



The impact of AI and digital health on chronic diseases

Over the past decades, advances in information technology have fundamentally transformed the management of chronic diseases, but what impact is this having on the pharma industry?

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The economic burden of chronic conditions is immense, encompassing healthcare expenditures, productivity losses and the societal costs of premature mortality. Between 2011 and 2030, the cumulative economic losses attributable to cancer, cardiovascular disease, chronic respiratory diseases, diabetes and mental health disorders are estimated at \$47tn. In addition, the global burden of lost life is projected to increase from \$22.8tn in 2010 to \$43.3tn by 2030.

In contrast, global healthcare spending exceeds \$9tn annually, with an estimated \$4-7tn directly attributable to chronic conditions. Once a chronic condition develops, it creates significant challenges for patients, healthcare providers, healthcare systems and society at large. These challenges are outlined below.

Patients:

- Patient outcomes depend heavily on patient behaviour, as success often relies on (daily) adherence to medications, healthy eating, exercise, sleep and self-monitoring
- Multiple conditions often occur together, as many patients have two or more chronic diseases (multi-morbidity), for example, diabetic patients with hypertension
- Symptoms can fluctuate with periods of stability punctuated by flare-ups or complications requiring treatment plans to be adjusted over time.

Healthcare professionals (HCPs):

- HCPs need to provide lifelong chronic disease management, as conditions such as diabetes, hypertension, heart disease and COPD cannot be cured

- Care is fragmented amongst primary care providers, multiple specialists, nurses, pharmacists and other HCPs, requiring strong coordination
- Many chronic conditions require regular measurements, such as blood pressure and blood glucose, to detect deterioration before serious complications develop.

Society and healthcare systems:

- Social and economic factors, such as care affordability, health literacy, housing and access to healthy food influence patients' ability to manage their condition
- Healthcare systems are often designed for acute care, treating short-term illnesses or emergencies, for example, in hospitals
- Complications accumulate over time, as poorly controlled chronic diseases can lead to irreversible damage, such as heart attacks, strokes, blindness and amputations.

Disease management emerged as a formal healthcare strategy for chronic conditions in the mid-1990s, building on approaches first pioneered in diabetes, the prototypical chronic disease since the 1950s. The strategy was subsequently extended to other conditions that are prevalent, costly to treat and supported by well-established clinical guidelines amenable to coordinated, long-term management, including heart failure, coronary artery disease, hypertension, asthma and chronic obstructive pulmonary disease (COPD). Over the past decades, advances in information technology have fundamentally transformed the management of chronic diseases:

- Internet era (since late 1990): access to information and communication, facilitating patient empowerment
- Mobile health era (since 2007): tools for self-management and remote monitoring, making health tracking part of daily life
- AI (since late 2010s): expansion to prediction and personalised decision support and virtual health coaching.

In the future, countries will need to address a set of critical success factors to effectively manage the growing burden of chronic diseases. This will require coordinated action across society, healthcare systems, HCPs and patients, while fully leveraging the transformative potential of information technologies.

Society and healthcare systems:

- Value-based reimbursement models: transitioning from a fee-for-service to bundled payments or capitation with financial incentives for prevention and outcomes

- Interoperable digital infrastructure: implementing unified, electronic health records that track patient data across primary care, specialist centres, hospitals, etc
- Cross-sector social integration: linking social welfare systems to healthcare networks via closed-loop referrals to address social determinants
- Continuous quality improvement: using predictive analytics and risk-stratification tools to identify high-risk populations before they experience acute complications.

‘Global healthcare spending exceeds \$9tn annually, with an estimated \$4-7tn directly attributable to chronic conditions’

Healthcare providers:

- Multidisciplinary team care: structuring clinical practices to rely on nurses, dietitians, pharmacists and other HCPs rather than just primary care and specialty physicians
- Guideline-driven decision support: integrating evidence-based clinical protocols directly into electronic workflows to standardise treatment choices
- Proactive follow-up: establishing structured patient outreach mechanisms, such as virtual health coaches, monthly digital check-ins, telehealth triage
- Shared decision-making: communicating treatment options as collaborative trade-offs, matching clinical guidelines with patients’ personal goals and values.

Patients:

- Health literacy: possessing a practical understanding of the disease trajectory, trigger points and exactly when to escalate own symptoms
- Self-management: actively using home-monitoring equipment, for example, glucometers, blood pressure cuffs and maintaining an actionable, documented self-care plan
- Medication adherence: utilising structural habits, smart pill organisers or digital notifications to maintain strict compliance with drug regimens
- Social/informal support: relying on family, friends or peer support groups to help manage emotional, physical and financial burdens of a chronic condition.

Numerous successful chronic disease management initiatives have been implemented across countries, targeting a range of conditions through diverse healthcare delivery models, payers, providers and technology solutions. Image 1 presents several examples of successful chronic disease management initiatives.

