NTT DATA

BETTER CARE, BETTER HEALTH

FUTURE AT HEART

WHITEPAPER

PERSON-CENTERED CARE

1 Treating the person, not just the illness

Right across the health and social care landscape, we are seeing a rapid move towards a Person-Centered Care approach, *which provides the context for adopting more integrated care methods and structures*. Providers now focus, not just on treating specific illnesses and conditions as presented, but on seeing the individual person in the round, as a human being living in their own complex social, family and work environments, which are all highly relevant to their wellbeing and treatment outcomes.

Person-Centered Care leads to joint decision-making (between professionals and individuals) and joint design of care pathways and methods. It recognizes that individuals have a right to influence over their own care and must be treated as *active collaborators*, not as *passive recipients*.

This is a major change in direction for large-scale healthcare providers in the developed world. Most have become very successful in treating illness and dealing with emergencies, but are less effective in promoting higher levels of wellbeing in the population, supporting better public health or integrating the two separate domains of health and social care.

What the pandemic has taught us

The COVID-19 pandemic has taught us lessons that are both positive and negative.

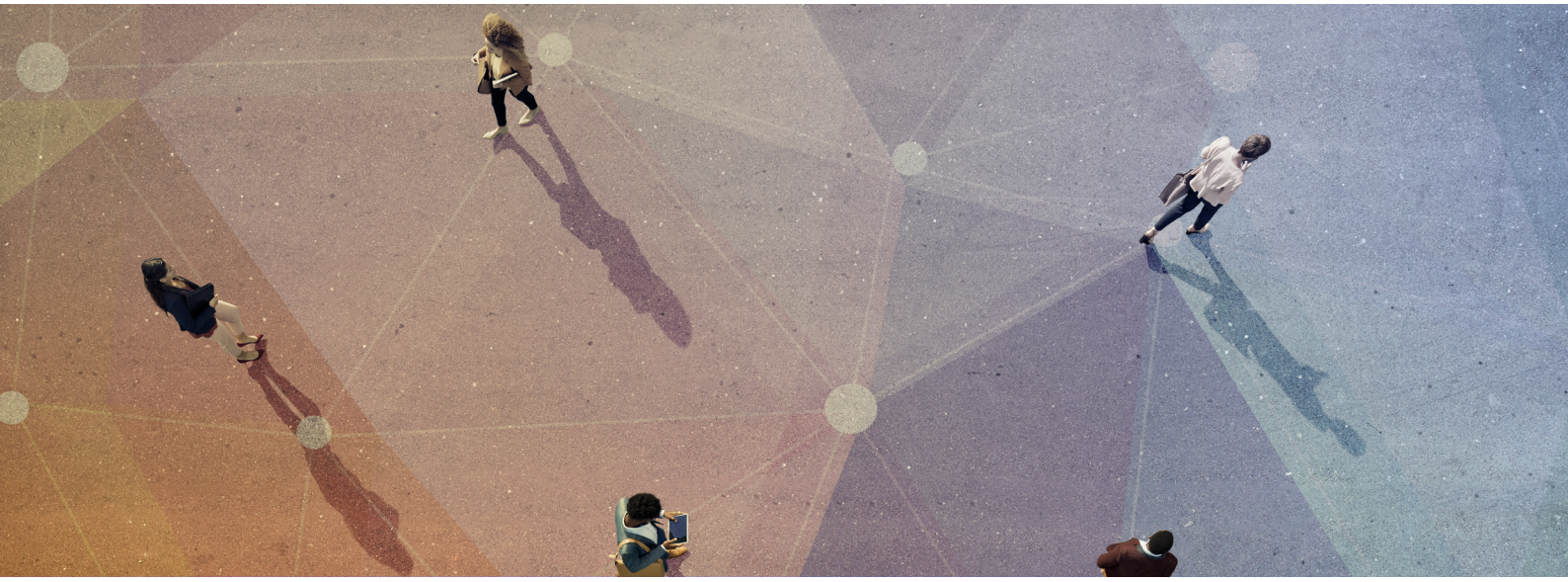
On the positive side, this experience has shown how health services are able to set up remote consultations and treatments, accelerate the uptake of telemedicine and create better integration between the different branches of health and social care than before. This has demonstrated the potential for a greater focus on remote treatment, use of technology in all aspects of care and also how to break silos in health and social care.

