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# Overview and outlook

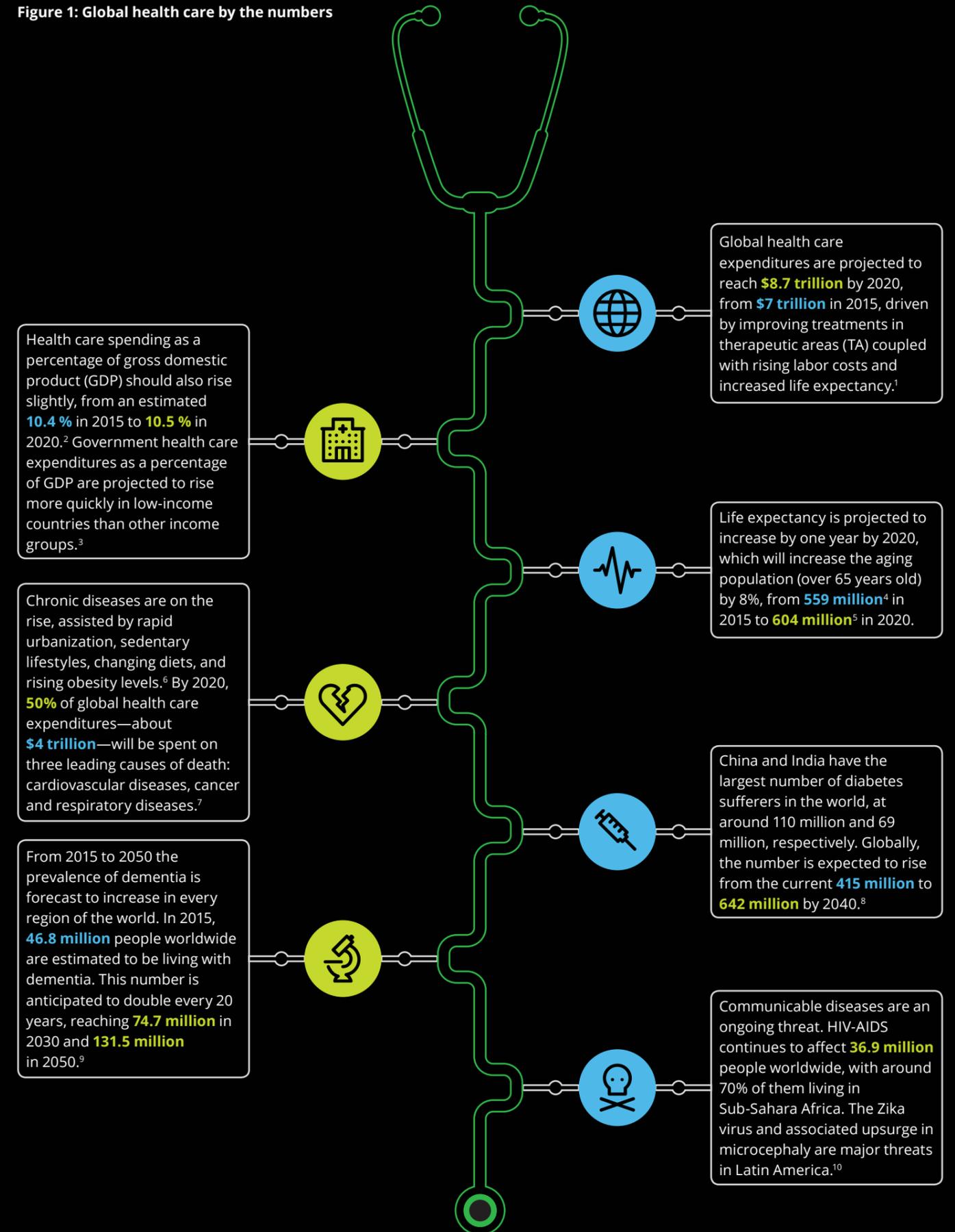
The challenges of providing and funding health care around the globe haven't changed much over the last few years—and they are unlikely to do so in 2017. Rising demand and associated spending are being fueled by an aging population; the growing prevalence of chronic diseases and comorbidities; development of costly clinical innovations; increasing patient awareness, knowledge, and expectations; and continued economic uncertainty despite regional pockets of recovery (Figure 1, next page).

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Figure 1: Global health care by the numbers



Since today's health care demand and cost challenges appear likely to persist in the near term—if not longer—stakeholders' responses to them will have to turn the tide. Are governments, providers, payers, life sciences companies, and consumers making progress? Perhaps, but in some cases it may be too soon to tell. Established players, disruptive entrants, and governments are developing new solutions and approaches to improve care access and quality, and to control costs. But are their efforts achieving the cost efficiencies envisioned? Lacking definitive measurements, results to date appear mixed.

Health care organizations need to do a better job of managing clinical and financial risk; integrating health care, mental and behavioral care, and social services; and moving from a break-fix model to one that fosters preventive and personalized care. Meanwhile, governments and other stakeholders are trying to figure out the best path forward: Here's how much money we have to spend on health care, here's what we plan to do, here are the tools we need to provide high-quality care and services, equitable access, and optimal outcomes for patients at an affordable cost.

Can success in one clinical area, payment model, or geographic region be replicated in another? Can new technologies solve old problems? Certainly, collaboration will be essential to make progress against persistent challenges. This 2017 outlook reviews the current state of the global health care sector; explores trends and issues impacting sector organizations; and suggests considerations for stakeholders as they seek to deliver cost-effective, high-value health care.



#### ***Precision medicine: Bridging the gap between potential and reality***

Precision medicine offers the potential for more targeted therapies—targeting treatment to positively responding patients—and reducing adverse events. Despite investment growth, we would be remiss to forget that targeted treatments still have to go through the rigorous and costly research and development process. And because the treatments may only be used for a small subset of patients, the return on investment is potentially reduced. It is both in spite of and because of these challenges that momentum around precision medicine is gathering like never before.

#### ***The value of patient experience: Hospitals with better patient-reported experience perform better financially***

Higher patient experience ratings are associated with higher profitability. Improving the patient experience can help a hospital improve its financial performance by strengthening customer loyalty, building reputation and brand, and boosting utilization of hospital services through increased referrals to family and friends. Deloitte research shows good patient

experience is associated with higher hospital profitability. This association is strongest for aspects of patient experience most closely associated with better care—in particular, nurse-patient engagement.

#### ***Top 10 health care innovations: Achieving more for less***

Health care is an industry in need of innovation. Health plans, providers, life sciences companies, and the government are facing rising costs and inconsistent outcomes. They are working to improve care and health outcomes, all while reducing costs and spending. What innovations are most likely to help stakeholders achieve these goals and transform health care over the next 10 years?

#### ***Social determinants and collaborative health care: Improved outcomes, reduced costs: Implications and opportunities for health plans and states***

Three factors can dramatically influence a person's health status and associated health care costs: physical health, behavioral health, and social determinants. Research has shown that collaborative care models which address behavioral and physical health or programs which address social

determinants have independently generated improved patient outcomes. However, these three factors are inextricably linked; combining social determinants with collaborative care models may further improve individual and overall outcomes, and provide the cost savings that health plans and states are looking for.

#### ***Vital Signs: How to deliver better health care across Europe***

With many more people living longer but developing multiple, complex long-term conditions, it has become more important than ever to ensure health systems are fit for the future. So how well are health systems across Europe meeting this challenge?

# Appendix

Explore the latest health care sector research from Deloitte members or visit: [www.deloitte.com/us/healthsolutions](http://www.deloitte.com/us/healthsolutions) [www.deloitte.co.uk/centreforhealthsolutions](http://www.deloitte.co.uk/centreforhealthsolutions) [www.deloitte.com/healthcare](http://www.deloitte.com/healthcare)

## 2016 Global health care outlook: Battling costs while improving care

Across the globe, governments, health care delivery systems, insurers, and consumers are engaged in a persistent tug-of-war between competing priorities: meeting the increasing demand for health care services and reducing the rising cost of those services. So pivotal is the role of cost on the global health care ecosystem that it is at the core of the many issues—demographic, financial, operational, innovation, and regulatory—impacting sector stakeholders in 2016.

