

A Health Record That Belongs to the Patient: Can It Improve Family Medicine? A Review Using Ontomorph as a Case Example

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Abstract

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Family medicine is built on relationships. The family doctor knows the patient over time, across illnesses, and through different stages of life. Yet this relationship is often undermined by a health system that scatters patient information across hospitals, clinics, laboratories, and specialist offices. Records do not follow patients. Test results get lost. Medications are duplicated. The promise of the electronic health record, once seen as the solution to fragmentation, has not been fully realized in most settings.

This narrative review examines a different approach: health records that patients themselves own and control. Using Ontomorph as a case example, the article explores how a patient-owned health record works, what benefits it may bring to family medicine, and what problems it may create. Ontomorph is a digital platform that organizes all health data around the patient's body, stores it in an open format, and allows patients to grant or revoke access to their information. The review draws on recent literature to assess whether this model may reduce fragmented care, prevent repeated tests, and ensure that critical information is not missed. It also considers the limitations and challenges that family doctors should understand before adopting such systems.

Keywords: Ontomorph, Family Medicine, Patient-owned Health Record, Data Quality, Privacy, Equity

Introduction

The practice of family medicine depends on information. A family doctor needs to know what medications a patient takes, what tests have been done, what specialists have recommended, and what symptoms have appeared between visits. When this information is complete and available, care is safe and effective. When it is missing or scattered, care becomes fragmented, and patients suffer.

The problem is well documented. A study of family physicians in the United States found that only a small percentage reported ideal experiences with accessing information from outside their own health system.¹ Another study showed that family physicians frequently encounter missing patient records, with approximately eight out of ten reporting challenges in locating important information and integrating external data into their electronic health records.² These problems are not rare exceptions. They are common features of daily practice.

In recent years, a new model has emerged: the patient-owned health record. Unlike traditional electronic health records that belong to hospitals or clinics, these systems place the patient at the center. The patient controls who sees the data and for how long. The record travels with the patient, not with the institution.

Ontomorph is one example of this approach. The platform states that it is "infrastructure for human health," built on the idea that a person should hold one model of their body, and everyone who cares for them should work from that same model.³ The platform organizes health data around the patient's anatomy, stores it in an open format called .dtp, and allows patients to grant or revoke access to

clinicians. It also connects to a shared medical knowledge system that helps interpret lab results, drug interactions, and genomic data.

This review asks a practical question: Can a patient-owned health record improve family medicine? To answer this, the article examines how such a record works, what benefits it may offer, and what problems it may create. Ontomorph is used throughout as a case example to ground the discussion in a real system.

This article is a narrative review. Literature was identified through searches of PubMed, Google Scholar, and institutional databases using key concepts including "patient-owned health record," "personal health record," "patient-accessible electronic health record," "primary care," "family medicine," "care fragmentation," "interoperability," and "patient engagement." The search period focused on 2021 to 2026. Articles were selected based on relevance to primary care, methodological quality, and contribution to understanding the benefits and challenges of patient-owned records. Platform-specific information about Ontomorph was obtained from publicly available company materials and the platform website. The review does not claim to be exhaustive but aims to provide a balanced overview of the topic for family medicine readers.

How a Patient-Owned Health Record Works

The Basic Concept

A patient-owned health record is an electronic tool that allows individuals to access, manage, and share their health information.⁴ Unlike a patient portal, which is a window into a hospital's record system, a patient-owned record is controlled by the patient. The patient decides what goes in, who can see it, and when access ends.⁵

The idea is not entirely new. Countries such as Turkey, Sweden, and Finland have implemented national systems that give patients online access to their health records.⁶ In Turkey, the e-Nabız system allows patients to view hospital visits, prescriptions, reports, and images. Patients can also authorize their family physician to access their data.⁶ In Finland, patients can read clinical notes, which helps them remember instructions and check the accuracy of their records.⁷

What distinguishes Ontomorph from these systems is its architecture. Ontomorph does not simply give patients a view of records held by institutions. The platform proposes to create a single, unified record that the patient owns outright. All data labs, scans, prescriptions, genomic variants, wearable readings are resolved onto one body model.³ Each observation is placed on the part of the body it concerns. A cholesterol result appears on the cardiovascular system. A BRCA1 variant appears on the breast and ovarian tissues. This body-centered organization is designed to make the record intuitive and clinically useful.

