# The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care

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**Pharmacy e-Health Information Technology Collaborative**

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# Executive Summary

## Developed by the Pharmacy e-Health Information Technology Collaborative

**The Roadmap provides guidance to integrate pharmacy HIT into the national HIT infrastructure.**

### About the Roadmap

*The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care* (Roadmap) is the first pharmacy health information technology (HIT) strategic plan. This plan was developed by national pharmacy associations and other key stakeholders that comprise the Pharmacy e-Health Information Technology Collaborative (Collaborative).  Founded in the fall of 2010, the Collaborative works to ensure that pharmacists and electronic health records (EHRs) are connected.  Doing so promotes the meaningful use (MU) of EHRs that support safe and effective medication use, continuity of care, and access to the patient care services of pharmacists in conjunction with other members of the patient care team.

The Roadmap provides guidance to provider organizations, policymakers, vendors, payers, and other stakeholders striving to integrate pharmacy HIT into the national (U.S.) HIT infrastructure. The Roadmap outlines the goals and strategies related to the pharmacy profession's HIT objectives. The goals listed in this document are numbered by process and not by priority. The Pharmacy e-HIT Collaborative will contribute to specific aspects within the Roadmap that are aligned with the scope, goals, objectives, and strategies of the Collaborative. Areas outside the scope of the Collaborative will be addressed by others.

*The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care* is available at *www.pharmacyHIT.org.*

### Introduction

*The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care* (Roadmap) outlines the pharmacy sector's HIT goals for the next four years, including pharmacists' roles in care delivery, electronic prescribing (e-prescribing), medication therapy management (MTM), and immunizations.  It describes how pharmacists contribute to the MU of EHR quality measures, EHR certification and adoption, and HIT effectiveness. Further, the Roadmap provides evidence demonstrating improved quality outcomes as a result of pharmacist-provided patient care services.  Finally, the Roadmap summarizes the value of the pharmacist's role in HIT by indentifying those pharmacy services and functions with the highest priorities for action to ensure the successful integration of pharmacy HIT into the national EHR infrastructure.

### Goals and Recommendations for Action

This executive summary describes ten pharmacy sector goals with recommendations for action  for pharmacy HIT integration for 2011 to 2015.  These brief descriptions are derived from the full report that follows.

## Goal 1: Ensure HIT Supports Pharmacists in Health Care Service Delivery

**Need:** Ensure that HIT enables pharmacists to improve public health through the safe, effective, and appropriate use of medications and supports the provision of patient-centered team-based care across the continuum of care.

Domains of pharmacist involvement in the health care delivery system include assuring the appropriate use of medications; initiation, modification, and discontinuation of medication regimens in accordance with approved collaborative drug therapy management (CDTM) agreements and/or institutional protocols; medication dispensing; prevention of adverse events and medication errors (medication safety); development and deployment of clinical decision support; promotion of public health and wellness; assurance of integrity of the medication-use system; monitoring of patient outcomes from medication therapy; and provision of chronic disease state management services.

### *Recommendation for Action:*

- Garner support among policymakers and regulators at all levels to include pharmacists as health professionals who provide patient care. Ensure that electronic health information is available to support the pharmacist's optimized role in health care delivery.

**HIT must enable pharmacists to improve public health by assuring safe and effective medication use and supporting patient-centered team-based care.**

## Goal 2: Achieve Integration of Clinical Data with Electronic Prescribing (e-Prescribing) Information

**Need:** Foster the inclusion and participation of pharmacists in multi-disciplinary HIT leadership forums that evaluate e-prescribing system safety, effectiveness, vulnerabilities, and opportunities for improvement. The pharmacist's role in patient care can be enhanced by the integration of prescription with other sources of electronic clinical information (e.g., laboratory values, diagnosis codes, etc.).

### *Recommendation for Action:*

- Promote and support the effective integration and bidirectional exchange of electronic prescription information and clinical information for pharmacists and pharmacies across the continuum of care.

**The pharmacist's role in patient-centered team-based care can be enhanced by integration of prescription information with other sources of clinical information.**

**Pharmacists must be involved in the bidirectional exchange of health information to improve the care of patients.**

## Goal 3: Advocate Pharmacist Recognition in Existing Programs and Policies

**Need:** Secure pharmacist involvement in health care delivery bidirectional exchange of health information, including that generated by pharmacists, which is essential for all patients. Opportunities for strengthening the pharmacist's role in existing programs and policies include ensuring that the pharmacist's role is identified in state and national health information exchanges (HIEs), Regional Extension Centers, and Beacon Communities; expanding the pharmacist's role in the adoption and use of the MU of the EHR through the use of the Pharmacist/Pharmacy Provider Electronic Health Record (PP-EHR); and ensuring that pharmacists are involved in bidirectional exchange of clinical information.

### *Recommendation for Action:*
- Meet with the Office of the National Coordinator for HIT (ONC), including the federal advisory committees and Centers for Medicare & Medicaid Services (CMS). Recommend that pharmacists are recognized as eligible providers of medication-related patient care services and meaningful users of and contributors to the EHR.

## Goal 4: Ensure HIT Infrastructure Includes and Supports MTM Services

**Need:** Ensure that MTM principles and service models, as defined by the pharmacy profession, are incorporated into the national HIT infrastructure and that HIT systems support the pharmacist's role in providing MTM.

Pharmacists are increasingly recognized as providers of MTM, defined as "...a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with, the provision of a medication product." [1] This pharmacy profession consensus definition for MTM is increasingly used to describe the services provided by pharmacists to patients.[2]

Pharmacists need HIT systems that have the functionality and connectivity to support the provision, documentation, and billing of these services. Services include:

**Pharmacists must have HIT systems that have connectivity to support the provision, documentation, and billing for MTM services.**

> » *Performing or obtaining necessary assessments of the patient's health status*
> » *Formulating a medication treatment plan*
> » *Selecting, initiating, modifying, or administering medication therapy*
> » *Monitoring and evaluating the patient's response to therapy, including safety and effectiveness*
> » *Performing a comprehensive medication review to identify, resolve, and prevent medication-related problems, including adverse drug events (ADEs)*
> » *Documenting the care delivered and communicating essential information to the patient's other primary care providers*
> » *Providing education and services to enhance patient understanding of, appropriate use of, and adherence to medication regimens*
> » *Coordinating and integrating MTM services within the broader health care management services being provided to the patient*

### Recommendations for Action:

- Encourage the utilization of standardized electronic documentation of MTM services through the adoption of the PP-EHR.
- Ensure that pharmacists have access to the EHR to perform MTM services and that they can electronically exchange MTM service information with patients, providers, and payers.

## Goal 5: Integrate Pharmacist-Delivered Immunizations into the EHR

**Need:** Ensure that pharmacists' MU of the EHR documents pharmacist-administered immunizations and that this information is exchanged electronically with other health care providers and public health organizations. The electronic exchange of information about pharmacist-administered immunizations, especially those administered in community pharmacy practice settings, must occur with patients' primary care providers' EHRs and with appropriate immunization registries.

### Recommendations for Action:

- Enhance the ability of pharmacists to electronically document the administration of, share information about, and determine the need for immunizations.
- Ensure that system vendors understand the necessity of including immunization-related capabilities in pharmacy practice management systems.
- Ensure that pharmacists' immunization activities are included in the MU of EHR measurement goals and that the immunization information is exchanged with other meaningful users of the EHR.