## Blockchain in health and life insurance: Turning a buzzword into a breakthrough

Health and life insurers are among the many players scrambling to determine how blockchain could be adapted to improve the way they maintain records, execute transactions, and interact with stakeholders. Key questions center on whether blockchain's unique attributes could help

insurers cut costs, manage risk, improve customer service, grow their business, and, ultimately, bolster the bottom line. How can a cryptocurrency technology like blockchain potentially solve these problems and more?

## Health system analytics: The missing key to unlock value-based care

Talk of analytics and “big data” is everywhere in the health care industry these days. Many stakeholders agree that analytics provide insights that can enable organizations to improve quality and reduce costs, a combination that is essential to implementing effective value-based care programs. As health systems continue to face shrinking margins, tightening budgets, and evolving payment models, analytics are being touted as the missing key to unlock new sources of value.

## High-value health care: Innovative approaches to global challenges

Health care organizations across the globe are innovating to deliver higher-value health care. What are pioneering health care providers, health plans, and life science companies doing to anticipate patient needs, reduce costs, and improve overall health outcomes in the US and globally?

## MACRA: Disrupting the health care system at every level

MACRA is expected to drive care delivery and payment reform across the US health care system for the foreseeable future. Congress intended MACRA to be a transformative law that constructs a new, fast-speed highway to transport the health care system from its traditional fee-for-service payment model to new risk-bearing, coordinated care models. It has the potential to be a game-changer at all levels of our health care system. This page serves to be a one-stop shop for the latest on the legislation, including what the MACRA final rule means for you.

## No regulation is an island: EU regulatory changes and their impact on the global life sciences industry

The life sciences industry operates in one of the world's most regulated environments. Life science organizations must navigate and comply with a highly complex set of global, regional, country, and industry-specific laws and directives as well as industry standards and codes that span a drug or device's developmental and commercial lifecycle. Recent and ongoing European regulatory changes are anticipated to be among the most significant yet for the global life sciences industry.

# Global health care sector issues in 2017

## Cost

The world's major regions are expected to see health care spending increases ranging from 2.4 percent to 7.5 percent between 2015 and 2020 (Figure 2). Health care expenditures as a percentage of GDP are projected to rise more quickly in low-income countries due to limited government reimbursements for respiratory conditions; meanwhile, cardiovascular disease costs continue to rise for lower- and middle-income countries.

Even as countries strive to expand health care access or institute forms of universal coverage, infrastructure issues are making it increasingly difficult for public health care systems to sustain current levels of service and affordability. In response, a number of nations are looking at discrete cost-containment measures, such as leveraging private health plans to improve care provision (Latin America), reducing the burden on public systems (Western Europe), moving care to less expensive settings (North America) and diminishing

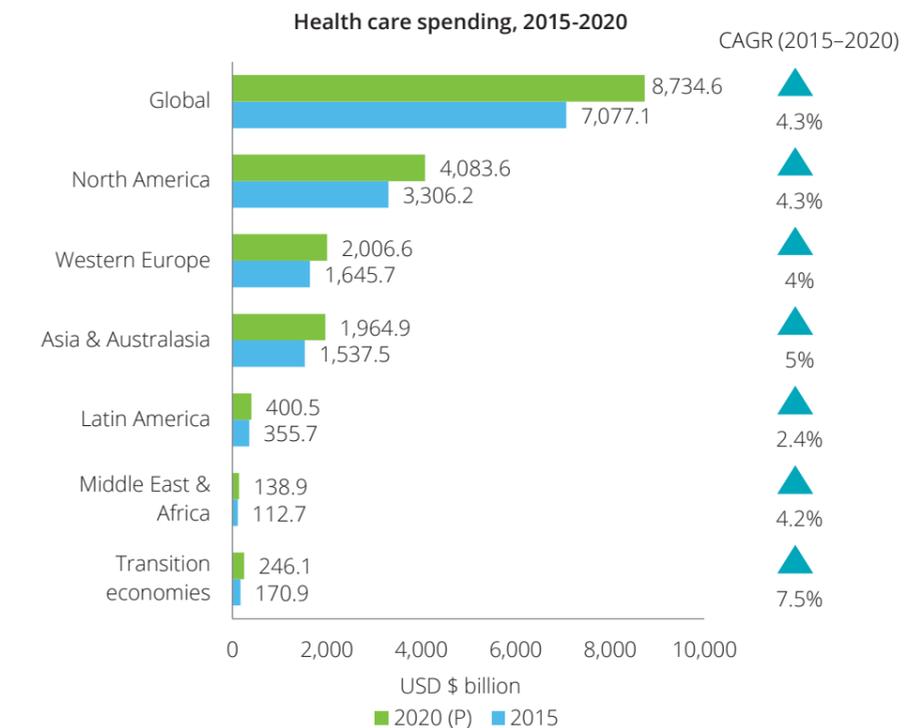
dependence on consumer out-of-pocket (OOP) expenditures (Asia, excluding Japan). Others are engaging in broad-scale transformation of their existing financial and care models.

## Cost-containment measures

While some might argue that all the low-hanging fruit has been picked, governments and health systems throughout the world continue to implement cost-containment measures aimed at reducing clinical and administrative waste and improving operational efficiency. Common tactics include:

- Physician-hospital, hospital-hospital, and hospital-health system consolidation, as well as the formation of chains and larger health care entities to achieve economies of scale.
- Revenue diversification through vertical integration and shifting care from hospitals to lower-cost and non-traditional settings, including urgent care centers, retail clinics, and community- and home-based care as well as virtual environments.
- Regional or health system-wide strategic procurement for hospital supplies and services to increase negotiating power along the value chain.
- Clinical pathways to improve patient safety, enhance service efficiency, and regulate drug prescriptions.
- Standardized clinical processes to better coordinate and distribute responsibilities among departments and use resources more efficiently.

Figure 2:



Source: World Industry Outlook, Healthcare and Pharmaceuticals, The Economic Intelligence Unit, June 2016

- Increased use of generic drugs and biosimilars versus more expensive branded products.
- Shared services centers for back office support such as information technology (IT), human resources (HR) and finance.
- Technology-assisted service provision and delivery methods, such as robots for drug dispensing, e-prescriptions, novel payment cards, patient administrative systems, electronic medical records (EMRs), personal health records (PHRs), and telemedicine.

### Emerging financial models

Reimagining and reconfiguring economic incentives so that health care organizations are rewarded for doing the right thing at the right time to support their patients' health remains a critical frontier in the push towards risk-sharing and outcome- and value-based payment programs. At a macro level, outcome-based payments are continuing to grow in popularity over historical fee-for-service (FFS) models in response to increasing demand from health care payers and consumers for high-value health care.<sup>11</sup> In the United States, for example, the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) is a payment law intended to drive major health care payment and delivery system reform for clinicians, health systems, Medicare, and other government and commercial payers. The law establishes a path towards a new payment system that will more closely align reimbursement with quality and outcomes. The first performance reporting period under the law was scheduled to begin January 1, 2017.<sup>12</sup>

Still, financial models vary widely by country. Australia, for example, retains a firm commitment to service-based funding in both its public and private health care systems although there is increasing exploration of outcome-based payments schemes. Denmark is gradually reducing the use of DRG-based financial models in its move towards a focus on service quality and relevance rather than volume.

A number of countries are exploring adoption of public-private financial models. China is issuing policies and launching trials to speed-up the growth of commercial health insurance, which traditionally has had a minimal role in the health care system. The coming years may see a reimbursement scheme with public health insurance as the pillar (covering basic care needs) and private insurance as a meaningful supplement. In Japan, concerns about increasingly expensive therapies are prompting private insurance companies to place more focus on offering plans that supplement government OOP subsidy programs, such as one that sets a monthly co-pay cap (approximately USD \$800 for those at a general income level). Similarly, in Southeast Asian markets where public health funding covers only a portion of oncology treatments, multinational companies (MNCs) are experimenting with patient assistance programs to help finance their oncology drugs. Finally, changes in Mexico's regulatory framework and the desire to improve upon the quality of government-provided health care should drive new public-private associations.