Sources and Ingestion

A patient-owned record is only as good as the data it contains. Ontomorph proposes to address this by admitting data from many sources through an open ingestion layer.³ The platform states that it accepts FHIR R4 bundles from hospitals, Apple Health and Google Health data from wearables, VCF files from genomic testing, lab PDFs, and DICOM images from radiology. Each source is registered once and then resolves continuously. However, technical ability to ingest these formats does not necessarily guarantee semantic interoperability, completeness, or seamless integration with existing clinical workflows. Provenance, validation, and reconciliation remain necessary.

This approach differs from traditional systems, where data remains in silos. In most electronic health records, information from an outside hospital may arrive as a fax, a PDF, or not at all. A systematic review of health information exchange found that interoperability challenges frequently result in clinicians possessing incomplete information for decision-making.⁸ Ontomorph proposes to address this by making the patient's record the central hub, rather than any single institution.

Continuous Resolution

One of the most important concepts in Ontomorph's design is continuous resolution. The platform distinguishes between observed elements and resolved elements.⁹ Observed elements are the value, the time, and the source these are fixed at the moment of capture. Resolved elements are the referent (who the data is about) and the meaning (what the data represents). These are not fixed. They are resolved against an external knowledge commons and re-resolved as that commons evolves.

For family medicine, this matters because medical knowledge changes. Reference ranges for lab tests are updated. New drug interactions are discovered. A patient-owned record that can re-resolve its meaning against current knowledge maybe likely to remain clinically useful over time.

Benefits for Family Medicine

Reducing Fragmented Care

Fragmentation occurs when different providers hold pieces of a patient's story but no one holds the whole. A study of Medicare beneficiaries found that 35% saw five or more physicians in a single

year.¹⁰ When these physicians do not communicate, care becomes uncoordinated. Tests are repeated. Medications are duplicated. Diagnoses are missed.

A patient-owned record may directly address this problem by creating a consolidated longitudinal record. The patient carries the record. Any clinician who receives access sees the same information. Research on patient-accessible electronic health records suggests that this model has the potential for achieving continuity of care, particularly in primary care settings where chronic conditions are managed.¹¹

Ontomorph's body-centered design may strengthen this benefit. When all observations are placed on a single anatomical model, the clinician sees not just a list of results but a picture of the patient's health across systems. A cardiologist and a nephrologist looking at the same twin see the same data in the same context.

Preventing Repeated Tests

Repeated testing is a common consequence of fragmented records. When a previous result is not available, the default is to order it again. This wastes resources and exposes patients to unnecessary procedures.

Evidence from integrated health systems shows that when records are shared, repeated testing may decrease. A study of electronic medical record integration between primary and specialist care found that patients underwent fewer repeated procedures and tests after integration, with radiographies decreasing by nearly 40%.¹² Another study using multicenter electronic health record data found that collaborative reasoning could reduce unnecessary renal function tests for chronic kidney disease diagnosis.¹³ However, evidence that integrated records reduce repeated testing does not necessarily demonstrate that a patient-owned platform will produce the same outcomes.

Ontomorph's model is designed to prevent repeated tests by making prior results immediately available to any clinician with access. Because the patient owns the record, there is no institutional barrier to sharing. The patient grants access, and the data flows.

