



The Office of the National Coordinator for
Health Information Technology

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2020-2025 Federal Health IT Strategic Plan

October 2020

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LETTER FROM THE

National Coordinator

In our everyday routines, we rely on technology to do a lot for us. Many of us have access to an abundance of data and technologies that allow us to interact with information in many ways. From shopping for groceries, to requesting transportation, to managing our finances, we have come a long way since the dawn of the internet and mobile devices. However, when it comes to accessing our information when and where we need it, healthcare has just not quite caught up. In today's digital world, the right to control our health must include the right to access and control our health information. While most healthcare providers now use electronic health record (EHR) systems, information captured in these systems is often difficult to access by patients, caregivers, and healthcare providers across different settings of care. All healthcare stakeholders will benefit from a fully connected healthcare system that empowers patients, caregivers, and their healthcare providers to access, exchange, and use electronic health information (EHI).

In today's digital world, patients' right to control their health must include the right to access and control their health information.

The digitization of the nation's healthcare system has resulted in greater electronic documentation of health information for patients. Yet, the system's transformation is hindered by status quo bias that tends to limit information sharing. Thanks to provisions passed by Congress, the United States government is working to bring more robust health information to patients and ensure that technology and mobile applications (apps) will help them better manage their health and enable them to shop for care. We in the Office of the National Coordinator for Health Information Technology (ONC), with our partners across the federal government, strive to increase transparency, competition, and consumer choice in healthcare and seek to protect the privacy and security of individuals' EHI.

The aim of this *2020-2025 Federal Health IT Strategic Plan* (Plan) is to outline concrete steps federal partners can take to improve health through health IT. The goals, objectives, and strategies within this Plan highlight the importance not only of EHI,

An Outcomes Driven Plan

**FOCUSED ON MEETING
THE NEEDS OF**



This Plan is outcomes-driven, with goals focused on meeting the needs of individuals, populations, caregivers, healthcare providers, payers, public health professionals, researchers, developers, and innovators.

but also of the capabilities enabled by health IT, including public health surveillance, telehealth, and remote monitoring. The coronavirus disease 2019 (COVID-19) pandemic caused by the novel coronavirus (SARS-CoV-2) has highlighted the importance of IT-enabled tools in supporting our healthcare infrastructure.

Federal, state, and local governments, along with the private sector, have worked together to help digitize health information and healthcare. Yet, much work remains to ensure patients and caregivers have access to valuable, usable information. With this Plan, the federal government demonstrates its ongoing coordinated focus on the interoperability of EHI and the reduction of provider burden. It emphasizes product and price transparency, allowing individuals to select the technology they wish to use to access and control their information, while opening up entirely new business models for the health app economy. This Plan is outcomes-driven, with goals focused on meeting the needs of individuals, populations, caregivers, healthcare providers, payers, public health professionals, researchers, developers, and innovators. We would like to thank our federal partners, committees, and members of the public who helped shape the goals, objectives, and strategies in this Plan. ONC, the Department of Health and Human Services (HHS), and our federal partners will continue to take major strides to make healthcare more transparent, accountable, and accessible, while strengthening the patient-provider relationship.

From mobile apps to automation to machine learning—the future of healthcare is promising.

Donald W. Rucker, M.D.

National Coordinator for Health Information Technology



AT THE FOREFRONT OF

Health IT

Federal Health IT Vision and Mission



FEDERAL HEALTH IT

VISION

A health system that uses information to engage individuals, lower costs, deliver high quality care, and improve individual and population health.



FEDERAL HEALTH IT

MISSION

Improve the health and well-being of individuals and communities using technology and health information that is accessible when and where it matters most.

Federal Health Principles

Through this Federal Health IT Strategic Plan, the government will work collaboratively to:



Put individuals first.

Embrace person-centered care that values the whole individual, including their goals, values, culture, and privacy.



Focus on value.

Promote and pursue activities that improve health and care quality, efficiency, safety, affordability, equity, effectiveness, and access.



Build a culture of secure access to health information.

Support secure health information access, exchange, and use by individuals, caregivers, healthcare providers, public health professionals, and other stakeholders.



Put research into action.

Strengthen feedback loops between scientific, public health, and healthcare communities to efficiently translate evidence into clinical practice and improvement.



Encourage innovation and competition.

Support and protect innovation and competition in health IT that result in new solutions and business models for better care and improved outcomes.



Be a responsible steward.

Develop health IT policies through open, transparent, and accountable processes; use federal resources judiciously; and leverage the expertise of the private sector to provide technology and services to execute on these policies, as appropriate.

Strategic Plan

Strategic Plan Framework

This Plan includes four goals, each of which includes specific objectives and strategies. Taken together, these should not be viewed as sequential, but as interdependent with the collective purpose of improving the health of individuals, families, and communities.

GOAL 1	Promote Health and Wellness Objective 1a: Improve individual access to usable health information Objective 1b: Advance healthy and safe practices through health IT Objective 1c: Integrate health and human services information	GOAL 4 Connect Healthcare with Health Data
GOAL 2	Enhance the Delivery and Experience of Care Objective 2a: Leverage health IT to improve clinical practice and promote safe, high-quality care Objective 2b: Use health IT to expand access and connect patients to care Objective 2c: Foster competition, transparency, and affordability in healthcare Objective 2d: Reduce regulatory and administrative burden on providers Objective 2e: Enable efficient management of health IT resources and a nationwide workforce confidently using health IT	Objective 4a: Advance the development and use of health IT capabilities Objective 4b: Establish expectations for data sharing Objective 4c: Enhance technology and communications infrastructure Objective 4d: Promote secure health information practices that protect individual privacy
GOAL 3	Build a Secure, Data-Driven Ecosystem to Accelerate Research and Innovation Objective 3a: Advance individual- and population-level transfer of health data Objective 3b: Support research and analysis using health IT and data at the individual and population levels	

Introduction

Health information technology (health IT) refers to the use of information and communication technologies in caring for patients, tracking diseases, protecting public health, conducting research, and improving the health of individuals and populations.¹ Health IT has evolved from being one tool in the healthcare toolbox to being an integral component of healthcare delivery, and it is critical to improving our nation's health system. As of 2017, 80 percent of physician offices and 96 percent of acute care hospitals use ONC-certified health IT.² Information exchange among healthcare providers, patients, and public health and research organizations is increasing rapidly.

How Health IT is Used

Health IT is used in a variety of ways. Not only does it help to deliver care, treat illness, and improve health outcomes, but it also helps to address the social, economic, and environmental factors that influence the health of individuals and communities.