The United Kingdom is expecting to see an increase in collaborative contracting and risk-sharing agreements. The National Health Service's (NHS) shared planning guidance for 2016/2017–2020/2021 outlined requirements for health care systems to produce five-year Sustainability and Transformation Plans (STPs).<sup>13</sup> In January 2016, local systems came together to form 44 STP “footprints” aimed at transforming patient care and outcomes and closing deficits; STP implementation began later in the year. The UK's “lead provider” model of funding is also anticipated to gain traction in 2017. In 2015, the NHS invited individual organizations and partnerships to apply to become “vanguard” sites for the new care models program, as part of the NHS' Five Year Forward View. In this model, lead providers take control over budgets and financial risk, subcontracting services to partner organizations.<sup>14</sup>

### Population health management

Sector stakeholders, particularly in advanced health systems, are advocating the shift from a “break-fix” model of health care to one focused on prevention and the overall holistic health of populations rather than episodic and transaction-based treatments. Canada's provinces have started to action this movement by targeting key population segments to introduce new care models to improve outcomes. Mexico is also focusing public health system programs and resources on prevention. As part of the government's goal to “consolidate protection actions, health promotion and disease prevention,”<sup>15</sup> Mexico is strengthening health services at the primary care level, promoting adoption of healthy habits that improve quality of life, and generating awareness among the population about the benefits of more frequent and proactive medical attention.

Japan's shift from medication to prevention can be seen in the Ministry of Economy, Trade and Industry (METI) program “Health & Productivity Stock Selection,” which awards enterprises that focus on and strategically carry out health and productivity management for their employees. In Australia, population health management is the responsibility of the Commonwealth government and initiatives are largely managed through the Primary Health Networks. Social marketing campaigns targeting obesity, smoking, alcohol, and other drugs have been employed at various times with variable results. There is general recognition at a government policy level that a population health approach is required to bend the cost curve on health expenditures, although real drivers to incentivize this approach have not yet been fully implemented.

# Stakeholder considerations

Without exception, health care systems around the globe should continue to source and implement strategies that can help to improve outcomes and hold the line on costs.<sup>91</sup> While there is no such thing as the “perfect health system” there are examples of good performance in most countries which can provide valuable learnings for all health care stakeholders<sup>92</sup>

**Cost**—Providers finding it difficult to gain further cost and operational efficiencies after picking the low-hanging fruit should turn their attention to more transformative initiatives to bend the cost curve. This means breaking through the constraints of a traditional care delivery model; shifting from longstanding FFS payments to outcome-based, cost-sharing financial models; moving from acute, episodic medical treatments to proactive and holistic population health management; and transitioning from manually intensive clinical and business processes to technology-enabled solutions.

**Care delivery**—Today's health challenges are complex and interrelated so care delivery models that use a multi-pronged, collaborative, and technology-enabled approach are more likely to yield positive results. For example, integrated care that addresses patients' social, behavioral, and physical needs can help improve outcomes and reduce costs; however, implementing a collaborative care model is likely to generate organizational challenges. For both providers and payers, it can be difficult to overcome employees' resistance to new roles and procedures without strong leaders to champion integration and improved HIT to enable widespread adoption.<sup>93</sup> Improved education and reimbursement incentives may drive adoption rates and usage.

Public policies also can play a key role in encouraging and maintaining collaboration across sectors, as well as creating incentives for different sectors to contribute what they can to the cause of improving population health.<sup>94,95</sup>

**Innovation**—Health care leaders should consider building ecosystems that embrace nontraditional players and sources of knowledge outside their own four walls. Stakeholders also should consider building pilots before investing in scale, learn to embrace change, and evaluate new revenue sources. Additionally, organizations should strive to be agile in anticipating and adjusting their strategies as innovations continue to evolve.<sup>96</sup> From a tactical perspective, incorporating digital health care and analytics into daily practice can help to streamline care pathways, reduce costs, increase patient satisfaction, and improve quality. For example, technology-enabled solutions like a polypill or an app designed to help manage a chronic condition have the potential to improve treatment adherence, particularly if implemented as part of a high-value health care delivery model. Finally, health care organizations of all sizes should embrace innovation and calculated risk-taking, and stop waiting for the “perfect” solution—try, learn, and continuously evolve.

**Operations**—Sector stakeholders can and should learn from the journeys of others, including those in industries outside of health care. Just like commercial enterprises, providers and health plans should invest in tools and processes to better understand their target market and customer segments, and improve the patient experience to engage more effectively with today's active and informed health care consumers.

Additionally, organizations should standardize their clinical and business processes to improve quality and efficiency; enhance hospital information systems to support evidence-based decision-making; and use M&A and alliances to share resources and enhance capabilities. Insights and evidence should inform where future strategic and tactical investments will be made to improve and operations and realize greater value.

**Regulatory**—Taking a standardized, consistent approach to compliance planning, execution, and monitoring makes good clinical and business sense in today's highly regulated global health care environment. Provider, payer, and life sciences organizations should promptly assess potential capability and data security gaps, define their vision and needs,<sup>97</sup> establish a forum and governance process for risk-related decision-making, secure adequate funding and appropriately trained staff, and develop effective implementation and remediation programs. Cyber security should be a major focus area: Organizations can avoid or mitigate cyber breaches with a centralized security program that contains authoritative, uniform, and efficient policies and decisions; encourages employees to recognize and report potential threats; and verifies the cyber security and privacy practices of third-party business partners that handle PHI.<sup>98</sup> Finally, information-sharing and partnering can help to reduce health care operational and regulatory risks. Countries in the EU and elsewhere are working across governments and agencies to promote a more systematic approach to regulatory rule-making, monitoring, and enforcement.

health data. Developed markets, including the United States and United Kingdom, have suffered economic losses of more than \$279 billion due to cybercrime.<sup>88</sup> Cyber security measures, including implementing frameworks, integrated systems management programs, and security patch applications to identify data breaches, have strengthened the health care sector's ability to respond to threatened and actual cyber incidents. However, the security infrastructure needs to be even more robust, as life sciences & health care organizations experience 340 percent<sup>89</sup> more security incidents than the average industry.<sup>89</sup>

- **Counterfeit drugs**—According to the World Health Organization (WHO), 100,000 deaths annually are linked to the counterfeit drug trade.<sup>90</sup> Legitimate drug manufacturers and distributors will need to continuously invest in countermeasures such as product traceability and authentication technologies and implement safeguards along the entire supply chain, particularly at dispensing sites including hospitals and pharmacies.

- **Corruption**—Compliance breaches such as life sciences company payments to doctors continue to bedevil the sector and carry the risk of fines and, more importantly, reputational damage. The United States and China, among other countries, continue to aggressively pursue and prosecute corruption within their health care systems.



## Aligning provider financial incentives

Founded in 2005, Germany's *Gesundes Kinzigtal* is a joint venture between a network of physicians in Kinzigtal and a Hamburg-based health care management company, *OptiMedis AG*. Its population-based integrated care initiative is a shared savings model that has demonstrated both cost and quality improvements. *Gesundes Kinzigtal* providers share the savings with its two sickness fund payers (which manage the health of about 35,000 people) when costs fall below nationally determined benchmarks.<sup>16</sup> Although based on a fee-for-service (FFS) compensation structure, provider financial incentives are aligned to health outcomes through performance bonuses tied to losing weight, quitting smoking, or improving clinical measures of health, such as A1c for diabetic patients.<sup>17</sup> A study conducted using data from 2004–2011 found that there was a decline in overuse, underuse, and misuse of health care in the Kinzigtal region, as well as improvements in patient experience.<sup>18</sup> Cost growth has also slowed: The *Gesundes Kinzigtal* integrated care initiative generated 16.9 percent savings in overall health care spend between 2006 and 2010,<sup>19</sup> led primarily by a drop in hospital admissions.<sup>20</sup>

Despite increasing enthusiasm for population-based health care, an intransigent and expensive proportion of the population that is unlikely to change behaviors/take ownership of its health and well-being will continue to put pressure on health and social care systems. And there are other areas to improve upon before population health can truly take hold, namely: integrating coordinated care management in provider and payer organizations; implementing technological and analytics capabilities that enable tracking patient care activities and outcomes across different care settings; and offering strong payment and contracting incentives. Consistent use of EHRs also remains a barrier. While progress is being made to increase EHR adoption, providers' budget constraints are limiting their ability to make the necessary capital expenditure investments.