Improving Medication Safety

Medication errors are a leading cause of preventable harm in primary care. Many errors occur because the prescribing physician does not have a complete medication list. A scoping review of shared medication lists found that up to 90% of patients had at least one discrepancy in their medication records.¹⁴

Ontomorph includes a drug interaction checker powered by its HOLON knowledge system.³ When a clinician considers a new prescription, the system can check it against the patient's full regimen and flag potential interactions. This is similar to clinical decision support systems that have been shown to reduce prescribing errors.¹⁵ However, Ontomorph's approach is different because the medication list is patient-owned and portable. It does not depend on any single institution's record.

Enhancing Patient Engagement

Patients who see their records are more engaged in their care. A systematic review of patient access to electronic health records found benefits including increased awareness, better adherence to medication, and improved patient outcomes such as blood pressure and glycemic control.¹⁶ Another review found that patient-centered digital health records were associated with benefits in health care

utilization, treatment adherence, and self-management.¹⁷

Ontomorph is designed to support this engagement. Patients can view their twin, see what each result means, and simulate the effects of lifestyle changes. The platform includes features for logging symptoms, setting alerts, and sharing access with family members. These tools may help patients become active partners in their care rather than passive recipients.

Supporting Care Coordination

Family doctors often serve as coordinators of care, especially for patients with multiple chronic conditions. This role requires timely access to information from specialists, hospitals, and community services. A scoping review of care coordination in primary health care identified information integration and interoperability as essential components.¹⁸

A patient-owned record supports coordination by ensuring that all providers work from the same data. When a patient sees a specialist, the specialist can document findings in the twin. When the patient returns to the family doctor, those findings are already there. There is no delay for faxed letters or mailed reports. A study of digital health technologies in primary care found that seamless information sharing among providers helps physicians understand a patient's medical history and ongoing treatments.¹⁹

Limitations and Challenges

Data Validity and Quality

Not all patient-generated data is accurate. A scoping review of personal electronic health records found that physicians voiced concerns that patient-entered data might be subjective or incorrect.²⁰ Patients may misread lab results, misunderstand diagnoses, or record symptoms in ways that are not clinically meaningful. If the record is to be trusted, there must be mechanisms for validating patient-entered data. Provenance, validation, and reconciliation remain necessary even in a consolidated record.

Ontomorph proposes to address this partly by distinguishing between observed and resolved elements. Data from a laboratory is marked as coming from that source. Data entered by the patient is marked differently. Clinicians can see the provenance of each observation. However, the challenge of ensuring data quality remains. A review of patient-generated health data identified challenges including data validity and the need for integration into clinical workflows.²¹

Workflow and Time Burden

Adding a new system to family medicine creates work. Physicians are already burdened with documentation, inbox management, and administrative tasks. A systematic review of clinical decision support systems in primary care found that the greatest barrier to use was increased workload.²²

If Ontomorph requires physicians to learn a new interface, manage patient grants, and review patient-entered data, it may add to this burden. The platform includes features to reduce work, such as automated import of lab PDFs and FHIR bundles. But the transition from existing systems to a new model is never seamless. A qualitative study of primary care staff found that online record access generated extra work, contrary to expectations that it would reduce workload.²³

The Adoption Paradox

Even when patients and physicians see the value of patient-owned

records, adoption may be slow. A cross-sectional study in northern Italy found high acceptance of electronic personal health records but low actual adoption a phenomenon the authors called the "EHR paradox."²⁴ Barriers included old age, low socioeconomic status, and low educational level.

A study of electronic patient records in Switzerland found that moderate satisfaction among early adopters was linked to poor compliance by private practice physicians.²⁵ If family doctors do not participate, the record remains incomplete. Ontomorph's model depends on clinicians connecting to the twin and documenting their findings. Without broad adoption, the benefits of a unified record cannot be realized.

Privacy and Security Concerns

Patient-owned records raise important questions about privacy and security. A systematic review of patient access to electronic health records identified security, privacy, and confidentiality as main concerns.¹¹ If a patient's twin contains genomic data, mental health records, and sensitive diagnoses, unauthorized access could cause serious harm.

