WHITEPAPER

Datos Health

Putting the ‘Care’ into Remote Healthcare

How far remote care has come, and where it needs to go next

TABLE OF CONTENTS

THE EVOLUTION OF HEALTHCARE

Healthcare has evolved incrementally over modern history – each small step playing a role in a greater revolution in care. Over time, the transitions between healthcare paradigms have grown shorter – each paradigm facilitating a level of care previously unthinkable.

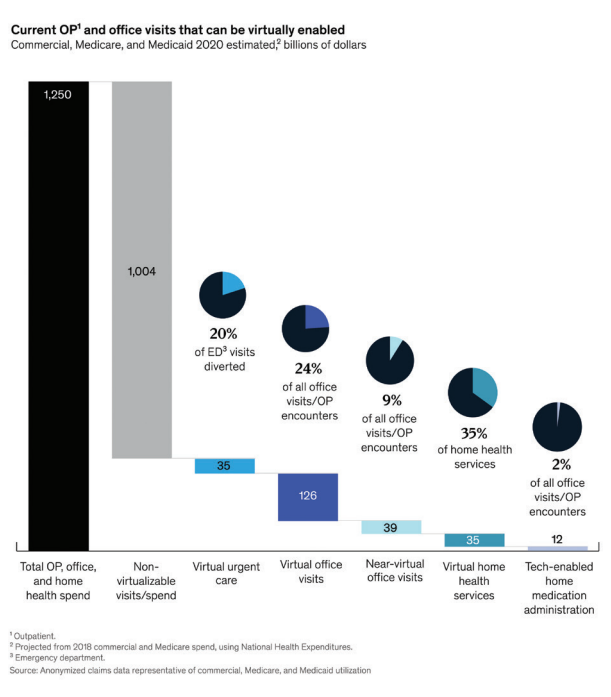
The rapidly-accelerating move to digital healthcare is driven by newer technologies as well as growing healthcare costs, the increasing complexity of care for an aging populace, and – most recently – by the mobility limitations and staffing shortages brought on by the Covid-19 pandemic.

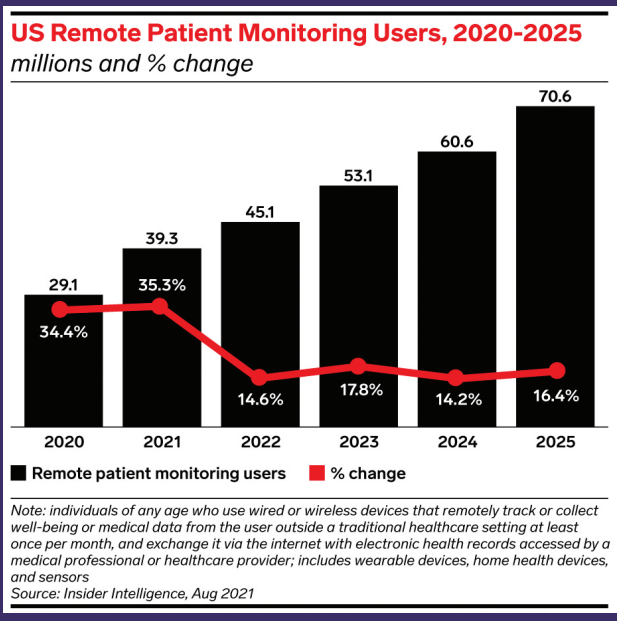
According to market analyst McKinsey and Co., usage of remote healthcare services grew by as much as 75% since January 2020, and consumer attitudes towards remote healthcare remain more positive than they were pre-pandemic. Recognizing the potential for the future of healthcare, McKinsey notes that venture capital firms have tripled their investments in remote care technology, and the federal government has eased restrictions that impeded the expansion of virtual services.

But healthcare is at a crossroads. Although Remote Patient Monitoring has proven to be a viable component of the healthcare toolbox, **uptake has been slow, due to inherent limitations in existing remote digital healthcare paradigms.** To move the quality and scope of care to the next level, while effectively leveraging existing and emerging technology, a new paradigm for remote healthcare is required – one that leverages automation to put the care into remote healthcare.

