Insights Series

Issue 44
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insights-series

Meeting patients where they are

With Community Diagnostic Centres (CDCs)

A thought leadership paper on "Achieving operational excellence" and "Transforming the system of care"

SIEMENS Healthineers

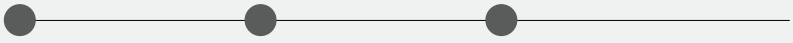
Preface

The Insights Series

The Siemens Healthineers **Insights Series** is our preeminent thought leadership platform, drawing on the knowledge and experience of some of the world's most respected healthcare leaders and innovators. The Series explores emerging issues and provides you with practical solutions to today's most pressing healthcare challenges.

At Siemens Healthineers, we pioneer breakthroughs in healthcare. For everyone. Everywhere. By constantly bringing breakthrough innovations to market, we enable healthcare professionals in:

Innovating	Achieving	Transforming
personalized care	operational excellence	the system of care



Our **Insights** portfolio is an integrated collection of events, speaking engagements, roundtable discussions, and an expanding array of print and digital platforms and products all carefully curated to share ideas, encourage discussion, disseminate original research and reinforce our position as a healthcare thought leader.

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Executive summary

Hospitals around the world are wrestling with the issue of access to care. In an era of rising demand and workforce shortages, ensuring that patients receive the care they need when they need it is increasingly difficult. Delays in treatment are not just a frustration for patients, they can be harmful and even fatal. With cancer, for example, there is a clear correlation between mortality rates and the length of time a patient has to wait for treatment. There is also clear evidence that the cost of cancer management increases substantially as the disease itself advances. All of this is adding pressure on stretched thin health systems to reduce wait times for screening services, in addition to urgent symptomatic referrals, since the earlier cancer is detected, the sooner treatment can begin. Decentralization of health systems is a key aspect of reform efforts to improve efficiency, quality, and patient outcomes. However, despite many initiatives, our understanding of how decentralization affects health system performance remains limited.

There is a £2.3 billion initiative underway in England that seeks to increase the amount of diagnostic capacity and activity across the country, and in the process support post-pandemic elective care recovery, while also reducing patient waiting times. The intention is to open as many as 165 Community Diagnostic Centres (CDCs) within the space of a few years. CDCs will provide elective diagnostic procedures for cancer, cardiac, respiratory and other conditions relevant to the management of local population health. The intent is to clear backlogs for tests such as MRI, ultrasound and CT scans, while at the same time addressing the post-pandemic increase in cancer referrals and easing pressure on the country's acute hospitals and their emergency departments.

This paper looks at the challenges facing CDCs as they come to life, and proposes steps that might be taken to support their development and operational delivery. It is clear that systems invested in CDC delivery are seeking to address six primary goals:

1. Reduce Health Inequalities
2. Improve Productivity & Efficiency
3. Increase Diagnostic Capacity & Activity
4. Improve Patient Experience
5. Support Care Integration
6. Improve Population Health Outcomes

The three steps proposed by this paper specifically address these goals. They are as follows:

- Strategically plan for distributed centres that provide equitable access to communities
- Build and equip each centre to be highly efficient and patient-friendly
- Integrate and standardize care across the whole network

Introduction

We need a sustainable solution to achieve healthcare standards

Delayed diagnosis not only negatively impacts patient experience, but it also leads to poorer patient outcomes and higher financial burden.

30%

of patients had been waiting six weeks or more for a diagnostic test

60%

of patients in Britain are frustrated from having to wait for medical appointments

42%

of patients say having easier access to appointments would encourage them to get screened

Contemporary hospitals and healthcare systems are struggling to meet widely-held standards for patient care. For example, the National Health Service (NHS) in England has stated that fewer than 1% of people should have to wait more than six weeks for a diagnostic test. That target has not been met since 2013.[1] With the additional backlog caused by the COVID-19 pandemic, the situation is worsening. As of January 2022, 30% of patients had been waiting six weeks or more for a diagnostic test.[2]

A more sustainable solution is urgently needed, as failing to meet these standards negatively affects a hospital's financial management, and even more importantly it negatively affects patient outcomes.