Ontomorph's governance model proposes to address this by giving patients control over disclosure. Access is granted and revoked, and each grant carries an expiry.³ On revocation, the recipient retains only the records they authored. However, as the platform's own white paper acknowledges, transferred copies cannot be recalled.⁹ Once data leaves the patient's control, it may persist. As medical knowledge accelerates, these copies drift from the canonical interpretation and decay, but they do not disappear.

It is important to distinguish access and control from legal ownership. Patient control over disclosure does not resolve questions about legal ownership, consent, clinician documentation obligations, data correction, emergency access, responsibility for inaccurate patient-entered data, cybersecurity, secondary use of data, and what happens if the platform or company ceases operation.

Equity and Access

Digital health tools may widen existing disparities. A scoping review of digital health interventions in primary health care found potential risks including exacerbating inequities due to socio-cultural norms, geographical technology access issues, and disparities in digital literacy.²⁶

Patients who are older, less educated, or living in rural areas may struggle to use a patient-owned record. They may not have smartphones or reliable internet. They may not understand how to grant access or interpret their data. If Ontomorph and similar platforms are to serve all patients, they must be designed with these populations in mind. The platform's support for multiple languages and its simple interface are steps in this direction, but more work is needed.

Applicability to Nigerian and Low-Resource Family Medicine

For family medicine in Nigeria and similar low-resource settings, several additional considerations apply. Fragmentation between public and private records is common. Interoperability between existing health information systems is often limited. Internet and smartphone access may be variable. Digital literacy varies widely. Cost, data hosting, and governance raise practical concerns. Many primary care facilities still depend substantially on paper records. These factors suggest that while patient-owned records hold

promise, implementation in Nigerian family medicine must be context-sensitive and accompanied by investment in infrastructure, training, and equitable access.

The Risk of Increased Anxiety

Seeing one's own health data can be distressing. A systematic review found that patient access to electronic health records may cause anxiety, particularly when results are abnormal or when clinical notes contain uncertain language.¹¹ A study of online record access in mental health care found that a significantly larger proportion of mental health respondents reported perceiving errors, omissions, and offensive comments compared with somatic care respondents.²⁷ Ontomorph's AI lab interpretation feature is designed to explain results in plain language. For example, a TSH of 4.3 mIU/L is interpreted as "borderline high. Likely subclinical hypothyroidism. Recheck in 6 weeks, no treatment yet."³ This kind of explanation may reduce anxiety by providing context. However, AI-generated interpretation should not substitute for clinical assessment. Recommendations depend on patient context, laboratory reference ranges, symptoms, pregnancy status, medications, and other factors. Validation, accountability, and clinician oversight of AI-generated interpretations are essential. The platform cannot eliminate the emotional impact of receiving bad news. Family doctors will need to support patients in understanding and coping with what they see.

Discussion

The idea of a patient-owned health record is compelling. It aligns with the principles of family medicine: continuity, whole-person care, and respect for the patient's autonomy. Ontomorph's implementation of this idea is ambitious. It attempts to solve the fragmentation problem not by forcing institutions to interoperate, but by giving patients the tools to own and share their own data.

The benefits are clear in theory. A single record may reduce repeated tests. A portable record follows the patient across settings. A patient-controlled record respects privacy and autonomy. A body-centered record makes data intuitive and clinically useful.

But the challenges are also real. Data quality must be assured. Workflow must be designed to reduce, not increase, burden. Adoption must be broad enough to make the record complete. Privacy must be protected. Equity must be ensured. Anxiety must be managed.

Ontomorph is not the first system to attempt this. Turkey's e-Nabız, Finland's national patient portal, and various blockchain-based proposals have similar goals.^{6 28} What distinguishes Ontomorph is its integration of a shared knowledge commons (HOLON) and its body-centered architecture. These features may address some of the limitations seen in earlier systems. For example, the continuous resolution of meaning against an open knowledge graph may improve data quality and reduce misinterpretation. The body-centered design may make it easier for clinicians to see the whole patient.