In this paper, we'll take a look at how far remote healthcare has come, and where it needs to go next.

Uptake of digital services is increasing but has been slow, proving the inherent limitations in existing remote digital healthcare paradigms.





A BRIEF HISTORY OF HEALTHCARE

In the beginning

From ancient times and until recently, healthcare was conducted exclusively face-to-face, in a home or clinical setting. This was a simple necessity – communications enabled; nothing more.

The advent of telemedicine

Leveraging ubiquitous communication connectivity, the early generations of telemedicine attempted to replicate in-person care. These systems mimicked office visits – first via telephone, later via pre-IP video link, and today via web-based video.

Legacy telemedicine fills a vacuum of care yet offers limited added value beyond bridging geographic distance. Caregivers still have no clear understanding of what happened to patients between office visits, relying instead on subjective patient reports and synchronous patient data collection. **Telemedicine alone does not identify health trends that indicate a need for intervention or other important trends.** Nor does it promote higher patient engagement, enhance care program adherence, assist patients in caring for themselves, or effectively educate patients about their conditions.

Legacy Remote Patient Monitoring (RPM)

The first generation of Remote Patient Monitoring (RPM) extended the clinical reach of caregivers by allowing patients to be remotely monitored with basic connected wearables and medical devices (pulse oximeters, blood pressure cuffs, fitness trackers, etc.).

These devices interface with the RPM system via the patient's smartphone, tablet or PC. Data is transferred asynchronously to remote servers and reviewed by medical staff for triage and feedback. Similarly, Patient-Reported Outcome Measures (PROMs) can be asynchronously collected via questionnaires – and the answers are transmitted to the RPM system.

Original research:

Factors influencing the effectiveness of remote patient monitoring interventions: a realist review (nih.gov)

Across a range of RPM interventions, 31 factors emerged that impact the effectiveness of RPM innovations on acute care use. These were synthesised into six theories of intervention success:

1. Targeting populations at high risk
2. Accurately detecting a decline in health
3. Providing responsive and timely care
4. Personalizing care
5. Enhancing self-management
6. Ensuring collaborative and coordinated care

Next-Gen RPM – Better...but Still Lacking

Next generation RPM has added some key capabilities to legacy RPM. Today, RPM systems can provide alerts if certain measurements or vitals exceed normal ranges, or if patient survey answers indicate degeneration.

Yet, while RPM use is increasing, and RPM has shown proven value in some settings (see sidebar), why has uptake in the general market remained sluggish. Why are providers hesitant to adopt the paradigm?

A few of the key reasons are:

First: RPM generates patient data, and patient data needs to be reviewed. With the industry as a whole suffering from severe staffing shortages, especially in trained nurses, the need for skilled caregivers to interpret and react to all data received – even if this data was aggregated by the RPM system, is often impossible to fulfill.

Second: the plethora of disparate RPM "point" solutions – solutions that focus on a single clinical use or a small number of uses makes implementation of RPM across the clinical spectrum unfeasible.

But most importantly: RPM still leaves patients reliant on a human caregiver to provide them with even the simplest feedback and guidance, and as we've noted – clinical staff are in acutely short supply. RPM as we know it today – with all its advantages – falls short. The reason? Monitoring and alerting alone cannot provide one of the most critical parts of healthcare: care itself.

Early successes show promise

REDUCTION IN HOSPITAL READMISSION

According to the University of Pittsburgh Medical Center, RPM helped to reduce its readmission rate by 76%.[1]

IMPROVED PATIENT OUTCOMES

Lincoln Hospital District #3 in Spokane, Washington, saw such dramatic improvement in clinical outcomes in patients' A1C in a pilot group that they moved forward with implementing RPM with other primary chronic diseases such as COPD and CVD.[2]

But monitoring and alerting alone cannot provide the most critical part of healthcare: care itself

1. "At UPMC, remote patient monitoring helps reduce ER utilization and hospital readmissions," Healthcare IT News, https://www.healthcareitnews.com/news/upmc-remote-patient-monitoringhelps-reduce-er-utilization-and-hospital-readmissions

2. "Chronic Diseases Managed from the Comfort of Patients' Own Home," Washington State Hospital Association, https://www.wsha.org/wp-content/uploads/WSHA-RPM-Article-041116.pdf

AUTOMATED REMOTE PATIENT CARE: MOVING BEYOND RPM

To take remote healthcare to its next phase of evolution, a new RPM paradigm is required. This paradigm adds another level to RPM - encompassing the capabilities of traditional RPM but leveraging advanced technology, asynchronously collected patient health data, and assisted self-care- providing patients with basic elements of care without human intervention. We call it Automated Remote Patient Care.