On the negative side, the COVID-19 pandemic has underlined the inherent weaknesses in current health provision. Although age remains the primary reason for severe COVID-19 outcomes, we have seen widely differing experiences based not only on access to vaccination but also on the underlying health of individuals, quality of nutrition, weight, air quality and other basic public health indicators.

The key issue remains one of integration. In most countries a wide gap remains between health and social care, and although governments, their agencies and other relevant bodies work hard to connect these different areas with each other, silos remain. Breaking these silos to create a truly integrated approach to care, focused on the individual, is now a top priority for all governments, as they face a combination of urgent challenges.

Key healthcare challenges

There are major differences in the ways that healthcare provision is organized and paid for across Europe. Despite all of this, every health and social care system and provider will have some challenges in common, most notably:



Long-term conditions. In most developed countries life expectancy has been transformed in past decades. As a direct result of this (one of the greatest and most notable successes achieved by our healthcare systems), populations are aging, leading to a rapid growth in multi-morbidity. In most countries, therefore, a growing proportion of citizens are living with one or more long-term conditions and depends to some extent on increasingly costly, labor-intensive clinical and social support.

New diseases. As the COVID-19 pandemic has shown, new pathogens are emerging constantly, and stress on the natural environment is accelerating this natural process. Our societies are not well prepared to manage such a challenge, which is closely related to the status of public health provision.

Public health. The resilience of societies, including their resistance to new diseases, relates directly to levels of public health, and these are too low throughout the developed world. Poverty leads to poor nourishment, which drives high levels of obesity, made worse by poor living conditions, urbanization and an increasingly sedentary lifestyle.

Social care. As we have seen, there is a traditional divide between medical provision (treatment of illness) and social care (everything from peri-natal care and child safeguarding, right through to elderly and end of life care). Money is wasted and treatments undermined by the difficulties of negotiating this divide. All agencies agree that better integration is necessary, but do not always agree on exactly how this should be achieved.

Sustainability. This is one of the greatest of emerging challenges, related to the need for lower use of resources, from travel (fuel use) through to medicines (wastage), while also managing public and private finances as efficiently as possible. Government bodies and healthcare providers are working to reduce energy use and pollution through electronic and remote provision, which reduces travel while enabling faster intervention and better outcomes.

Growing empowerment

As citizens, we now take a more proactive approach to services. None of us expect to be "passive recipients" of anything, from banking to retail, insurance, travel, local government and now healthcare as well. We expect to be involved because services of every kind are interactive these days. This includes healthcare, where citizens are:

Better informed

Most of us spend a lot of time online, enabling us to access rich sources of information. This is now a basic fact of life because we are:

Better connected

Health services now expect their patients to have a certain level of knowledge about their conditions, how they can be treated and how they need to behave in order to manage their health more effectively. This should be an important benefit to us all, if managed within respect-based partnerships between individuals and healthcare professionals.

Participative

People are used to taking a more active role in managing all aspects of their lives, including health and wellbeing, so most of us are happy with the concept of self-care. We expect to take a certain amount of direction and then deal with many care issues through our own initiative, as we become more active managers of our lives.

The rise of self-service, enabled by new technologies, in other areas of life is training people to apply similar self-service techniques in health management. All these developments are preparing for an historic evolution of health and social care, in which new structures and a stronger emphasis on patient-centricity will assume new levels of importance.

New care scenarios

In the future, we expect that communication technology and IT will enable higher efficiency, lower duplication, improved targeting of the individual's exact requirements and better outcomes as a result. We expect to see major developments in:

Primary care

Through more systematic use of technology to enable faster access to healthcare, rapid pathways to appropriate care delivery options and greater emphasis on preventive care. This will make it easier to develop improved options for:

Individualized care. Including person-specific treatments, regimes for managing conditions and personal health, with specialized care pathways based on early, detailed analysis of all relevant factors, from lifestyle to long-term conditions.

Home care

We anticipate gradual removal of the current divisions *between places where care is given and everywhere else*, as the process of integration between different aspects of health and social care accelerates. Hospitals may be redefined as centers of excellence for diagnosis and access to specialized skills and equipment, but home will be a key delivery center, giving new importance to:

Remote care. Use of technology makes it far simpler to carry out consultations and diagnosis online, while use of monitoring via fast connections permits full scale remote care, with long-term remote management now both more effective and more acceptable to patients.