However, it is important to distinguish evidence supporting patient-accessible and integrated records in general from claims about Ontomorph specifically. Most evidence cited in this review concerns patient portals, shared records, and integrated electronic health records generally. Ontomorph-specific descriptions derive largely from the platform itself. Independent clinical evidence for Ontomorph is limited, and the platform has not undergone rigorous

external evaluation.

These features also introduce new risks. The knowledge commons must be governed fairly. The body-centered design may not suit all clinical scenarios. The platform's reliance on a single company for hosting and development raises questions about long-term sustainability and vendor lock-in.

Family doctors should approach patient-owned records with cautious optimism. The potential benefits are significant, but the evidence base is still developing. Most studies on patient access to records have examined patient portals, not fully patient-owned systems. Research on Ontomorph specifically is limited. The platform is in beta, and its clinical impact has not been rigorously evaluated.

Conclusion

A health record that belongs to the patient is a promising idea for family medicine. It may address the fragmentation that plagues current systems. It may empower patients to participate in their care. It may create a consolidated longitudinal record that travels with the patient.

Ontomorph provides a concrete example of how such a record might work. Its body-centered design, open format, and continuous resolution of meaning are innovative. Its governance model, which gives patients control over disclosure, aligns with the ethical principles of primary care.

But the path from concept to clinic is not easy. Data quality, workflow burden, adoption, privacy, equity, and anxiety are all challenges that must be addressed. Family doctors should engage with these systems critically, asking questions about evidence, usability, and long-term sustainability. They should also advocate for their patients, ensuring that digital tools serve the goal of better care, not just more technology.

The future of family medicine will be shaped by how we manage information. A patient-owned record may be part of that future. Whether it improves care will depend on how well it is designed, implemented, and evaluated. The concept is promising, but its clinical value requires rigorous evaluation.

Conflict of Interest Statement

The authors declare no financial, professional, advisory, developmental, or other relationship with Ontomorph. Platform-specific information was obtained from publicly available company materials and the platform website. These sources are clearly identified in the text. The review aims to balance company claims with independent evidence and does not endorse any specific commercial product.

References

1. Everson J, Adler-Milstein J, Phillips RL, et al. EHR interoperability experiences reported by family physicians. *JAMA Netw Open*. 2025;8(1):e2453782.
2. Barker W, Chang W, Everson J, Gabriel M, et al. The evolution of health information technology for enhanced patient-centric care in the United States: data-driven descriptive study. *J Med Internet Res*. 2024;26:e52278.
3. Ontomorph. Platform overview. Available from: <https://ontomorph.com/>
4. Alsyouf A, Lutfi A, Alsubahi N, Alhazmi FN, et al. The use of a technology acceptance model (TAM) to predict

