IQVIA™
INSTITUTE
FOR HUMAN DATA SCIENCE

Advancing Health Outcomes through Home Healthcare

BRINGING THE HOME-BASED HEALTHCARE TRANSFORMATION TO SCALE

Proceedings from the Human Data Science Lab

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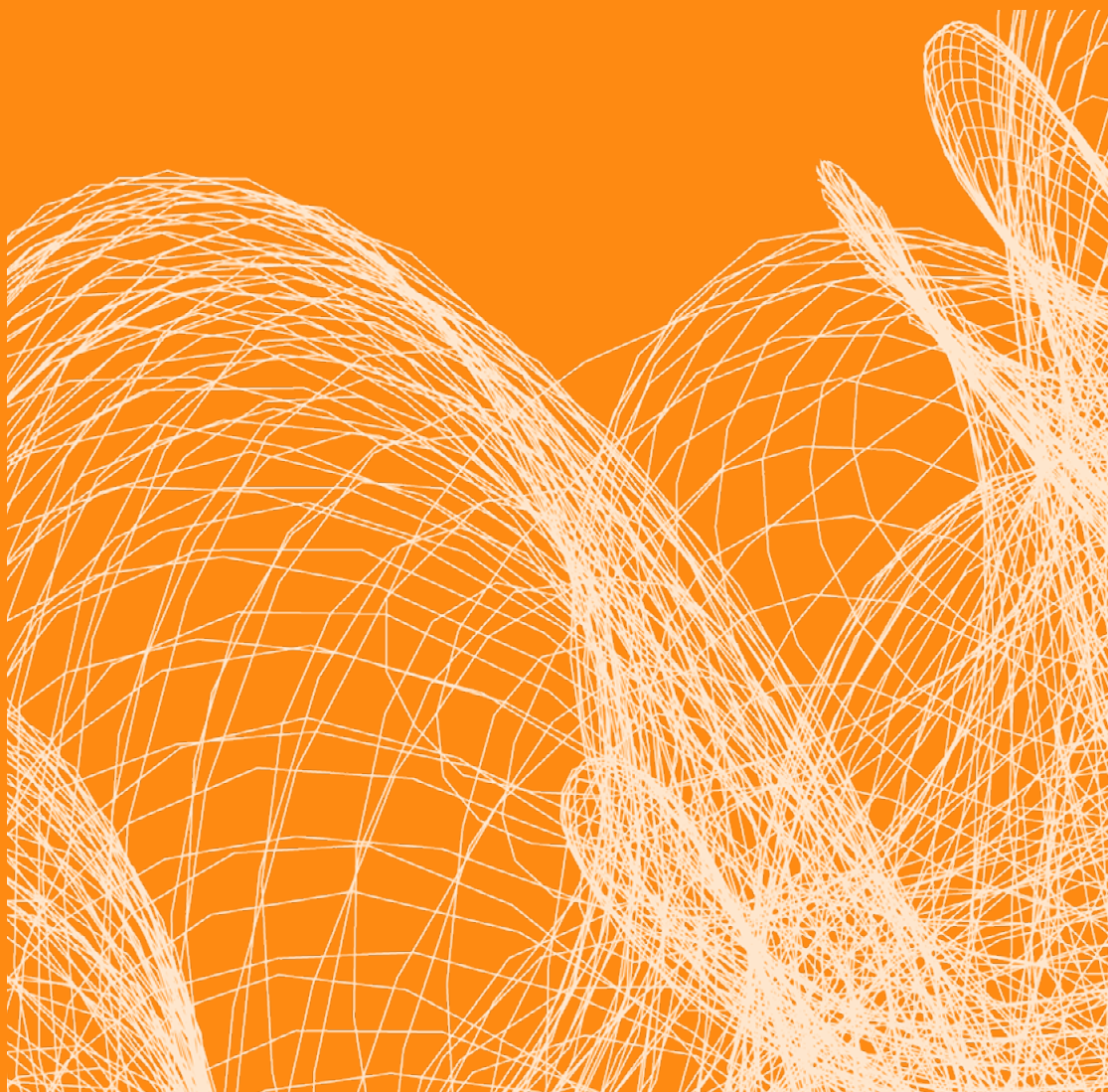