Automated Remote Patient Care builds on the foundations of RPM, leveraging automation to improve care while simultaneously reducing staff workload. Automated remote care assists patients in caring for themselves when possible and accelerates interactions with human providers when such interventions are truly needed.

The ability to provide patients with automated triage and, when appropriate, self-care guidance, vastly expands the scope of remote healthcare with the ability to treat larger patient populations, while still offering a patient-centric and personalized approach to remote care – a key factor in the success of RPM intervention in reducing acute care use.

Most importantly, automated platforms that facilitate assisted self-care offer patients immediate and accurate responses to outcome-critical day-to-day health issues from symptom and side effect management, through recommendations of home or OTC remedies, to personalized recommendations on nutrition and exercise routines.

Built-in automation enables early intervention – alerting care teams to potential issues before they escalate to crises. Care teams don't need to scour patient data to identify patients trending up or down. The system identifies these trends automatically, flagging adverse events and allowing care teams to intervene before they degrade to crises.

When RPM meets RPA

Robotic Process Automation (RPA) enables automated, assisted self-care using both patient responses to questionnaires and data points and trends from remote sensors.

An automated care platform offers patients immediate responses to their progress – guiding many through the system without needing to wait for a response from the care team. Based on pre-defined rules, the system can automatically direct them to stop certain meds, change dosage, take an OTC remedy, make dietary changes to counter side effects, and anything else a care team wants to automate. The system can also monitor patients to foster program adherence – medication schedules, treatment reminders, appointment scheduling and survey reminders can all be automated. And it proactively offers relevant educational content to better inform, activate and engage patients in their own care.

Most importantly, the system conducts automated and ongoing triage of patient condition. Based on PROM's and sensor data, the system flags patients trending downward so their care team can intervene. Patients in need of an interaction with a caregiver can have an appointment scheduled, be connected to an instant virtual meeting, or directed to go to the ER if necessary.

RPA is helping to make remote care more cost-effective and therefore more accessible. Through RPA, clinical resources are used more efficiently by automating the repetitive tasks, allowing care teams to practice at "top of license" and focus on patients that need them most. Remote care platforms that are designed for maximum flexibility in which clinical teams can customize treatment plans and care protocols for their patients will be able to reap the greatest benefits of RPA in the future.

BENEFITS OF AUTOMATED REMOTE CARE

For patients, care teams, and healthcare providers, automation is a game-changer.

