



Utilizing Health Information Technology (HIT) to Support Patient Vaccination

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Health Information Technology (HIT)

Today, most health care providers use electronic health record (EHR) systems to capture patient data and information, but HIT is capable of so much more. HIT makes it possible to¹:



Improve **patient care** for individuals and their communities



Protect **public health**



Conduct **research** and **track disease**

As broader use of HIT in physician offices rapidly increases, this helpful tool now plays a larger, more critical role in delivering comprehensive, high-quality care.¹

Fully leveraging HIT empowers health care providers, patients, and caregivers to better manage care, make more informed treatment decisions, and improve health care outcomes for themselves and their communities.¹



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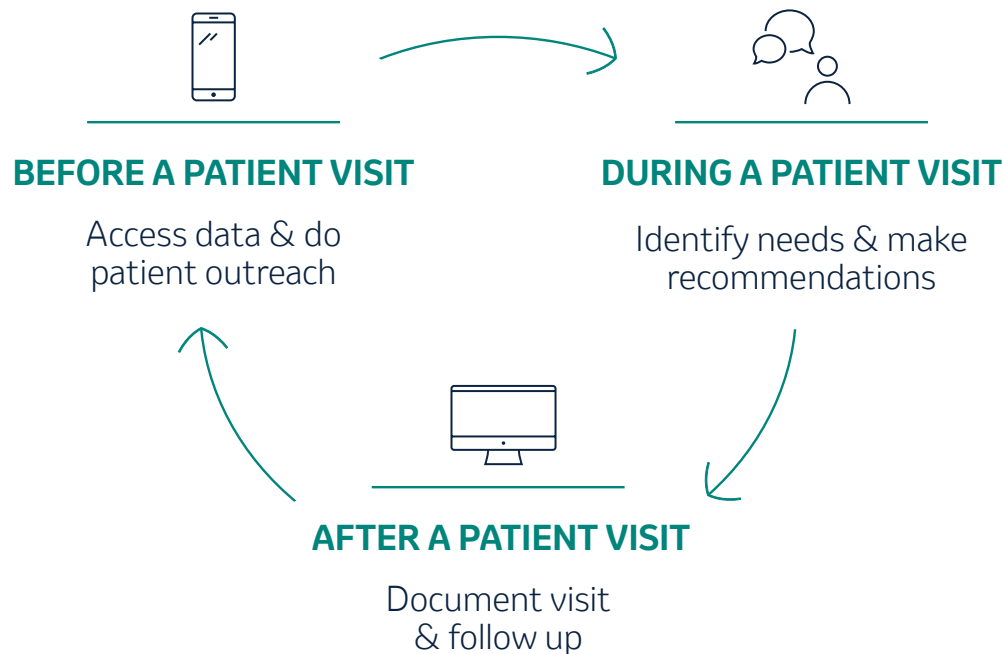
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Missed opportunities for vaccination often occur because many health care professionals do not routinely assess vaccination status. Integrating EHR system functionality throughout the patient journey can assist with this effort and improve vaccine uptake.^{2,3}



“ I would lump the pre-visit in with the post-visit. What I mean by that, I think the most helpful thing is that the patient or the parent still has an understanding of what else needs to be done... I think our personal health record plays a lot of roles in that because that way, not only can the patient or the parents see the whole immunization schedule, they can see which ones are outstanding, they can understand as part of a series...to my mind... post one visit is really just pre another visit.”⁴

- Dr. David Kaelber
 MetroHealth System's Chief Medical Informatics Officer⁵

EHR, electronic health record; HIT, health information technology.



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Before a patient visit

With HIT, providers can access electronic health information (EHI) about the entire population of patients they serve, enabling them to look more meaningfully at patients' needs—including those eligible for specific preventive measures like vaccinations.⁶ Before each clinical encounter, providers can⁷⁻¹⁰:

- **Enable clinical decision support (CDS) tools**, including **best practice alerts (BPA)**, to generate automated reminders that identify patients in need of vaccination.
- **Use state immunization information systems (IIS) and EHR** to review immunization records.
- **Send reminders** or recalls when vaccinations are due or overdue by utilizing the patient portal and automated message functionality to call, email, and/or text alerts.