**Pharmacists must have HIT systems that document and exchange information about pharmacist-administered immunizations with other health care providers and public health organizations.**

**Pharmacists need to be recognized as meaningful users of EHR.**

## Goal 6: Achieve Recognition of Pharmacists as Meaningful Users of EHR Quality Measures

**Need:** Promote the recognition of pharmacists as meaningful users of the EHR and as having an impact on the MU quality measures of other eligible professionals and hospitals that receive CMS incentives for the MU of EHRs. Definition of the pharmacist's role in HIT is needed in the following quality measure domains: patient and family engagement; clinical appropriateness, including appropriate and efficient use of medications; care coordination, including care transition; patient safety, including medication safety; population and public health, including smoking, obesity, blood pressure monitoring, and glucose monitoring; and medication errors and near misses.[3]

### Recommendations for Action:

- Identify and promote practice models in which pharmacists participate in the support or enhancement of the MU of EHR quality measures.

- Educate pharmacists about the MU of EHR quality measures and how their role supports improvement in quality measures in all practice settings.

- Educate other health care practitioners on the role of the pharmacist in the MU of the EHR measurement concepts and how pharmacists may assist in attaining their MU goals.

## Goal 7: Advance System Vendor EHR Certification

**Need:** Finalize the PP-EHR certification criteria and selection of a certification body to drive PP-EHR certification beyond electronic prescribing functionality. Pharmacy management systems are currently certified for interoperable e-prescribing with medical EHRs. This certification is a critical first step in the interoperability and MU of the systems used in pharmacies.

### Recommendations for Action:

- Develop certifiable PP-EHR functionalities by pharmacy management system vendors or through partnerships with EHR vendors to expedite creation of certifiable PP-EHRs.

- Facilitate efforts to ensure the launch of CMS-defined certified PP-EHRs.

**Pharmacy management systems need to be certified for functionalities of the PP-EHR, beyond e-prescribing.**

## Goal 8: Promote Pharmacist Adoption and Use of HIT and EHRs

**Need:** Create a user demand and support pharmacists' adoption and MU of HIT and certified PP-EHRs, including use of certified MTM systems and participation in HIEs for bidirectional exchange of medical information. Adoption of these HIT solutions to improve quality and continuity of care requires a significant commitment from providers to invest time, money, and human resources while working within their organizations and with external partners. Pharmacists need to be educated and provided the tools necessary to adopt the new technology.

### *Recommendations for Action:*

- Create pharmacists' demand for certified PP-EHR functionality and encourage PP-EHR development by pharmacy management system vendors.

- Educate payers, prescribers, and patients and provide evidence of the value of pharmacists using HIT solutions.

- Promote support among policymakers and regulators for the value of pharmacists using HIT solutions.

- Promote and support research on how the PP-EHR and HIT can be used to advance best practices among pharmacists, prescribers, payers, and patients.

*Pharmacists need to create demand and support the implementation and use of pharmacy management systems that have PP-EHR functionality.*

## Goal 9: Achieve Integration of Pharmacies and Pharmacists into Health Information Exchanges

**Need:** Include pharmacy and pharmacist-provided patient care services in local, state, and regional HIEs by providing and receiving key clinical and medication information. Pharmacists' integration into HIEs will provide safer and more current medication-related data, improve communication among health care team members, improve the overall quality of patient outcomes, and assist providers in meeting their MU of EHR measurement goals.

### *Recommendation for Action:*

- Ensure that pharmacists in all practice settings are active participants in local, state, and regional HIEs.

*Pharmacy and pharmacist-provided patient care services need to be integrated into Health Information Exchanges to improve the care of patients.*

**Goal 10:** **Establish the Value and Effective Use of HIT Solutions
by Pharmacists**

**Need:** Establish the value of the pharmacist's role in HIT by demonstrating the effective use of HIT by pharmacists in integrated care models, patient-centered medical homes, and accountable care organization (ACO) models and ensure that existing research outcomes and quality measures from pharmacists' contributions to disease state management, MTM, medication safety, and wellness services are incorporated into the HIT processes for all health care providers.

*Recommendations for Action:*

- Promote the adoption of the PP-EHR and demonstrate the value and effective use of HIT solutions by pharmacists.

- Promote pharmacists as meaningful users of the EHR following the Stage 2 and Stage 3 MU of EHR concepts.

- Promote the contribution of pharmacists in assisting all eligible providers with meeting MU objectives.

- Promote research and the development of quality measures that demonstrate the value of the pharmacist's role in health care.

- Incorporate the quality measures and research outcomes demonstrating the value of pharmacists into the HIT processes used by all health care providers in all practice settings.

**The value of the pharmacist's role in HIT needs to be demonstrated by the effective use of HIT in existing and emerging patient care delivery models.**

## Priorities for Immediate Action

Many steps must be taken to ensure the optimal integration of pharmacist-provided patient care services and pharmacy functions into the national HIT interoperative framework. Each of the steps is important, but four basic steps, critical for the pharmacy profession's success in the national HIT plan, have been identified by the Collaborative for immediate action. They are:

1. Promote the "Roadmap for Pharmacy HIT" agenda to stakeholders, change agents, and policymakers.

2. Engage stakeholders within and outside the pharmacy sector.

3. Participate in national, regional, state, local, and private HIE initiatives and agendas.

4. Educate pharmacist stakeholders and assess and accelerate PP-EHR adoption by pharmacists.

# The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care

## Detailed 2011– 2015 Goals, Objectives, and Strategies for Pharmacy HIT

For each of the ten goals and recommendations for action described in the Executive Summary, additional detail is provided in the following sections on the rationale, objectives, and strategies developed by the pharmacy sector to advance the pharmacist's role in HIT from 2011 to 2015.

### Goal 1:  Ensure HIT Supports Pharmacists in Health Care Service Delivery

### Rationale

The practice of pharmacy has changed significantly over the years.  The pharmacist's role has evolved from responsibilities centered on dispensing and compounding drugs in the 1950s toward a more patient-oriented practice and development of the concept of clinical pharmacy in the mid-1960s.  By the early 1990s, the pharmaceutical care model had been adopted to emphasize that the pharmacist's role involves "the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient's quality of life."[4, 5, 6]

Today pharmacists play an important role in optimizing therapeutic outcomes and promoting safe, efficacious, cost-effective medication use.  Domains of pharmacist involvement in the health care delivery system include assuring the appropriate use of medication; initiation, modification, and discontinuation of medication regimens in accordance with approved CDTM agreements and/or institutional protocols; medication dispensing; medication safety by prevention of adverse events and medication errors; development and deployment of clinical decision support; assurance of integrity of the medication-use system; and monitoring of patient outcomes from medication therapy.  Pharmacists provide a variety of patient care services, including comprehensive medication review, MTM, chronic disease state management, immunization administration, and health and wellness services.

In a 2010 JAMA article, community pharmacists are recognized as a key resource that can help bridge the gap between doctor and patient, particularly for those patients treated by more than one specialist in an often disconnected and dysfunctional health care network.[7] This article and others highlight both the critical value of drug therapy and the need for accessible, community-based health professionals, such as pharmacists and nurses, to augment a more effective, and patient-centric health system.[8]  In recognition of pharmacists' contributions to patient care, the following objectives and strategies are focused on the inclusion of pharmacists and their services in the national HIT infrastructure.

