomes based healthcare and commissioning models, and provided on-going support to the Board, commissioners and providers during development of the 2016/2017 service contract to reflect strategic direction. This led to the introduction of a block contract for A&E, outpatient and non-elective admissions and development of a £200 million Section 75 pooled budget agreement between the Council and the CCG.

06

ADVISING ON PROVIDER FORM

BDO also advised on opportunities and challenges associated with different provider forms, ultimately supporting the health economy to achieve Vanguard status. We facilitated dialogue and relationships between providers, and supported development of key protocols around governance arrangements, risk-sharing agreements, and the memorandum of understanding. We provided leadership development and supported culture change to increase organisational resilience in the face of transition.

CHANGING CARE MODELS: PROVIDERS

ACUTE HEALTH RECONFIGURATION

THE CURRENT MODELS ARE UNSUSTAINABLE

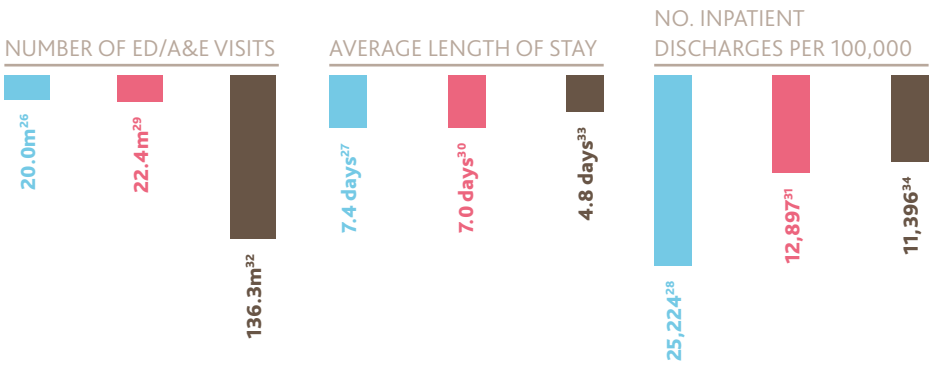
Financial pressures and the imperative to improve outcomes are driving providers to reconsider how health services are delivered. The traditional siloed approach to delivering care is not sustainable and does not enable patient-centric care. Across the three countries, similar changes are occurring. At a functional level, a number of CCGs in England have organised multidisciplinary teams (MDTs) embedded in GP practices to offer a way for GPs, nurses, social workers and secondary care clinicians to coordinate care for patients with complex needs, similar to clinical networks in Germany. Alongside local changes, whole health economies in England, the U.S. and Germany are radically transforming how healthcare is delivered.

HOSPITALS AND THE ACUTE SECTOR

Hospitals are seen as a key indicator of the quality of healthcare provision in a country. As demonstrated below, they also provide large volumes of care for patients across the three countries:

AVERAGE ED/A&E WAIT TIME

GERMANY	ENGLAND	U.S.
30 TO 45 MINUTES FROM TRIAGE TO FIRST PHYSICIAN CONSULTATION	**87.51%** SPENDING LESS THAN **4 HOURS** IN A&E[26]	**135 MINUTES** UNTIL SENT HOME[30]



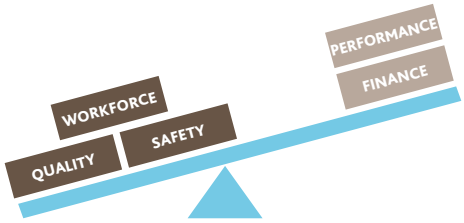
Despite this high demand, hospitals are required to provide a smooth and efficient service for patients. All three countries have targets to provide quick assessment, as well as ensuring patients can return home as soon as possible. This is particularly challenging for the NHS due to resource capacity issues, evidenced by its recent failures to meet the 95% target for seeing patients within four hours of arrival at A&E.

It is also interesting to note from the above table that the average 'length of stay' figures for the U.S. are significantly lower than in the England and Germany, which is largely due to the high cost for hospital stays in the U.S. (on average $18,000 per patient) as well as relatively fewer hospital beds per population size.[35]

FOCUS ON SYSTEM CHANGE, NOT MEETING TARGETS

Given the current challenges, traditional provider improvement programmes based on short term cost reductions are failing to deliver long-term and sustainable benefits. The drive to meet targets for efficiencies has meant that the more important question of building a high-performing organisation that effectively allocates its resources has been overlooked.