“ I love that messaging can either be through the personal health record, right through my EHR, or through Robo calling/Robo texting...I think that's been sort of the most effective.”⁴

- Dr. David Kaelber
MetroHealth System's Chief Medical Informatics Officer⁵

IN DETAIL

CDS tools

CDS is an automated process that determines the recommended immunizations needed for a patient and delivers these recommendations to the health care provider.^{10,11}

CDS, clinical decision support; EHR, electronic health record; HIT, health information technology.

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During a patient visit

Recommendations from health care providers are powerful motivators for patients to comply with vaccination recommendations and remain the number one reason a person decides to get a vaccination.¹² During visits, providers can use:

- **Electronic reminders** that appear when they access an electronic health record, alerting them to which vaccinations a patient needs.¹²
- **Electronic standing orders** to allow nonphysician medical personnel to independently assess and administer recommended vaccines.^{7,12,13}
- **Telehealth** to engage patients and encourage them to seek vaccinations for which they are due/overdue.¹⁴



...some of our biggest steps were, first of all, building all of the ACIP guidelines into our Epic electronic health record—I think it's important to understand where we are, to know where we're going. So we built all the ACIP guidelines into health maintenance reminders and then best practice alerts."⁴

- Dr. David Kaelber

MetroHealth System's Chief Medical Informatics Officer⁵

Catch-up vaccination



Reduced access to vaccination services during the pandemic makes it more important than ever to assess the vaccination status of all children and adolescents at each patient visit to avoid missed opportunities for vaccination and ensure timely vaccine catch-up.³

ACIP, Advisory Committee on Immunization Practices.



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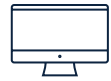
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After a patient visit

Studies have shown 40-80% of the medical information verbally provided to patients during an office visit is forgotten immediately, and nearly half the information retained is incorrect.¹⁵ To help address this, providers can:

Keep patient records up-to-date

- Supply patients with a printed after-visit summary and provide a simple schedule of recommended vaccines and educational resources about vaccines.⁷
- Document all administered vaccines through jurisdiction-based IIS.^{2,7}
- Update information in patient records, and communicate with patients, according to their preferences, via phone or the patient portal.⁸
- If a patient refuses a vaccine, document the reason why.⁷

Follow up^{2,7,8}

- Confirm that a patient received recommended vaccines.
- Send reminders to schedule follow-up vaccination appointments.

“ You’ve got to implement [the EHR] and then you have to have a whole team constantly working to make sure you get the value-add that the EHR should be providing.”¹⁶

- Dr. David Kaelber

MetroHealth System’s Chief Medical Informatics Officer⁵

EHR, electronic health record; IIS, immunization information systems.



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Creating a culture of vaccination

Including every member of the practice in vaccination efforts will help foster a culture of immunization. Providers can achieve this through¹²:

- 1 | Consistent messaging about the importance of vaccines, vaccine effectiveness, and safety at all levels of the practice.
- 2 | Adherence to proper vaccine storage, handling, and administration procedures.
- 3 | Implementation of effective workflow processes to take advantage of every opportunity to vaccinate.
- 4 | Designation of an immunization coordinator to act as provider site point person.^{7,12}

“ In the ‘secret sauce’ responsible for our success are not just the technology tools that we implemented, but equally important is the cultural change, education, training and reporting that all has to come together,” he concludes. “If you have a good EHR system like Epic and the tools, people, and process to use it thoughtfully, you really can make significant improvements in patient care.”¹⁶

- Dr. David Kaelber
MetroHealth System’s Chief Medical Informatics Officer⁵

IN DETAIL

Immunization coordinators help to^{7,12}:

- Ensure all staff are trained in their roles in immunization delivery and patient education.
- Help keep staff up-to-date on current recommendations.
- Maintain and protect vaccine supply.

EHR, electronic health record.



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Making HIT equity attainable

Patients may face barriers to improved health, including¹:



Disparities in access to and use of HIT

Improving HIT equity should be a priority for providers.



Poor health literacy

Even when patients have access to their EHI, they cannot always use it effectively. Too often, patients and caregivers may not understand what the information means or know how to use data to inform their decisions. This is a critical barrier to improving health and keeps patients and caregivers from realizing the full benefits of access to EHI.