For Patients

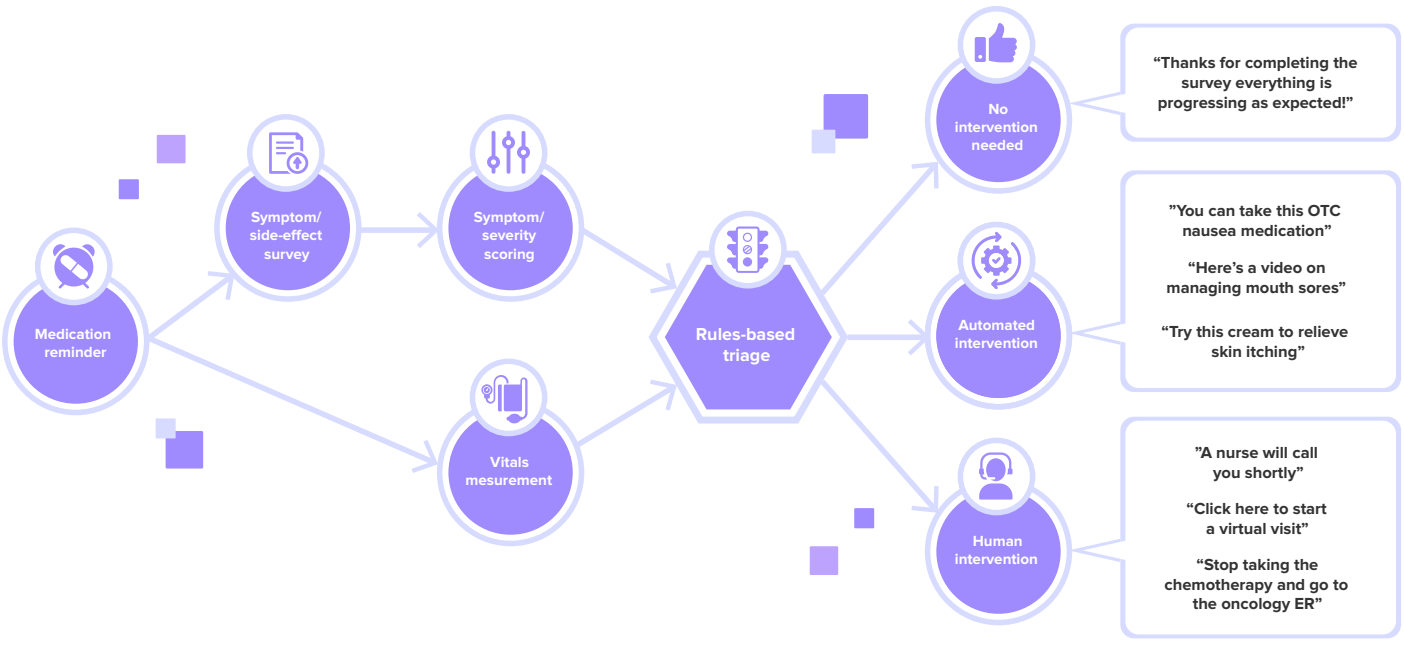
Patients on an automated assisted self-care program enjoy the peace of mind of accurate and continuous medical oversight, while retaining the freedom to do what they want to do, and often using devices they already own and wear.

Automated triage can prevent deterioration by offering immediate answers without human intervention and help to lower patient anxiety. Patients are able to get the answers they need without feeling like they're a nuisance to their care team. **Remote care also enables early detection of patients' downward trends providing care teams with accurate data that tells a more holistic story about their health.**

Finally, patients benefit from a deeper involvement in their own care, improved understanding of their health, and empowerment to take ownership of their health journey. **By being at the center of their care they are more activated, engaged, and more likely to adhere to their care plan.**