We found across the three countries that in areas where the focus has been on developing a culture where staff can drive frontline improvements, the health system has made positive gains. The acute sector is finding that to effectively manage high demand, working within a wider system can unlock networks that facilitate better healthcare for patients, which is not necessarily in hospitals.



HOSPITAL CONSOLIDATION AND MERGERS

The drive to do more with less has meant that the delivery of care is being reorganised. Hospitals are rapidly consolidating in the three countries to enable economies of scale and concentration of specialist services with the resulting benefits derived from the amalgamation of experience and expertise.

For example, in England, hospital alliances enable cost saving and quality improvement through sharing of resources (which may include top-level management), standardisation of processes and centralisation of specialist services. Chains may be formed through acquisition, merger or contracts.

GERMANY[36]

No. of hospitals

1994 **2,337** → 2014 **1,956**

Provision of hospitals:

PUBLIC	NOT-FOR-PROFIT	PRIVATE
-44%	-32%	+56%

ENGLAND[37]

No. of acute trusts

2000 **180** → 2016 **150**

including **20** mergers since 2010

There has been an increasing trend towards the emergence of hospital chains, as observed in Greater Manchester, Sheffield and London.[13]

U.S.[38]

No. of hospitals

1975 **7,156** → 2014 **5,627**

As hospitals, healthcare systems, and providers align to maintain financial sustainability, M&A activity is accelerating.[12]

By 2020, approximately 1 in 5 hospitals are expected to be sold, merged, or closed.

CHANGING CARE MODELS: PROVIDERS

INTEGRATED CARE FIT FOR THE FUTURE

INTEGRATED CARE - THE CHANGING ROLE OF HOSPITALS

As the healthcare industry moves towards clinically integrated, patient-centric care models, the focus for hospitals is on becoming an entity within an network of care provision. Where providers are aligned in a locality or region, it is possible to leverage best practices and care protocols that are consistently applied and transparent. The three countries are developing innovative ways of joining-up care across whole systems and health economies. Here are some examples:

GERMANY[39]

200
"Innovation Fund" pilot projects initiated by the German Health Ministry, with an annual volume of €300m

7
nationwide disease-management-programmes (DMP) for chronic diseases covering 6.5m insured people in one or more programmes

2
The two largest DMP are "**Type 2 diabetes mellitus**" and "**CHD**".

9.3%
of all insurees in the SHI-system are participants in a DMP.

ENGLAND[40]

50 VANGUARD SITES:

- **9** PACs
- **13** MCPs
- **6** enhanced care homes
- **8** urgent/ emergency care sites
- **13** acute care collaboration sites