EHI, electronic health information; HIT, Health Information Technology.



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Improving patient access

To support all patients in accessing and understanding their health information, providers can:



Utilize the patient portal¹⁷

Offer your patient portal in multiple languages.

Make sure your portal is mobile-friendly with pages that load quickly, so users with limited data or slow connections can still access it.



Check that your portal is easy to navigate for patients who use screen readers or other assistive technology.



Emphasize the role health literacy plays in helping patients make well-informed decisions¹⁸

Personal health literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

Organizational health literacy is the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.



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Using telehealth as a communication tool

Though in-person visits are often needed—due to urgency, underlying health conditions, or the need to deliver a care service such as vaccination—video-based visits often lead to improved patient satisfaction. With this in mind, providers should consider using telehealth to bolster vaccine compliance.¹⁴

Telehealth communication can further increase vaccine compliance by¹⁴:



creating opportunities for providers to **educate patients**—a key to vaccine uptake



giving providers a chance to explicitly **remind patients** which vaccinations they need



helping patients **plan when and where to receive vaccines**



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The MetroHealth System

The MetroHealth System in Cleveland, Ohio, was the first safety-net health care system in the US to implement the Epic EHR, starting in its ambulatory clinics in 1999 and fully deployed enterprise-wide in by 2009. As a pioneer in the innovative use of HIT, MetroHealth views their EHR as a critical component of administrative, clinical, operational, and quality activities.^{16,19}

Since 2010, they have focused on enhancing the use of their EHR to meet needs and goals, while also instituting improvements in vaccination rates. MetroHealth departments across the health care system are continually striving to evaluate, generalize, and disseminate EHR- and HIT-related activities from which others can benefit.¹⁹



MetroHealth has received multiple industry awards and recognition for its HIT-enabled efforts in health care. In 2014, MetroHealth attained HIMSS Electronic Medical Record Adoption Model (EMRAM) Stage 7 in all of their ambulatory clinics and hospitals and received the 2015 HIMSS Enterprise Davies Award, recognizing the outstanding achievement of health care organizations that have used HIT to substantially improve patient outcomes.^{16,19}





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The MetroHealth System

At MetroHealth, staff continually seek new ways to leverage HIT and EHR capabilities to improve their health care system and address problem areas, such as: health information exchange (HIE), vaccine outreach, and vaccine adverse event reporting.¹⁹

Health Information Exchange¹⁹

MetroHealth recognizes HIE as a way to significantly improve the quality and cost of care. MetroHealth believes the exchange of information must be efficient and integrated into the clinical workflow as much as possible in order to increase provider efficiency, decrease health care costs, and improve patient experience.

Vaccine Outreach¹⁹

In 2012, MetroHealth implemented an outreach campaign to identify adolescents overdue for at least one vaccination, increase vaccination uptake, and improve patient engagement. After observing the success of this adolescent program, MetroHealth now uses automated message reminders (texts, phone calls, postcards) to help all patients to complete vaccination. These efforts have contributed to a substantial increase in adult vaccinations within the MetroHealth system.

Vaccine Adverse Event Reporting¹⁹

MetroHealth was the first site in the US to develop a system to identify and report vaccine adverse events using the open-source Electronic Support for Public Health (ESP) platform in conjunction with their EHR. Intelligent algorithms in the public platform identify possible and probable vaccine adverse reactions, while the ESP platform and EHR exchange demographic, diagnoses, vaccination, and laboratory data daily. Probable vaccine adverse reactions are sent directly to the CDC's VAERS. During the first year of implementation, vaccine adverse event reporting increased 30-fold.

CDC, Centers for Disease Control and Prevention; EHR, electronic health record; HIT, health information technology; VAERS, Vaccine Adverse Event Reporting System.





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The MetroHealth System

In the decades since instituting EHR into their systems, MetroHealth has seen how **HIT can be an impactful tool for improving their administrative, clinical, financial, and operational functionality.**¹⁹



Beyond utilizing the technology, however, MetroHealth believes that committing to continuous improvement and a HIT vision, strategy, and implementation framework will help them better meet their system's goals.¹⁹

EHR, electronic health record; HIT, health information technology.





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