Individual patients—as well as their caregivers—use information technologies such as patient portals and patient-facing apps, and communication technologies like secure messaging and email, to access their health information, manage treatment of their

health conditions, and interact with healthcare providers. When it is available, patients can assess quality and cost information through health IT to make informed decisions about where to seek care. In addition to accessing information, patients and caregivers can use remote services (e.g., telehealth) to remain connected to care when they are unable to physically travel to an office or clinic, such as during a national public health emergency, when they are unable to use transportation, or if they live in an area with limited access to certain health services.

Healthcare providersⁱ and healthcare organizations use health IT to input and reference patients' health information, make or adjust a diagnosis, make clinical decisions, and create care plans. In addition, providers use health IT to better engage (virtually or in person) with their patients and patients' caregivers to address patients' needs more quickly and enhance their experience of care.

Public health professionals, researchers, and community-based organizations increasingly use health IT outside of the traditional care setting to collect and assess health and human services data across individuals and populations. This includes using technology to exchange information and track public healthⁱⁱ activities (e.g., collecting data on reportable conditions) to address health and related social disparities, lower costs, and improve outcomes, particularly for racial and ethnic minorities, individuals of less privileged socioeconomic status, underserved

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- i Throughout this document, we use the terms “healthcare providers” and “providers” to mean “health care provider” as defined in section 3000(3) of the Public Health Service Act (42 U.S.C. 300jj): a hospital, skilled nursing facility, nursing facility, home health entity or other long term care facility, health care clinic, community mental health center (as defined in section 300x-2(b) (1) of this title), renal dialysis facility, blood center, ambulatory surgical center described in section 1395l(i) of this title, emergency medical services provider, Federally qualified health center, group practice, a pharmacist, a pharmacy, a laboratory, a physician (as defined in section 1395x(r) of this title), a practitioner (as described in section 1395u(b)(18) (C) of this title), a provider operated by, or under contract with, the Indian Health Service or by an Indian tribe (as defined in the Indian Self-Determination and Education Assistance Act [25 U.S.C. 450 et seq.]), Tribal organization, or urban Indian organization (as defined in section 1603 of title 25), a rural health clinic, a covered entity under section 256b of this title, an ambulatory surgical center described in section 1395l(i) of this title, a therapist (as defined in section 1395w-4(k)(3)(B)(iii) of this title), and any other category of health care facility, entity, practitioner, or clinician determined appropriate by the Secretary.
- ii Throughout this Plan, “population health” refers to “the health outcomes of a group of individuals, including the distribution of such outcomes within the group” (Kindig and Stoddard, 2003; American Journal of Public Health). “Public health” refers to “the science and art of preventing disease, prolonging life, and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities, and individuals” (Winslow, 1920).

rural populations, and sexual and gender minorities. Health IT also supports these stakeholders' roles in performing disease surveillance, case reporting and management, laboratory testing, and clinical data collection, as well as reporting outcomes during public health emergencies.

While also engaging in the above activities, payers use health IT to understand member health status, analyze cost data, and engage in care management activities. Life sciences and medical device companies use health IT to support research on new therapies and technologies, engage consumers, and coordinate the safe use of their products.

The Federal Government's Role in Health IT

The federal government plays a far-reaching role in supporting the advancement of health IT and interoperability.

Federal agencies are purchasers, developers, and regulators of health IT. They fund and contribute to health IT research, health IT development, and health IT deployment at the local, Tribal, state, and national levels. Federal agencies also facilitate coordination across the public and private sectors to align standards, encourage innovation, share best practices, and promote competition. In addition, they have the responsibility of developing regulations that impact health IT and providing oversight for its use.



Beyond actions aimed at strengthening the health IT infrastructure and lowering barriers to access, exchange, and use of EHI, federal agencies use health IT to achieve their missions and serve the nation every day. For example, agencies use EHRs, data systems, and other health IT to conduct public health surveillance and research, provide healthcare services to patients, and administer government benefit programs such as Medicare and Medicaid. The federal government, through implementing the strategies outlined in this Plan, will continue to play an essential role in the advancement of health IT in the U.S.

Challenges in Healthcare

The goals, objectives, and strategies detailed in this Plan support the federal government's broader aim to mitigate many of the healthcare challenges that exist in the U.S. These challenges include increased healthcare spending, poor health outcomes, increased rates of mental illness and substance use disorders, and inconsistent access to care, technology, and information. Social determinants of health (SDOH)—the conditions in which people live, learn, work, and play³ – can contribute to disparities. As federal agencies and other partners work together toward a more interoperable healthcare system, they should consider the ways in which health IT can address these challenges equitably and in ways that do not exacerbate existing disparities associated with SDOH.



Increasing
Healthcare
Spending



Poor
Health
Outcomes

Challenges in Healthcare



Increasing Rates of
Mental Illness and
Substance Use Disorders



Access to
Care



Access to
Technology



Access to Electronic
Health Information



Increasing Healthcare Spending

National health expenditures were about \$3.6 trillion in 2018 and are projected to reach nearly \$6.0 trillion by 2027, with annual increases averaging about 5.5 percent.⁴ As in previous years, this increase is projected to significantly outpace growth in the overall economy, and healthcare will continue to account for a larger and larger portion of gross domestic product.⁵

Population growth, an aging population, changing disease prevalence and incidence, increasing utilization of health services, and increases in prices and intensity of services all contribute to increased healthcare spending.⁶ Notably, treatment of chronic disease and mental health conditions account for 90 percent of the nation's annual healthcare expenditures.⁷



Poor Health Outcomes

The U.S. health system can improve in managing chronic disease and assuring equity in access and health outcomes. The country's high disease burden and mortality rates are due in part to a greater prevalence of chronic conditions such as diabetes and heart disease.⁸ Further, the U.S. continues to have racial and ethnic disparities in health outcomes and in access to and use of preventative care.⁹



Increasing Rates of Mental Illness and Substance Use Disorders

Increasing rates of mental illness and substance use disorders are major contributors to decreased life expectancy in the U.S. Rates of depression and suicide are increasing, and overdoses from opioids and other drugs and alcohol-related deaths continue to rise.¹⁰ Rural communities, which lack access to services due to fewer resources (including mental/behavioral health and other specialty providers) or means of transportation, are especially affected by mental illness and substance use.¹¹



Access to Care

Health insurance coverage is a significant determinant of access to healthcare.¹² As health insurance premiums rise, the number of uninsured also rises.^{13,14} Being uninsured or underinsured increases the likelihood that people will avoid care and face financial hardships when care is received.¹⁵ Being uninsured can also lead to higher uncompensated spending as healthcare providers take on costs to treat uninsured patients who are unable to pay for their care.¹⁶