Integrated care

All health and social care agencies understand that better connectivity between their domains is critical for long-term improvements in patient outcomes and public health. We need solutions for ways to bridge from one silo to another, covering all key factors, from funding to care continuity to long-term management and measurement. A key factor here will be:

Technology-enablement. The rise of better connectivity and higher bandwidth makes it easier to diagnose and monitor patient conditions remotely. In particular, use of video and XR enables deeper understanding of real time conditions while permitting fast intervention.

Because of these factors, working together with greater agility and responsiveness should now be easier than ever. So how can we use these and other emerging concepts to create a more effective approach to integrated health and social care that is effective, efficient, sustainable and always focused on the person?

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2 Towards Patient-Centered Care

What is Patient-Centered Care?

The New England Journal of Medicine (NEJM) Insights Council, has proposed a clear and widely-accepted definition of Patient-Centered Care, which is as follows:

In patient-centered care, an individual's specific health needs and desired health outcomes are the driving force behind all health care decisions and quality measurements. Patients are partners with their health care providers, and providers treat patients not only from a clinical perspective, but also from an emotional, mental, spiritual, social, and financial perspective.

Using this definition as a starting point, we can see how our approach to healthcare provision and management needs to change, when compared with "traditional" healthcare. We are now seeing the emergence of active collaboration and shared decision-making between patients, their families and professional care givers. This leads to joint development of customized care plans in which the patient is always at the center and is the core focus for all actions.

Some basic characteristics of this approach include:

- Respect for the views of families, which are not just listened to but internalized and valued.
- All care delivered to the patient is collaborative in nature and with each element fully coordinated with all the others.
- No decisions are made without the individual patient and their family being fully involved.
- Decisions should be transparent, with information delivered in an open and timely fashion.
- All through every care pathway, we expect to see physical and emotional comfort and wellbeing treated as equal priorities.

This change in emphasis, from "passive" to "active", from decision by professionals only to a more collaborative and inclusive approach, represents a major cultural shift for most healthcare providers. It is also potentially a key factor in driving better targeting of resources, greater integration across care silos and higher levels of engagement, and therefore satisfaction in the wider population.

Patient needs and how they are changing

The Patient-Centered approach reflects the need to move away from monolithic healthcare systems as a direct result of evolving realities in the lives of individual patients. Some of these drivers for change have been touched on earlier, while others require further analysis.

The drive towards a more Patient-Centered approach is designed to help address some of the more common failings of medical treatment, both in highly commercialized systems, as in the US, and in more socialized environments, like those in most European countries. Issues include:

- Too much bureaucracy, with unnecessary testing and review stages, often there for legal reasons, and excessive costs due to "heavy" organizations with many layers of authority.
- Poor understanding of the pressures on patients as people, including financial issues, childcare, work and family commitments, availability, travel problems…
- More complex lifestyles, based around more flexible employment, different family support structures, greater likelihood of frequent moves from one place to another.
- Higher levels of technology literacy, with a more "customer" attitude to services than before.
- Higher sensitivity for personalized interactions and treatments in accordancy to concrete individual needs, both medical and personal.

Individual members of society, therefore, are simply less predictable than they were. They are less likely to have a small, nuclear family and to live in the same place and do the same job for many years at a time. Our societies are becoming more fluid and individual citizens are more expert at evaluating and purchasing and managing services, including healthcare, in a more proactive way.

Yet many of them are also facing economic uncertainty, sometimes serious hardship, and are under great time and resource pressure, which leads to hard choices over how they select and pay for their own, and their families' healthcare. The design and management of healthcare systems must evolve and become more flexible to match the uncertainties faced by our citizens today. These are exactly the changes that the Patient-Centered Care approach are helping to deliver.

Evolving hospital and healthcare systems

One other factor that makes this form of transformational change necessary is the rise of long-term conditions. The World Health Organization has noted that, not only are numbers of people living with chronic conditions rising fast, but over 40% of these patients worldwide are living with more than one such condition.

Traditional healthcare systems, based on primary care and hospitals, cannot cope with this exponential growth in demand. This is leading to rapid change in the structures of treatment provision and is driving closer integration of health and social care. In recent years we have seen a reduction in the central role of the hospital in routine healthcare delivery, and we believe the recent pandemic will accelerate this process. This may seem counter-intuitive, because a shortage of ICU beds has been a cause for concern in most countries. *In reality, this experience has reinforced the importance of major hospitals, with their sophisticated equipment and expert staff, as being centers for emergency medicine.*

Once we accept that much future treatment will need to be delivered in different settings, we must also make provision for greater integration across a wide range of providers, together with a stronger emphasis on technology enablement.