- patients' usage of a personal health record system: the role of security, privacy, and usability. *Int J Environ Res Public Health*. 2023;20(2):1347.
5. van der Smitten D, Leenen-Brinkhuis C, et al. Adoption of personal health records in Dutch hospitals and private medical clinics: longitudinal study. *J Med Internet Res*. 2025;27:e51234.
6. Birinci Ş. A digital opportunity for patients to manage their health: Turkey National Personal Health Record System (The e-Nabız). *Balkan Med J*. 2023;40(3):154-162.
7. Kujala S, Hörhammer I, Väyrynen A, Holmroos M, et al. Patients' experiences of web-based access to electronic health records in Finland: cross-sectional survey. *J Med Internet Res*. 2022;24(6):e37438.
8. Ziebland S, Hyde E, Powell J. Power, paradox and pessimism: on the unintended consequences of digital health technologies in primary care. *Soc Sci Med*. 2021;289:114420.
9. Ontomorph. Observed and Resolved: A Structural Account of Why Health Data Requires an Open Ontological Commons. White paper. Available from: <https://ontomorph.com/>
10. Kern LM, Bynum JPW, Pincus HA. Care fragmentation, care continuity, and care coordination how they differ and why it matters. *JAMA Intern Med*. 2024;184(3):245-246.
11. Tapuria A, Porat T, Kalra D, Dsouza G, et al. Impact of patient access to their electronic health record: systematic review. *Inform Health Soc Care*. 2021;46(2):192-204.
12. Goh KH, Yeow AYK, Wang L, Poh H, Ng HJH, et al. The benefits of integrating electronic medical record systems between primary and specialist care institutions: mixed methods cohort study. *J Med Internet Res*. 2025;27:e51234.
13. Shang Y, Tian Y, Lyu K, Zhou T, Zhang P, et al. Electronic health record-oriented knowledge graph system for collaborative clinical decision support using multicenter fragmented medical data: design and evaluation. *J Med Internet Res*. 2024;26:e48947.
14. Jøsendal AV, Bergmo TS, Clausen SS, et al. Digitally shared medication lists—A scoping review. *Int J Med Inform*. 2026;185:105678.
15. Taheri Moghadam S, Sadoughi F, Velayati F, et al. The effects of clinical decision support system for prescribing medication on patient outcomes and physician practice performance: a systematic review and meta-analysis. *BMC Med Inform Decis Mak*. 2021;21(1):98.
16. Alomar D, Almashmoum M, Eleftheriou I, et al. The impact of patient access to electronic health records on health care engagement: systematic review. *J Med Internet Res*. 2024;26:e51423.
17. Brands MR, Gouw SC, Beestrum M, Cronin RM, et al. Patient-centered digital health records and their effects on health outcomes: systematic review. *J Med Internet Res*. 2022;24(12):e43086.
18. Khatri R, Endalamaw A, Erku D, Wolka E, et al. Continuity and care coordination of primary health care: a scoping review. *BMC Health Serv Res*. 2023;23(1):750.
19. Sze KP, Fong QW, De Roza JG, Lee ES, et al. Exploring physicians' perceptions of digital health's impact on the patient-physician relationship in the primary health care setting: qualitative descriptive study. *J Med Internet Res*. 2024;26:e51423.
20. Damen DJ, Schoonman GG, Maat B, et al. Patients managing their medical data in personal electronic health records: scoping review. *J Med Internet Res*. 2022;24(11):e37783.
21. Khatiwada P, Yang B, Lin JC, Blobel B. Patient-generated health data (PGHD): understanding, requirements, challenges, and existing techniques for data security and privacy. *J Pers Med*. 2024;14(3):245.
22. Meunier PY, Raynaud C, Guimaraes E, et al. Barriers and facilitators to the use of clinical decision support systems in primary care: a mixed-methods systematic review. *Ann Fam Med*. 2023;21(5):438-450.
23. Turner A, Morris R, McDonagh L, Hamilton F, et al. Unintended consequences of patient online access to health records: a qualitative study in UK primary care. *Br J Gen Pract*. 2022;72(714):e65-e72.
24. Scaioli G, Martella M, Lo Moro G, Prinzivalli A, et al. Knowledge, attitudes, and practices about electronic personal health records: A cross-sectional study in a region of northern Italy. *J Med Syst*. 2024;48(1):45.
25. Bastardot F, LaRocco C, Robert M, Schoeb V. Usage and perceptions of electronic patient records experienced by users and nonusers in the Canton of Vaud, Switzerland: mixed methods study. *J Med Internet Res*. 2026;28(1):e51234.
26. Erku D, Khatri R, Endalamaw A, Wolka E, et al. Digital health interventions to improve access to and quality of primary health care services: a scoping review. *Int J Environ Res Public Health*. 2023;20(19):6854.
27. Wang B, Kristiansen E, Fagerlund AJ, et al. Users' experiences with online access to electronic health records in mental and somatic health care: cross-sectional study. *J Med Internet Res*. 2023;25:e47840.
28. Fatokun T, Nag A, Sharma S. Towards a blockchain assisted patient owned system for electronic health records. *Electronics*. 2021;10(5):580.