**Pharmacists play an important role in optimizing therapeutic outcomes and promoting safe, efficacious, and cost-effective medication use.**

## 2011-2015 Overall Objectives:

To promote support among policymakers and regulators for the inclusion of pharmacists as recognized providers in the national CMS HIT plan, the following specific objectives with timeframes have been identified:

### 2011:

- Ensure that pharmacists are aware of current technologies and regulations that enable them to deliver care within the electronic HIT framework.

### 2012-2013:

- Collaborate with standards development organizations and technology developers to ensure that pharmacy is well positioned in a standards-based information exchange environment.

### 2013-2015 or before:

- Establish incentive payments and quality and outcome measures for HIT use/exchange by pharmacists.

### *Strategies identified as necessary for moving objectives forward:*

- Develop and identify funding opportunities at the state level for pharmacist-related demonstration projects, such as CDTM demonstration projects assessing operational models, HIEs, payment structures, and HIT-related outcome measures.
- Leverage existing research to advocate expanding the role of pharmacists in health care delivery through accessibility to HIEs.
- Organize statewide public relations and media outreach campaigns to improve public awareness of the role of pharmacists in HIEs and the patient care capabilities of pharmacists among health care professionals, health executives, public policymakers, and the general public.
- Work with pharmacy state associations and state and federal representatives to coordinate legislative days to demonstrate and discuss the expanding role of pharmacists in HIT in all practice settings.
- Advocate equitable compensation for pharmacists providing patient care services and their recognition as meaningful users of EHRs.
- Develop a policy framework for pharmacists' access to critical patient health care information, such as diagnosis and laboratory values, to be provided through an interoperable EHR system, including e-prescribing, that supports bidirectional communication among multiple health care providers and settings.
- Establish state and federal grants for pharmacists that support the continued growth of an interoperable electronic health care system.
- Develop white papers describing the appropriate flow of critical electronic information among health care providers, including pharmacists, which protects patient privacy while providing medical information needed for decision making for optimal therapy.

- Collaborate with state boards of pharmacy and other regulatory agencies on changes needed in education and state practice acts, including the expanding role of technicians and greater use of HIT, to implement patient-focused pharmacy services while maintaining public safety.

## Goal 2: Achieve Integration of Clinical Data with Electronic Prescribing (e-Prescribing) Information

### Rationale

Pharmacists have a unique, comprehensive knowledge of the safe and effective use of medications as well as medication management systems and have the skills to manage the business as well as the clinical aspects of medication therapy. They can efficiently and effectively translate the language of medication therapy at transitions in care and decipher system requirements into sound medication ordering systems to ensure effective electronic exchange of prescriptions and prescription-related information.[9]

E-prescribing benefits physicians, pharmacists, and other health care providers by reducing the opportunity for medication errors; providing information to prescribers on patient prescription benefit coverage, resulting in fewer rejected claims and less repetitive work at the pharmacy; and reducing paperwork and re-keying, which allows pharmacists to reallocate time to patient care services.[10] Because pharmacists are responsible for patient safety throughout the medication-use process, they should have a leadership role in medical informatics at all levels of health care to ensure that HIT supports safe medication use, including:

- Analyzing the design of human/computer interfaces, data structures, and taxonomies
- Being responsible for technical and integrated processes that affect the medication management system
- Serving as safety consultants in all aspects of the medication management software and software products in the integrated, multidisciplinary patient care team
- Providing medication-related guidance in hospitals and health systems on the planning, implementation, and enhancement of safe computerized provider-order-entry (CPOE) systems[11]
- Utilizing EHRs for bidirectional exchange of patient care information with other health care clinicians and providers

The pharmacist's role in e-prescribing promotes the integration of prescription and other sources of clinical information electronically (e.g., laboratory values, diagnosis codes, etc.), enabling pharmacists to provide more advanced patient care services. It is critical that pharmacists are recognized as providers of patient care services and are not limited by provision exclusions in the CMS MU of the EHR.

**The pharmacist's role in e-prescribing promotes the integration of prescription and other sources of clinical information and can support improvements to patient care.**

## 2012-2015 Overall Objectives:

- To promote and support effective integration and bidirectional exchange of electronic prescription and clinical information for pharmacies and pharmacists across the continuum of care with assurance of the privacy and security of health care data, the following specific objectives with timeframes have been identified:

### 2011:

- Educate and provide tools and resources to help pharmacists and prescribers understand the importance of successfully adopting e-prescribing technologies.

### 2012-2013:

- Promote and support pharmacists' participation in research, education, development, and ongoing dissemination of e-prescribing best practices among prescribers, pharmacists, and pharmacies.

### 2013-2015 or before:

- Expand pharmacists' involvement in e-prescribing development and optimization initiatives, including standards enhancements and system interoperation in all practice settings.

### *Strategies identified as necessary for moving objectives forward:*

- Network with peers to share lessons learned and engage professional pharmacy associations in identifying best practices and common concerns related to e-prescribing.

- Engage and participate on standards setting organizations, task forces, and work groups to improve e-prescribing-related electronic exchanges.

- Effectively train support staff on the use of e-prescribing technologies and establish clear workflow processes to improve efficiencies.

- Connect with pharmacy professional associations to identify opportunities for continuing education related to the use of e-prescribing technology and other networking opportunities where the exchange of information with peers results in practical solutions during the transition to e-prescribing.

- Encourage e-prescribing users to report their experiences to the Pharmacy & Prescriber E-Prescribing Experience Reporting Portal available at *http://www. pqc.net/eprescribe/disclaimer.html.*  The experiences reported to this site will be used to identify trends and systems issues that might need to be addressed or mitigated in order to improve the overall quality and operation of the e-prescribing infrastructure.

- Work with pharmacy and prescriber professional organizations, including state boards of pharmacy, to identify model policies and procedures for e-prescribing.

- Participate in networking opportunities to exchange information with peers on the effective implementation of e-prescribing.

- Collectively communicate e-prescribing-related concerns to other stakeholder

organizations and state e-health affiliates to build understanding and work toward common resolutions.

- Create forums to share information on solutions that have been developed to better integrate e-prescribing into the pharmacy workflow.

## Goal 3: Advocate Pharmacist Recognition in Existing Programs and Policies

### Rationale

Enactment of the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009 provided tools, direction, and substantial funding to advance the development and adoption of HIT.  Much of the funding within the Act is in the form of financial incentives to encourage the adoption and use of HIT.  Unfortunately, these incentive programs were focused primarily on hospitals and physicians and did not reach pharmacists and other key providers.  In addition, a variety of barriers, such as standards platforms, privacy and security issues, and lack of investment capital, have limited the effective use of patient care functionalities found in EHRs and have prevented the comprehensive electronic exchange of health information in a meaningful way.

Always early adopters of new technology, pharmacists have developed and adopted HIT standards for the profession, and many of the current electronic quality measures to verify Stage 1 MU incentive payments require interoperability with pharmacists as providers. Still, pharmacists are currently excluded from essential parts of the HIT program.  Some programs, such as state grants to support information exchange, Beacon Communities, Health Resources and Services Administration, and state Medicaid programs, may be leveraged to encourage inclusion of pharmacists as critical providers of patient care services using HIT adoption and information exchange.  The Roadmap developers believe it is essential to promote pharmacists' clinical services as a critical component of our nation's health care system.  These services are key to achieving national goals of providing patients with cost-effective, high-quality health care in all practice settings.