The high cost of health services can hinder access to care, even among Americans with health insurance.¹⁷ The insured may face significant out-of-pocket spending from deductibles, co-pays, and inadvertent use of out-of-network healthcare providers. Access to care can be limited by a lack of available healthcare providers within an insurer's network or within geographic reach of individuals and their families. Barriers to entry and competition in healthcare can exacerbate issues of access by increasing prices associated with products and services.^{18,19}



Access to Technology

The U.S. has made significant strides to increase broadband access in recent years. More than 94 percent of the population now live in an area with access to both high-speed internet and Long Term Evolution (LTE) mobile service, and 90 percent of Americans use the internet. However, access to technology remains a challenge across the U.S., as more than one-quarter of Americans do not use broadband internet access at home.²⁰

Low income, Tribal, and rural populations are less likely to have access to broadband internet service, and these groups, along with racial and ethnic minority populations, are therefore less likely to use broadband internet service than other demographic groups.²¹ Lack of access to broadband can exacerbate existing health disparities by creating a barrier to the range of technologies that support cost-effective and high-quality care.²²

Furthermore, people without access to smartphones cannot experience the

benefits of personalized health apps that can enable users to manage their health. Available technology may not be made in ways that are accessible for people with disabilities.



Access to Electronic Health Information

Application programming interfaces (APIs) enable phones, computers, and other technologies to connect and share information in real-time. Industries like banking, retail, and education use APIs to allow individuals to manage their finances, track packages, and even complete online courses from the convenience of their smartphones. Healthcare is one of the only industries where many individuals do not have easy access to their electronic information using mobile apps.

In addition, while most hospitals and provider practices use technology that would allow patients and caregivers to view and download health information, a nationally representative survey indicated that only 51 percent of individuals were offered access to their online medical records by their providers or payers in 2018. This percentage is even lower among people who have no insurance and lower-income and education levels.²³

Even when patients have electronic access to their EHI, they are not always able to use it effectively—a critical barrier to improving health through increased access to information is poor health literacy. Too often, patients and caregivers are unable to realize the full benefits of access to EHI because they may not understand what the information means or have the tools to display information in a way that enables them to make informed decisions. This issue is especially important as individuals are increasingly expected to take a larger role in managing their own health and care. As health IT expands, individuals must be empowered with new health literacy competencies, including an understanding of data sharing, consent, and how privacy, security, and access standards apply to an individual's EHI.

Opportunities in a Digital Health System

The healthcare system is rapidly advancing in a direction that amplifies patient voices, improves value, drives interconnectedness of EHI and new technologies, reduces provider burden, and protects patient privacy and data security. The strategies in this Plan reflect the ways in which federal partners and collaborators can leverage health IT to bolster efforts across each of these areas of opportunity, which are detailed below.

Opportunities in a Digital Health System



Empowering
Patients



Moving to
Value-Based Care



Advancing
Interoperability



Promoting
New Technologies



Reducing Regulatory and
Administrative Burden



Protecting Privacy of
Health Information



Securing Health
Information



Empowering Patients

Healthcare continues to move toward person-centered care. Individuals can take a more active role in their care by improving their health behaviors, self-managing chronic conditions, engaging in shared decision-making, and using bi-directional exchange of data to communicate with healthcare providers. Providing patients and caregivers with more robust health information, including quality and cost information, can further help them manage their health and exercise control and choice in their care.

Policies promoting use of secure, standards-based APIs,ⁱⁱⁱ including regulations established to implement the 21st Century Cures Act, will encourage the development of health apps that provide access to and use of data in EHRs to better support person-centered care and patient empowerment. Additional examples of federal activities to encourage these efforts include:

- HHS encouraging payers and healthcare organizations to make price information available through regulations and policies;
- The Federal Trade Commission ensuring that health IT companies comply with antitrust and consumer protection laws to promote and protect competition and safeguard the privacy and security of consumers' EHI; and
- The HHS Office for Civil Rights (OCR) announcing that it has settled its eighth enforcement action in its Health Insurance Portability and Accountability Act (HIPAA) Right of Access Initiative (OCR announced this initiative as an enforcement priority in 2019 to support individuals' right to timely access to their health records at a reasonable cost under the HIPAA Privacy Rule).²⁴

iii Published to the Federal Register on May 1, 2020, the API certification criterion in ONC's [21st Century Cures Act: Interoperability, Information Blocking, and the ONC Health IT Certification Program final rule](#) will require the use of the Health Level 7 (HL7®) Fast Healthcare Interoperability Resources (FHIR®) standard Release 4 and references several standards and implementation specifications adopted in § 170.213 and § 170.215 to support standardization and interoperability. This certification criterion will help align industry efforts around FHIR Release 4 and advance interoperability of API-enabled "read" services for single and multiple patients. Also published to the Federal Register on May 1, 2020, the [CMS Interoperability and Patient Access final rule](#) requires CMS-regulated payers to implement and maintain a secure, standards-based (HL7 FHIR®) Patient Access API.



Moving to Value-Based Care

In addition to patient empowerment, the U.S. healthcare system is continuing progress toward value-based care, in which payment is linked to measures of provider performance and patient outcomes and is based on evidence-based practices and guidelines. In 2018, approximately 61 percent of public and private healthcare spending was part of a value-based payment or pay-for-performance model, up from 23 percent in 2015.^{25, 26} This movement is likely to continue and perhaps accelerate due to projected increases in healthcare spending.

The shift to value-based care has created new incentives for providers in a variety of settings to improve quality and patient outcomes. These incentives place greater importance on addressing SDOH and patient health behaviors and engaging in preventive care, population health management, and disease management.

Success in value-based payment models is contingent in part on healthcare provider and payer access to and exchange of robust population-level data that allows them to better understand the needs of their patients, stratify patients by risk, engage in patient outreach, and track outcomes over time. Health IT — such as registries and other data systems—plays a fundamental role in the collection, reporting, and analysis of data needed to support value-based care.