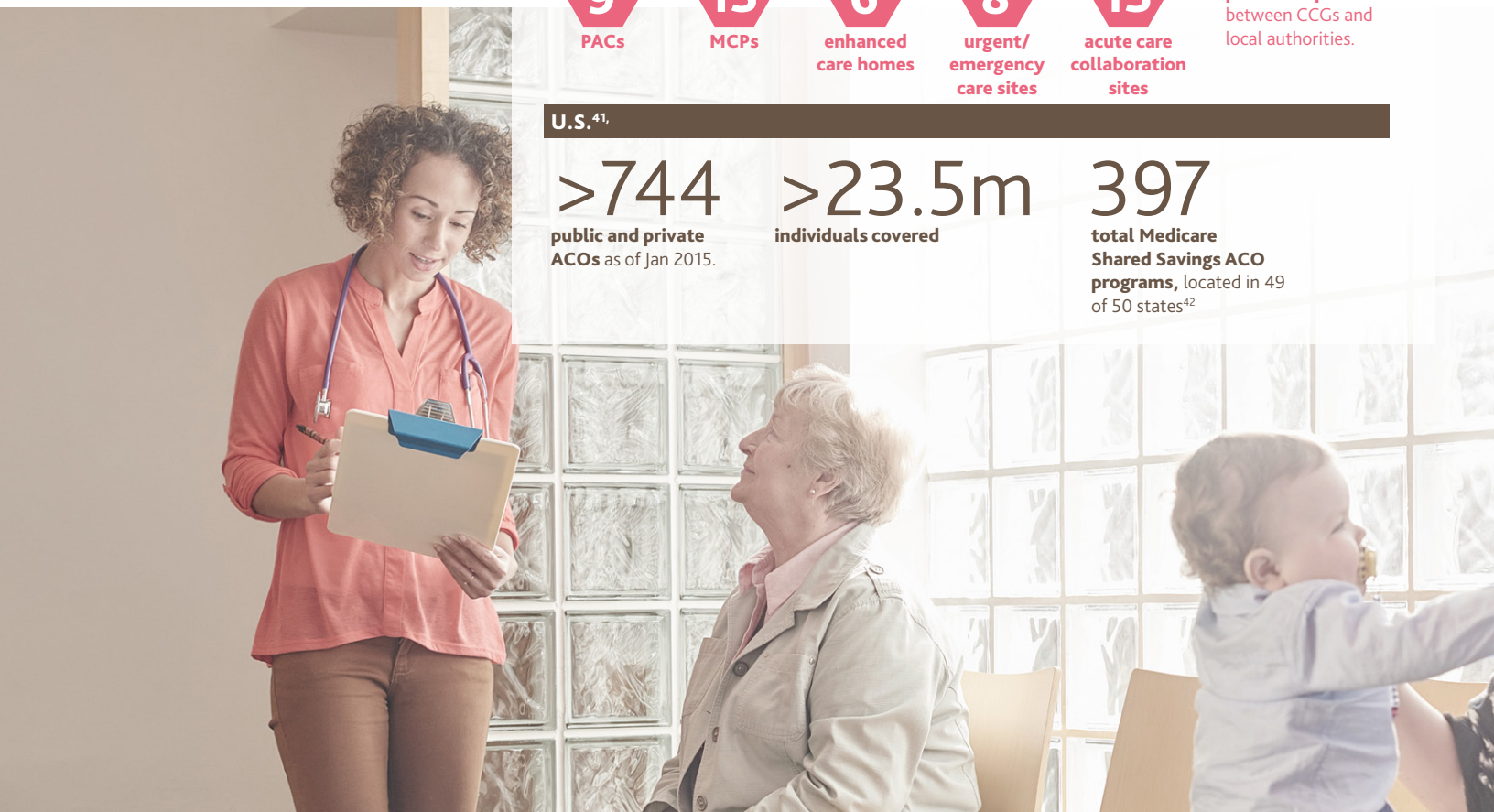
Better Care Fund partnerships between CCGs and local authorities.

U.S.[41,]

>744
public and private ACOs as of Jan 2015.

>23.5m
individuals covered

397
total Medicare Shared Savings ACO programs, located in 49 of 50 states[42]



NEW MODELS OF CARE: LOOK AT THE PATIENT'S WHOLE HEALTH NEEDS

As part of NHS England's Vanguard programme, hospitals are aligning with GPs in Primary and Acute Care Systems (PACS) to create a single provider structure. This vertically integrated system, currently being developed in places like Wolverhampton, allows hospitals to open general practice surgery centres and take accountability for a patient's whole health needs. It also links Emergency Departments into urgent care networks in the community to ensure specialist care is accessible and patients can spend more time at home depending on clinical need.

THE ADVENT OF ACCOUNTABLE CARE ORGANISATIONS (ACOS)

It is expected some of these integrated models will become ACOs. While still largely an emerging feature in England, the ACO model is more prevalent in the U.S., with a number of ACOs implemented across 49 states. The ACO model brings together a group of providers with responsibility for care for a group of patients with defined similar needs in which payment is contingent on care provision, meeting care quality metrics and reduced spending. ACOs place responsibility on providers to develop innovative care pathways that increase patient satisfaction and reduce cost.

In addition, managed care organisations (MCOs) such as health maintenance organisations (HMOs) and preferred provider organisations (PPOs), are another type of care delivery technique. These organisations aim to 'manage care' to reduce costs while improving upon care being delivered. MCOs not only coordinate care but organise and commission the provision of healthcare services for covered patients to achieve efficiencies by controlling utilisation as well as pricing and payment of healthcare services.

ACOS THAT WORK – THE U.S. MODEL

Traditionally, U.S. hospitals have often been accessed for high and low care needs. However, through ambulatory urgent care centres and increased PCP capacity, hospitals are working with the system to develop more accessible alternatives. These include implementing patient portals and call centres to facilitate patient tracking or navigation and case management. By implementing these services, hospitals reduce readmission risks and facilitate care coordination and patient hand-offs through a collaborative network that reduces care costs. As detailed in our case study, BDO USA has worked with provider networks to implement an initiative throughout New York State which aims to redesign the healthcare delivery system to reduce avoidable inpatient hospital and emergency department use by 25% in 2020.