### Localized health management

The world's health systems share many similar care and cost challenges but each region, country, and community also deals with issues based on uniquely local demographic, governmental, clinical, and financial factors. For this reason, numerous countries are moving from centralized to more localized health management.

Australia is a case in point: A number of state-based health departments are redefining their role to be strategic health care commissioners or system managers rather than service providers. Western Australia has recently moved to establish boards and executive management teams for each health district. New South Wales, which already has established that structure, is in the process of designing what the "second wave" of devolution will be to provide more autonomy for the 17 local health networks. Victoria, which has

had a devolved structure for over 15 years, is moving to consolidate its 84 regional health areas into larger regions that promote better service planning and shared services. Finally, in Queensland, the health department has sought to downsize its central support services while encouraging devolved authority and accountability to its health services and boards.

Local state representatives in Mexico can make health care budget decisions and adopt different types of solutions based on their resources, capacities and needs. In another example, every local government in Japan is required to anticipate its health care needs in 2025 and estimate the gap between current-state and anticipated future-state resources. Based on this estimate, local governments will develop a forward-looking health care plan including required medical resources and allocation of hospital beds. Although hospitals are not compelled to follow their local government's plan, the national government's medical fee reform is expected to drive the required changes.

In the United Kingdom, the 2015 "Devo Manc" deal gives Greater Manchester autonomy over the region's £6 billion health and social care budget.<sup>21</sup> Similarly, the London Health and Care Collaboration Agreement and London Health Devolution Agreement paved the way for London to gain increased autonomy over its health and social care provision.<sup>22</sup> Despite a potential slowdown in devolution due to a 2016 cabinet reshuffling,<sup>23</sup> the move towards regional commissioning is expected to continue. This has already been evidenced through reforms in NHS England Specialized Commissioning—in which commissioning of specialized services occurs through regional area teams—along with the increased role of regional STP "footprints" in commissioning.<sup>24</sup>

## Investing in prevention

Prevention and health promotion is one of seven “vital signs” or markers of a healthy health care system according to a July 2016 Deloitte UK Centre for Health Solutions report, *Vital Signs: How to deliver better health care across Europe*.<sup>25</sup>

Prevention is an investment in people’s health. It reduces the burden of disease and contributes to the sustainability of health systems. Investing in prevention is an opportunity to improve system efficiency while reducing inequalities. There is wide consensus and evidence that show health promotion and disease prevention activities are cost-effective. They also contribute to increasing longevity and improved health status. Unfortunately, health systems are still built on illness and not health promotion. While policymakers, payers, and providers acknowledge the need to shift focus from sickness and cure to wellness and prevention, progress in tackling health inequalities and managing long-term conditions is variable.

Good prevention encompasses a range of approaches to reduce the risks of ill health, including:

- **Health literacy, education programs, and campaigns** aimed at improving knowledge and understanding of health and health care, especially in vulnerable and high-risk groups; supporting people to self-manage, especially those with chronic, long-term conditions; and modifying behaviors by encouraging healthy lifestyle choices.

- **Adult and child immunization policies and programs** supported and fully funded by government that aim to maintain or increase rates of vaccination against preventable diseases.
- **Disease screening** (for example, breast, cervical, colorectal and prostate cancer screening as well as child and senior health screening programs) aimed at early identification of those at risk of illness and helping staff to target health care interventions more effectively.
- **Health care-associated infection prevention policies and programs** to reduce the extent of such infections and growth of antibiotic resistance.
- **Improved secondary prevention** by educating and training primary care staff to understand the benefits of prescribing statins, anti-hypertensives, anti-cholesterol drugs, etc., and prescribing in accordance with standard protocols and guidelines with targets to reduce risk factors such as high blood pressure, high blood sugar and low oxygen levels.
- **Utilizing every point of contact** between health and social care staff and the public (e.g., health care settings, schools and workplaces) to promote prevention and healthy lifestyles, including physical, mental and sexual health.
- **Providing transparency of provider and clinician performance on prevention.**

### Case study: Smoke-free schools in Germany—tackling at-risk groups early improves outcomes of primary prevention

“Be smart-don’t start” is an ongoing, school-based German campaign aimed at delaying and preventing smoking initiation and moving from experimental to regular smoking. The campaign is supported by the Federal Centre for Health Education, all federal states, and a large number of public and private health and health care organizations. Classes can participate after voting to be a non-smoking class from November till April of each year. (More than 7,500 classes registered for the 2015-2016 school year competition.) Students must sign an individual contract and a joint class contract promising not to smoke or consume nicotine in any form during the competition. Students engage in numerous health-related activities and report weekly on smoking habits; a minimum of 90 percent of students need to refrain from nicotine-use for the class to remain in the competition. Successful classes enter a prize drawing. A longitudinal study of the program published in 2012 showed smoking rates in adolescents declined from 28 percent in 2001 to 11.7 percent in 2011 (around three million students participated in the program over that period).<sup>26</sup>

Effective patient engagement is foundational to a positive patient experience. Patient engagement is the idea that patients and caregivers are actively and collaboratively involved in care operations—processing information, deciding what types and timing of treatment would fit best with their lives, and acting on their decisions. Patient engagement is crucial for achieving a sustainable and cost-effective health system. However, effective engagement is dependent on health literacy and consumers having the appropriate knowledge and confidence to evaluate and navigate the health care system.<sup>81</sup> Health information technology (HIT) solutions, social media platforms, and performance analytics are important patient engagement aids to improve consumer decision-making, health behaviors, self-care, and treatment compliance. Other potential enablers of patient activation and engagement include:

- An organizational culture that prioritizes and supports patient engagement
- Formal channels for involving patients in the design, management, and achievement of positive health outcomes
- Processes to chart progress on patient engagement; for example, using surveys to collect feedback including feedback on patient-reported outcome measures (PROMs)
- Peer support, self-management education, health coaching, and group activities for improved health and well-being
- Workforce training in the use of patient activation measurement and in assessing levels of patient engagement
- Investments in the right technology and services to empower patients to become collaborators in their own care
- Employee skills in using interactive technology and automatic information delivery methods to give patients a

greater sense of control over their care without them feeling overwhelmed by too much information.<sup>82</sup>

### Regulatory compliance

Health care is one of the world’s most regulated environments. The primary

#### Case study: Patient-centered care

Valencia, Spain’s Ribera Salud initiative shows that patient-centered care delivery, potentially enabled by new health information technology (HIT) solutions, could help improve health outcomes and lower costs.<sup>83</sup> Launched in 1999, Ribera Salud is an integrated care company with a patient-centered, population health management orientation. The regional government engages Ribera Salud as a private contractor to manage and maintain primary, acute, and specialist care services in exchange for a fixed annual capitation payment. Ribera Salud uses a tightly integrated clinical and business model with considerable consumer choice, a rigorous management culture that adheres to high standards of quality and consistency, and a networked health information system shared among all service providers. Since Ribera Salud is responsible for the cost when consumers seek care outside the system, providers have strong incentives to maintain high levels of clinical and customer service quality. Several recent studies found that the average cost per patient was between 23 and 38 percent lower in the areas where Ribera Salud operates relative to other regions in Spain.<sup>84</sup>

driver is patient health and safety; however authorities’ approaches to protecting patients can vary widely—assessing and regulating health care practitioner quality, for example, is a hugely complicated process that differs country to country. Adding to this complexity are factors including rapid clinical and technology changes; calls for increased financial and performance transparency as part of the move to outcomes-based payment models; more sophisticated risk-monitoring techniques; and coordination across agencies and regions. In 2017, organizations of all sizes will need to continue navigating and complying with a highly complex, changing set of global, regional, country, and industry-specific laws and directives.<sup>85</sup> Primary regulatory focus areas include:

- **Clinical quality and safety**—Global harmonization for the evaluation of quality, safety, and efficacy of drugs and medical devices could substantially reduce R&D costs (which are then passed on to payers), encourage sharing of knowledge and resources, and result in fewer clinical trials. For example, the Identification of Medicinal Products (IDMP) Data Standards<sup>86</sup> are being developed and implemented by the International Organization for Standardization (ISO), regulators, trade associations, and other stakeholders in response to a worldwide demand for internationally harmonized specifications for medicinal products. There also have been increasing calls for greater control and stringent monitoring of medical devices in the wake of Europe’s PIP breast implant scandal,<sup>87</sup> a widespread hip replacement recall, and other incidents which have highlighted the current system’s regulatory weaknesses.
- **Cyber security**—Cyber-theft and cyber-espionage continue to endanger patient privacy and the use of sensitive

There is also growing appetite among health care providers in the United States, Denmark, the United Kingdom, and other countries for horizontal or system-level consolidation. Providers are developing Shared Service Centers aimed at consolidating back-office functions in order to achieve cost savings and reduce administrative burden. In the United Kingdom, a report issued by NHS Improvement estimated that service consolidation between hospital providers can contribute in some cases to operating cost savings of 12–14 percent (compared to between 1–2.5 percent without consolidation) through standardizing and integrating work processes, support functions, suppliers and investments. The NHS report estimated that consolidating corporate and clinical support functions alone can lead to cost savings 1–3 percent of turnover, within a time frame of six to 12 months.<sup>71</sup>

In the United States and elsewhere, health plans are also “defragmenting” via mergers and acquisitions (M&A) and collaborative relationships with providers to create powerful data-sharing networks that help drive integration across the continuum of care.<sup>72</sup>

Joint ventures and other collaborative agreements are also on the upswing. Japan’s government has established measures to promote collaboration among medical facilities that allows them to share physicians and hospital beds and increase purchasing power. In China, ongoing medical reform is driving hospitals to create alliances and partnerships to gain operational efficiencies and cost savings. Such arrangements improve participants’ upstream and downstream bargaining power, enable market expansion through two-way referrals, and broaden the base

of available clinicians for consultations and other services. Still, many health care alliances struggle with technical integration and information-sharing, and rely on poorly structured incentives that prevent long-term sustainability.

**Market disruptors**

The emergence of non-traditional health services and technology providers from the retail, high-tech, telecommunications, and consumer & industrial products (C&IP) sectors is disrupting the health care marketplace. The potential impact of these innovators (many with deep pockets) could transform how established organizations prevent, diagnose, monitor, and treat disease. Among notable developments by disruptors both small and large:

- Retail clinics and urgent care centers provide more convenient and lower-cost health care to patients than traditional physician offices and clinic settings. Typically located within shopping centers or other public spaces, these alternative care sites offer extended hours, more locations, and shorter wait times. The use of physician assistants, nurse practitioners, and pharmacists, under the supervision of physicians, lowers costs. As retail clinics expand their services to include areas such as chronic care management, educational and behavioral counseling, care coordination, and infusion centers, their impact may increase. According to the Deloitte Center for Health Solutions *2015 Survey of US Health Care Consumers*, 77 percent of respondents choose retail clinics for their convenience, 72 percent for speed of securing an appointment, and 60 percent for after-hours care.<sup>73</sup>
- Technology companies are looking at how to take blockchain technology beyond its origin as the public ledger

for cryptocurrency transactions and repurpose it to drive health care and life sciences innovation, strengthen security of medical and product data, improve health plan back-office processes and systems, and enhance the health care customer experience.<sup>74</sup> For example, blockchain applications can provide heightened visibility and improved data-tracking at various points along the pharmaceutical and medical device supply chain, combatting the ongoing problem of counterfeit medications.<sup>75</sup>

**Patient engagement**

Anticipating and meeting patients’ clinical, financial, and emotional expectations have become major focus areas for health system executives facing payment pressures, a market shift to value-based and patient-centered care, and renewed payer emphasis on patient experience as a core element of care quality.<sup>76</sup> Enhancing the patient experience is regarded as a potential driver of hospital performance, since it can strengthen customer loyalty, build reputation and brand, and boost utilization of hospital services through increased referrals to family and friends.<sup>77</sup> Furthermore, research has shown that better patient experience correlates with lower medical malpractice risk for physicians<sup>78</sup> and lower staff turnover ratios.<sup>79</sup>

What are some of the main drivers of patient experience in health care? Deloitte’s 2015 *Survey of US Health Care Consumers* found that staff engagement measures (such as quality of staff, staff communication and responsiveness, and appointment ease), among others, were the most important drivers of patient experience. Improving hospital staff’s and, in particular, nurses’ work environment, therefore, could lead to improvements in patient experience.<sup>80</sup>

**Care delivery**

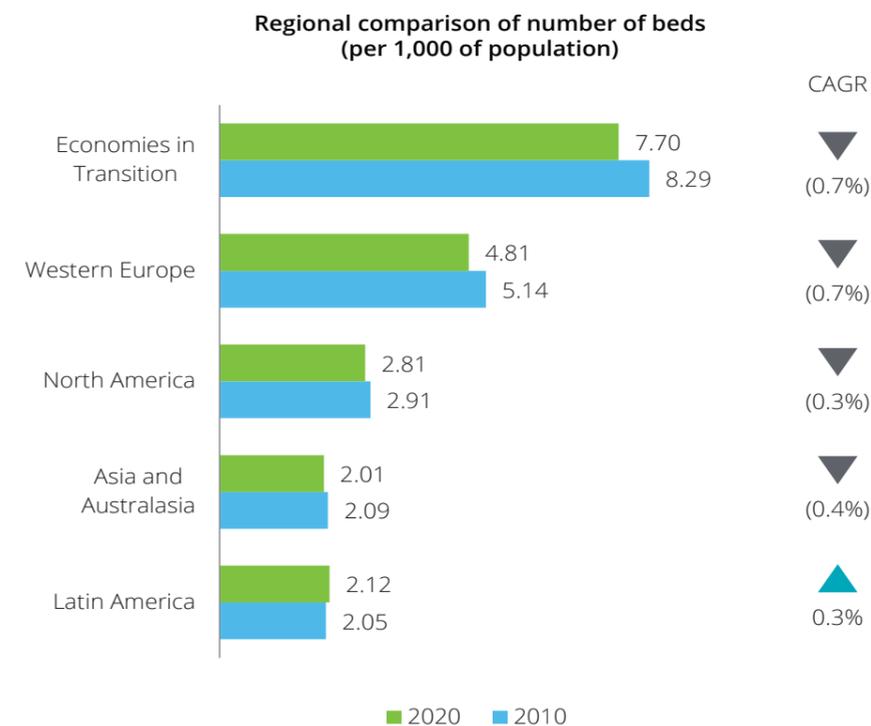
Lack of access to basic health care services and variations in care quality are persistent problems in many of the world’s regions—not only those in which the majority of the population is served by a publicly funded health system but also in developed markets such as the United States, where The Commonwealth Fund, in a 2016 11-country survey, found that one-third of U.S. adults went without recommended care, did not see a doctor when sick, or failed to fill a prescription because of costs.<sup>27</sup> Intermittent or chronic funding shortfalls combined with other market drivers can produce a variety

of situations that negatively impact access; among them, inadequate and/or outdated health system infrastructures (facilities, technology, equipment, treatments). For example, the number of hospital beds is declining in the transition economies of Central and Eastern Europe (including Russia and Ukraine), Western Europe, North America, Asia and Australasia (Figure 3), spurred by regional economic slumps, decreased government spending on health care, hospital closings and consolidations, and pricing pressures attributed, in part, to adoption of value-based payment mechanisms for clinical procedures.