**Pharmacists' clinical services are a critical component of our nation's health care system and can effectively contribute to the meaningful use of EHR.**

## 2011-2015 Overall Objectives

To engage in discussions with the ONC, including the federal advisory committees, to recommend that pharmacists are recognized as eligible providers of medication-related patient care services and meaningful users of and contributors to the EHR, the following specific objectives with timeframes have been identified:

### 2011:

- Promote e-prescribing adoption in all practice settings.
- Work with HIEs and other networks to exchange clinical information with pharmacists and other health care providers in a bidirectional manner.

- Create clinical codes for patient care service documentation for an "MTM Value Set."
- Work with pharmacy system vendors and users to build awareness of the standardized certified pharmacist EHR functional profile.

### 2012-2013:

- Advocate the exchange of the Continuity of Care Document (CCD)[12] with all health care providers and patients in all practice settings to support MU of the EHR by pharmacists.
- Support the industry's need for semantic standards to ensure interoperability for the exchange of clinical information.
- Promote recognition of pharmacists as eligible professionals by CMS and ACOs.

### 2013-2015 or before:

- Ensure that medication-related information is being exchanged, well-managed, and is fully interoperable for all practice settings.
- Obtain recognition for pharmacists as eligible providers by CMS.

### *Strategies identified as necessary for moving objectives forward:*

- Develop an iterative policy framework and strategies for the inclusion of pharmacists' patient care services information in national HIE activities and electronic quality measures.
- Advance policy framework and recommendations to HIT Policy and Standards Committees, CMS, and other decision-making bodies.
- Work with states and state affiliates to encourage the inclusion of pharmacists in their plans for HIT/HIE programs as a requirement so that true interoperability and interconnectivity can be achieved in all practice settings.
- Leverage resources from Regional Extension Centers to support pharmacists providing patient care services.
- Advocate the expansion of Regional Extension Centers to support pharmacists providing patient care services.
- Advocate the inclusion of pharmacists' provision of patient care services to Beacon Community grant recipient programs.
- Develop a whitepaper that documents the role of pharmacists providing patient care services in the flow of health information/data and the potential impact of failing to include pharmacists in the health information exchange.
- Leverage research to emphasize the need for pharmacists to be included in HIEs to reduce overall health care costs while improving quality of care.
- Ensure that the processes for pharmacists' patient care services outline how the quality of the services will benefit HIT adoption and the MU of the EHR.
- Work with national organizations developing quality measures for the MU of the EHR to ensure that those quality measures are coordinated with pharmacists in all practice settings.

## Goal 4: Ensure HIT Infrastructure Includes and Supports MTM Services
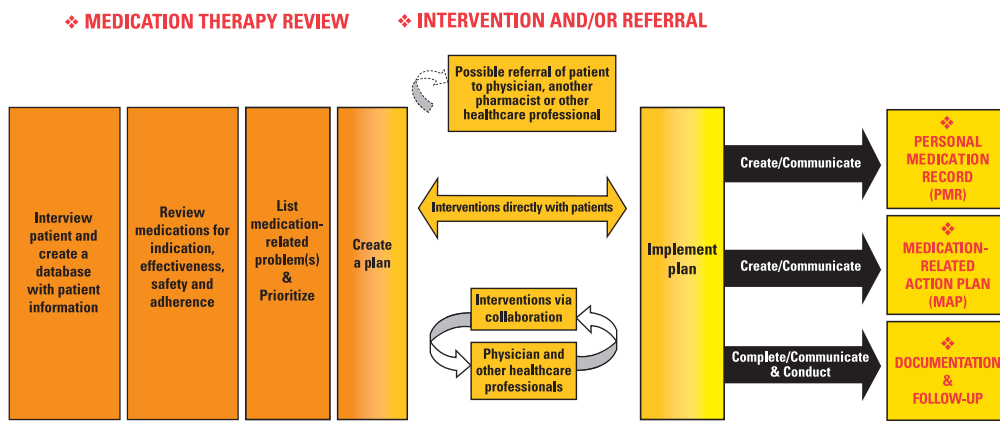
### Rationale

Pharmacist-provided MTM services are being provided broadly for a diverse payer population in many patient care settings.  In brief, MTM is a distinct service or group of services that optimizes therapeutic outcomes for individual patients.  MTM services are independent of, but can occur in conjunction with, the provision of a medication product.[1]  The foundational service model for MTM is the *Medication Therapy Management in Pharmacy Practice: Core Elements of MTM Service Model; Version 2.0,* also known as the "MTM Core Elements."[2]  The "MTM Core Elements" includes five core elements: (1) medication therapy review; (2) personal medication record; (3) medication-related action plan; (4) intervention and/or referral; and (5) documentation and follow up.  The diagram below demonstrates the MTM Core Elements service model.

**Pharmacist-provided MTM services are being delivered in many patient care settings using a foundational service model known as the "MTM Core Elements."**



**The Medication Therapy Management Core Elements Service Model**

*The diagram below depicts how the MTM Core Elements (❖) interface with the patient care process to create an MTM Service Model.*

❖ **MEDICATION THERAPY REVIEW**   ❖ **INTERVENTION AND/OR REFERRAL**

Members of the Collaborative, including pharmacy professional associations, the Pharmacists Services Technical Advisory Coalition (PSTAC), MTM intermediaries, and the National Council for Prescription Drug Programs (NCPDP), are defining the pharmacist's MTM role in HIT.  Pharmacists in all practice settings provide MTM services and document those services both manually and electronically.  During the electronic exchange of clinical information, components of MTM can be shared between providers by means of the CCD using Clinical Document Architecture (CDA).  This process demonstrates value to the MU of the EHR by pharmacists using the PP-EHR.

**Components of Medication Therapy Management
Requiring Specific Attention**

### MTM Related to Transition of Care

Patients are vulnerable at transitions of care, defined as the movements of patients between health care locations, providers, or different levels of care within the same location as their conditions and care needs change.[13]  These transitions may involve multiple health care providers as well as the patient, family members, and other caregivers.  It is estimated that 60 percent of medication errors occur during patient care transitions.[13]  Medication reconciliation at transitions of care should be part of all providers' EHR documentation process in all practice settings. The proposed Stage 2 MU objectives require that medication reconciliation be conducted at 80% of care transitions by the receiving provider.[14]

 At a minimum the following information should be provided electronically to pharmacists at transitions of care:  medication list and directions for use (added, changed, discontinued, and continued); medical condition (diagnosis); and allergies.  For optimal MTM services at transitions of care, the full content of a CCD, including laboratory values, prescriber information, and medication history, should be provided electronically to pharmacists.

### Medication Reconciliation

Medication reconciliation (MR) is defined as "the process of comparing a patient's medication orders to all of the medication that the patient has been taking.  It should be done at every transition of care in which new medications are ordered or existing orders are rewritten.  This process comprises five steps: 1) develop a list of current medications; 2) develop a list of medications to be prescribed; 3) compare the medications on the two lists; 4) make clinical decisions based on the comparison; and 5) communicate the new list to appropriate caregivers and to the patient."[15]

The comprehensive goal of MR is to maintain and electronically communicate accurate patient medication information and then take appropriate actions to resolve any discrepancies.  In order to meet the MU of the EHR measurement goals related to MR, these principles must be incorporated into EHR systems by all providers responsible for MR.  To ensure that MR is performed appropriately, professional guidelines should be implemented and overseen by pharmacists.