According to the Office for National Statistics in England, more than 55% of patients diagnosed with Stage 1 lung cancer will survive for 5 years or more after diagnosis, whereas only 5% will survive for 5 years or more if they are diagnosed with Stage 4 lung cancer.[3] Furthermore, costs associated with the management of cancer also increase substantially when the cancer is more advanced. For example, treating patients with Stage 1 lung cancer costs £6,000 per month, whereas treating Stage 4 lung cancer costs on average £18,000 per month.[4]

Little wonder, then, that patients are getting ever more frustrated. A Siemens Healthineers report shows that 60% of patients in Britain are frustrated at having to wait for medical appointments and 42% say having easier access to appointments would encourage them to get screened.[5]

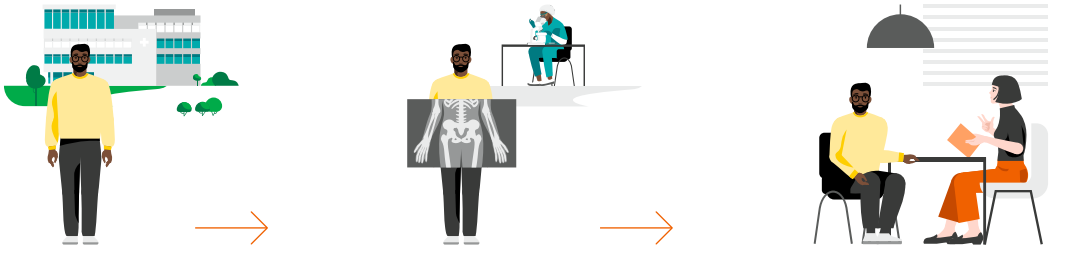
The pressure to improve access to care has helped launch a global trend towards networked or decentralized care, as seen in England in the development of Community Diagnostic Centres, which is based on the belief that care does not necessarily have to take place in an acute hospital setting. Patients are becoming more cautious about the risk of infection, and are much more accepting of alternatives such as telehealth. This challenges the status quo and forces us to ask two very important questions: How can we separate complex care from high-volume less complex care? And how can we make sure that acute patients get the care they need without delay, and that those seeking routine care can get their tests done as scheduled? The tension that exists between the differing needs of these two groups gives us an opportunity to rethink the way care can be delivered.

In October 2020, Professor Sir Mike Richards, who is the current chair of the UK National Screening Committee, published a landmark report called Diagnostics: Recovery and Renewal.[6] In that report he shared his vision for solving healthcare accessability issues by separating acute care from elective diagnostics. The vision was to provide highly productive elective diagnostic procedures for cancer, cardiac, respiratory and other conditions in a setting patients feel safe visiting, thereby also removing pressure from acute services. This would also result in efficiency gains through:

- Bulk buying of imaging equipment
- Automating pre-reading in imaging
- Reduced installation costs in non-acute sites
- Avoidance of duplication of imaging
- Efficiencies of patient throughput
- Skill-mix initiatives
- Significant reduction in acute admissions and lengths of stay

Sir Mike's vision is now being realized through a national program that has established what are called Community Diagnostic Centres (CDCs).

The Community Diagnostic Centres
The Basic Concept



The challenge

The six primary aims of CDCs:

Reduce Health Inequalities

Improve Productivity & Efficiency

Increase Diagnostic Capacity & Activity

Improve Patient Experience

Support Care Integration

Improve Population Health Outcomes

Benefits of Community Diagnostic Centres

- Staff development & job satisfaction
- Health promotion
- Make every contact count
- Social value
- Quality improvement
- Shared health system learning
- Research & innovation
- Increase productivity & efficiency

In 2021, the UK government made a significant commitment of £2.3 billion to help increase the volume of diagnostic activity in the country, and reduce patient waiting times. The goal is to roll out as many as 165 CDCs over the next few years to help clear backlogs of people waiting for tests such as MRIs, ultrasounds and CT scans. It seems clear, that the success of the CDC program in delivering on its ambitious promise to improve access to care in the UK will depend on addressing six primary goals of CDCs. These are:

1. Reduce Health Inequalities
2. Improve Productivity & Efficiency
3. Increase Diagnostic Capacity & Activity
4. Improve Patient Experience
5. Support Care Integratio
6. Improve Population Health Outcomes

This paper proposes three steps to address these aims while implementing CDCs in local communities:

1. Strategically plan for distributed centres that provide equitable access for the communities

2. Build and equip each centre to be highly efficient and patient-friendly

3. Integrate and standardize care across the whole network

The solution

Planning

1 Strategically plan for distributed centres that provide equitable access for communities

There are several questions that need to be answered when considering how to meet the numerous and diverse needs of specific populations:

- **Who** are the people the CDC is serving? What is the demographic and socio-cultural background of the patients? Factors such as age distribution of the population will serve as a guide to determine whether a centre needs to offer special services to address—geriatric needs being a good example. It is also important to know the prevalence of certain diseases, and what the trends and referral patterns of imaging tests might be.