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Introduction

The transformation toward home-based healthcare is happening with increased speed, driven by evidence of improved outcomes, reduced costs, and increased patient satisfaction, enabled by digital technology, and fueled by the COVID-19 pandemic. A growing number of new and established organizations have been launched and are scaling models to move primary, acute, and palliative care to the home. For frail and vulnerable patients, home-based care can prevent or delay more expensive care in hospitals and other institutional settings. For people with chronic disease, home-based virtual care represents a convenient alternative to hospital-based care and physician-office visits. Home healthcare has also been given renewed political interest with the Biden administration's new infrastructure plan.

However, there are substantial challenges that impede a larger scale expansion of home healthcare, including limitations in evidence about clinical and patient benefits as well as regulatory, financial, organizational, cultural, and behavioral barriers. Accelerating the paths toward a more robust home healthcare sector as part of a connected healthcare eco-system will require new thinking and radical collaboration.

To explore the evidence and paths for transforming care toward home health and discuss the benefits and challenges around home health services, the IQVIA Institute for Human Data Science convened a virtual, multidisciplinary panel of 12 experts from relevant fields – academic research, clinical medicine, home care, health policy, health insurance, patient advocacy, health economy, and the life sciences industry – to discuss these topics, incubate new ideas, and consider new approaches for research and collaboration to advance home health.

This paper summarizes the highlights from the lively and inspiring discussion about the rapidly evolving home healthcare space.

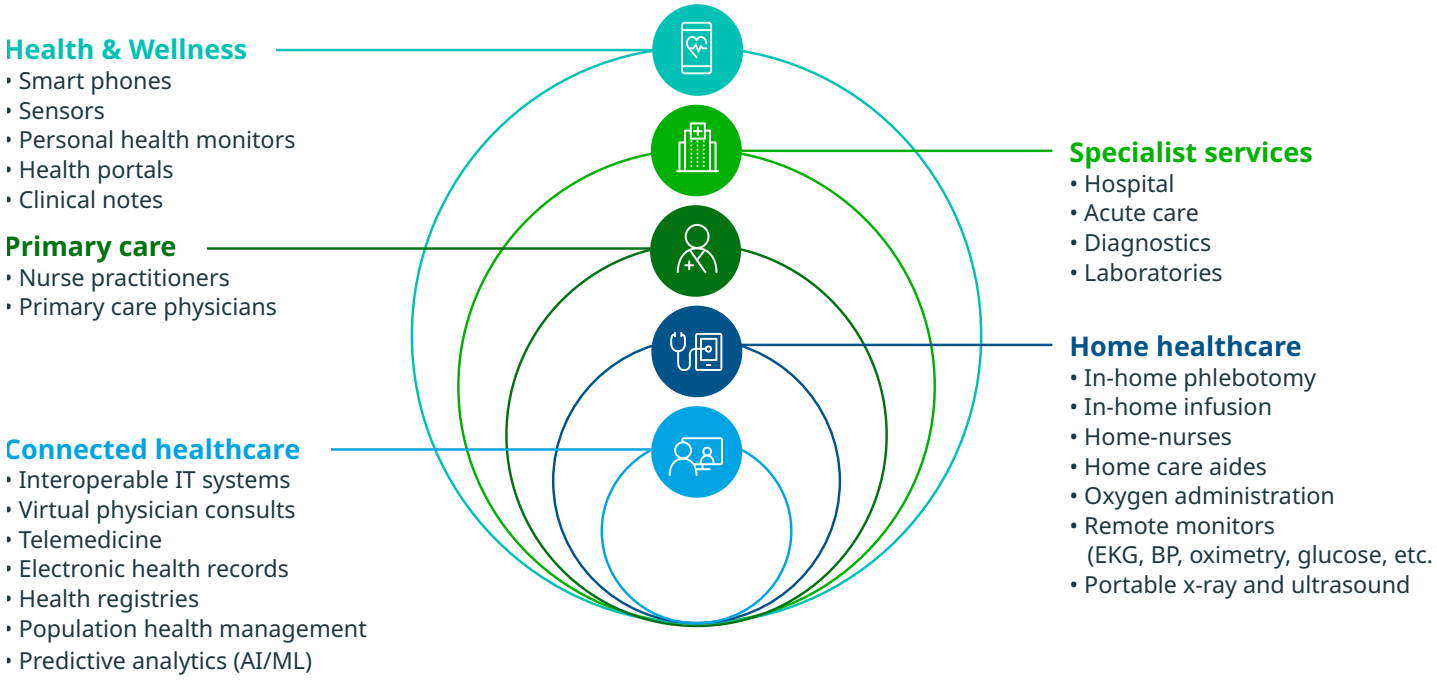
1. Home Healthcare in the Connected Healthcare System