Advancing Interoperability

EHRs are widely used in physician practices, hospitals, and health systems across the U.S. As a result, the federal government and the private sector have increased their focus on improving interoperability—the secure exchange of EHI with, and use of EHI from, other health IT without special effort on the part of the user.²⁷

The federal government promotes interoperability of EHI through several programs and policies. For example, the Centers for Medicare & Medicaid Services (CMS) includes health IT-focused incentives in programs like Medicare's

Promoting Interoperability Program (formerly the Medicare and Medicaid EHR Incentive Programs, or Meaningful Use) and the Merit-Based Incentive Payment System. In 2020, CMS finalized a rule to advance interoperability by increasing the seamless flow of EHI; reducing burden on patients, caregivers, and healthcare providers; and fostering innovation by unleashing data for researchers and innovators.²⁸

Also, in 2020, ONC finalized a regulation (Cures Act Final Rule) designed to drive interoperability of EHI by supporting the use of Health Level Seven's (HL7®) Fast Healthcare Interoperability Resources (FHIR®) standard for APIs.²⁹ The use of FHIR®, which was also encouraged by federal agencies like the Agency for Healthcare Research and Quality, ONC, CMS, Centers for Disease Control and Prevention, and the National Institutes of Health, fosters increased data sharing between patients, healthcare providers, payers, researchers, and other healthcare entities. As required in the 21st Century Cures Act, ONC's Cures Act Final Rule addresses information blocking, which is generally described as a practice that is likely to interfere with the access, exchange, or use of EHI.³⁰

While programs like Promoting Interoperability focus on a subset of the healthcare community, the federal government recognizes the need for investment in and adoption of interoperable health IT by researchers and providers in all care settings (e.g., primary care, long-term and post-acute care, physical therapy, behavioral health, emergency medical services, and hospitals) so they can fully participate in robust EHI exchange.

The private sector recognizes the value of interoperable EHI. Spurred by ONC and CMS regulations, private entities are increasingly using standards-based APIs to develop tools that provide patients, caregivers, and providers with data to promote information sharing. Additionally, participation in health information exchanges (HIEs) and health information networks (HINs) continues to grow. This signifies continued investment in information sharing and collaboration among stakeholders in this sector.

The public and private sectors play a key role in refining existing IT functionalities and creating entirely new kinds of data exchange strengthened by interoperability. While much progress has been made, the ongoing process of improving interoperability will demand continued investigation and advancements in the ways health IT systems interact, and how they access, exchange, and use data.



Promoting New Technologies

The public and private sectors are continuously developing new technologies to improve access to care and health information. Increased computing power and innovation are propelling new algorithms, analytic capabilities, and machine learning (ML) capabilities from what were once limited, conceptual uses to more everyday uses. Remote monitoring technologies such as wearables and web-enabled medical devices also continue to advance as healthcare providers and patients become more comfortable using such technologies.

Improved broadband access is another driver of adoption and use of new technologies in healthcare. Telehealth, for example, expands services to populations, such as those in rural areas with a shortage of healthcare providers, or to urban residents who lack the transportation or job flexibility needed to visit providers during the traditional workday.

In response to the COVID-19 pandemic, efforts to remotely deliver care and perform research accelerated. Clinical researchers collecting data for studies and providers caring for patients adapted to the pandemic through health IT-enabled telehealth and remote engagement tools. The trend toward greater virtualization in healthcare is likely to continue beyond the pandemic, and this demand will likely heighten the call for greater infrastructural changes to support health IT use and for continued care innovation.

These new technologies, along with existing claims and EHR data, mean the volume of health-related data being generated has never been greater. Volumes of data can now be processed, analyzed, and exchanged almost

instantaneously, and live, high-resolution video can be sent and received without interruption. Where appropriate, the ability to leverage this “big data” for research, discovery, and clinical validation at the point of care through collection, organization, analysis, and interpretation represents both a challenge and a significant opportunity for healthcare.



Reducing Regulatory and Administrative Burden

Congress emphasized in the 21st Century Cures Act the importance of easing regulatory and administrative burden associated with the use of health IT and directed ONC and CMS to develop strategies for reducing this burden. While interoperable health IT has the potential to improve patient care and outcomes, current system designs can be burdensome to users—including both providers and administrative staff—in healthcare settings. Much of the burden on healthcare providers is a result of EHRs being originally designed primarily to support reimbursement and financial processes, rather than patient care. For example, activities such as prior authorization and clinical documentation, which in many instances have not been built into EHR workflows, can cost providers time that could otherwise be spent with patients.³¹

Health IT has the potential to help minimize burden on healthcare practices by increasing automation of administrative transactions (e.g., prior authorizations) and easing quality measure reporting and other data submission requirements. Providers’ return on investment in health IT can be maximized when it is adequately incorporated into workflows and when it automates manual administrative processes. The return on investment can incentivize providers to make the necessary resource allocations to adopt and sustain these systems.³²



Protecting Privacy of Health Information

The most sensitive information about a person is often their health information. Government agencies, healthcare providers, health IT developers, researchers, and other stakeholders have been working together to implement mechanisms for strengthening health information privacy as more data are generated and exchanged through interoperable health IT.

Despite implementation and use of robust privacy practices in healthcare as required by federal and state regulations, EHI can still be misused or inappropriately disclosed in ways that may harm consumers. Federal partners and providers play an important role in educating individuals and their caregivers on data practices and safety risks associated with uses of electronic data. They can also educate patients on how to meaningfully consent to the use of their data^{iv}.



Securing Health Information

The confidentiality, integrity, and security of EHI that is created, transmitted, and stored using health IT is a priority for all stakeholders. This is especially true considering the healthcare industry's move toward cloud-based storage, where data on large populations of patients is held in one place. The strategies included throughout this Plan are predicated on implementation of robust mechanisms for securing information from ransomware and other cybersecurity risks, while ensuring that information is accessible and usable when and where it is needed.

iv Meaningful consent, or consent, in this document is defined as an informed decision made by a patient (or caregiver as a proxy) that allows them to determine if their health information will be released, under what circumstances the release will take place, and by whom. More information on what defines consent can be found here: <https://www.healthit.gov/topic/meaningful-consent-overview>

Goals, Objectives, and Strategies

This section describes the 2020-2025 strategic goals and objectives, and lists strategies for meeting each objective. Appendix B describes how federal agencies can benchmark progress and measure success over time.

GOAL
1

Promote Health and Wellness

GOAL
2

Enhance the Delivery and Experience of Care

GOAL
3

Build a Secure, Data-Driven Ecosystem to
Accelerate Research and Innovation

GOAL
4

Connect Healthcare with Health Data

GOAL 1:

Promote Health and Wellness



The use of health IT must go beyond the sharing of EHI between healthcare providers and the enabling of administrative tasks. Health IT should be leveraged to empower individuals, address patients' full range of health needs, promote healthy behaviors, and facilitate better health outcomes for individuals, families, and communities.

Objective 1a:

Improve individual access to usable health information

A key aspect of person-centered care is empowering individuals by providing them access to their health information. Health information access allows patients to become more engaged in their care and management of their conditions, and it alleviates strain on caregivers who manage the care of their loved ones.³³ Improving access to EHI—especially for populations in rural areas, persons with disabilities, racial and ethnic minorities, and those with low socioeconomic status—should be prioritized if we are to achieve equitable care outcomes for all. In addition, patients and caregivers should have access to resources that allow for improved health IT literacy so they understand how their health data may be used, how to choose safe and secure health apps, and how to set their privacy preferences.