To run this integration with guarantees we will need to organized all the services around the patient needs.

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Use of technology in patient-centered care

Development of digital technologies, enabled by cloud and low latency communication, is now accelerating the move to better integrated, more effectively Person/ Patient-Centered Care. In some ways this phenomenon mirrors changes happening in apparently quite different markets, where access to online services delivered on a SaaS basis is educating the population to new methods of viewing, evaluating and consuming services.

Digital technologies provide an increasingly rich toolkit of solutions that can help us to build better solutions. Key areas of added value include:

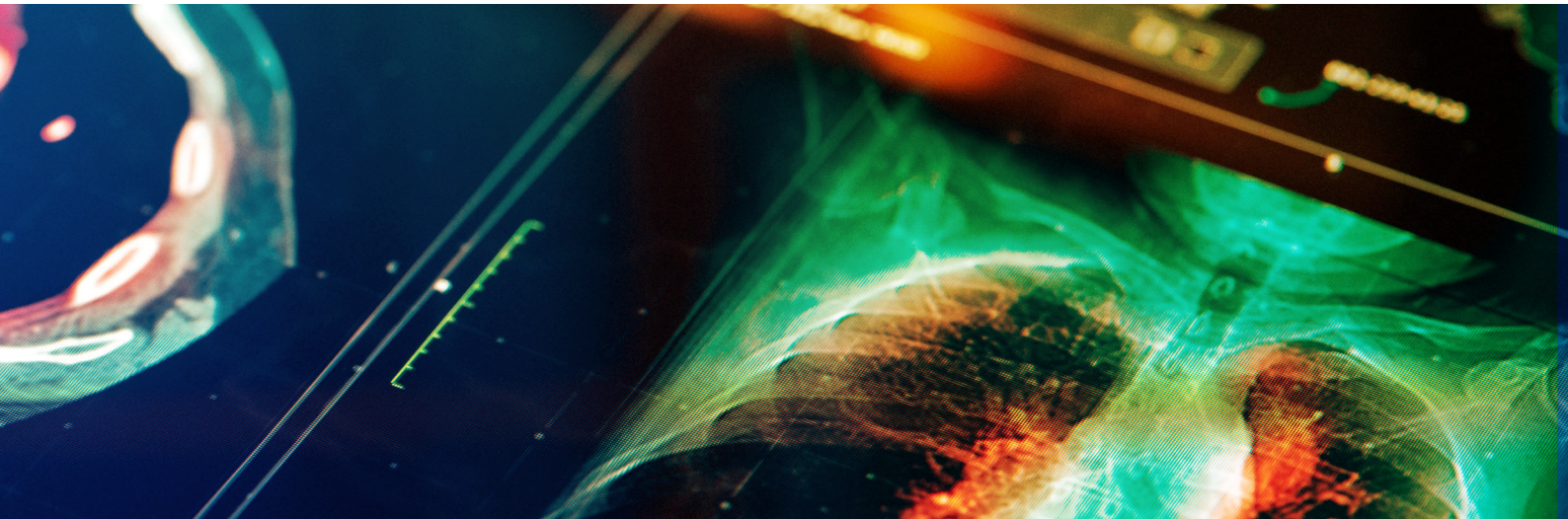
Monitoring, using high bandwidth connectivity to provide rich data flows in real time, backed by analytics for continuous insights about patient condition.

Automation, using increasingly reliable algorithms at the Edge (close to the patient) to enable rapid response when health indicators require it.

Individualized treatments, combining unique medicine combinations and medical devices to manage dispensing, while fine-tuning treatments.

Business management to ensure that payments and related requirements are handled smoothly and efficiently across previously impermeable department boundaries, with detailed reporting as needed.

Patient-Centered Care requires such factors as the rapid and highly secure movement of information, effective coordination of care across multiple platforms and systems, together with fast collaborative working, for consultation with patients and their families, discussion between agencies and providers, with the ability to be flexible in treatment delivery. Digital technology is not *the answer* to these issues, but it is very hard to see how this new form of joined-up, respect-based care can be delivered without digitization.



Co-design approach

One of the major challenges faced by all participants in Patient-Centered Care is the need to move away from purely clinician-driven care pathways to co-design, in which all stakeholders are engaged and play their own part in developing a customized approach that is right for the individual patient. This means, of course, having the highest possible probability of leading to the right outcomes for that person.