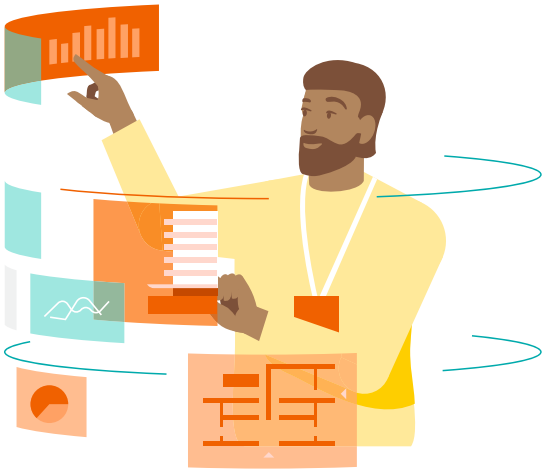
- **What** services should the CDC be offering? By studying specific local demographics, it is now possible for planners to prioritize the strategic goals of a CDC. How broad a diagnostic centre does it need to be? Should this CDC provide any additional specialty diagnostic testing such as mammography? Will it have a focus on women's health, or will it be a one-stop diagnostic centre for cancer, cardiac, or diabetes? Are there other specific local needs? Will it be able to adapt to future needs, for example extend screening programs to lung cancer? The answers to these questions guide decisions on what kind of equipment to acquire.

- **Where** should this centre be? Maximizing outreach to patients means more than just locating the CDC close to the community. It also needs to be convenient and easy to access, and affordable for patients to travel to. A traffic pattern analysis can yield insights into accessibility by car or public transportation, describe parking availability, and help determine the most patient-friendly location for the CDC. A social deprivation analysis can also yield insights into where the most vulnerable communities live, because they should be prioritized for better access to care.

- **How** to differentiate the service? An analysis of the current players in the local market also allows the CDC to fill existing gaps, thereby meeting the needs of local patients. For example, a competitive analysis might point to diagnostic tests that are not yet offered by other market players, but which are needed by the community. It might even be something as simple as offering different opening hours in order to increase accessibility of care.

Consulting experts can provide useful answers to these questions. Based on community priorities, Integrated Care Systems (ICSs) may develop CDCs on a scale ranging from standard to large models. An ICS may choose to adapt an existing building or property, develop a new facility, or take an incremental hybrid approach starting with modular, relocatable or mobile scanning and support trailer solutions.

A project of this complexity can also benefit from visualizing the building with 3D, 4D, and virtual reality modelling. Creating a digital twin of the planned CDC should be considered—one that allows for virtual workflow simulation that takes in all essential planning elements such as patient pathways, staff scheduling and movements, utilization and performance data from diagnostic equipment, as well as other data sources—in order to build a dynamic and comprehensive model. This would make it possible to predict the impact of operational changes in a protected and virtual 3D environment, by forecasting processes and layouts. In addition, workflow simulation can be used to conduct virtual stress tests to examine the robustness of operations and overall preparedness for increased patient volumes, more complex patients, and staff shortages. These models can also aid in the selection of facilities, including ones that require staggered implementation paths, as some projects may not be newly built but may instead be developed in an existing facility. Predicting operational and financial impact upfront can optimize efficiency and ensure satisfaction of both patients and staff before committing to "real world" actions.



Case study: Mater Private Hospital, Ireland[7]

Mater Private Hospital in Dublin is one of Ireland's leading institutions for radiology and cardiac care. In order to meet an increasing demand for services, the leadership decided to update the hospital's imaging fleet and maximize efficiencies in departmental workflows. The team at Mater Private Hospital partnered with Siemens Healthineers to create a digital twin of the radiology department after conducting a one-week on-site assessment.

Professor Paddy Gilligan, chief physicist at Mater Private, said that the four-dimensional view of the department unearthed heretofore hidden insights. "We verified data at every step to be sure it was realistic," he explained. "Once the model was available, we could run scenarios and see the value-add to changes we were considering. We could also see the impact that changes to layout and operations have on other parts of the hospital. Improvements that previously took months or years of trial and error can now be achieved in a matter of days or weeks."

The digital twin project resulted in the building of two additional day hospitals, which are outpatient facilities where patients go to for assessment or treatment. Some of the additional potential benefits identified thanks to Mater Private's digital twin included:

- Shorter wait times for patients—a reduction of 13 minutes for CT scans and 25 minutes for MRIs.
- Increased equipment utilization—MRI usage went up by 32 percent and CT usage went up by 26 percent.
- Lower staffing costs, including 50 fewer minutes of MRI overtime pay per day.

Perhaps the most important potential benefit to the partnership will be to improve patient experience. Long wait times is one of the key factors that is tied to dissatisfaction in patient experience.[8] The Mater Private digital twin shows how much time patients will spend at each stage of their journey through radiology. This helps to identify potential areas for workflow improvement and opportunities for optimizing patient experience.

This case study corresponds to "Planning".