ACOS STRONGLY SUPPORTED BY GERMAN MINISTRY OF HEALTH

Similar initiatives in Germany include provider alliances that promote integrated care. PCPs, hospitals and municipalities are undertaking a range of pilot projects, including building networks across the community to facilitate patient tracking and navigation. Integrated care models are being implemented across health economies, with patient-centric operating models that are comparable to ACOs. Additionally, within specific SHI contracts, higher flat-fee payments are made if a patient participates in the network structure relative to those patients who do not. The German health system is particularly challenged by some weak care provision across states, particularly in rural areas. Therefore the Ministry of Health is driving reform and has developed the Innovation Fund to support pilot projects to address care provisions, such as regionally coordinating care, to offer seamless care pathways and redistribute health resources.

As detailed in our case study, BDO Germany advised and supported strategic planning to redesign a municipality's healthcare model, working to introduce this key evolution of the provider model into the German health system.

CASE STUDY

DELIVERY SYSTEM REFORM INCENTIVE PAYMENT PROGRAM, MEDICAID REDESIGN – BDO USA

Through the Delivery System Reform Incentive Payment (DSRIP) program, The Centers for Medicare and Medicaid Services (CMS) and the New York State (NYS) Department of Health (DOH) are reinvesting £3.8bn ($6.42 billion) in Medicaid funding to restructure the healthcare delivery system and support transition of care delivery from a largely inpatient focused system to a community-based system that addresses a person's medical and behavioural health needs, as well as the social determinants of health. BDO works with eight Performing Provider Systems to deliver the transition to the new healthcare system.

The goals of the five-year DSRIP program are numerous, with the most notable being to reduce state-wide avoidable inpatient hospital use by 25% over five years, expand community based care with a focus on primary care and behavioural health, and transition Medicaid to a value-based reimbursement system where payments are 90% at risk. To support the transformation, entities responsible for creating and implementing the DSRIP program formed groups known as Performing Provider Systems (PPS). A PPS includes a designated lead provider(s) plus safety net providers, including hospitals, health homes, primary care practices, SNFs, clinics, Federally Qualified Health Centers (FQHC), behavioural health providers, community based organisations and others. DSRIP shifts funds from paying for coverage to paying for performance improvement efforts.

BDO was engaged by two hospital system leads located in New York City, serving over 200,000 Medicaid/uninsured patients that had formed a PPS to support the application for funding and the development and implementation of a DSRIP program. Over the course of two years, BDO provided data analytics and IT support, clinical expertise, finance and modelling, Project Management Office (PMO) and workforce support, among other services. BDO continues to support the Limited Liability Corporation (LLC), an ACO-like organisation formed by the two hospital leads to support the clinically integrated network of providers.

The following provides an overview of the services provided:

PLANNING

- Developed project governance and infrastructure and an implementation timeline for DSRIP program planning
- Developed and implemented an approach and materials for educating and engaging with key stakeholders including providers and community-based/social services organisations
- Supported the provider selection process and network building
- Facilitated upwards of 100 stakeholder meetings with various provider groups
- Collected and analysed clinical and financial performance data
- Developed and implemented community surveys aimed at the most vulnerable population
- Facilitated and supported DSRIP clinical and population health project selection and design
- Completed literature/best practice review for facilitated provider discussions around project implementation
- Secured more than £120 million ($200 million) in federal/state funding.

DESIGN

- Convened project implementation teams and developed five-year project plans around implementation of projects for behavioural health/primary care integration, care transitions and care management, disease management, population health improvement and clinical integration
- Developed approach and work plan around value based payment transformation and financial sustainability
- Convened governance committees to discuss DSRIP implementation strategies including: Finance Committee; Diversity & Inclusion Committee; Information Technology Committee; and Clinical Committee, among others
- Developed the PMO staffing plan, job descriptions, roles and responsibilities and training materials for newly formed business entity to act as the anchor for the Clinically Integrated Network.

IMPLEMENTATION

- Established the Project Management Office and served as interim PMO supporting the implementation of healthcare transformation programs/projected
- Developed the preliminary budget and funds flow including distribution plan for Value-Based Payments (Bonus funds) to providers and social service organisations in the network
- Facilitated discussions/contract development with key PPS vendors including health information technology vendors
- Supported the development of an overall population health strategy around clinical integration and data and informatics
- Currently supporting the development and implementation of a Value-Based Payment strategy and contract design, based on quality and cost metrics, with various payers for the PPS network's attributed patients including facilitating the PPS's discussions with payers.