### Medication Adherence

Medication adherence should be addressed as part of a comprehensive MTM service, not separately or apart from the total medication-use process.  With access to electronic health information from sources such as the CCD and not just prescription claims data from medical histories, pharmacists and other providers will have the ability to better assess medication adherence outcomes, target medication-related problems, and improve patient care.

### Centers for Medicare & Medicaid Services (CMS) Medicare Part D MTM Program

As part of the Medicare Modernization Act (MMA) of 2003, CMS recognized the role of pharmacists as MTM providers under the Medicare Part D program.  The MMA specifically states that Part D Medication Therapy Management Programs (MTMP) may include the following elements designed for promotion to targeted beneficiaries:

- Enhanced enrollee understanding, through beneficiary education counseling and other means, that promotes the appropriate use of medications and reduces the risk of potentially adverse events associated with medications

- Increased enrollee adherence to prescription medication regimens through services such as refill reminders, special packaging, and other compliance programs

- Detection of adverse events and patterns of overuse and underuse of prescription drugs

The following are requirements for Prescription Drug Programs (PDPs) administering Part D MTMP:

- Requirements for Medication Therapy Management Programs (MTMP): Under 423.153(d), a Part D sponsor must have established a MTM program that:

  - » *Ensures optimum therapeutic outcomes for targeted beneficiaries through improved medication use*

  - » *Reduces the risk of adverse events*

  - » *Is developed in cooperation with licensed and practicing pharmacists and physicians*

  - » *Describes the resources and time required to implement the program if using outside personnel and establishes the fees for pharmacists or others*

  - » *May be furnished by pharmacists or other qualified providers*

  - » *May distinguish between services in ambulatory and institutional settings*

  - » *Is coordinated with any care management plan established for a targeted individual under a chronic care improvement program (CCIP)*

- Each Part D Sponsor is required to incorporate a Medication Therapy Management Program (MTMP) into their plan's benefit structure.  Annually, Sponsors must submit a MTMP description to CMS for review and approval.  A CMS-approved MTMP is one of several required elements in the development of Sponsor' bids for the upcoming contract year.[16]

The pharmacy sector will encourage CMS to recognize pharmacists as meaningful users of the EHR in areas pertaining to the Part D MTMP.

## 2011-2015 Overall Objectives:

To encourage the utilization of standardized electronic documentation of MTM services through the adoption of the PP-EHR and ensure that pharmacists have access to the EHR to perform MTM services and electronically exchange pharmacist-provided MTM services data with patients, providers, and payers, the following specific objectives with timeframes have been identified:

### 2011:

- Ensure that pharmacy management system vendors are aware of and begin to strategize about the utilization of standardized electronic MTM processes.

### 2012-2013:

- Ensure that pharmacy management vendors adopt the PP-EHR functionality to exchange MTM information (create and exchange a CCD containing MTM services information).
- Work with organizations to incorporate MTM standardized data elements into their systems' EHRs and PHRs and share the information with payers as needed to ensure complete optimization of quality MTM.

### 2013-2015 or before:

- Ensure that pharmacists have access to the EHR information in the form of a CCD to perform MTM services and electronically exchange pharmacist-provided MTM services data with patients, providers, and payers.

### *Strategies identified as necessary for moving objectives forward:*

- Work with organizations defining the pharmacist's MTM role in HIT, such as pharmacy associations, PSTAC, MTM intermediaries, and NCPDP, to ensure that MTM principles and guidelines defined by pharmacists are incorporated into the national HIT infrastructure.
- Demonstrate the market demand for electronically exchanging MTM service data with other providers and payers to pharmacy management system vendors.
- Educate and conduct awareness campaigns about the utilization of standardized electronic MTM processes for pharmacy management system vendors.
- Work with other EHR and personal health record (PHR) vendors to incorporate medication-optimized MTM service documentation into their systems.
- Demonstrate that the MU of the EHR medication-related and disease state measurement concepts can be met by adding pharmacist-provided MTM service documentation into EHR and PHR systems.

## Goal 5:  Integrate Pharmacist-Delivered Immunizations into the EHR

### Rationale

From a public health perspective the pharmacist serves as an accessible care provider, and patients have embraced pharmacist administration of routine and elective immunizations. This was evident in the recent H1N1 pandemic where pharmacists served their communities by providing antiviral medications and immunization services.  The value of pharmacists in this role was recognized by the Centers for Disease Control (CDC) and state public health departments, and the Association of State and Territorial Health Officers (ASTHO) issued a framework for public health departments to collaborate with pharmacists.[17]

State pharmacy practice, medical practice, and public health laws, through boards of pharmacy and/or medical regulations, influence the scope and ability of pharmacists to administer immunizations.  Pharmacists in every state have incorporated the administration of vaccines and the provision of immunization information into their practices.  The extent of these services is dictated by state laws that guide the types of vaccine, age of patient, and process for pharmacist-administered vaccinations and associated services.  Some states require pharmacists to complete specialized training or certificate training programs.

In many states pharmacists administering immunizations via a protocol or standing order must provide specific patient information about the vaccine administration to the primary care provider and other public health organizations, such as immunization registries. Currently, this information is shared in a variety of ways ranging from a manual process (e.g., facsimile, mail, or proprietary web-based portals) to direct entry into a registry or health record.  The ability to share this information electronically with primary care providers and public health organizations is critical to efficient and complete patient care and the appropriate allocation of resources.  Ensuring the successful role of the pharmacist in immunizations is dependent on the pharmacist's MU of the EHR and the bidirectional exchange of immunization information.

Pharmacists providing immunizations are prepared to share immunization information electronically with other EHRs using the CCD once the PP-EHR is adopted, and the Immunization Information System (IIS) is ready to accept a CCD.  This includes placing immunization documentation in the CCD.  The Roadmap developers support the CDC's Vaccine Administered (CVX) immunization value set for this documentation.[18]

**Pharmacists serve an important public health role by administering immunizations and must have the capabilities to document these services and share this information with other health care providers and public health organizations.**

## 2011-2015 Overall Objectives:

To enhance the ability of the pharmacist to electronically document and share immunization information with other health practitioners and organizations as part of the MU of EHR measurement goals and ensure that system vendors understand the necessity of the inclusion of immunization-related capabilities in pharmacy practice management systems, the following specific objectives with timeframes have been identified:

**2011:**

- Educate policymakers and the public of the need for pharmacist-administered immunizations, vaccines, and injectable medication information to be electronically exchanged with primary providers and public health organizations.

**2012-2013:**

- Ensure the need for pharmacist-administered immunizations, vaccines, and injectable medication information to be electronically exchanged with primary care providers and public health organizations.

**2013-2015 or before:**

- Ensure as a standard of practice that documentation of pharmacist immunization activity is part of the MU of the EHR and that the information is exchanged in a bidirectional manner.

*Strategies identified as necessary for moving objectives forward:*

- Enhance the ability of pharmacists to electronically document, share, and evaluate patient immunization therapy.

- Evaluate the status of state IIS procedures and their goals for transition to the PP-EHR model.