Co-design and Patient-Centered design are not synonymous. It is possible to develop pathways that are patient-centered in their intention and methodology but without involving patients and other stakeholders in the design process. This cannot be the case for true Co-design, where all relevant stakeholders must be involved as partners in the process from the start.

Patients are defined as "experts in their own experience"

The concept originated in Scandinavia during the 1970s and has now become well established and understood. Patients are defined as "experts in their own experience" and given equal status with the clinicians engaged in defining treatments and delivery methods. As digital technology takes a more and more important role in treatment definition and delivery, so the need for engagement in co-design by technology experts (alongside clinicians, patients and their families) becomes more important.

This is changing the dynamics of treatment design in some interesting ways, and will continue to do so.

Patient-centered care in action

The integrity of Patient-Centered Care is ensured through accurate measurement, and in particular by two now well-proven methods:

Patient-Reported Outcome Measurements (PROMs) and Patient-Reported Experience Measurements (PREMs).

The original format for PROMs was in a detailed paper questionnaire, written in academic language which many patients found alienating and difficult to engage with. In the past, these questionnaires were also largely retrospective: a review of what had already taken place. Today, PROMs are digital, progressive (happening at different stages, covering only the treatment of immediate interest) and enable feedback loops for clinicians, informing and enhancing their practice in real time.

PREMs also reflect the changing nature of patient-clinician relations, with the experience, as reported by patients, becoming a vital factor in designing and delivering integrated care that meets the emotional, psychological and even spiritual needs of the individual and their families. This reflects a key factor in both Patent-Centered and Person-centered Care:

Which is to respect the wider context, the belief systems, priorities and realities of the individual human being in their family and community lives.

This approach also delivers vital and highly practical information to clinicians, helping them to improve treatment design. It has been known for a long time, for example, that some patients may not be efficient at managing their own care due to their psychological characteristics. Use of PREMs, in particular, helps to identify such issues and allow clinicians to work with patient support networks to address them effectively.

Patient-Reported Outcome Measurements (PROMs) and Patient-Reported Experience Measurements (PREMs).

Achievements and examples

Patient-Centered Care has been the subject of repeated research projects in recent years, which aim to evaluate outcomes and experiences, while also quantifying how the process has worked through more conventional cost and resource methods.

One of the most important of these was a randomized trial into outcomes related to **COPD** (Chronic Obstructive Pulmonary Disease) and **CHF** (Chronic Heart Failure), managed by a group of researchers in Southern Sweden, through the University of Göteborg and the University Hospital there. Researchers set up a digital communication channel, supplemented by telephone-based intervention, to test how use of digital technology might improve and ways in which an agreed care plan was implemented by patients, themselves.

Compared with results from a control group, using conventional methods, it was found that engagement was stronger and more sustained (over the first 3 months of the process), and led to measurably improved outcomes for patients.

A second, larger research project, also based in Sweden, focused on patients recovering from day surgery and used a system known as **RAPP** (Recovery Assessment by Phone Points). This enabled patients to initiate support contacts from clinicians as needed, with most contacts requested by patients that had undergone general anesthesia and consequently reported higher levels of pain and slower recovery.

The study showed that access to a digital consulting channel did not increase the general frequency of contacts but did make it easier to focus attention on those who needed support most. By targeting resources more accurately, better outcomes were delivered and higher levels of satisfaction reported.

3 The Future

Emerging challenges

One additional issue, which is becoming more important each year, is *pressure on resources*. That means everything from budgets (not enough money available as treatments become more costly); people (not enough new professionals being trained, too many skilled practitioners leaving the profession); and equipment/space (not enough healthcare centers available, high cost of new equipment).

There is a simple cost-demand equation that is leading to difficult conclusions. The need for treatment is growing inexorably. The cost is rising year on year. The staff required are not available. How can we make these numbers balance?

Inevitably the headline answer is *through better use of technology*, and this is where a company like **NTT DATA** is able to play an important role in providing answers to these emerging challenges.

Technology provides tools that enable treatment to become more efficient and make better use of resources. Technology permits individual people to take on some of the tasks now carried out by professionals and reduce the need for specialized treatment locations. All these benefits can be delivered through applying a Person-Centered Care approach, with Patient-Centered treatment pathways, jointly developed, agreed and delivered.