CHANGING CARE MODELS: PRIMARY CARE

WHAT ABOUT PRIMARY CARE?

Outside of the hospital, primary care represents the most common point of care across all three countries. In the U.S., primary care represents more than half of total patient visits but only a small portion of total healthcare spend. Building upon primary care services, PCMH are innovative care models that coordinate care through PCPs to ensure patients access appropriate care. PCMH is a designation primary care clinics achieve and is a growing trend due to financial benefits. PCMH provides patient-centric services that determine appropriate treatment, ensure medication management and appointment follow up and emphasise behavioural health integration and care management services.

In England, GPs are coming together to form Federations to achieve economies of scale and deliver efficient care. They also support the combining of different health professionals and host multi-disciplinary teams to support care management for complex patients.

In Germany, family-doctor centred healthcare (hausarztzentrierte Versorgung) is the pillar of primary care. GPs operate similar to ACOs, contracting through health insurance arrangements and maintaining special payment structures. GPs enter into contracts with patients to agree that, with the exception of an emergency, they will visit the GP as primary point of contact. Under the contract terms, GPs receive higher remuneration for contracted patients.

COMMUNITY CARE

Key to the success of any integration is a strong community care system. Across the three countries, there is a focus on improving accessibility to community care and reducing costs through delivering care in the most appropriate care setting. In England, community care is an integral part of the healthcare system. As part of the New Models of Care programme, community and primary care is integrating to form Multi-Speciality Community Providers (MCPs), moving specialist care out of hospital and into the community.

For example, in Manchester, BDO supported the City Council and CCGs to develop integrated teams to co-locate health and care professionals in community settings, defining the strategy, identifying the cohorts, quantifying the benefits and assisting with business cases for investment. This approach focuses on place-based care that is wrapped around the patient and supports them to remain independent.

Germany has developed rehabilitation and prevention programmes rooted in the community. Medical rehabilitation is an integral part of the German healthcare system, alongside outpatient care by community-based doctors and acute care with the goal of improving health and avoid long-term care needs and disabilities. These care models are incentivised by selective contracting and integrated care contracts between Sickness Funds and providers.

In the U.S., following hospital discharge, patients are often transitioned to Post-Acute Care (PAC) providers to support rehabilitation closer to home. PAC involvement is likely to increase in line with pressure to control Medicare spending, meaning PACs are taking on responsibility for health outcomes.

Hospitals are evaluated based on readmission and medication compliance following discharge to a SNF or home setting. SNFs provide short-term nursing care and rehabilitation services, including physical, occupational and speech therapy. Readmission rates from SNFs have declined from 15.6% to 14.9% between 2011 and 2012, as collaboration between hospitals and SNFs have led to the development of clinical pathways that proactively target preventable diseases and reduce readmissions to avoid Medicare penalties.

Non-traditional players, including retail clinics and private urgent care centres are entering the market. In the U.S., large retailers including Walgreens, RiteAid and Walmart have in-store urgent care clinics.

MENTAL/BEHAVIOURAL HEALTH – OPPORTUNITY FOR INTEGRATED HEALTH PROVISION

Mental health problems constitute the largest single source of world economic burden, with an estimated global cost of £1.6 trillion - greater than cardiovascular disease, chronic respiratory disease, cancer and diabetes on their own. Across all three countries, mental healthcare (MH) is receiving increased attention and incentive to integrate with physical care to treat the patient as a whole. MH care is typically provided in primary and community settings while acute care settings support inpatient treatment.

Integrated systems, including ACOs in the U.S. and Vanguards in England, are increasingly incentivised to manage care for patients with mental health issues by collaborating to deliver proactive care. Due to the prevalence of low and moderate mental illness occurring with chronic physical conditions, models of care are integrating behavioural therapies with primary care services, supported mainly through Value-Based Payments.

GERMANY[43]

3.9m **people** receive mental health services annually

2.8m outpatient

1.1m inpatient[5]

ENGLAND[44]

1.8m **people** accessed mental health services (2014/2015)

5.7% of this number were **admitted to hospital** for mental health services[3]

U.S.[45]

63.3m **cases** with mental disorder as primary diagnosis.