"The work of these diagnostic centres, some in convenient spots including shopping centres, are excellent examples of the innovative work being done across the health service to ensure patients get the tests and checks they need as quickly as possible.[9]"

Sir James Mackey
Chief Executive and National Director of Elective Recovery for the Elective Programme, NHS

Building and equipping

2 Build and equip each centre to be highly efficient and patient-friendly

As high-volume, non-acute and elective diagnostic exams are channeled to the CDCs, these centres need to be highly efficient to accommodate ever-increasing demand while maintaining patient experience as a priority. During the building phase, using modern, cost-optimized construction methods and a standard design platform can not only ensure that a CDC is built in an efficient and affordable way, it can also be built to accommodate future expansion thanks to its flexible and scalable working space.

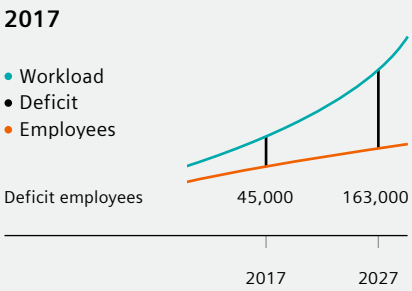
Demographic and disease prevalence analysis will guide the decisions on which specific equipment is needed, but typically a CDC is equipped with MRI, CT, ultrasound, and point-of-care (POC) testing equipment. In larger models, there may also be additional facilities for endoscopy, ophthalmology, phlebotomy or training academies.

Given that CDCs usually do not have as large a footprint as hospitals, but at the same time still need to accommodate a range of patient needs, the ideal MRI and CT solutions have compact footprints, are easy to install, are low dose and affordable, and have the ability to perform a broad range of routine and advanced diagnostic scanning. Systems suitable for the CDC will be ones that accommodate many different types of patients, and have a range of applications for performing radiology scans, echocardiograms, women's health exams, etc. In England, making mammography available in CDCs is being actively considered. A patient-centric imaging workflow analysis can design a medical imaging department based on specific clinical and business requirements, decreasing operational cost, increasing efficiency, and maintaining a high standard of quality of care.

Artificial Intelligence (AI) can play a key role in improving diagnostic efficiency. For example, AI-powered algorithms can provide automatic post-processing of imaging datasets. By automating routine workflows, such as highlighting abnormalities, segmenting anatomies, and comparing results to reference values, it saves time by reducing the burden on staff of repetitive tasks and giving them the detailed data they need to make informed decisions at any time, across all centres.

This is especially important in an elective diagnostics environment, where patients may often present with smaller lesions that are more difficult to detect. By automatically segmenting, detecting and quantifying lesions, AI raises precision and ensures a high quality outcome. Furthermore, recent studies have shown that this AI technology enables less experienced radiologists to provide the same level of quality as their more experienced colleagues.[10] This kind of efficiency not only improves workforce productivity, it also increases patient satisfaction because patients can receive their results in the same day. This can accelerate treatment decisions and eliminate unnecessary travel.

Hospitals are increasingly understaffed



Workforce demand-supply gap grows every year by **14%**

Increasing demand
Workload +2.7% p.a.

Flattening resources
Employees +1.2% p.a.

** Based on a draft health and care workforce strategy for England to 2027*

Point-of-care (POC) testing also plays a key role in the fast turnaround of diagnostic results in the CDC setting. Managing the many POCT systems that are located in different parts of the network could be a challenge. A local system POCT data aggregator that allows users to monitor all POCT devices centrally could simplify workflow and reduce workload of staff. It can collect and review all patient results, quality controls, operators, reagents, and device data in a clear and structured format, making it easier to comply with regulatory guidelines. It also increases efficiency by allowing users to access POC data from across the healthcare continuum, thereby reducing errors and improving operator tracking.

"The hospital of the future is not a hospital, it's a health system. A system that puts the patient at the center, a system designed to keep people healthy and not only treat them when they are sick. It's an integrated system that delivers care where people are, in the community or at home. A system where success means that hospital beds are empty, not full."

Ghada Trotabas, PhD
Executive Vice President, Managing Director of Great Britain and Ireland, Siemens Healthineers

Such investments in equipment do, however, require considerable financial investment. Value Partnerships, which are long-term, performance-oriented, collaborative engagements, offer various financial models to support an institution's specific strategic goals. Many healthcare providers are looking to unlock "frozen" capital by shifting medical infrastructure investments from one-time capital outflows to financial arrangements that are more aligned with their projected revenue streams. A number of innovative business and financing models have been developed to allow healthcare providers to do this, while also retaining flexibility to upgrade technology and reduce financial risks. These include unitary payment models, by which capital investments and service fees are rolled into a regular flat fee, or pay-per-use models, where payment is made with every scan, test or report. For those who want more flexibility, another option to explore would be a subscription model or performance-sharing model, where payment is tied to predefined key performance indicators.