Historically, pharmaceutical executives have invested in healthcare services across the patient journey to address critical patient leakages and unlock significant growth opportunities (see Image 2, bottom box). For example, when Merck & Co launched its bisphosphonate Fosamax in the mid-1990s, the company supported the expansion of DEXA scanner availability in the US to enable earlier and more accurate diagnosis of osteoporosis patients.

A more recent example is familial hypercholesterolaemia (FH), a hereditary form of high cholesterol. Companies such as Amgen, Regeneron, Novartis and Sanofi

Image 1: Chronic disease management cases (selected examples)

Country	Chronic condition	Payer and/or provider	Technology (selected examples)	How it works
USA	Diabetes type 2	Kaiser Permanente	Electronic Health Record (EHR), patient registry, HCP alerts, remote patient monitoring	Real-time patient risk stratification based on HbA1c and BMI data, patient coordination by care managers
UK	Diabetes type 2	National Health Service	Apps to log meals, track glucose metrics, and connect patients to others entirely remotely	Connected peer groups and registered dietitians provide asynchronous behavioral coaching
Israel	Heart failure	Clalit Health Services	Internal Clalit Proactive and Preventive Intervention platform, using proprietary AI software for vocal biomarkers	Patients record a baseline & perform a brief vocal test every morning, predictive alerts of deviations (fluid accumulation)
Netherlands	Diabetes type 1	Diabeter/ Zilveren Kruis	Continuous glucose monitoring, insulin pump systems and Diabeter proprietary integrated EHR/ telehealth system	10-year value-based bundled payment model, leading to exemplary clinical control (HbA1c) and less hospitalizations

have invested substantially in improving early patient identification, as an estimated 90% of individuals with FH remain undiagnosed. These initiatives reflect a broader shift towards addressing gaps in diagnosis and care pathways to expand access to appropriate treatment.

In our previous PME article, 'Valuable collection: what are the prospects for grouping complementary services around a product', we explored situations where a product with a non-differentiated clinical profile within its class can achieve a competitive advantage through value-added services that improve outcomes (see Image 2, middle box). We proposed that next-generation healthcare combination solutions – integrating complementary products and services around medicines (and devices) – have the potential to deliver superior patient outcomes, as demonstrated by emerging models in obesity management.

As AI reduces the cost and scalability barriers associated with delivering healthcare services, pharmaceutical companies may increasingly consider innovative business models that combine therapies with integrated healthcare solutions, particularly in ambulatory care settings for chronic diseases. However, such investments should be carefully targeted towards disease areas where future therapeutic innovations are unlikely to fundamentally reshape clinical practice; otherwise, substantial investments in healthcare solutions may become obsolete.

In our previous PME article, 'Digital healthcare may revolutionise management of chronic diseases, but who is going to pay for it', we highlighted the emerging business model of digital therapeutics (DTx) – evidence-based interventions designed to prevent, manage or treat medical conditions through software-based solutions that undergo review

and certification by regulatory authorities. Leading pharmaceutical companies, including Otsuka Pharmaceutical, AstraZeneca, Boehringer Ingelheim and Sanofi, have been among the most active participants in the DTx space (see Image 2, top box).

'Future leaders will combine innovative therapies with value-added services that enhance patient care'

However, digital health and health technology companies have also entered this space, creating new models that integrate therapeutic interventions with scalable healthcare services. For example, Omada Health combines access to widely used anti-obesity medications with behavioural coaching and clinical weight management infrastructure through a structured, predictable cost model. As continued R&D is expected to deliver increasingly effective pharmacological treatments for obesity, pharmaceutical companies may increasingly view such digital health providers as natural partners to extend patient support, improve outcomes and enhance the overall value proposition of their therapies.

But what happens when a drug such as semaglutide (Ozempic and Wegovy) becomes generic, as is already the case in Canada (since the end of April 2026)? Following its acquisition of Live Well, a leading Canadian digital health platform focused on weight management, Hims & Hers Health launched its first international GLP-1 offering, providing generic semaglutide through a manufacturing partnership with Apotex, Canada's largest domestic pharmaceutical company.

The offering combines access to the newly approved Apo-Semaglutide injection with personalised care plans, starting at CAD149 per month.

This example illustrates a potential strategic challenge for pharmaceutical companies: as therapies become more widely available and commoditised, digital health platforms and other intermediaries may increasingly control patient access, care pathways and the broader treatment experience. In the future, these players could become powerful gatekeepers between patients and pharmaceutical manufacturers.

In the long term, pharmaceutical companies can aspire to establish leadership within specific chronic conditions, as discussed in our PME article, 'Dive in: gaining long-term leadership in a therapy area can be commercially invaluable'. Future leaders in chronic disease management will be those able to demonstrate superior outcomes by combining innovative therapies with value-added services that enhance patient care.

This integrated approach could create a more resilient and differentiated business model, provided that pharmaceutical companies continue to keep pace with therapeutic innovation and evolving standards of care. Ultimately, the leading companies in a chronic condition may become the trusted, recognised brands for managing that disease – successfully combining the scientific strengths of biopharma with the patient-centric capabilities of digital health and health technology platforms.

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Image 2: Pharma strategic options for services/ solutions