1.5m **hospital discharges** for psychoses-related diagnosis[4]

TECHNOLOGY

THE FUTURE OF HEALTHCARE IS HERE

TECHNOLOGY TRENDS IN HEALTHCARE

The economic pressures across the health systems coincide with the increasing role of digital technology in healthcare. We are seeing a number of private companies leveraging digital technology in other industries to engage customers, understand preferences and streamline their services. Its no surprise, therefore, that health systems in England, the U.S. and Germany are exploring how technology might be tailored to improve care delivery and overall population health.

Implementation of integrated electronic patient records across providers are being viewed as a key step in enabling seamless care pathways. The use of telemedicine and telehealth are vehicles that help professionals address low-acuity needs in more cost-effective ways. For commissioners, data analytics to unlock a deeper understanding of the drivers of poor health and effective care may provide a key ingredient for sustainable healthcare in future generations.

The recent passing of the E-Health Act in Germany has introduced certain reimbursement models and fees for tele-medical healthcare models, and indicates a commitment towards leveraging technology in healthcare. The introduction of an Electronic Health Card could also support the digitisation and increased accessibility of patient records.

DISRUPTION DRIVEN BY START-UPS

Across the three countries, numerous start-up companies are developing technology to facilitate health-coaching and self-management through mobile applications and wearables. In the U.S., an estimated 34 million units of wearable technology were sold in 2015.

Online applications and telemedicine tools have also entered the market to replace office visits and provide high-level consultation to patients, allowing faster access to advice, improved triage and referral to specialists.

In the U.S., telemedicine is used to support mental healthcare with Medicaid programs covering payment for telemedicine treatment. In Airedale, England, telemedicine and Skype are supplementing and supporting care to reduce avoidable hospital admissions from care homes. Assistive technology is also used to support independent living and patient recovery.

WHAT WILL THEY THINK OF NEXT?

We believe that the opportunities presented by technology to accelerate readiness for demand, better target healthcare utilisation and improve how patients take care of themselves are critically important for the health sector to understand and engage.

While it is beyond the remit of this paper to provide a comprehensive discussion of all new healthcare technology, here are some of the key ideas that present opportunities for healthcare systems considering the role of technology in their service delivery and design.

BLOCKCHAIN

Supporters of the technology claim that blockchain could revolutionise the world, including a massive potential benefit for healthcare. Based on a trusted network, early stage ideas focus on ensuring identity verification prior to accessing an individual's patient record, anonymising large amounts of verifiable data for research and promoting supply chain governance.

ARTIFICIAL INTELLIGENCE (AI)

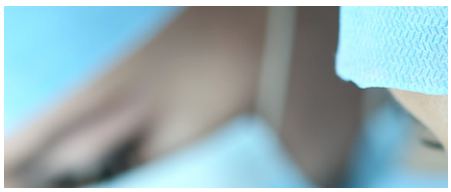
Is it possible to teach a machine to replicate the role of a health professional? AI start-ups such as Babylon and Quest (partnering IBM Watson) are dedicated to synthesising data in order to more accurately triage patients. The key element for AI is the ability to 'learn' 100% of the medical research published every day whilst simultaneously comparing that data with a presenting patient's medical record.

WEARABLE TECHNOLOGY

Not such a new trend, the key for the health sector is to evaluate personal data from wearables to ensure that any benefit (eg early indication of stroke or cardiac arrest) is identified. In a truly integrated health system, warnings would be sent to patients to increase self-care, such as taking medication, monitoring exercise and diet as well as planning GP visits.

THE INTERNET OF THINGS (IoT)

In the healthcare context, IoT can be applied to diverse uses such as inventory management (automatically re-ordering medical products); using data from patient bracelets/tags to better understand and improve clinical care pathways; or using apps like Kaa to improve hospital asset management. While we understand the benefits, the challenges will always be for physicians and administrators to synthesise and use the flood of data, as well as the obvious data security concerns.



ROBOTS

This technology covers a wide range of potential uses, from service robots providing in-home care (eg monitoring vital signs of elderly patients and sending data to doctors) to micro robots inside the human body, assisting surgeons with a range of tasks: capturing images from microcameras, assisting with breaking down plaque in arteries and screening for diseases.

ANTIBIOTICS

Given the decreasing efficacy of antibiotics, there is potential for new technologies to maximise the lifespan of existing antibiotics. Technologies such as 'anti-virulence materials' work not to kill the pathogen but to limit its ability to spread; Another option are 'anti-microbial nanoparticles', which work to release antibiotics at a sustained rate or in an environmentally responsive manner, thus lowering frequency of use and minimizing systemic side effects. Using nanoparticles to deliver two or more drugs may also provide a 'synergistic effect' and suppress drug resistance.