Some health systems—Mexico and Australia among them—are making increased use of **public-private partnerships (PPPs)** to remedy the lack of health care infrastructure. Most new capital funding projects in Australia are PPPs. Examples include the recently completed Fiona Stanley hospital in Perth which has all non-clinical services provided by Serco, and the Northern Beaches Hospital in New South Wales (NSW) which is fully operated by a private hospital operator (Healthscope) but funded by the NSW government for public patients. There also is a growing appetite for forming Non-Governmental Organization (NGO) and private-sector consortia to respond to population/outcome-based projects, particularly chronic disease management and/or care for the elderly. Conversely, the United Kingdom may be moving away from PPPs. The UK was an early adopter of PPPs (also called the private finance initiative, or PFI) for health care, introducing them in 1991.<sup>28</sup> However, recent developments—i.e., the reduction in NHS funding at a time of increasing demand—have limited stakeholders’ appetite for further public-private collaborations. Indeed, the costs of PFI have proved cost-prohibitive for a number of UK hospitals.

Lack of clinicians—especially general practitioners and specialists—to properly diagnose and treat illness also limits patient access to care. Demand shock caused by the refugee crisis, ongoing large-scale people movement (e.g., undeveloped to developed countries, rural to urban settings), and management of fast-moving diseases (e.g., Ebola, Zika) are straining health and social service systems and driving demand for more health care professionals around the world. Yet a comparison of physician/population ratios for 2010 and 2020 shows considerable regional disparities.

**Figure 3: Shrinking number of hospital beds**



Source: EIU database, accessed on 10 August 2016

Workforce shortages are being compounded by rising labor costs which, along with pharmaceutical pricing, higher-acuity patients, and infrastructure needs, are key drivers of hospital cost growth.<sup>29</sup> Workforce issues can be seen in both developed and emerging economies, and often involve identifying and securing the right mix of specialist, primary care, and mid-level practitioners.

- Both the NHS and the social care sectors of the United Kingdom have been experiencing issues in recruiting and retaining permanent staff. In 2014, there was a shortfall of 5.9 percent (equating to around 50,000 full-time equivalents) between the number of staff that providers of health care services said they needed and the number employed, with particular gaps in nursing, midwifery and health visitors.<sup>30</sup> Brexit will likely lead to negative impacts on an already constrained health care workforce, with EU nationals accounting for 55,000 of the NHS's 1.3 million workforce. Ambiguity over future immigration policy is likely to dampen the ability of the UK health and social care sectors to attract and retain talent from the EU in the short term and many commentators are calling for the government to clarify what arrangements will be for EU health and social care staff.
- Japan has a lower physician-population ratio compared to other developed countries, with two doctors per 1,000 people (2012). The government promised to train an additional "250,000 care workers by the early 2020s" to satisfy demand for elder care.<sup>31</sup>

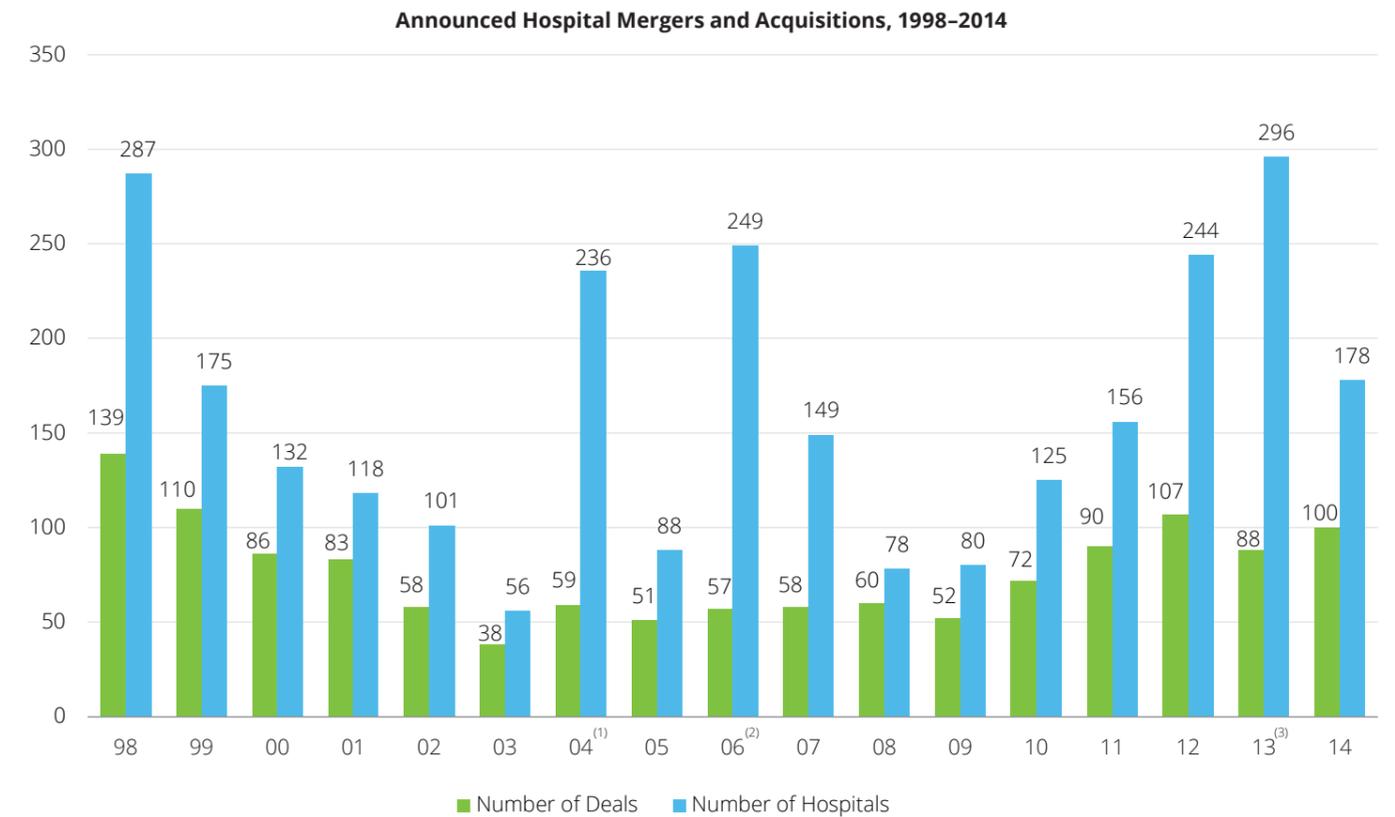
- Physicians in China remain tied to public hospitals and focus on maintaining their professional ranking within the public system, despite initiatives to allow them to practice at multiple sites. Thus, private/foreign hospitals face the obstacle of recruiting reputable physicians to attract waves of patients.

Some countries are trying to mitigate access issues through **dual systems of public and private health care**—with varying degrees of success. In Southeast Asia there is an increasing gap between the state-of-the-art hospital and treatment infrastructure in private institutions serving medical tourism and the well-to-do, and the very basic public infrastructure for the local population. Unfortunately, private health care is unaffordable for most of the region's consumers and private health insurance uptake remains slow. The situation differs in China. Public hospitals provide 90 percent of the country's health care services and retain a strong pool of talent and medical resources. Still, riding a wave of favorable policies, strong demand, and an influx of private capital, private hospitals are making improvements in process management, human resources, and medical equipment and supplies, thus building their reputation and service scope. Meanwhile, the government, under pressure from rapidly increasing medical expenses, is encouraging private health insurance as a supplement to the public scheme. Allowing the establishment of private hospitals should stimulate private insurance development.

Increasing numbers of public and private health systems are embracing (and importantly, funding) **technology-enabled, virtual care**—online, telehealth, mobile health (mHealth), wearable and implantable patient monitoring devices, and other advancements—to help bridge the care delivery gap, especially in remote areas. RingMD is one example. This innovative online platform allows patients to connect with verifiably qualified doctors by video or phone from anywhere in the world. Patients using the RingMD platform can schedule an affordably priced consultation in just a few minutes.<sup>32</sup>

Technology-driven health care may prove to be a literal lifesaver in geographic regions with widely dispersed, rural populations, such as Africa and Southeast Asia. The practice is also gaining traction in developed countries including Australia and the United Kingdom. Australia already has introduced telehealth and telemedicine services and there is a growing appetite to consider the use of robotics, automation, and cognitive/artificial intelligence (AI) in clinical settings. In the United Kingdom, the Chief Executive of NHS England has indicated publicly that virtual health care has a strong future in the UK and in August 2016 announced a new £100 million funding pot to aid selected NHS trusts in becoming centers of global digital excellence (CODE). This announcement of funding support follows other recent announcements by NHS England stating that technology which enables patients to manage their own health is the key to improving care, promoting efficiency and cutting costs throughout the NHS.<sup>33</sup>

Figure 4: U.S. hospital M&A trends<sup>70</sup>



Source: Irving Levin Associates, Inc. (2015). *The Health Care Services Acquisition Report*, Twenty-First Edition.