Strategies

- **Enable individuals to access their health information** by ensuring that they can view and interact with their data via secure mobile apps, patient portals, and other technologies.
- **Promote greater portability of EHI** through standards-based APIs and other interoperable health IT that permit individuals to readily send and receive their EHI across various platforms.

- **Improve access to smartphones and other technologies** needed to attain and use EHI, especially among at-risk, minority, rural, disabled, and Tribal populations.
- **Build the evidence base on the use of EHI**, including the types of information that will benefit individuals most and the best ways to present information to patients and caregivers.
- **Improve consumer health IT literacy** by developing educational resources related to choosing and using secure available technologies that incorporate privacy protections.

Objective 1b:

Advance healthy and safe practices through health IT

A new ecosystem of wearable technologies, patient-facing applications, and other digital tools promises to expand access to services and infuse the care of individuals and populations with new health insights.³⁴ When successfully integrated into clinician workflows, these tools can help providers address the needs of individual patients during the course of care, as well as the needs of populations during public health emergencies and other disasters.

Strategies

- **Promote healthy behaviors and self-management** through patient-facing apps and wearable technology to allow individuals to track physical activity, share and compare health and fitness data, collaborate with care team members, adhere to care plans, and make informed lifestyle choices.
- **Leverage individual- and population-level data** to prepare for, respond to, and recover from disasters; inform and monitor public health activities; improve quality of life; and address disease occurrence and preventable deaths.
- **Advance the use of validated evidence-based digital therapeutics^v** to help prevent, manage, and treat conditions through the help of smartphones, tablets, and other personal devices.

^v [Digital therapeutics](#) are a subset of digital health tools that deliver evidence-based therapeutic interventions to patients that are driven by high quality software programs.

Objective 1c:

Integrate health and human services information

Integrated health and human services data are necessary for providing person-centered healthcare and human services, and for understanding and addressing SDOH at the individual and population levels. Moreover, a health IT infrastructure that can facilitate secure, bi-directional exchange of data at the population level is key to improving outcomes and effectively administering social programs. Today, there is a lack of standardization of human services data, making integration of health and human services data between the various federal, state, territorial, regional, and local agencies and tribes a challenge.³⁵ Standardization and integration of data will enable agencies to more efficiently collaborate and implement community programs.

Strategies

- **Advance standardization and interoperability of SDOH and social service data** across federal programs through the use of standard health IT terminologies, definitions, and methods for data collection and exchange.
- **Capture and integrate SDOH data into EHRs and clinical decision support** to inform care delivery (including referrals and integration of medical and social care) and to address health disparities in a manner that is ethical and consistent with routine patient care.
- **Promote engagement between providers** across the care continuum, state, Tribal, territorial, and local agencies, and community-based programs to leverage existing health IT infrastructure and develop communities' data and health IT capacity.
- **Modernize and strengthen communities' health IT infrastructure** to improve care and effectively administer social programs by facilitating bi-directional communication and secure exchange of data across healthcare, public health, and human services settings.
- **Foster greater understanding of how to use health IT**, and assess available health IT solutions, to address unmet health and social needs for individuals and communities.

GOAL 2:

Enhance the Delivery and Experience of Care



Federal partners and other stakeholders should continue to leverage innovative health IT solutions to enhance the delivery and experience of care for patients and providers. Programs and activities should be designed in ways that ensure organizations are exchanging interoperable data in a useful way, that data is available in real-time and is valuable to the requestor (e.g., data is accurate, usable by the recipient, and sent with context), and that health IT appropriately aids in the overall patient healthcare experience.

Objective 2a:

Leverage health IT to improve clinical practice and promote safe, high-quality care

When built on a broad definition of patient safety—one that includes privacy, security, and equity—and on data that is accurate and connected across the care journey of each individual, health IT tools can support high-quality care. For example, such technologies can be leveraged to improve safety by reducing unintended care variability between patients. They can also support care transformation at the population level through quality measurement and value-based care. Effectively leveraging data to transform clinical practice involves integration between important data systems (e.g., prescription drug monitoring programs) and continued development of advanced capabilities for patient matching.

Strategies

- **Promote interoperability and data sharing through widely-accepted standards** to ensure health information is available across care settings for use in patient care,

public health, research, and emergency and disaster preparedness, response, and recovery.

- **Continue efforts to establish identity solutions** within and across data systems that improve patient matching.
- **Optimize care delivery by developing and applying advanced capabilities that leverage modern computing tools to support** evidence-based practices and principles of safe software development and use.
- **Support expanded use of health IT for safer clinical practices** to prevent and address adverse events by building automated patient safety and rapid reporting features into the health IT infrastructure.
- **Reduce diagnostic error and tailor care through precision medicine** to assist in the diagnosis of disease and targeting of treatment to individual patients using real-time data.
- **Use electronic clinical quality measure (eCQM) data** to optimize healthcare providers' and researchers' abilities to assess quality and outcomes.

Objective 2b:

Use health IT to expand access and connect patients to care

Leveraging existing standards and developing new health IT capabilities, methods, and approaches to improve usability and understandability of health information to expand access to care and real-time health information are important to ensuring all patients can be connected to care when and where they need it. This access can help reduce health disparities that are currently exacerbated due, in part, to resource shortages and inequitable access to services, and can also support public health preparedness. The recent COVID-19 pandemic highlighted the importance of real-time surveillance and a strong health IT infrastructure for connecting researchers, providers, and patients in times of emergency.^{vi}

vi Public health emergencies or natural disasters can potentially harm health IT infrastructure, though this risk can be mitigated through the use of emergency preparedness tools.

Strategies

- **Expand care beyond traditional clinical settings** by bolstering access to remote monitoring, surveillance software, telehealth, and other IT-enabled mobile services.
- **Use digital engagement technologies beyond portals** to connect patients more easily with their providers, enabling real-time collaboration and self-scheduling.
- **Sustain collaborative activities** necessary to ensure public health surveillance, preparedness, and response.

Objective 2c: Foster competition, transparency, and affordability in healthcare

Affordability of healthcare services and treatment remains a key barrier to accessing high-quality care for many individuals. Price and quality transparency—including the availability of this information to patients and providers in real-time—improves patient decision-making, reduces barriers to entry for health IT developers, encourages competition in healthcare, and helps drive down costs.³⁶ Furthermore, competition promotes consumers' ability to choose from a variety of health products and services based on which best meet their needs.

Strategies

- **Encourage pro-competitive business practices** that allow individuals to easily choose from and use health apps and other health IT tools without special effort.
- **Support efforts to merge administrative and clinical data streams** to enable access to real-time financial data at the point of care.
- **Make care quality and price information available** to individuals in an accessible, easily understandable format.
- **Educate consumers on the availability of quality and price information** and how to use this information to shop for care based on value.