At the heart of our new vision for integrated healthcare pathways is the vital importance of digital technology to hold all the different elements of these innovative solutions together and to integrate the different stakeholders into a single, seamless process. In this context, digital technology is not the solution but it is a key enabler to successful solutions.

Digitization and its role

So what are the most important factors in such an approach? We have identified a number of contributors, given below, although this is not exhaustive and is certainly subject to development, enhancement and evolution.

End to end digitization

To ensure effective integration of all stages in the process and all components digitization is a basic requirement. Successful integrated pathways require stakeholders to be closely, continuously connected. Digital technology and enhanced connectivity offer this approach in a way that has never been fully available before.

Remote monitoring technologies

One important characteristic of future integrated, Person-Centered care pathways will be the ability to deliver care at multiple locations: home, work, hospital, primary care centers, anywhere. This requires widespread availability of remote monitoring technology, of the kind being pioneered in other sectors through IoT devices.

Supervision of patient care from remote sites will require real-time access to detailed patient data, together with the ability to intervene in certain ways as required. Several factors are at play here as facilitators for this new form of remote monitoring.

5G roll-out enables high bandwidth, low latency connectivity in more locations than before, while close interaction between medical device manufacturers and network operators will help provide a highly flexible network to support a growing number of devices and technologies. As this kind of coverage expands, so the ability to monitor anywhere, anytime will grow, and that is a key factor in driving new care pathways.

Virtual assistants

These can provide added value to remote monitoring by enabling more effective interventions in care delivery. A virtual assistant makes it possible to utilize the intelligence inherent in the networked cloud as a way of providing automated decision-making, leading to fast interventions in care delivery, while reporting back to professionals monitoring activity remotely. Yet it needs to be clearly understood that virtual assistants (and virtual assistance) exist primarily to provide support for:

Digital self-care

This is, after all, the most important new element in new pathways, which is a more active role of the patient and their closest caregivers. We will increasingly depend on the patient to be active in managing their own care and, as we have seen, there are reasons (life style, knowledge, psychology and character related) that make this a challenging development.

Use of digital connections and virtual assistants provide essential context, guidance and support to patients as they manage their own care, while outcomes and experiences for analysis by the supervising professionals. In turn, this feeds into the growing role of:

Analytics

With patient-centered methods, it is possible to marry quantitative data captured automatically from digital systems with Patent Reported Outcome Measurements and Patient Reported Experience Measurements (PROMS and PREMS), to provide subjective insights to give higher quality analysis of each aspect of the pathway. This kind of information can be used for continuous improvement of each solution, while also adding to:

Clinical records

The goal is always to place the patient at the heart of all care pathways and combined health/social care solutions. Records necessarily regulated more tightly than almost any other form of data, since they relate to the privacy of individuals, their lived experience and the effectiveness of treatments.

We are working to ensure that insights can be shared for learning and performance improvement without in any way compromising the rights of any individual person. Key ICT disciplines, such as cyber security and data analytics will be essential for making sure that insights do not come at the expense of personal privacy.

Artificial Intelligence

AI is used increasingly in healthcare as a decision support tool to professionals, providing them with options and insights that go beyond the purely human experience. We are at a very early stage in the development of medical AI, which may prove to have essential long-term uses for all aspects of patient-centered healthcare.

Robotics

Distributed cloud enables use of automation in many different areas, due to devolution of intelligence to the Edge. Robots are already being used in operating theatres as part of a surgeon's toolkit, but we are now investigating the added value that specialized robotic systems can have as part of remote healthcare delivery.

NTT DATA point of view

The key trends for integrated health and social care delivery have many similarities with cloud enabled solution development and delivery. We foresee a future in which:

- Solutions are integrated and cross existing boundaries of provider, discipline and capability.
- Development will be collaborative and may involve bringing together partners from many different locations and parts of the market.
- We are likely to development, testing and refinement taking place in specialized cloud located and enabled platforms.
- Pathways will be more agile, capable of fast evolution as a result of real-world experience and firmly centered on the individual patient.
- The kinds of methods and processes that are now at the heart of user experiences in other markets will enter health and social care, empowering patients in new ways.

We believe that our experience and know-how as a leader in developing use cases for distributed cloud enables us to play a strong, strategically important role in making patient-centered care a reality. Health and social care will be designed and delivered in very different ways in the future. Digital technology will be at the heart of these new models and pathways.

For More Information

To find out more about how Green IT can help your organization, contact your NTT DATA representative or visit:
www.nttdata.com