PHARMACEUTICALS

Companies are seizing on technology as the next critical business challenge, including increasing personalisation to tailor drugs to patient lifestyles, patient data-driven analytics to maximise research and development investment and enabling later-round clinical trials to take place outside of the laboratory, in more natural settings.

CASE STUDY

HEALTHCARE REDESIGN STRATEGY – BDO GERMANY

BDO Germany provided strategic advisory work for a municipality with more than 350,000 insured people located in North Rhine-Westphalia, supporting the redesign of their healthcare provision model ("Healthcare Strategy 2025 Kreis Lippe").

Healthcare providers in this region include:

- ONE OF THE BIGGEST MUNICIPAL HOSPITALS IN GERMANY WITH 29 SPECIALISATIONS, 3 LOCATIONS AND NEARLY 3,000 EMPLOYEES
- 2 MENTAL HEALTH CLINICS
- 30 INPATIENT NURSING HOMES
- REHABILITATION CLINICS, PHARMACIES, MEDICAL SUPPLY STORES
- MORE THAN 20 OUTPATIENT NURSING HOMES
- 420 PRACTITIONERS

BDO Germany managed the policy process, providing analysis and advice to ensure that the acute hospital was seen as the key player in coordinating the continuum of care.

ANALYSIS PHASE

BDO's analysis started with a patient-focused question: *what is the type and level of patient demand for inpatient, outpatient and emergency care?*

In all three segments, big data consisting of patient records and health statistics were analysed to understand disease drivers, patient outcomes and current activity and demand for services. We modelled future predictions of healthcare demand, accounting for prospective epidemiological and demographic changes (morbidities), political trends in shifting healthcare delivery from inpatient to outpatient care and technological innovations.

The municipality's key objective was to maximise the benefits felt by patients from a redesign of the healthcare model, which also addressed challenges faced by rural German regions. We incorporated elements of disruptive and emerging healthcare solutions to create a conceptual framework where care provision is wrapped around patient needs.

OUTCOME

The conceptual framework BDO developed supported the allocation of resources based on patient needs to the acute hospital and the other specialised care providers (mental health clinics, outpatient nursing homes, inpatient nursing homes, specialised doctor´s offices and rehabilitation clinics). BDO also facilitated the creation of an organised network around GPs to ensure effective first diagnosis, gate keeping and chronic disease management.

This integrated healthcare model has been operationalised, and a business plan produced for a £104million (€130mn) investment over the coming years. 50% of this investment will be covered by the municipality, public funds and the hospital and the other 50% will be financed by bank loans.

The district faces a number of challenges including:

DEMOGRAPHIC CHALLENGES	UNEQUAL ACCESS
AGEING GENERAL PRACTITIONERS, WHO HOLD KEY RESPONSIBILITY FOR PRIMARY CARE	REGIONAL INEQUITIES IN SPECIALIST HEALTHCARE PROVISION, INCLUDING THE AVAILABILITY OF SPECIALISED NURSING CARE
HIGH COSTS	CARE QUALITY
HIGH INVESTMENT NEEDS IN LOCAL HOSPITALS DUE TO LOW PUBLIC SUBSIDIES	LACK OF COORDINATION ACROSS CARE SETTINGS

BDO DELIVERS

BDO's work with the municipality was critical in developing the "Health Care Strategy 2025 Kreis Lippe" and the accompanying business plan.

BDO Germany has also been engaged to negotiate the required financing with various bank consortia.

We are pleased that due to the success of this pilot project, it will now be implemented in other rural German municipalities.


Fire exit

CONCLUSION

A HEALTHY FUTURE?

CHANGE IS THE ONLY CONSTANT

Given the number of care initiatives in place as well as the economic factors addressed, the current healthcare systems across England, the U.S. and Germany are likely to experience incredible change over the next five years.

DEALING WITH A CHANGING HEALTHCARE ENVIRONMENT

Managing the changing environment in which healthcare systems operate is vital. Significant demographic shifts will lead to an increase in the elderly population as an absolute number as well as a proportion of the total population. In Germany, health planners will need to develop strategies to deal with the ageing as well as decreasing population. The political and economic imperative to achieve financial sustainability will challenge the three countries, such as in England, with a number of NHS provider organisations facing deficits, radical solutions will be needed to achieve strategic cost reduction. The U.S. will continue to address impacts of the ACA and expanded public coverage while also developing care models to address the ageing population. Health systems across the globe will also have to effectively adopt digital technologies to support a move to financial sustainability, and also provide agile healthcare to patients.