(1) In 2004, the privatization of Select Medical Corp., an operator of long-term and acute-care hospitals, and divestiture of hospitals by Tenet Healthcare Corporation helped to increase the number of hospitals affected.

(2) In 2006, the privatization of Hospital Corporation of America, Inc. affected 176 acute-care hospitals. The acquisition was the largest health care transaction ever announced.

(3) In 2013, consolidation of several investor-owned systems resulted in a large number of hospitals involved in acquisition activity.

Health care digitalization, the collection and electronic exchange of vital biological and clinical data among life sciences companies, providers, health plans, and patients can improve drug and device R&D, manufacturing, distribution, adoption, and use. Examples include patient-level data to drive discovery of new drugs; electronic medical record (EMR) use to establish the safety signal of a questionable drug;<sup>63</sup> and wearable and implantable devices to collect and transmit patient information to monitor treatment regimen adherence. To gain maximum value from new digital capabilities, health systems will need to integrate them into core processes and systems rather than use them as adjuncts to business as usual.

It is important to note that while adoption of digital- and technology-enabled care is increasing, many health systems are still on the first digital rung; for example, they don't necessarily have coverage of computers in primary or secondary care and are still working off paper records. Funding and employee training issues may continue to exert downward pressure on widespread adoption and use.

The combination of **data and analytics** is being touted as the missing key to unlock new sources of health care value<sup>64</sup> and innovation. Hospital expenditures on analytics are anticipated to reach USD \$18.7 billion by 2020, up from USD \$5.8 billion in 2015, as hospitals focus on quality and cost reduction.<sup>65</sup>

Sophisticated data sharing, processing, and mining techniques can support the development of personalized medicines and increase speed to market for new drugs and devices. Integrating and analyzing new types and sources of data also can be used to inform performance management of commissioned services and to flex payments up and down (including incentives) according to provider performance.<sup>66</sup> As more data becomes available from connected care sources, analytics should be able to help detect hidden patterns in information and deliver actionable insights that are likely to play a major role in helping health systems improve costs and quality.<sup>67</sup>

The real and perceived value of health care digitalization is likely to generate increased oversight of its use. For example, in June 2016, China's State Council issued guidelines for promoting and regulating big data applications in health care provision. The guidelines also aim to promote sharing of the government health care information system and public medical data by establishing a database based on EMRs and prescriptions.

### Operations

Both public and private health systems will likely need to implement new business and clinical operating models to deliver scalable, efficient, and high-quality care, and to reduce waste, redundancies, and costs that threaten system sustainability. Among key ingredients for productive health care operations are safe, standardized, and evidence-based processes that enable the provision of health interventions to those who need them, when and where needed, with a minimum waste of resources;

a competent, well-trained workforce that operates in appropriately-sized and balanced teams, delivering safe, responsive, fair and efficient care; and effective use of innovative technologies to contain costs, heighten staff performance, and improve the comfort and safety of patients and staff.<sup>68</sup>

Three sector trends—vertical and horizontal consolidation, market disruptors, and patient engagement—are indicative of health systems' increasing focus on operational transformation to offset persistent clinical and financial challenges.

### Vertical and horizontal consolidation

Fewer hospitals and independent physician practices are choosing to "go it alone" in the battle against increasing competition and sharply climbing costs, opting instead to merge and form large health systems or chains that can leverage economies of scale and broader service reach to withstand rising clinical, financial, and regulatory pressures. This continuing trend of "bigger is better" is apparent in the number of U.S. announced hospital mergers and acquisitions going back as far as 1998 (Figure 4, next page). Denmark's public hospitals are in the middle of a consolidation process, supported by a range of construction projects, which will lead to fewer acute care hospitals. In the United Kingdom, devolution has enabled vertical integration between providers in the Greater Manchester region. Salford's Integrated Care Organization (ICO), which aims to integrate primary care, acute care and social care provision, was launched in July 2016 and is moving towards implementation in 2017.<sup>69</sup>

### Adding social determinants to the care equation

There is growing recognition among governments, payers, and providers that to better manage population health and curb rising costs the sector needs to add social determinants of health and wellness to the care equation. Scientists have known for some time that social determinants, the conditions in which people live and work, can directly and indirectly shape physical and behavioral health.<sup>34</sup> Among these influencers are income, education, living and working conditions, transportation availability, childhood trauma (see sidebar) and environmental factors (e.g., lead paint, polluted air and water, lack of outlets for physical activity). In general, people with lower socioeconomic status have greater exposure to health-compromising conditions.<sup>35</sup> However, funding silos exist and communication and collaboration among social service agencies, primary care and behavioral health care providers is often limited, disjointed, or absent, conditions that can impede care quality and drive up costs.<sup>36</sup>

Collaborative care models which address behavioral and physical health or programs which address social determinants have independently generated improved patient outcomes and lowered costs. However, these three factors are inextricably linked; combining social determinants with collaborative models in a fully integrated care program may further improve outcomes and provide the cost savings that stakeholders seek.<sup>42</sup> However, implementing sustainable integrated care programs faces both financial and organizational barriers.<sup>43</sup> In addition to a lack of financial incentives for addressing social determinants, certain activities associated with integrated care, such as consultations between providers, and visits conducted outside of a physician's office (including telehealth and online consultations), are often not reimbursed under traditional FFS payment models. Structural, communication, and information management limitations also diminish the effectiveness of an integrated care model.<sup>44</sup>

## ACE Study links childhood trauma and chronic disease

The U.S. Centers for Disease Control and Prevention (CDC)-Kaiser Permanente Adverse Childhood Experiences Study (ACE Study)<sup>37</sup> has identified a strong link between childhood trauma and the chronic diseases people develop as adults, as well as depression, violence, being a victim of violence, and suicide. The ACE Study is one of the largest investigations of the connection between childhood abuse and neglect and later-life health and well-being.<sup>38</sup> Study results have shown that:

- Childhood trauma was very common, even in employed, white, middle-class, college-educated people with great health insurance.
- There was a direct link between childhood trauma and adult onset of chronic disease—heart disease, lung cancer, diabetes and many autoimmune diseases, among them—as well as depression, suicide, being violent and a victim of violence.
- More types of trauma increased the risk of health, social, and emotional problems.

- People usually experience more than one type of trauma—rarely is it only sex abuse or only verbal abuse.

Ten types of childhood trauma are measured in the ACE Study; five are personal and five are related to other family members. Each type of trauma counts as one instance. Two thirds of the 17,000 people in the ACE Study had an ACE score of at least one—87 percent of those had more than one. So, for example, a person who's been physically abused, with one alcoholic parent, and a mother who was beaten up has an ACE score of three.<sup>39</sup> As the number of ACEs increases, so does the risk for these outcomes.

The wide-ranging negative consequences of ACEs highlight the importance of preventing childhood traumas before they happen. The CDC's Essentials for Childhood framework proposes strategies that communities can consider to promote safe, stable, nurturing relationships and environments for all children.<sup>40</sup> Essentials for Childhood can have a positive impact on a broad range of health problems and on the development of skills that will help children reach their full potential.<sup>41</sup>

### Case study: Addressing social determinants" like we do for the one on page 8

The Connecting to Care program in Saskatchewan, Canada, has shown promising results in cost-control and health-outcome improvement by helping patients in ways that extend beyond the traditional prescription pad and office visit. Launched in 2015 as pilots in two cities, Connecting to Care builds on the "hotspotting" approach, which mines administrative data to identify the subset of patients who account for an outsized proportion of health care utilization and costs.<sup>45</sup> The

program uses proactive outreach to prevent hospitalizations and emergency room (ER) visits by focusing on timely use of community-based services, including support for medical, mental health, and addiction treatments, as well as assistance with social needs.<sup>46</sup> While the two pilots' formal evaluations are not yet publicly available, one has reportedly seen reductions in both ER visits and hospitalizations. One patient's hospital inpatient days were reduced by 84 percent (from 120 days in the previous year to 20); each day spent out of the hospital versus in it saved an average of CAN\$1,400.<sup>47</sup>

## Innovation

Advancing health care sector innovation is a clinical and cost imperative. Already, robotic surgery, 3D printing, implantable devices, and other digital- and technology-

enabled innovations that target prevention, monitoring, and treatment are showing potential to improve outcomes and reduce costs. In addition, new R&D approaches, and big data and analytics use are

creating opportunities for innovation but stakeholders are challenged to do so while under pressure to cut costs. (See sidebar.)