Objective 2d:

Reduce regulatory and administrative burden on providers

Clinicians spend a significant amount of time entering patient data and other documentation in EHRs for the purposes of reimbursement; quality measure, public health, and clinical registry reporting; and prior authorization and referral submission. The paperwork and box-checking that can be associated with these activities is a hindrance to the delivery of high-quality care; it leaves healthcare providers feeling burned out and reduces the amount of time they have to interact with patients.³⁷ Health IT developers play an important role in reducing health IT-related burdens on providers and administrative and IT staff.

Strategies

- **Simplify and streamline documentation** required of healthcare providers using health IT at the point of care while ensuring that quality standards are upheld.
- **Promote the use of evidence-based automated tools** to streamline provider workflows, encourage electronic provider-to-provider data exchange, and improve efficiency.
- **Monitor and seek to optimize the impact of health IT on provider workflows** to better understand the role of health IT in the provision of care and the minimization of unnecessary data entry and other administrative steps.
- **Promote greater understanding of applicable regulations and practices** to improve compliance by providing educational resources and tools to healthcare providers and health IT developers.
- **Harmonize provider data collection and reporting requirements** across federal agencies.
- **Streamline processes to reduce the effort required by healthcare providers and health systems** to generate, input, and share EHI.

Objective 2e:

Enable efficient management of health IT resources and a nationwide workforce confidently using health IT

Health IT requires a significant amount of resources to adopt and maintain, which can place an extra burden on providers and other healthcare staff.³⁸ As health IT systems evolve, stakeholders should focus on expanding current—or creating new—training programs to develop a capable health IT workforce (e.g., information technology professionals, providers, public health professionals, informaticians, researchers, and others) with knowledge of EHRs, data sharing, informatics, and other health IT topics.

Strategies

- **Implement education and training programs** to build a strong, cross-functional health IT workforce that can support IT across healthcare settings, especially in rural areas.
- **Continue to invest in the health IT workforce** by allocating greater resources to train, recruit, and retain workers and to support adequate job opportunities.
- **Engage clinicians and staff in development and usability testing** of health IT products to ensure products and tools support clinical workflow and care delivery.
- **Leverage health IT expertise** across professionals and care settings by promoting use of collaborative models and networks.

GOAL 3:

Build a Secure, Data-Driven Ecosystem to Accelerate Research and Innovation



An integrated ecosystem that respects individual privacy and securely collects information from multiple sources is critical to unlocking the power of data. With access to data, technology and analytic advancements like ML and forecasting have the potential to transform care and improve health. Further, by providing access to data stored in EHRs and apps, secure, standards-based APIs can empower individuals, healthcare providers, payers, public health professionals, researchers, and technology companies working together to advance research and management of health for patients and populations.

Objective 3a: Advance individual- and population-level transfer of health data

Vast amounts of individual- and population-level health and human services data are collected every day. Examples include individuals using mobile phones and wearable devices to track their personal health data; public health professionals and government agencies collecting data about SDOH to inform public programs; and researchers collecting study data to better understand how to treat disease. Enabling researchers, individuals, providers, and payers to safely provide data for the purpose of research and healthcare improvement through secure, standards-based APIs will spur collaboration and innovative uses of data and technology.

Strategies

- **Improve harmonization of data elements and standards** in collaboration with nationally-recognized standard setting organizations by leveraging existing—or creating new—common vocabulary sets and by improving the consistency, integrity, and quality of data.
- **Bolster secure access to large datasets** containing health information for use in research.
- **Enable individuals to securely provide data via apps and other health IT for research** using a consent process that is consistent with individuals' preferences to participate in research.
- **Assess availability of health and human services data and streamline the appropriate collection, submission, and sharing of this data** between federal, state, Tribal, and local systems to enable population health planning; analysis of quality and patient outcomes across settings and programs; and clinical research.
- **Foster data governance that reinforces privacy protections and a secure, unified platform** supporting innovative uses of shared data.

Objective 3b:

Support research and analysis using health IT and data at the individual and population levels

EHI can be leveraged to support research and innovation for disease prevention and quality improvement. Partners should continue to work together to support research and innovations like artificial intelligence (AI)/ML, which can advance value and care delivery across the care continuum. Developers, health researchers, public health professionals, and informaticians should collaborate with the security research community to ensure innovations in health IT align with standards of individual privacy, safety, efficacy, and equity.

Strategies

- **Investigate the impact of use of health IT**, including ML and other non-EHR technologies, on patient care, safety, and outcomes.
- **Broaden use of new technologies and analytic approaches** like ML and predictive modeling to harness the power of integrated data for improving quality and decision making.
- **Increase use of health IT capabilities** to conduct research and integrate into other data sources remotely or virtually, as appropriate.
- **Advance research into targeted therapies** through real-time data and ML intelligence informed through public health principles, data, and research.
- **Identify and implement health IT capabilities** that support rapid sharing of disease surveillance data.
- **Ensure that research conducted reflects the diversity of the U.S.** so that findings can be applied across populations.

GOAL 4:

Connect Healthcare with Health Data



Health IT that connects healthcare with health data using standards-based APIs will support strategies to meet the goals and objectives in this Plan. The federal government and other stakeholders can advance interoperability and support transparent, trusted, and seamless connectivity of EHI by continuing to champion the use of standards-based APIs, fostering partnerships to align standards and activities, and reducing burden on providers. Moreover, by supporting and streamlining policies, the government can establish greater consistency across the federal regulatory landscape and improve how the private sector can share in advancing the country's interoperability goals.

Objective 4a:

Advance the development and use of health IT capabilities

One of the ways federal agencies can support the advancement of health IT capabilities is by reducing barriers to entry for health IT developers. With rapid innovation and as more products become available, healthcare providers need clear and easy ways to stay abreast of the continually evolving digital health landscape. Similarly, wider use of new capabilities among all stakeholders depends on their confidence and trust in health IT.

Strategies

- **Promote a digital economy** that leverages research and development and that can lead to the development of new business models in healthcare while protecting individual privacy.

- **Reduce financial and regulatory barriers** that prevent new health IT developers from entering and competing in the health IT marketplace.
- **Promote trustworthiness of health IT** by enforcing information blocking, privacy, and security laws when applicable.
- **Encourage transparency on health IT product usability** via industry reporting programs, consumer reviews, and other reports.
- **Promote provider adoption and use of health IT** by encouraging its use in federal programs, increasing investments in health IT, and making resources available to support health IT adoption and use.
- **Enable portability of EHI and competition in the health IT sector** to help reduce costs associated with transitioning to new EHR systems and other health IT.
- **Continue collaboration across public and private sectors** to adopt and advance nationally-supported standards, implementation specifications, and certification criteria, including the United States Core Data for Interoperability (USCDI), Interoperability Standards Advisory (ISA), and FHIR®.
- **Follow safety and user-centered design principles in the development of health IT** to help ensure tools are safe, accessible, usable, and that solutions address the needs of the users for whom they are developed.
- **Implement mechanisms of data governance and provenance** to promote individual privacy, safety, security, and accountability for patient records, and to improve data quality through all stages of care and uses of health IT.