- Partner with state and national pharmacist organizations to educate pharmacists concerning electronic immunization documentation systems available for adoption.

- Ensure that system vendors understand the necessity of the inclusion of immunization-related capabilities in pharmacy practice management systems and the adoption of the PP-EHR functionality for exchange of immunization information.

- Assist organizations in adopting the PP-EHR as the standard for collecting and evaluating public health strategies.

- Demonstrate the market demand for immunization data to be shared among pharmacists, other health care providers, and public health organizations.

- Illustrate the impact that centralizing pharmacist-administered immunization data into the EHR can have on the efforts of immunization registry programs among government entities.

- Demonstrate the benefit of access to pharmacist-administered immunization information through the EHR for travel requirements.

- Expand the awareness of documentation requirements within a pharmacy practice for pharmacist administration of injectable medications on a state-by-state basis and how adoption of the PP-EHR would enhance pharmacist involvement and access to care by patients.

## Goal 6: Achieve Recognition of Pharmacists as Meaningful Users of EHR Quality Measures

### Rationale

Pharmacists are in a unique position in the health care continuum to assist in improving quality in all EHR quality measure domains, with impact on the MU of quality measures of eligible professionals and hospitals that receive CMS incentives for the MU of the EHR. It is important to ensure that the pharmacist's HIT role is defined in each of the five quality measure domains that are described below.

### *Patient and Family Engagement*

The pharmacist is the most readily accessible health care professional and is uniquely positioned to provide patients and families or caregivers with assistance in learning to manage medication-related electronic health information. With access to EHRs pharmacists will be better equipped to ensure safe and effective MTM at transitions of care and can more effectively document and communicate their MTM services, including patient education and assistance with patient monitoring devices; electronic communication with homebound or rural patients, including videoconferencing; health risk management; measurement and documentation of functional status and cognitive impairment to evaluate compliance options; and evaluation of the patient's health literacy.

The pharmacist's provision and documentation of patient education is especially critical in Risk Evaluation and Mitigation Strategy programs and in patients with high risk or multiple chronic medication regimens. Most importantly, pharmacists need to have the ability to electronically connect with the patient or caregiver in many care settings, including the medical home model, and can help to circumvent the patient's need for hospital or long-term care admissions. The pharmacist's ability to exchange electronic information with other members of the health care team in each of these areas of MTM will improve the overall quality measures and patient outcomes.

### *Clinical Appropriateness, including Appropriate and Efficient Use of Medications*

Pharmacists are educated and trained through formal education, internships, and residencies to be the experts on the health care team on the appropriate and efficient use of medications. This clinical expertise allows pharmacists to play a unique role in the MU of EHRs and the quality measures for appropriate use of medications in all health care settings. Evidence demonstrates the importance of pharmacist involvement in the provision of appropriate, efficient use of medications in the following areas:

- Medication therapy management
- Medication reconciliation
- Antimicrobial/antibiotic counseling and stewardship
- Medication monitoring, including pharmacokinetic counseling, anticoagulant monitoring, blood pressure monitoring, blood glucose monitoring, low therapeutic index drug monitoring, and lipid management

**Pharmacists can assist in improving quality in all EHR measure domains.**

- Medication administration, including electronic medication administration records (eMARs) and bar coding

- Adverse Drug Event (ADE) identification and reporting

- Medications that should not be administered to the elderly, i.e. those found on the "Beer's List"

- Drug-use evaluation and medication-use review

- Prescription assistance programs and compassionate use

- Clinical trials of investigational drugs

- Palliative care, including pain management

- Chronic disease management

- Risk Evaluation and Mitigation Strategies (REMS)

- Therapeutic substitution under protocol

Pharmacists interact with patients and intervene with physicians, care coordinators, and other health care providers when medication therapy is not optimal for a patient.  The pharmacist's access to the patient's EHR is key to the provision and documentation of effective pharmacist services to improve the MU of EHR quality measures.

### Patient Safety, including Medication Safety

In 2010, the National Quality Forum published a consensus report defining "Safe Practices for Better Healthcare."  This report defines 34 safe practices, including Safe Practice 18: Pharmacist Leadership Structures and Systems, which states "*pharmacy leaders should have an active role on the administrative leadership team that reflects their authority and accountability for medication management systems performance across the organization.*"[19] With access to the PP-EHR pharmacists can improve the reporting and documentation of ADEs and assist with the exchange of ADE information among all providers.  Use of the PP-EHR can improve the timeliness of provider access and appropriate response to ADEs and foster higher rates of ADE reporting.  Improved documentation of ADEs contributes to improved pharmacovigilance, through reporting systems such as MedWatch, to monitor, detect, and report ADEs with the ultimate goal of decreasing serious adverse drug reactions (ADRs).

By documenting ADEs, pharmacists contribute to pharmacovigilance (e.g., MedWatch reporting systems).[20]  Pharmacovigilance is the process of monitoring for, detecting, and reporting ADEs with the ultimate goal of decreasing the risk of serious ADRs.[21,22]  Access to a fully integrated PP-EHR within the workflow would enable pharmacists to contribute to higher rates of ADE reporting.  The ability to report ADEs within the PP-EHR and integrate those findings on a national level would help all providers track ADEs and provide early identification of potentially dangerous medication side effects.

### Care Coordination, including Care Transitions

Pharmacists play a key role in medication reconciliation (MR) and the resolution of medication-related issues in many health care settings.  In the hospital they often have a primary role in the MR process as the patient moves from one care setting to another.  Greater use of medical teams and specialists results in patients with increasing

numbers of providers, including primary care physicians, multiple specialists, urgent care providers, nurse case managers, health coaches, and more.  As a result, coordinating medication therapies among multiple providers has become an important aspect of MR.

In each health care and home care setting, pharmacists need access to the patient's EHR to determine the appropriateness of medication therapies.  This includes access to the discharge summary, problem list, and medication and allergy lists for appropriate review and documentation in the MR process.  Pharmacists in multiple care settings can also assist with care coordination in terms of medication adherence.  The pharmacist's MU of the PP-EHR will ensure that pharmacists are involved and can improve the timeliness of provider access and appropriate response to medication-related information.

### Population and Public Health, including Smoking, Obesity, Blood Pressure Monitoring, and Glucose Monitoring

Pharmacists are in a key position to intervene with patients in numerous population and public health issues within the community.  With access to the PP-EHR pharmacists can view, document, and assess trends relevant to patient smoking history, obesity, blood pressure and glucose monitoring, immunization therapy, and other health issues.  Because pharmacists are first-line-of-care providers in some settings, they are in the unique position to address patient disparities in rural health areas, the Indian Health Service, community health centers, community pharmacies, free clinics, and other health care venues.  The pharmacist plays a key role in many practices as a health coach and advocate for healthy behaviors related to population and public health.  Including pharmacists as meaningful users of the EHR will ensure that measurement goals related to these population and public health issues are integrated into the national HIT initiatives.

### Medication Errors and Near Misses

As medication experts, pharmacists can appropriately evaluate causes of medication errors and medication near misses and recommend procedures or technological steps to prevent them.  Pharmacists are key members of the health care team in the identification of potential or actual medication errors and near misses and actively report to national databases on medication errors to assist in monitoring national trends.  Including pharmacists as meaningful users of the EHR will ensure that medication errors and near misses are reported for quality measurement goals.