The discussion during the Lab session took as its vantage point a broad understanding of home healthcare, looking at home care in the context of the broader health eco-system, not just as a traditional home healthcare service.

Furthermore, when considering the transition of healthcare services from institutional settings - the hospital or the nursing home - to the home, the idea is not to create a new silo by simply moving people from an institution to the home. The goal is to create the personal home as a foundation in a connected health ecosystem that uses technology and remote patient management services to provide a holistic, connected service for the individual and supporting family and caregivers. This also means thinking about the home as the setting for providing in-home patient support and services, whether clinical nurse educators or in-home administration of therapies. The future may also increasingly mean that primary care physicians and other office-based healthcare professionals will be making home visits, similar to what family physicians did with house visits 200 years ago.

While the home is the foundation, the future of healthcare will increasingly entail the delivery of services and care anywhere, any time, whenever the patient needs it – on the go, at work or travelling. The new model of care is connected, facilitated by digital technologies, and supported by multidisciplinary professional teams around the individual.

Figure 1: Home Healthcare in the Connected Healthcare System



2. The Transformation of the Home Healthcare Sector

The home healthcare space is undergoing rapid transformation and is growing.

According to the latest 2019 report on overall health consumption expenditures, out of a total spending of $3.2 trillion, $113 billion or 3% is now spent on home healthcare.[1] However, this is based on a narrow definition of home healthcare focused specifically on the delivery of skilled nursing care in the home, and does not take into account the broader approach to home healthcare that is expanding both in terms of target populations and the types of services provided.

The approach to home healthcare is changing and being driven by several factors:

- **Telehealth**: Telehealth is one of the key drivers and has been growing since 2015, long before the arrival of COVID-19, particularly in tele-mental health. Telehealth further expanded during the pandemic, with many people accessing care from the home using virtual health platforms, in particular for psychiatry, psychology, social work, and pain medicine.
- **Post-acute care:** While hospitalizations rebounded since the beginning of the pandemic, the pattern for discharge is changing. More and more people are being sent home right after hospitalization and not to skilled nursing facilities, while others are going home with the support of home health services.

- **People with complex needs:** Many people using home-based services have complex needs with five or more chronic conditions that require support. The trend may be that people with fewer chronic conditions also should be able to get home-based services.

There are some promising trends that will likely lead to continued growth in home-based care:

- **Medicare Advantage flexibility:** Enrollment in Medicare Advantage has increased so that nearly 40% of all Medicare beneficiaries are now enrolled in a Medicare Advantage plan, which fundamentally changes the rules around reimbursement. When people are enrolled in a capitated plan, services can be provided without a point-of-service, fee-for-service reimbursement plan. The more people are covered by capitated insurance plans, the more flexibility is created for providers to deliver more innovative care in different locations. Medicare Advantage plans are now also permitted to offer supplemental services, such as non-medical home care and community-based palliative care.
- **Medicaid transition:** A transition is happening with Medicaid, with 40 states now using capitated managed care models to deliver services, which also includes home care services.
- **Private health insurance:** A similar trend is taking place with privately funded health plans, with changes in value-based insurance design promoted through federal legislation and the Affordable Care Act as well as Tricare, the military healthcare plan. States are also changing their insurance plans through the help of the Center for Medicare and Medicaid Innovation (CMMI), and states are now taking a leading role in trying to convert their employees to enrollment in value-based insurance plans.
- **Employers:** At a smaller scale, some companies are also leading the way in trying to switch their approach to value-based insurance and moving away from the fee-for-service mindset.
- **Growth in hospital at home:** Expansive growth is taking place in hospital at home models through the expansion of accountable care organizations (ACOs) and the interest of multiple payers, including CMS.
- **Patients are changing:** Another promising trend is that patients are changing. Traditionally, home healthcare has been focused on the elderly or the frail, but the elderly population is fundamentally changing. We have moved from nobody having Internet at home to a situation where 85% of the 65-year plus population has Internet access from their home, and 77% of people age 50 and above now have smartphones.[2]

There is limited data on the potential size of the home healthcare market if all remaining barriers to growth were removed. McKinsey did an analysis of five different models of non-acute care types that could be provided at home using telehealth, estimating that approximately $250 billion or 20% of Medicare, Medicaid and commercial care visits quite easily could be provided in the home.[3]

"There are many promising trends in the transformation toward healthcare in the home. The sector is growing due to multiple factors, including changes in Medicare and Medicaid policies, value-based reimbursement models and patients increasingly using telehealth."

Norma B. Coe, PhD,
Associate Professor,University of Pennsylvania

3. New Models for Extending Healthcare in the Home

There are many new models where healthcare provider systems and payers are extending their services in outpatient care and into people's homes.

One of the forerunners in this space is the Mount Sinai Hospital at Home, which the New York Health System established in 2014 with its new Mobile Acute Care Team to shift the emphasis from hospital stays toward preventive care, ambulatory care, and home-based care. The Mobile Acute Care Team was launched as a pilot program of healthcare delivery for acutely ill patients that replicates the services they would have received in the hospital, right in their own home.[4]

A study of Mount Sinai's Hospital at Home program with 507 participants found that compared with patients receiving inpatient care, patients receiving hospital-at-home care had shorter lengths of stay, lower rates of 30-day hospital readmission, emergency department visits, and skilled nursing facility admissions, and better ratings of care. There were no differences in the rates of adverse events.[5]

A new, disruptive model in home healthcare delivery is represented by Humana's acquisition of Kindred at Home, the nation's largest home health provider. Humana recently announced an agreement to acquire the remaining 60% interest in Kindred at Home, accelerating the integration of the home health provider into Humana's payer-agnostic healthcare services platform.[6]

The acquisition reflects Humana's continued commitment to investing in home-based clinical solutions that drive improved patient outcomes, increased satisfaction for patients and providers, and value for health plan partners. Kindred at Home's home health business will be integrated into Humana's Home Solutions business.

Fully integrating home health allows Humana to accelerate clinical innovation and the introduction of a value-based operating model at scale, more closely aligning incentives to focus on improving patient outcomes and reducing the total cost of care.

For Humana, the acquisition of Kindred at Home is just the first step. The second step will be focused on extending other clinic or facility based services to the home and finding new ways to deliver that care by significantly incorporating technology — this includes investments in home-based primary care, home-based urgent and emergent care, hospital at home, and skilled nursing facility level care at home.

> *"At the broad level, we think the home is the next frontier in healthcare. We think there is a tremendous amount of value in home care, from a convenience perspective, from providing broad access to folks who would otherwise not be able to reach care, to the additional information we gather. We see value, whether that is from remote monitoring and ambient sensors to direct human observation of some of the social determinant challenges that you don't get to see in the physician's office."*
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> Gregory Sheff, MD, Chief Medical Officer, Home Solutions, Humana

4. Challenges and Hurdles for Large Scale Adoption of Home Healthcare

There are several challenges for a broader adoption of healthcare at home:

- **Financing and reimbursement:** One of the biggest challenges is financing and reimbursement. With the exception of the COVID-19 public health emergency, Medicare restricts coverage for healthcare in the home to homebound individuals who meet specific other criteria. These restrictions should be relaxed so that coverage can be provided to broader segments of people who can benefit from services in their home.
- **Terminology and language:** The traditional language around home healthcare tends to classify care as long-term care for the elderly and frail who are homebound or to those in post-acute rehab. Therefore, a new vernacular is required to articulate home healthcare as care in the home that expresses the value of the delivery of a broader set of services in the home setting and care services that extend to broader populations of people with chronic and complex conditions that will benefit from care in the home.
- **Measuring quality:** The measurement of the quality of care is a major issue, and development and implementation of quality measures for care in the home will be critical for reducing regulatory and financial limitations. This would entail considerations about additional types of measurements, including the use of patient reported outcome measures and reporting from care partners and family caregivers. It would also include considerations about extended reimbursement for care in home services validated through quality measures and metrics for reduced costs.

"Home care is under-appreciated as an opportunity for those living with a chronic disease at a younger age. And it should not be limited to advanced disease stages, as it could provide value to track disease real-time in the home using digital tools. It is in the earlier stages of a disease that we could really make a meaningful impact."

Gregory Sheff, MD, Chief Medical Officer, Home Solutions, Humana

"We have probably 30,000 homecare agencies across the country exclusively providing personal care in the home and spending time with a client 4, 8 or 16 hours a day, and yet we don't have national standards for home care. We believe the caregivers have a positive impact on hospitalizations, on reducing falls in the home, etc., but we don't have good data to prove that the presence of somebody in the home not only fights isolation but also improves the quality of care."

Vicki Hoak, Executive Director, Home Care Association of America

"When we think about our traditional healthcare system and our traditional healthcare research, it is fragmented partly by diseases and partly by locations of care. We should be looking at integrated healthcare and research across diseases for patients with multi-morbid conditions and across locations and care settings."

Tim Burdick, MD, Family Medicine, Dartmouth-Hitchcock Medical Center

- **Lack of data:** There is a void of data to validate the quality of care in the home, which is due to the lack of standards for measuring quality of care and lack of infrastructure and technology platforms to ensure continued measurements for homecare agencies that provide non-medical, continuous care. In order to generate policymaker and regulatory support for expanding coverage for care in the home, it is necessary to demonstrate that care in the home is beneficial compared with institutional care.
- **Workforce issues:** The role of the professional care aid as well as the informal caregiver in the home is underleveraged, undefined, and uncoordinated. It is important that we bring care in the home to scale and extend services. Caregivers in the home – whether formal or informal – are typically isolated from a team and don't have the support from others when making care decisions. It's important to know how these caregivers address not only clinical and emotional care needs, but also social determinants that impact the health and well-being of the individual. While it would be beneficial to have primary care physicians make visits to people in their homes in the future, such services are not reimbursed and the shortage of primary care physicians is a major barrier.
- **Lack of an integrated healthcare and research infrastructure:** There is huge fragmentation in healthcare services in the U.S., and the lack of an integrated health system and research infrastructure that would enable a connected and holistic view of the patient journey across different care settings – hospital, nursing home, outpatient care, and home. The fragmentation makes it challenging to monitor all stages of the patient care continuum, identify the gaps, lapses and delays in care, misalignment and inefficient allocation of resources and use of services.

"The unique opportunity now is how we think about care at home across the full continuum of care. There may be times where the right care may not be in the home – it may be in the office or at a hospital. But we have seen extraordinary results in efforts to keep frail elders at home for fairly straightforward conditions. And what's different today is the opportunity for creating a digital infrastructure and thinking about how we fit the home into a more integrated whole, supported by data that are interoperable with the ability to do longitudinal assessment of health outcomes."

Helen Burstin, MD, Chief Executive Officer, Council of Medical Specialty Societies

5. New Avenues for Expanding Care in Home

There are many new avenues for expanding care in home and many initiatives are already under development, which could be further augmented, amplified, or replicated.