Objective 4b: Establish expectations for data sharing

The information blocking provision in the 21st Century Cures Act, as well as the information blocking section in ONC's Cures Act Final Rule, have provided a means for addressing anti-competitive practices that could impact the access, exchange, or use of EHI. The combination of the current state of health IT and the structure and conditions of healthcare markets creates incentives to limit access to EHI in ways that significantly limit its value to patients and providers. The federal government, through implementation of this Plan, seeks to continue enabling individuals to have seamless

and secure access to their EHI, which will allow them to more fully participate in the mobile app economy.

Healthcare providers, administrative and IT staff, researchers, and health IT developers may not understand what is required for compliance with federal and state privacy laws. Federal agencies can support transparency and a better understanding of health IT regulations by sharing user-friendly compliance resources, and by collaborating with experts to implement existing best practices to assure privacy and security.

Strategies

- **Address information blocking practices** taken by healthcare providers, developers of certified health IT, and HIEs/HINs.
- **Develop educational resources** for providers and others to improve understanding of complex topics regarding information exchange (e.g., information blocking and patient consent management) and how to comply with regulations.
- **Support a common agreement for nationwide exchange of health information** that drives interoperability, supports federal agencies' strategies, and promotes effective governance.
- **Eliminate unnecessarily restrictive data sharing practices** and use nationally-supported standards, implementation specifications, and certification criteria to promote data liquidity.

Objective 4c:

Enhance technology and communications infrastructure

The health IT and communications infrastructures in the U.S. vary by location. While access to smartphones and broadband is increasing overall, gaps remain for some populations and regions. Disparities in health IT capabilities and access separate rural and underserved areas from those with greater connectivity and service options. Small practices and rural healthcare providers are often unable to adopt the advanced health IT used by larger health systems, due to constrained resources. To address these disparities, stakeholders should continue to improve the health IT and communications infrastructure across the U.S.

Strategies

- **Assess current and expected health IT and broadband infrastructure** needs and gaps.
- **Harmonize and streamline federal activities to enhance and expand broadband access and communication infrastructure** for all providers, especially those in rural and underserved areas that are less likely to have access to high speed internet.
- **Deploy secure, cloud-based services** that comply with federal standards to modernize and streamline the way EHI is stored and exchanged when held by a federal agency.
- **Support adoption of infrastructure needed for telehealth** to reach patients outside traditional care settings.
- **Advance equitable access to technology and broadband** for individuals, families, and communities.

Objective 4d:

Promote secure health information practices that protect individual privacy

As capabilities for EHI access, exchange, and use continue to expand, federal partners should prioritize protecting individuals' health data from misuse and threats like cybersecurity attacks and fraud. Patients and caregivers must understand how health data may be used and how to specify their privacy preferences. Keeping EHI secure, preventing breaches and fraud, and curtailing other harms is crucial for maintaining patients' trust of their healthcare providers and in health IT.

Strategies

- **Integrate privacy and security considerations into the design and use of health IT, including AI/ML**, to promote a culture of privacy and security and protect individual- and population-level data from cybersecurity attacks, fraud, misuse, and other harms.
- **Mitigate patient data security risks by developing guidance** for API and app developers on securely sharing patient data via standards-based APIs.
- **Implement privacy and security mechanisms as appropriate to the sensitivity of the information** to protect individuals' health data, including multi-factor authentication and encryption embedded in APIs, tools that enhance patient matching accuracy, and other technologies that enhance privacy and security.
- **Provide guidance and technical assistance on policies and regulations** at the federal, state, and Tribal level that pertain to the security and privacy of EHI and enforce such rules.
- **Promote equitable access to tools and resources** that protect patients from discrimination, stigma, and exploitation based on their health information.
- **Increase patient understanding of and control over their data** including building awareness of potential secondary uses of data and how to safely and effectively access and use their EHI and make informed decisions concerning consent and data exchange.

APPENDIX A.

About this Strategic Plan

In developing this Plan, ONC collaborated with more than 25 federal organizations involved in health IT. ONC also conducted research and considered feedback from its Health IT Advisory Committee. Following a public comment period, ONC, in collaboration with its federal partners, considered all comments received and incorporated this input into the final version of this Plan.

This Plan considers the current state of health IT and the ideal future state for individuals, populations, caregivers, healthcare providers, public health professionals, payers, researchers, developers, and innovators. It also considers challenges in defining and implementing strategies. The broad scope of this Plan reflects the diverse roles federal government agencies play in health IT.

This Plan is motivated by:

- the constant evolution of healthcare technologies such as mobile and web apps and medical devices;
- the movement toward improved access, exchange, and use of health information to inform healthcare decisions at the individual and population levels and to advance patient-centered care;
- the public and private sectors' increasing reliance on interoperable health IT and EHI;
- the progress and lessons learned from investments in health IT and its use by federal agencies and federally-run care delivery organizations; and
- the need to improve health IT equity and to reduce disparities in access and use of health IT.

This Plan is intended to serve as a roadmap for federal health IT initiatives and activities, and as a catalyst for activities in the private sector.

The Plan may be used to:

Prioritize Resources	Within an agency, the Plan is a valuable tool to assess and prioritize potential initiatives, programs, and investments. Using the Plan to prioritize activities can help ensure efficient use of agency resources.
Align and Coordinate Efforts	The Plan is intended to drive alignment and organization of priorities and activities across different agencies. It may help agencies identify opportunities to coordinate and collaborate with public and private partners.
Signal Priorities to the Private Sector	Though the Plan only applies to the actions of federal agencies, the Plan can provide signals to the private sector on the direction of the federal government, which may guide coordination and investment decisions.
Benchmark and Assess Progress	The Plan includes indicators of success that can be used to benchmark and assess progress towards meeting the Plan's mission. These indicators may be used to provide the public with a better understanding of the federal government's efforts to improve healthcare using interoperable EHI.

APPENDIX B.

Measuring and Communicating Progress

By design, this Plan is broad in scope. It includes strategies that span many federal departments, agencies, and offices. Federal organizations' actions to implement the *2020-2025 Federal Health IT Strategic Plan* will focus on meeting the EHI needs of individuals, populations, caregivers, healthcare providers, public health professionals, payers, researchers, developers, and innovators.