AUTOMATED ASSISTED SELF-CARE

Oncology CareApp Example – Sympton & Side Effect Management



*For patients on home based chemotherapy or biologics

For Care Teams

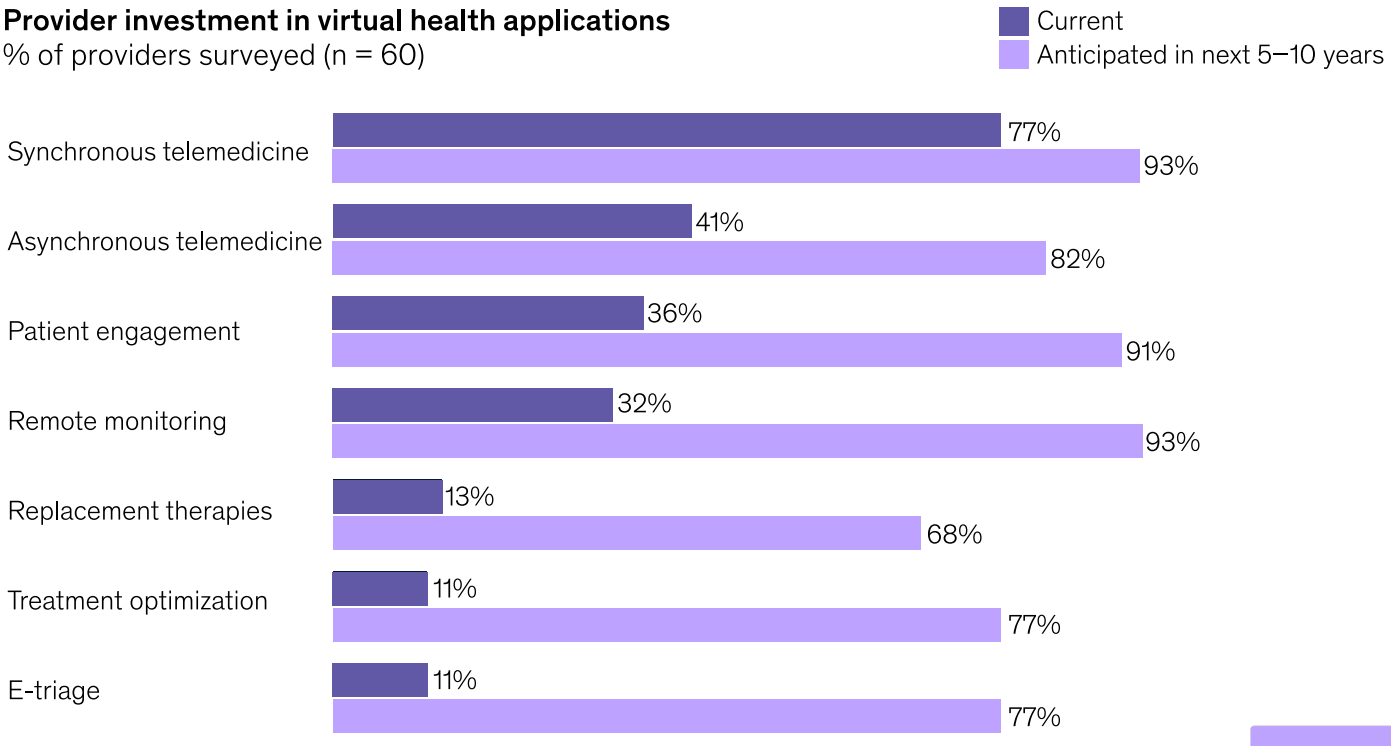
Automated, assisted self-care enables care teams to focus only on the patients that require their attention most urgently – while ensuring personalized, quality care for the rest of their patients.

Automatic detection of upward and downward trends leads to better medication titration and earlier detection of red flags that may otherwise go unnoticed. Based on these trends, the system can automatically "tighten" oversight – sending more frequent questionnaires that generate increasingly accurate and timely data, and help to further accelerate necessary interventions.

Care teams are freed from constantly interpreting data from patient vitals like weight, temperature, blood pressure, blood oxygen levels, glucose levels, and heart rate. Instead, this data is automatically aggregated and initially analyzed by the automated system, which issues immediate alerts if measurements exceed customizable ranges – enabling care teams to reach out to the patient via two-way communication or virtual visit.

Provider adoption: Pre-COVID-19, most also reported that they would be making substantial future investments.

Provider investment in virtual health applications
% of providers surveyed (n = 60)



Source: 2020 McKinsey Virtual Health Provider Survey, n = 60 health system executives

For Healthcare Providers

Building automation into care plans helps staff practice at top of license – requiring less expert involvement with rote tasks.

Continuous qualitative and quantitative patient monitoring offers healthcare providers a more detailed clinical history. This facilitates more valuable patient-facing interaction, more efficient and focused encounters, and better diagnosis – all helping improve outcomes.

Automated systems ensure that medical conditions remain tightly controlled, patient engagement levels and morale remain high, and problems are flagged and handled well before they spiral into crises.

Automated remote care enables providers, hospitals, and health systems to prioritize those patients most at risk, without compromising important ongoing care of less critical patients. Care teams can more closely monitor clinical changes and proactively intervene to change treatment, adjust medications, or take other actions that facilitate positive outcomes, and reduce ER visits and hospital admissions and readmissions.

TOP FIVE BENEFITS OF REMOTE PATIENT MONITORING ACCORDING TO PATIENTS:

43%
Convenience

39%
Efficiency

37%
Control over personal health

36%
Greater accuracy

36%
Peace of mind

"MSI International Study: Americans View Remote Monitoring of Health Favorably," MSI International, https://www.msimsi.com/msi-remote-monitoring-study-pr/

IDEAL USE CASES

Automated remote care plans are ideal for numerous scenarios, notably:

Transition of care

During transition of care – when patients shift between care settings, automated remote care facilitates better continuity of care, closer connection to care teams, and more timely interventions.