## 2011-2015 Overall Objectives:

To identify practice models in which pharmacists participate in support of MU of the EHR and to educate pharmacists about the MU quality measures and how their role supports improvement in quality measures, the following specific objectives with timeframes have been identified.  In addition, specific objectives have been established for educating other health care practitioners on the role of the pharmacist in MU of the EHR measurement concepts and how pharmacists can assist in helping all health care providers attain their MU quality measures and improve patient care outcomes.

**2011:**

- Educate pharmacists and other meaningful users of EHRs about the pharmacist's role in the MU of EHR quality measures.
- Identify practice models in which pharmacists participate in, support, or enhance the MU of the EHR quality measures.

**2012-2013:**

- Ensure that the PP-EHR supports documentation of pharmacists' participation in the support or enhancement of MU of EHR quality measures and that the appropriate data can be gathered from the PP-EHR to support MU of the EHR quality measures.
- Advocate demonstration projects in a variety of settings that can document improvement in MU of EHR quality measures where pharmacists have contributed to the EHR.
- Ensure that pharmacists are involved in the determination and adoption of the MU of the EHR quality measures pertaining to medications and medication-related activities.

**2013-2015 or before:**

- Ensure the adoption of PP-EHR and pharmacist participation in bidirectional electronic information exchange.
- Advocate the creation of standards for documentation of pharmacist participation in the MU of EHR quality measures, including standard documentation of activities, such as patient and family education, clinical appropriateness of medications, care coordination, patient and medication safety, public and population health, and medication errors.
- Educate all health professionals, payers and policymakers, including the ONC, CMS, and ACOs, on the value of pharmacist-provided patient care interventions.

*Strategies identified as necessary for moving objectives forward:*

- Educate pharmacists on MU of the EHR quality measures.
- Create educational resources to assist pharmacists with the MU of the EHR quality measures.
- Promote demonstration projects where the pharmacist's involvement in HIEs impacts outcomes related to the MU of the EHR quality measures.
- Promote demonstration projects where the pharmacist's involvement in HIEs impacts improvement in process steps of the MU of the EHR quality measures.
- Create education programs to educate all health care providers on the pharmacist's role in the MU of the EHR quality measures outcome improvements.
- Educate the public on the pharmacist's role in assisting patients with self-monitoring and documentation of HIT information.
- Educate the public on the pharmacist's role in the exchange of medication-related information using HIEs and e-prescribing networks.

- Create pharmacy continuing education programs to educate pharmacists about the practice models used to support the MU of the EHR quality measures.
- Create internship programs to teach students about the pharmacist's role in the support of the MU of the EHR quality measures and work to integrate those concepts into the pharmacy curriculum.
- Participate in standards organizations for future MU of the EHR quality measures using the PP-EHR, especially as those measures relate to MTM.
- Ensure that pharmacists are involved in the determination and adoption of the MU of the EHR quality measures pertaining to medications and medication-related activities.

## Goal 7: Advance System Vendor EHR Certification

### Rationale

The Collaborative worked with a joint Health Level Seven (HL7) and NCPDP work group in the development of the PP-EHR functional profile, an HL7 functional profile. The industry will work with national EHR certification organizations and pharmacy system vendors to adopt certification criteria for the PP-EHR functionality to ensure that pharmacist-provided patient care service information can be exchanged with other health care providers.  Development of certification criteria for PP-EHRs used by pharmacists will support several national HIT policy goals including**:**

- Enabling the electronic exchange and use of health information consistent with a nationwide HIT infrastructure
- Supporting improvements in quality, clinical appropriateness, and continuity of care
- Promoting coordination of care and patient/family engagement
- Improving population health
- Improving patient safety, including medication safety

Certification of PP-EHR systems will provide "buyer assurance" to pharmacists looking to adopt the functionality.  Certified systems will have proven compliance with minimum criteria allowing for the exchange of health information with other providers, including hospitals, laboratories, and physicians, who are using EHR systems from various vendors. In addition, pharmacists may become eligible for adoption incentives for MU of certified PP-EHRs and subject to penalties for failure to use such systems.

*The development of certification criteria and the certification of PP-EHR functionality will promote the exchange of health information among all health care entities and contribute to improved patient care.*

## 2011-2015 Overall Objectives:

To ensure the development of certifiable PP-EHR functionalities by pharmacy management system vendors or through partnerships with EHR vendors to expedite creation of certifiable PP-EHRs and launch CMS-defined certified PP-EHRs, the following specific objectives with timeframes have been identified:

**2011:**

- Monitor and promote the approval of NCPDP/HL7 functional profile criteria for the PP-EHR.  Inform and educate CMS-defined certification vendors that pharmacists desire certification for the PP-EHR that meets the NCPDP/HL7 functional profile criteria.

- Educate the HIT Policy Committee on the existence of the NCPDP/HL7 functional profile for PP-EHRs.  Request committee support in recommending to the U.S. Department of Health and Human Services (HHS) the need to incorporate PP-EHR use in national HIT policy, activities, and goals.

- Educate the HIT Standards Committee on the need for and existence of the NCPDP/HL7 functional profile for PP-EHRs.  Request committee support in recommending to HHS the need to incorporate PP-EHR use in national HIT policy, activities, and goals.

- Ensure that pharmacy management system vendors, pharmacists, and payers have a clear understanding of how PP-EHR use aligns with national HIT goals and the incentives that may be available.

**2012–2013:**

- Evaluate and select a certification body for PP-EHR certification of the NCPDP/HL7 functional profile.

**2013–2015 or before:**

- Ensure certification of a majority of PP-EHR system vendors.

  *Strategies identified as necessary for moving objectives forward:*
- Meet with HIT Policy Committee and the HIT Standards Committee to outline the NCPDP/HL7 functional profile for PP-EHRs.  Request support and recommendations from both groups to the ONC for incorporation of PP-EHR use in national HIT policy.

- Meet with the ONC and other HHS officials to educate and encourage support of NCPDP/HL7 functional profile for PP-EHRs.  Include key messages about how certified PP-EHR use will support national HIT policy activities and goals.

- Meet with the ONC to ensure that:
  - *Standards-based interoperability is incorporated into the PP-EHR certification criteria to allow meaningful data exchange across all care settings.*
  - *E-prescribing, MR, MTM, and medication quality requirements needed for pharmacists are incorporated into the PP-EHR certification criteria to advance pharmacists toward a more robust and interactive patient care model.*
  - *Certification requirements for PP-EHRs include the ability to share the CCD during transitions of care.*
  - *The functionality required for capturing and reporting MU quality measures is part of certification requirements.*

- Monitor all PP-EHR certification activities through contact with certification bodies.
- Promote PP-EHR certification requirements to pharmacy management system vendors.
- Monitor efforts of pharmacy system vendors to gain certification.
- Encourage pharmacist HIT thought-leader representation on appropriate certification committees and task forces involved in developing and implementing PP-EHR certification.

### Goal 8: Promote Pharmacist Adoption and Use of HIT and EHRs

### Rationale

Creating user demand for and adoption and MU of HIT and certified PP-EHRs by pharmacists in all patient care settings are critical to the success of pharmacy's overall HIT plan.  Fully adopting HIT solutions to improve quality and continuity of care requires a significant commitment from providers to invest time, money, and human resources, working both within their organizations and also with external partners.  It is important for pharmacists to have the knowledge necessary to understand the importance of adopting HIT solutions and the tools they need for the integration of HIT systems if they are to make this commitment. Emphasis should be placed on advancing the pharmacist's adoption and use of HIT and PP-EHRs, including use of certified electronic MTM systems and participation in HIEs to ensure that information is exchanged in a bidirectional manner.