ONC, in collaboration with federal partners, will measure progress in the following areas. These cross-cutting areas aim to promote modern health IT for all stakeholders and to address barriers to the access, exchange, and use of EHI.

Areas Measured for Federal and Industry-Wide Progress



Use secure, standards-based APIs to provide electronic access to health information



Promote Fast Healthcare Interoperability Resources (FHIR®) across federal organizations and the populations they serve for a variety of use cases



Implement and expand United States Core Data for Interoperability (USCDI) data classes and elements for a variety of federal use cases and the populations they serve



Deter information blocking practices through federal authorities and investments



Encourage data exchange across networks at national and community levels

Work in these areas will occur primarily at an organizational level, whereby agency actions align to this federal health IT strategy. Federal actions can include, but are not limited to, standards alignment, regulations, oversight, health IT deployment, and industry coordination.

During the implementation of this Plan, ONC will report on health IT progress measures, actions taken, and describe barriers to connect healthcare with health data. ONC will communicate federal and industry-wide progress in its [annual report to Congress on health IT adoption and use](#).

Individuals, populations, caregivers, healthcare providers, payers, public health professionals, researchers, developers, and innovators increasingly rely on the access, exchange, and use of EHI to connect healthcare with health data. They can use health IT as a catalyst to further support:

- Health and wellness;
- The delivery and experience of care; and
- A secure, data-driven ecosystem to accelerate research and innovation.

Collaboration across federal organizations, private industry, and other stakeholders can accelerate progress in support of the Plan's goals and objectives. Federal partners, in collaboration with other stakeholders, will work to operationalize the Plan's strategies and related activities through an equitable and sustainable lens.

Appendix C. Federal Contributors

ONC collaborated with the federal organizations below, which included various components within federal departments and agencies. More than 25 federal organizations contributed to the development of this Plan.



Appendix D. List of Acronyms

Acronym	Description
AI	Artificial intelligence
API	Application programming interface
CMS	Centers for Medicare & Medicaid Services
EHI	Electronic health information
EHR	Electronic health record
FHIR®	Fast Healthcare Interoperability Resources
HHS	Department of Health and Human Services
HIEs	Health information exchanges
HINs	Health information networks
Health IT	Health Information Technology
HIPAA	Health Insurance Portability and Accountability Act of 1996
HL7	Health Level Seven International
ISA	Interoperability Standards Advisory
ML	Machine learning
OCR	Office for Civil Rights
ONC	Office of the National Coordinator for Health Information Technology
SDOH	Social determinants of health
USCDI	United States Core Data for Interoperability

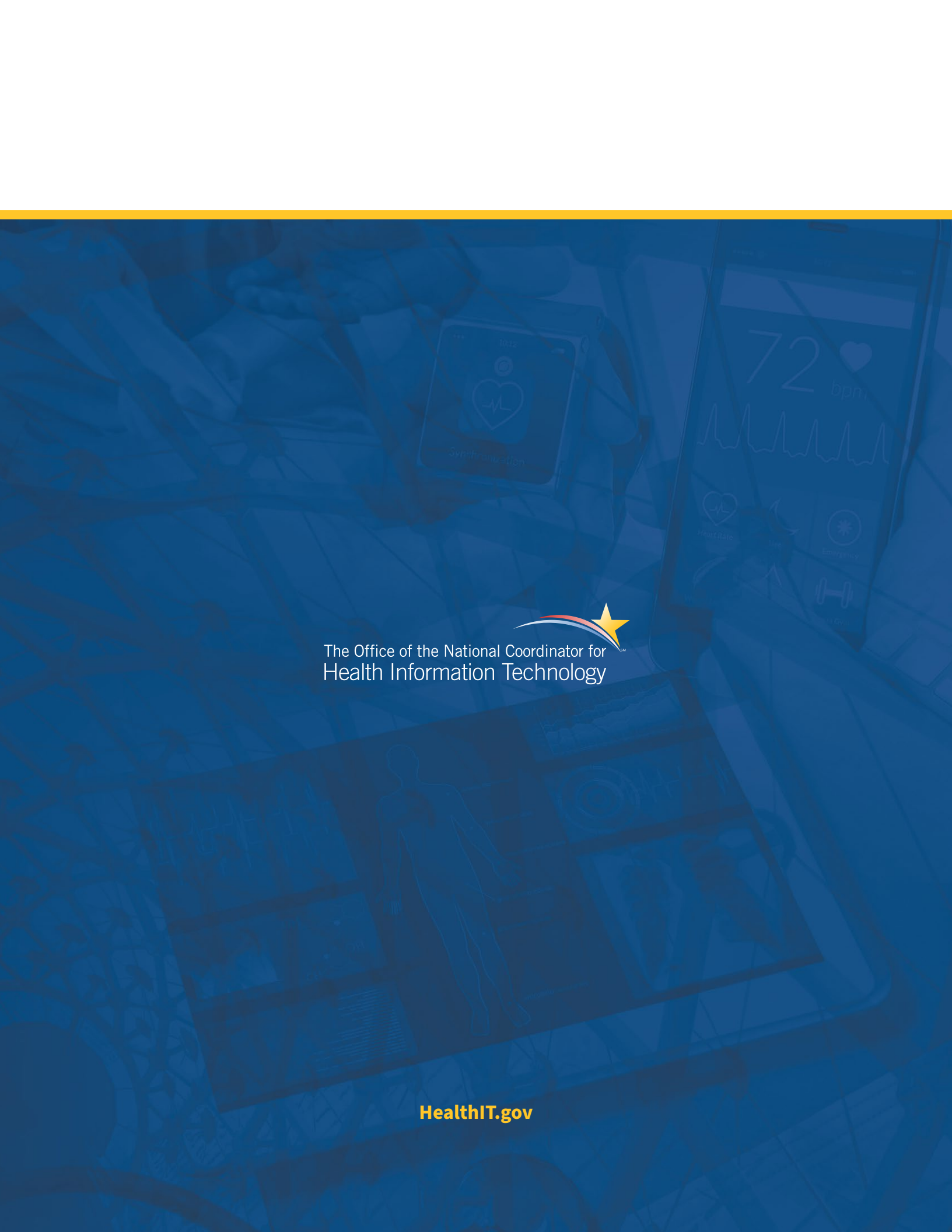
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The background is a dark blue collage of various medical and technology-related icons. These include a heart with a pulse line, a smartphone displaying a heart rate of 72 bpm with a waveform, a tablet showing a human silhouette and various data charts, a small device labeled 'Synchronization', and icons for 'Heart Rate', 'Sleep', 'Emergency', and 'Fitness'.

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