- **The role of the caregiver coach:** Despite all the emphasis on patient empowerment, many of the people who may need care in the home would also need professionals who are present in the home and who are paid or reimbursed for their services. Given the severe shortage of primary care physicians, it is necessary to consider the development of a new type of home care professional who is trained and skilled to deliver such services and play the role of the personal coach and connector for the patient.
- **Connected networks:** To enable such professional individuals to be supported with resources and access to advice from specialty physicians, we must create a network and infrastructure to connect individual caregivers with each other and secondary care and specialty services. The goal should not be to develop an isolated home care model but a foundation for a connected, integrated system of support for the patient – including remote patient monitoring and telehealth services and the facilitatation of such networks. There are many models already developed; for example, University of Colorado has a health coach for care transitions. Mobile Integrated Health, or Community Paramedicine, is a program that connects across many local communities.
- **Capitated models:** Medicaid is providing capitated models in order to offer care for high-cost Medicaid members across several states. Organizations that follow such a capitated model, partnering with states or insurance companies, have the opportunity to identify the highest risk individuals and mobilize social workers, community health partners, and local organizations to engage with the patients that have been neglected or fallen through the gaps in the healthcare system.
- **Evidence-generation:** There are also opportunities for generating data and evidence in the homecare setting beyond traditional clinical care metrics to capture non-traditional factors that impact health outcomes, such as social, economic, ethnic, racial, and cultural dimensions.

> *"Having worked in global health, I believe there is a lot of value in home-based and community-based care. We might spend time looking at some of the best practice models outside the U.S. that can dislodge us from the systemic structures we are trying to cram home care into. There is a huge opportunity for finally cementing the very important role that community health workers can play and do play already, particularly when you speak from a health equity perspective and look to offer help to underserved, very diverse populations who are more receptive to folks from the community coming into their homes. I see this as an exciting opportunity to establish community health workers as a cadre of healthcare workers who are actually paid for their services."*
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> Patty Doykos, PhD, Lead, Health Equity Initiative, BMS foundation

- **Patient services provided by life science companies:** Life sciences companies are also extending their patient services into the homes with a range of patient services to support patients with complex chronic diseases, including clinical nurse educators and in-home administration of blood work and therapies.

"We are able to lead with human intelligence that gives us more data to work with on the back-end and helps us evaluate what we are doing. We do very comprehensive assessments of individuals to understand why they have been put in the situation they are in. We look at social determinants of health. It is amazing how many of these individuals are just the low-income people who work from 9 to 9 and don't have time to go to a primary care physician."

Healthcare provider

- **Addressing social determinants of health:** Some programs are looking at high users of healthcare and social services in order to identify people in the community who are in need of support from food banks or homeless shelters or who have had confrontations with law enforcement. One of the promising programs is ***Healthcare for the Homeless***,[7] which funds public health nurses to work in the public housing sector. As an example, in Kings County (Seattle, WA), nurses incorporate trauma-informed care practices and spend several hours a week with individuals in need, in some cases a couple of hours a day, five days a week, dependent on the needs of individuals. The program has been found to be very beneficial with the growing number of aging individuals in low-income housing who have medical, emotional, and/or financial challenges.

"The goal is to enable more treatment and care in the home, and help patients avoid hospital stays – unless they need care that they can get only in the hospital. There should be a comprehensive approach to ensure that patients are able to remain at home. How do we create a platform, not just from a therapeutic perspective, but from a holistic perspective, that ensures patients can remain in their home whenever possible while getting the care they need?"

Gregory Sheff, MD, Chief Medical Officer, Home Solutions, Humana

"There is a lot of financial abuse of people in the home who are socially isolated. Many seniors get bombarded by marketing companies to purchase things and end up in financial distress. We need to have medical legal experts on the care teams to help vulnerable people manage these pressures."