POST-DIAGNOSIS: CAN WE TREAT THE HEALTH SYSTEM?

One of the solutions to these changes is the evolution of new and innovative contracting mechanisms. With the shift to value-based payments, organisational viability will depend on how well alternative payment models are understood, planned for, and adapted to. Providers must ensure sustainable clinical models and infrastructure to support a primarily outcomes-based reimbursement system. Health leaders across the three countries will have to ensure collaboration between provider organisations previously competing for the same slice of the market and incentivise operating models that promote place-based, patient-centric care.

NEW CARE MODELS: THE BEACON OF HOPE

In England, given the initiatives to integrate health and social care, more ACO-type models may be developed to bring together different disciplines, and the Vanguard and STP initiatives will lead to whole system planning and new organisational forms. However, significant challenges will arise around integrating a multi-skilled workforce, integrating different data systems, and the effective use of data and analytics to inform place-based care.

While innovation and integration in Germany is being facilitated and incentivised by the KHSG and E-health law, further initiatives and regulations are required to transform healthcare into a patient-based and efficient system as patients begin to use quality indicator information to determine where and how they access healthcare services.

Moreover, given the role of the private sector in the U.S. healthcare system, investors will continue to evaluate capital and profitability requirements of new patient-centred and outcomes-based operating models while healthcare consumers will begin to access more transparent information to make informed decisions about their care based on the real and perceived value of clinical services.

HOW CAN BDO HELP?

BDO's global network is skilled in working with payers/insurers, commissioners and a wide range of healthcare providers to advise on healthcare transformation. Our international scope enables BDO to draw on experience and skills from 152 countries to support our clients to deliver innovative solutions for organisational challenges. Our combined service offering includes:

- Supporting the transition to value or outcomes-based payments, working with providers, payers and investors
- Working with health economies on system-wide transformation and the integration of acute, primary and community providers to drive patient-centred care
- Organisational and leadership development to support the process of change
- Project and programme management to support the implementation of delivery improvement initiatives
- Data analytics and financial modelling to determine the scale of need and quantify potential benefits from change.

BDO UK's Public Sector Consulting practice works with commissioners, providers and regulators to deliver healthcare transformation. BDO supports clients to deliver financial sustainability and quality improvement. We have helped develop some of the most innovative Vanguard initiatives and support the implementation of STPs.

BDO USA's Center for Healthcare Excellence & Innovation has been at the forefront of healthcare transformation. Most notably, BDO is heavily engaged in implementing Medicaid payment reform in New York State, supporting providers as they fundamentally restructure the healthcare delivery system to transition care delivery from a largely inpatient focused system to a community-based system and toward value-based reimbursements.

The BDO Centre for Health Economics in Germany provides strategic advisory and project management for providers, Sickness Funds, municipalities and private equity. BDO develops network-structures, conducts healthcare requirement analyses, and performs patient-centred market strategy, agreements, and contracts. BDO has advised on complex transformations for providers including developing strategies on redesign and continuous project management.

UNDERSTANDING THE TERMS WE USE

FREQUENTLY USED ABBREVIATIONS EXPLAINED

ENGLAND

NHS	The National Health Service
CCG	Clinical Commissioning Group (or Groups)
MCP	Multi-specialty Community Provider
PACS	Primary and Acute Care System
STP	Sustainability and Transformation Plan
Vanguard	These programmes provide investment to develop new models of care

U.S.

ACA	2010 Patient Protection and Affordable Care Act
ACO	Accountable Care Organisation
CMS	Centers for Medicaid and Medicare Services
FQHC	Federally Qualified Health Centre
MHPAEA	Mental Health Parity and Addiction Equity Act
PAC	Post-Acute Care Providers
PCMH	Primary Care Medical Home
PCP	Primary Care Provider
PPS	Performing Provider System
SNF	Skilled Nursing Facility

GERMANY

SHI	Statutory health insurance
KHSG	The Hospital Structure Act
PEPP	The Funding Law for mental health

CURRENCY

For ease of comparison, this paper uses £GBP as the currency throughout. Figures from the U.S. and Germany have been converted at the approximate exchange rate at the time of the data. The original $ Dollar and € Euro figures are included throughout.

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