Episodic care

For care programs with a beginning and defined end – such as our assisted self-care example for cancer patients during chemotherapy, an automated remote care plan offers patients alleviation of symptoms, tighter medication titration, better insights into their own health and more visibility and control into the decisions being made.

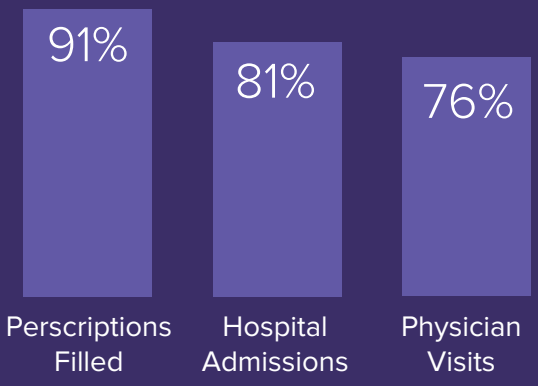
Chronic care

For ongoing management of chronic conditions like diabetes or cardiovascular issues – an automated remote care plan offers tighter, more cost-effective monitoring, enhanced program adherence and faster intervention in the event of adverse events.

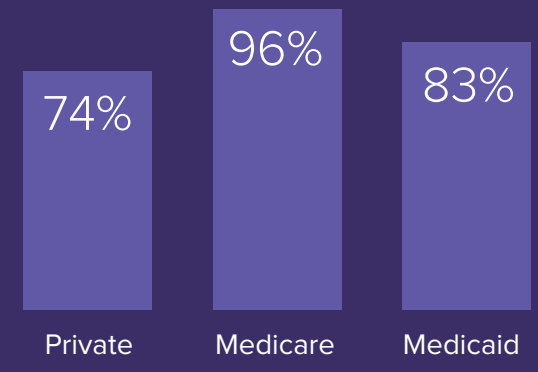
People with chronic diseases use the majority of health care services and account for most of costs.

PERCENT OF HEALTH RESOURCES USED BY PEOPLE WITH CHRONIC CONDITIONS

Percent of Health Services Used



Percent of Health Expenditures



FUTURE READY HEALTHCARE

For most patients, “health” largely happens between healthcare provider visits, outside the framework of the hospital, clinic, or doctor’s office. Since the intersection of healthcare with their lives remains minimal, significant trends that could have long-term effects on their health could be missed or remain unnoticed longer than necessary.

When patients with chronic conditions are limited to interacting with healthcare providers during periodic appointments or low-touch telephone consults, subtle changes in their health that happen between appointments get overlooked. And it is frequently these indications that can be early signs of an impending adverse event.

A new remote healthcare paradigm is needed to meet the needs of this growing patient population, lower the likelihood of hospital admission and improve clinical outcomes without adding to the burden on clinical teams.

At today’s healthcare crossroads, an automated remote care platform is the solution that enables – at scale - better overall quality of care, better clinical outcomes, and enhanced patient engagement. Automation is ushering in a new world of health and fundamentally changing the way modern medicine is practiced by closing the gaps between patient care and healthcare provider abilities and breaking down the physical and geographical barriers to quality care.

ABOUT DATOS HEALTH

Datos Health replaces today’s rigid, pre-built, pre-set remote patient monitoring solutions with one powerful open platform. Providers now have unlimited freedom to implement and customize any digital care programs they choose. The flexible design studio allows doctors to fine-tune care workflows to their needs and protocols, either creating remote care programs from scratch or by leveraging existing protocols from leading healthcare organizations. These workflows are then instantly transformed into device-agnostic patient applications, empowering patients to manage parts of their care journey themselves. Assisted self-care is now an automated reality for patients and providers alike.

NO LIMITATIONS. PURE POSSIBILITY. DATOS HEALTH – YOUR CARE, YOUR WAY.

Learn more at www.datos-health.com and visit us on LinkedIn.

Datos Health

One Platform.
All Remote Care Programs.

datos-health.com

linkedin.com/company/datos-health