Janice Tufte, Owner, Hassanah

6. The Pathways for Care in the Home in the Future

The session generated consensus around a number of areas that can bolster and further evolve care in the home in the future:

- **Fortifying purpose-built technology for care in the home:** While there are many intriguing personal consumer technologies available such as smartphones and sensors, it is important to develop and implement technology that allows organizations and care teams to provide more services, more efficiently because there is a logistical cost to care in the home. This includes elements such as better ambient monitoring, better connectivity, and ease-of-use.
- **Creating a digital infrastructure:** Technology platforms should be connected by allowing interoperability and sharing of data across the continuum of care – the home, the physician's office, the nursing home, and the hospital.
- **Strengthening caregivers:** Providing support to the caregiver means everything from education and training, to addressing licensure barriers, to providing care across state lines and other boundaries. It also would require enhancing involvement and collaboration between formal and informal caregivers, such as friends and family members who provide voluntary care. Considerations should be given to developing a new set of care skills in the home professional who would then be able to deliver care and serve as personal coach, connector and navigator for the person needing support in the home.
- **Advancing new payment and reimbursement models:** Financial incentives and models need to be disrupted with new approaches for paying and reimbursing professionals for delivering care in the home. Efforts should be made to accelerate care in-home funded by private insurance that is slower to adopt new models for care compared to Medicare and Medicaid.
- **Building the data-driven digital home:** Data and evidence are critically important to evaluate care programs and interventions. This is necessary to assess the quality of care and to demonstrate evidence benefits that can facilitate more investment and supporting policies. The development of national quality standards for care in the home will be an integral element in care. The building of a digital infrastructure will enable the collecting of data points from the home care setting, including patient-, family- or caregiver-reported, as well as clinical care measures.
- **Rethinking the concept of home healthcare:** It is fundamentally important to rethink the concept of home healthcare. It is not about how we think about the home in the context of care. It is not about providing senior-focused care or long-term care. It is not about complex care. It is not just about the service provided within the confines of the home. It is ultimately about person-centered care whenever you need it, on the go, on the road, at work or at home – with the home being the center of gravity in the personalized healthcare ecosystem.

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About the Institute

The IQVIA Institute for Human Data Science contributes to the advancement of human health globally through timely research, insightful analysis and scientific expertise applied to granular non-identified patient-level data.

Fulfilling an essential need within healthcare, the Institute delivers objective, relevant insights and research that accelerate understanding and innovation critical to sound decision making and improved human outcomes. With access to IQVIA's institutional knowledge, advanced analytics, technology and unparalleled data the Institute works in tandem with a broad set of healthcare stakeholders to drive a research agenda focused on Human Data Science including government agencies, academic institutions, the life sciences industry and payers.

Research Agenda

The research agenda for the Institute centers on 5 areas considered vital to contributing to the advancement of human health globally:

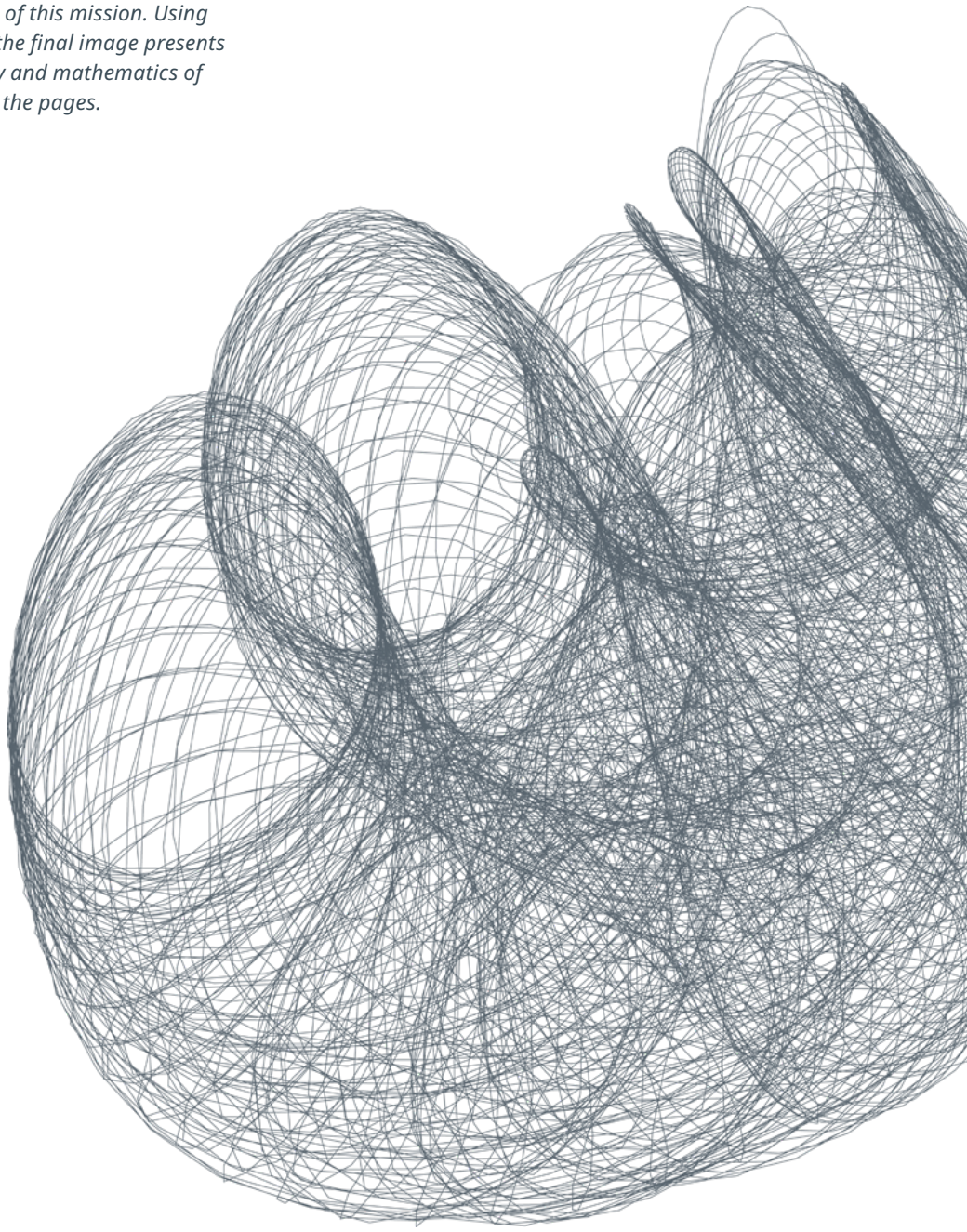
- Improving decision-making across health systems through the effective use of advanced analytics and methodologies applied to timely, relevant data.
- Addressing opportunities to improve clinical development productivity focused on innovative treatments that advance healthcare globally.
- Optimizing the performance of health systems by focusing on patient centricity, precision medicine and better understanding disease causes, treatment consequences and measures to improve quality and cost of healthcare delivered to patients.
- Understanding the future role for biopharmaceuticals in human health, market dynamics, and implications for manufacturers, public and private payers, providers, patients, pharmacists and distributors.
- Researching the role of technology in health system products, processes and delivery systems and the business and policy systems that drive innovation.

Guiding Principles

The Institute operates from a set of guiding principles:

- Healthcare solutions of the future require fact based scientific evidence, expert analysis of information, technology, ingenuity and a focus on individuals.
- Rigorous analysis must be applied to vast amounts of timely, high quality and relevant data to provide value and move healthcare forward.
- Collaboration across all stakeholders in the public and private sectors is critical to advancing healthcare solutions.
- Insights gained from information and analysis should be made widely available to healthcare stakeholders.
- Protecting individual privacy is essential, so research will be based on the use of non-identified patient information and provider information will be aggregated.
- Information will be used responsibly to advance research, inform discourse, achieve better healthcare and improve the health of all people.

The IQVIA Institute for Human Data Science is committed to using human data science to provide timely, fact-based perspectives on the dynamics of health systems and human health around the world. The cover artwork is a visual representation of this mission. Using algorithms and data from the report itself, the final image presents a new perspective on the complexity, beauty and mathematics of human data science and the insights within the pages.



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