## Top 10 innovations to achieve more for less in health care

Health care is an industry in need of innovation. Governments, health plans, providers, and life sciences companies are facing rising costs and inconsistent outcomes in their pursuit of the triple aim—improving care, improving health, and reducing spending. Deloitte surveyed leaders across the health care system to identify the innovations they think are most likely to transform health care. We then narrowed the list to the top 10 by applying the following definition:

**Innovation:** Any combination of activities or technologies that break existing performance tradeoffs in the attainment of an outcome, in a manner that expands the realm of the possible. Defined in health care as providing “more for less”—more value, better outcomes, greater convenience, access and simplicity; all for less cost, complexity, and time required by the patient and the provider, in a way that expands what is currently possible.

Incorporating these top 10 innovations into business models will require changing how health care organizations currently prevent, diagnose, monitor, and treat disease. However, the industry needs to break current constraints and expand the frontier to achieve true breakthrough performance.

- **Next-generation sequencing (NGS):** Advances in genetic sequencing could lead to the development of diagnostic tests that may identify at-risk populations where early interventions could save downstream health care costs. Diagnostic tests also may help clinicians target specific medicines to patients who are likely to respond well to them, reducing or eliminating the use of ineffective treatments.
- **3D-printed devices:** Manufacturers and providers could use 3D printing to create highly customized, low-cost medical technology products that can be tailored to suit the physiological needs of individual patients.
- **Immunotherapy:** Immunotherapies, classes of drugs that strengthen the body's ability to generate an immune response, have the potential to significantly extend survival for cancer patients, without the negative side effects and associated health care costs of traditional chemotherapy.
- **Artificial intelligence (AI):** AI, the ability of computers to think like humans, is anticipated to transform health care by completing tasks currently performed by humans with greater speed and accuracy, and using fewer resources.
- **Point-of-care (POC) diagnostics:** POC diagnostics allow for convenient and timely testing at the point of care (e.g., physician office, ambulance, home, or hospital), resulting in faster, more cohesive, and less-expensive patient care.
- **Virtual reality (VR):** Virtual reality can engage patients in low-risk, artificially-generated sensory experiences that could accelerate behavior change in a way that is safer, more convenient, and more accessible to the consumer.
- **Leveraging social media to improve patient experience:** Social media offers health care organizations a potentially rich source of data to efficiently track consumer experiences and population health trends in real time, much more efficiently than current approaches. Organizations have the ability to track consumer experience and population health trends in real time.
- **Biosensors and trackers:** Biosensors included in rapidly shrinking wearables and medical devices allow consumers and clinicians to monitor and track more aspects of patients' health, enabling earlier intervention—and even prevention—in a way that is much less intrusive to patients' lives.
- **Convenient care:** Retail clinics and urgent care centers provide more convenient and lower-cost care to patients for a number of health issues.
- **Telehealth:** Telehealth offers a more convenient way for consumers to access care while potentially reducing office visits and travel time. This convenient care model has the potential to increase self-care and prevent complications and ER visits.

Source: *Top 10 health care innovations: Achieving more for less*, Deloitte Center for Health Solutions, 2016

To be a true game-changer, innovation needs to begin as early as possible in the R&D process and new approaches including **translational medicine** are helping to make that happen. A translational approach to R&D connects the traditionally discrete steps of discovery, development, and delivery to facilitate a continuous process improvement cycle and accelerate time to market.<sup>48</sup> Big pharma and other life sciences companies are using translational medicine to develop novel therapies for cancer and chronic diseases, focusing on gene sequencing, unlocking nanoparticles' potential, and evaluating biomarkers.

**Precision medicine** offers the potential for using more targeted therapies—targeting treatment to positively responding patients—to improve outcomes and reduce adverse events. When paired with **companion diagnostics** (an in vitro diagnostic device or an imaging tool that provides information that is essential for the safe and effective use of a corresponding therapeutic product<sup>49</sup>), targeted therapies can help physicians to select an optimal treatment the first time, avoiding the costly and risky practice of trial-and-error prescribing.<sup>50</sup> **Specialty drugs** are another clinical innovation; when used with **biomarkers** to target subpopulations, such drugs could improve outcomes, lower treatment costs, and even prevent disease.<sup>51,52</sup>

A recent report from the Tufts Center for the Study of Drug Development shows that investment in precision medicine has nearly doubled in the last five years.<sup>53</sup> One example is the United States' Precision Medicine initiative, which is focused on building a large research cohort for longitudinal studies, and ensuring regulations are appropriate to facilitate sharing of patient data across institutions and agencies. The program's goal is to get more targeted treatments for a variety of diseases to patients faster.<sup>54</sup>

Yet despite overall growth in investment, targeted treatments still have to go through the rigorous and costly R&D process. And because the treatments may only be used for a small subset of patients, the return on investment is potentially reduced. It is both in spite of and because of these challenges that momentum around precision medicine is gathering like never before.<sup>55</sup>

### New treatment delivery mechanisms

may help improve medication efficacy and patient adherence. For example, as the number of people living with one or more chronic conditions has increased, so, too, has the number of complicated daily medication regimens needed to manage and treat these conditions. Unfortunately,

#### Case study: Polypill improves treatment adherence

Combining drugs commonly prescribed together in a single pill—a polypill—helps patients adhere to their prescribed treatment regimens.<sup>58</sup> A cardiovascular polypill is being used in some European and Latin American countries. The polypill includes a fixed-dose combination of a blood thinner (aspirin), a cholesterol-lowering drug (simvastatin), and an angiotensin-converting-enzyme inhibitor that works to stabilize vessel walls and blood pressure (ramipril).<sup>59</sup> The cost for this pill is low: between \$14 and \$18 per month in Latin America.<sup>60</sup> A trial in Argentina, Paraguay, Italy, and Spain showed that the polypill resulted in 66 percent adherence to the treatment regimen, a 10 percent improvement over patients taking the three drugs separately. Polypill users experienced improvements in blood pressure and cholesterol management.<sup>61</sup>

many patients don't take their medicines according to schedule.<sup>56</sup> With the cost of non-adherence estimated at nearly \$500 billion worldwide—including costs from avoidable hospitalizations, nursing home admissions, and premature deaths—innovative solutions are essential to countering the avoidable adverse health outcomes that drive-up health spending.<sup>57</sup>

As mentioned earlier, increased adoption and reimbursement of **digital and technology-enabled health care** solutions can help mitigate care access challenges. In addition, technology-enabled care can help providers and consumers improve disease management and enhance the patient experience. According to the Deloitte 2016 *Survey of U.S. Health Care Consumers*, respondents' interest in and use of technologies for health and fitness purposes are growing:

- Fifty-eight percent of prescription drug users report refilling prescriptions using a mobile health application.
- Forty percent of surveyed caregivers say they would likely use sensors for location tracking and fall detection.
- Consumer interest in using telemedicine ranges from thirty-two percent for a minor injury to forty-nine percent for post-surgical care.
- Of note to technology solution providers, consumers have some concerns about using remote patient monitoring and telemedicine; specifically, that care would be lower-quality than if they saw a provider in person; and their personal health information could be leaked.
- Consumers also express interest in using robotics and drones for future health care scenarios, such as medication assistance for chronic disease (40 percent); disease diagnosis assistance (40 percent); delivering laboratory samples (38 percent); home maintenance (caregiver) (35 percent); and disease diagnosis replacement (32 percent).<sup>62</sup>