Case study: Worcestershire Acute Hospitals, United Kingdom[11]

The Worcestershire Acute Hospitals NHS Trust engaged with Siemens Healthineers in a Value Partnership to collaborate and provide Technology Management services. This private finance initiative contract covers approximately 27,000 assets and runs until 2031. From the start, it has included the supply, replacement, and maintenance of all medical imaging technology.

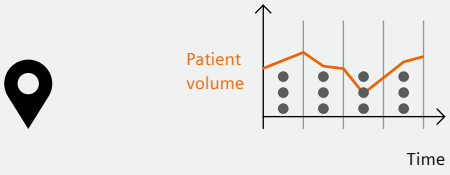
Since the start of the partnership with Siemens Healthineers, technology uptime has significantly improved. Cost savings on technology replacement and repairs have also been significant, as have improvements to device specifications and the time saved for managing the devices.

Under this partnership, replacements are provided very quickly and the vetting time for radiology requests has been reduced from 40 to 17 hours, while CT "did-not-attends" have been reduced by 35%. In addition, the trust has seen improved planning and efficiency in procurement, increased quality, and reduced costs.

This case study corresponds to "Building and Equipping".

Innovative financial models for CDC investment

Unitary payment model

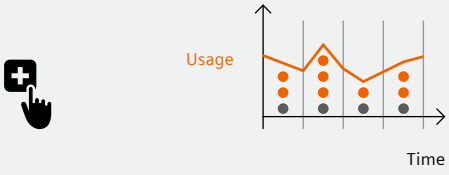


What is it?
Capital investment and service fees rolled up in a regular flat fee

Who is it for?
Providers seeking long-term, predictable and fixed payments to have stable cashflows

Key advantages
- Financial stability/predictability
- Simplified vendor relationships
- Partnership with a leader in technology management

Pay-per-use model

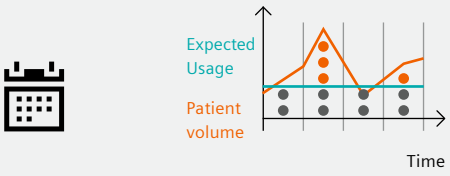


What is it?
Payment per scan/test/report

Who is it for?
Providers who prefer a balanced cashflow and are seeking a partner who partly takes over utilization risk

Key advantages
- Avoids up-front capital expense
- Allows alignments of cashflows
- Partnership with a leader in technology management

Subscription model

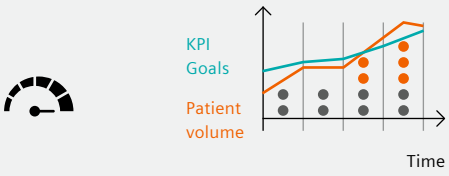


What is it?
Fixed payment for specified volume & carriable payments for overage fees at agreed-upon rates

Who is it for?
Providers who want to combine flexibility and stability

Key advantages
- Helps optimize cashflows
- May include guaranteed access to innovations at no additional software and support fee
- Partnership with a leader in technology management

Performance-sharing model



What is it?
Arrangement that ties payment to predefined key performance indicators

Who is it for?
Providers seeking partners for ambitious quality and efficiency goals

Key advantages
- Having "skin in the game" ensures that partners work to continually improve performance and share operational risks
- Partnership with a leader in technology management

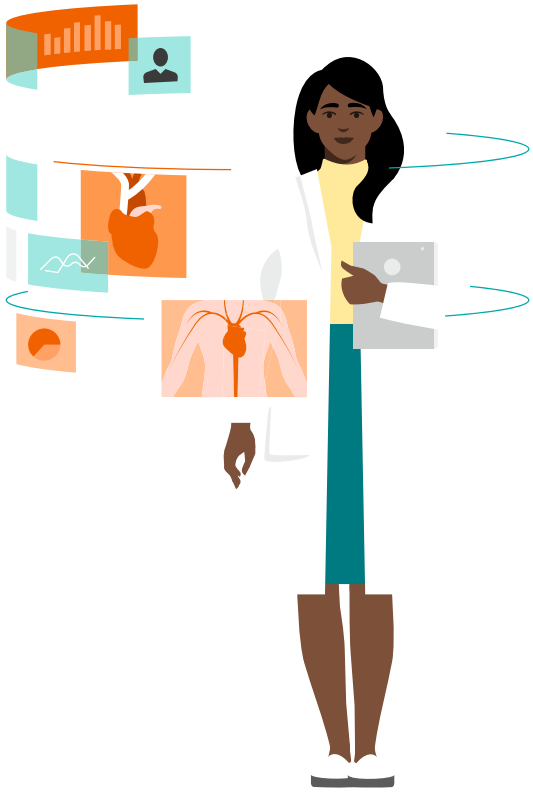
Integrating and standardizing

3 Integrate and standardize care across the whole network

When CDCs work together to meet the needs of local populations, the result is integrated care that improves outcomes for patients. To create synergies, these highly efficient centres can integrate care through sharing critical data such as electronic health records. This can be done digitally, across the whole network, through a vendor-neutral platform that enables standardization and supports seamless interoperability across departments and institutions.

Standardizing care across networks can minimize the risk of errors, increase patient safety, and ultimately improve patient experience. AI-powered solutions that provide automatic post-processing of imaging datasets are, as mentioned earlier, one way to minimize variations in imaging interpretations between different technologists, and ensure reproducibility.

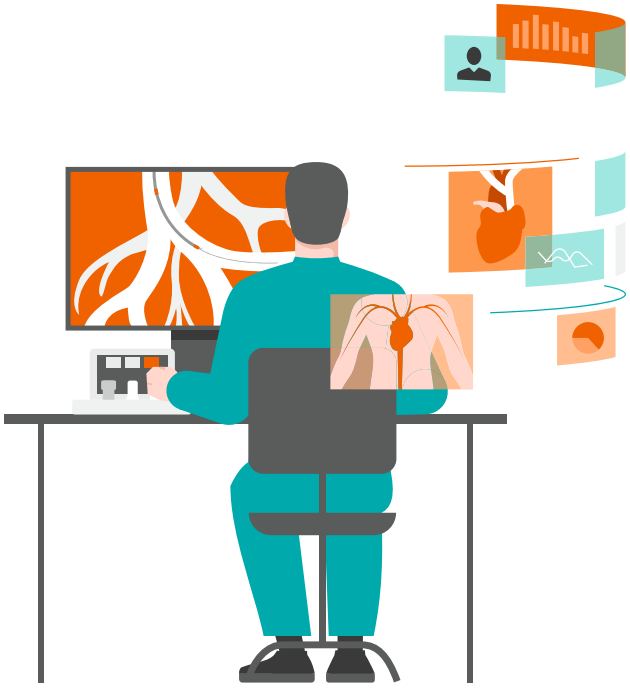
Another way to achieve standardization is to have a centralized monitoring of processes and usages. A dashboard that delivers deep performance insights can help to optimize workflow and resource utilization across the network. For example, it can ensure transparency and monitor dose usage, allowing personnel to take deep dives into dosing data so they better understand the reasons behind any outliers. They can then decide on what measures should be taken to remedy them, so that doses can be kept as low as is reasonably achievable. A utilization dashboard can also provide a clear overview of equipment data so that CDCs can maintain and optimize asset performance, for example identifying busy "peak" times when more staff is needed to keep things moving smoothly. Digital tools such as protocol management software can keep track of recent protocol changes and improvements, spot deviations, and identify best-practice scan protocols for imaging devices and use them to optimize radiology workflow across the network.



"The future for our remote scanning capabilities here at Geisinger are endless. We'd love to be able to offer 24/7 coverage 365 days a year to provide more of those advanced scans to more patients within our communities."

Sean Szmal
Operations Director Radiology

These centres can also support each other by sharing expertise. For example, in radiology, remote scanning technology allows medical staff to connect with and assist personnel who are at different locations. The expert technologists can support complex procedures remotely, eliminating the need for travel between sites and making it easier to manage bottlenecks. It also simplifies training support of less-experienced technologists, allowing all centres to offer the same high-quality services. Vendors with broad training portfolios can provide self-guided simulated online training programs to get staff ready before equipment arrives, and training programs across different sites can be standardized and regularly disseminated to relevant employees.



Case study: Geisinger Health System, United States[12]

Geisinger Health System's administrators set equitable access to care across their network as a primary goal. For many health systems, patient access to consistent, high-quality care across rural and urban areas can be challenging for several reasons: long distances between patients and the care they need, and difficulties attracting and retaining staff.

To improve access to care in radiology, Geisinger Health System turned to *syngo* Virtual Cockpit. With its remote scanning functionality, this technology provides virtual access to expert radiologic technologists by connecting 15 scanners at all 12 radiology facilities in the Geisinger network.

Scans and protocols are now managed from their Virtual Operations Center in Danville, which allows for higher consistency. In addition, *syngo* Virtual Cockpit helps balance staff availability to cover for sick or vacationing technologists. In just six months, Geisinger sees a 40% of scanning volume increase due to this added efficiency, and younger staff can be trained remotely and have access to more senior staff at any time.

This case study corresponds to "Integrating and standardizing".

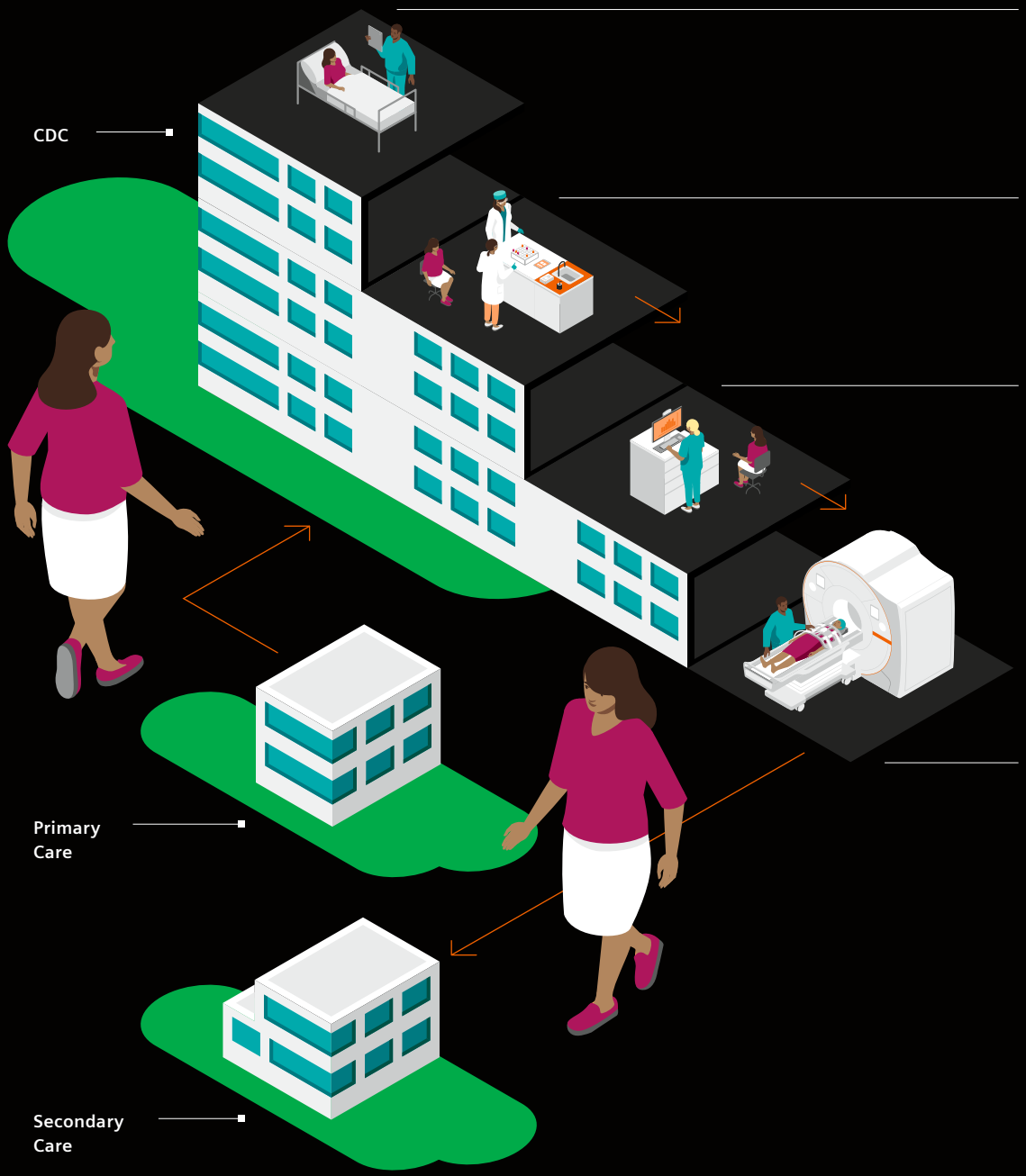
A connected system with CDC: Example of a patient's care journey

The patient Mary experiences concerning cardiopulmonary symptoms, attends a healthcare appointment and is advised she needs a series of tests.

Mary is pleased to be advised that all her tests can be carried out at her local CDC. The booking service is easy, offering a range of appointment times and accommodates her tests in a minimal number of visits. Mary arrives at the CDC and has an initial clinical consultation. She is reminded of the imaging, physiological and blood tests she is about to receive and is reassured by clear advice about the process after her test results are available.

Imaging is supported by remote scanning assistance and image interpretation by AI tools. All of Mary's data is then aggregated into a common interface and accessible to all clinicians involved in her care. All of Mary's tests are carried out and when she sees her clinician again, all of the test results are available. Mary's clinician then advises her about options and provides an onward referral to start treatment.

Using intelligent access portals, the CDC is connected to the wider healthcare network, optimizing the care pathway.



Conclusion

Community Diagnostic Centres have the potential to tackle some of the major challenges facing healthcare, particularly growing backlogs and long patient wait times. They can be effective contributors to patient care in local communities, particularly with regard to the delivery of sustainable diagnostic and elective care services.

Every Community Diagnostic Centre will be unique and will be influenced by different integrated care systems and local patient pathway requirements. Planning, building, equipping, and integrating care across a CDC network is a complex project which requires a wide range of technology, equipment, consulting, finance, building, and digital expertise.

A connected yet decentralized network of healthcare centres such as the CDCs makes it convenient for patients to get the care they need to stay healthy, while allowing specialized hospitals to focus on providing answers to the more acute, challenging cases. They ensure better population health outcomes, improve the patient experience, and reduce health inequalities. They are a good example of how healthcare systems can meet patients where they are by making care more available, affordable, and accepted by the population being served.

Suggested follow-up on

siemens-healthineers.com/insights

- Siemens Healthineers Insights paper issue 28: Frictionless healthcare: why it matters; how to get there.
  Available at: **siemens-healthineers.com/insights/news/frictionless-healthcare**
- Siemens Healthineers Insights paper issue 39: Three-dimensional healthcare: a frictionless care experience.
  Available at: **siemens-healthineers.com/insights/news/frictionless-care-experience**

For further information about **Community Diagnostic Centres**, please visit: **siemens-healthineers.co.uk/cdc**

Information:

The Siemens Healthineers Insights Series is our preeminent thought leadership platform, drawing on the knowledge and experience of some of the world's most respected healthcare leaders and innovators. It explores emerging issues and provides practical solutions to today's most pressing healthcare challenges.

All issues of the Insights Series can be found here: **siemens-healthineers.com/insights-series**

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Joanne Grau focuses on current trends and thought leadership content for Achieving operational excellence. Prior to this role, Joanne has had ten years of marketing experience in Siemens Healthineers for Digitalizing Healthcare, as a marketing director for the diagnostics division based in New York and as Head of Marketing for ASEAN countries based in Singapore. Joanne graduated from UCLA with a degree in Molecular, Cell, and Developmental biology. Before joining Siemens Healthineers, Joanne was a research scientist in Quest Diagnostics (formerly Celera) and has authored multiple publications. Joanne is also currently a faculty member in Union University of California.

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Christina Triantafyllou, PhD, is Head of Transforming the system of care at Siemens Healthineers and engages in thought leadership content and portfolio-related activities. Prior to that she and her team were looking into Improving the patient experience. Christina began her healthcare career at Harvard Medical School, Boston, U.S., then continuing in the Brain and Cognitive Sciences Department at MIT, Boston, finally moving into industry at Siemens Healthineers, Germany. Here, she served as the Director of Global Ultra-High Field MRI Solutions, focusing on business strategy, KOL-based collaborations in innovation/clinical translation, and product management for the first worldwide clinical 7T MRI system. Christina holds a PhD in Medical Physics from King's College, University of London, UK.

Andre Steinbuss
Head of Achieving operational excellence
Siemens Healthineers

André Steinbuss and his team engage in thought leadership and portfolio-related activities for Achieving operational excellence. Previously, Andre spent almost ten years in various positions in marketing with a focus on Digitalizing Healthcare and diagnostic imaging at Siemens Healthineers. Andre graduated in medical technology engineering at the University of Applied Sciences in Luebeck. Before joining marketing, he spent ten years in research and development in the hearing instrument business of Siemens. During this time, he has authored multiple patents and publications.

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* *The MR image of the brain, that is part of the coverimage, is courtesy of Friedrich-Alexander-University Erlangen Nürnberg (FAU), Erlangen, Germany.*

At Siemens Healthineers, we pioneer breakthroughs in healthcare. For everyone. Everywhere. By constantly bringing breakthrough innovations to market, we enable healthcare professionals in innovating personalized care, achieving operational excellence, and transforming the system of care. Our portfolio, spanning from in-vitro and in-vivo diagnostics to image-guided therapy and innovative cancer care, is crucial for clinical decision-making and treatment pathways.

Built on a history of innovation going back more than 125 years and with unique strengths in patient twinning, precision therapy, as well as digital, data, and artificial intelligence (AI), we are well positioned to take on the biggest challenges in healthcare. We will continue to build on these strengths to help fight the world's most threatening diseases, improving the quality of outcomes, and enabling access to care.

As a leader in the industry, we aspire to create better outcomes and experiences for patients no matter where they live or what health issues they are facing. We innovate sustainably to develop scalable solutions that can be tailored to the needs of healthcare providers, and the local health infrastructures.

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