**Pharmacists' demand and adoption of pharmacy management systems with PP-EHR functionality is critical.**

## 2011-2015 Overall Objectives:

To advance the adoption and MU of PP-EHRs and HIT by pharmacists, the following specific objectives with timeframes have been identified:

### 2011:

- Educate and provide tools necessary to help pharmacists understand the importance of adoption and MU of HIT and demand access to the functionality provided in the certified PP-EHR.
- Educate and provide quantifiable evidence to payers, prescribers, and patients regarding the value of the pharmacist's use of certified PP-EHR functionality.
- Initiate efforts to recognize the value of and generate funding for pilot projects involving PP-EHR functionalities and pharmacist-provided patient care services.

- Promote understanding and support among policymakers and regulators at all levels for the value of inclusion of pharmacists in national HIT strategies.
- Encourage PP-EHR innovation by pharmacy management system vendors and/or through partnerships with EHR vendors to expedite creation of a certifiable PP-EHR.

### 2012-2013:

- Advocate funding for pilot projects focused on gathering evidence and quantifying the value of PP-EHR utilization.
- Advocate pilot projects and research to gain quantifiable evidence for the alignment of pharmacist-provided patient care services with Stage 3 MU measures.
- Continue educational efforts effectively measure on the value, adoption, and MU of PP-EHRs.
- Advocate a compensation model for pharmacist-provided patient care services which is enabled through use of PP-EHRs.

### 2013-2015 or before:

- Continue educational efforts focusing on the value, adoption, and MU of PP-EHRs.
- Ensure that the measures that support pharmacist-provided patient care services are refined and continue to effectively measure the value of said services.
- Promote and demonstrate quantifiable evidence that MU of PP-EHR functionality by pharmacists justifies compensation for said services.

#### *Strategies identified as necessary for moving objectives forward:*

- Widely disseminate "*The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care*" and its updates.
- Educate policymakers at federal, state, and local levels regarding pharmacists' readiness to be included in key public policy activities, including state grants supporting public health reporting and expanded HIE capabilities.
- Encourage the inclusion of and participation by pharmacists in state grants to promote the use of PP-EHR and HIT.
- Develop a business case for distribution to pharmacists, prescribers, and payers that supports the use of the PP-EHR.
- Work with and through the Collaborative, its member organizations, and professional partnerships to develop and promote educational programs and tools on certified PP-EHRs and interoperability at the federal, state, and local levels. These efforts will be focused on creating pharmacists' adoption demand.

- Develop and share educational tools, such as webinars and PowerPoint presentations, that address the various stages of the adoption of PP-EHRs and HIT, including certified technologies.  These tools will focus on e-prescribing, MR, MTM, medication adherence, immunization, quality improvement monitoring, and other topics.

- Develop practical tools to guide providers through the justification, budgeting, selection, contracting, implementation, and on-going monitoring required for PP-EHR use. These efforts will be focused on creating pharmacists' adoption demand.

- Disseminate information on the costs and benefits of utilizing PP-EHRs and HIT in pharmacy practice, current policies advancing the use of HIT, as well as barriers to the implementation of PP-EHRs and HIT, on behalf of patients receiving pharmacist-provided patient care services.

- Identify workflow and process change considerations associated with the MU of the PP-EHR in the pharmacy and with prescribers, payers, and patients.

- Develop and implement a strategy to educate pharmacists, vendors, and policymakers about preparing for HIE through the use of PP-EHR technologies.

- Prioritize focus areas and questions to be addressed in ongoing and concluded pilot studies.  Encourage the presentation of results in the form of practical implementation guides usable by pharmacists.

- Support "best practice" studies, including defining the return on investment business case, the value of certification, and successful strategies for participation in HIEs.

- Encourage a focus on pharmacists, vendors, and policy makers in the HIT Extension Program at the National Research Center and in the Regional Extension Centers.

- Educate and provide quantifiable evidence to payers, prescribers, and patients regarding the value of pharmacists' use of certified PP-EHR functionality in areas such as antibiotic stewardship, decreased hospital readmissions, smoking cessation programs, and other MU of EHR quality measures.

## Goal 9:  Achieve Integration of Pharmacies and Pharmacists into Health Information Exchanges

### Rationale

Health Information Exchange (HIE) is a critical component for the national HIT initiative's success as defined in the American Recovery and Reinvestment Act of 2009, the MU of HIT, and the Affordable Care Act.  Formal organizations are emerging to provide both form and function for HIE efforts on independent, governmental, and regional levels to mobilize health care information electronically across organizations within a region, community, or hospital system.

**Pharmacists need HIT systems that have the functionality and connectivity to support the provision, documentation, and billing for these services.**

The active participation of pharmacists in HIEs is aligned with overall HIE goals to improve patient safety, enhance quality of clinical care, increase clinical and administrative efficiency, reduce duplication of services, enhance identification of threats to public health, and expand consumer access to their own health information.[23] Pharmacists play an integral role in providing services and information related to MTM, wellness and prevention, chronic disease management programs, and complex case management related to multiple medications with complex medication dosing regimens. The electronic exchange of current or real time pharmacist-provided patient care information using HIEs or e-prescribing networks will ensure effective, bidirectional communication among the health care team members, improve overall quality of patient outcomes, and assist providers in meeting their MU of EHR measurement goals.

It is essential that the health information in the HIE is secure and that patient identity is protected, accurately reconciled, and recognized.   As recognized providers of care, pharmacists are bound by the Health Insurance Portability and Accountability Act (HIPAA) regulations to assure the security of patient information.  Pharmacists are in an optimal position to accurately identify patients, reconcile their medication and demographic information, and share that information with other health care providers.

The participation of pharmacists as meaningful users of EHRs complies with the following guidelines established in "*HIE Security-Related Services*:

- Correctly identify and authenticate a user of the system
- Ensure that data are accessed appropriately and used only for the right reasons (authorization and consent)
- Correctly identify a patient
- Correctly locate the relevant data sources
- Accurately retrieve data from multiple sources
- Accurately send data to multiple sources
- Aggregate patient data
- Ensure that data provided to the requestor are an accurate representation of the data received from the data source(s)
- Provide patients with a complete list of successful exchanges of their data upon request
- Ensure that the organization is able to identify and hold accountable those who misuse data
- Other HIE Services
    - » *Appropriately present patient data in a meaningful way*
    - » *Provide a central access point for data requests*
    - » *Provide the services and support that are required for the business within agreed upon time frames*"[23]

Pharmacists providing patient care services in many practice settings, including hospitals, community pharmacies, home care, long-term care, post-acute care, community health systems, managed care organizations, and hospice settings will ensure the facilitation of care

coordination. Pharmacies' and pharmacists' involvement in HIEs will provide an environment conducive to the sharing of medication-related information through local, regional, and national HIEs to reach all practice settings. In short, the inclusion of pharmacists in HIE networks will maximize the efficiency of HIE activity.

## 2011-2015 Overall Objectives:

To ensure that pharmacies and pharmacists in all practice settings are active participants in local, state, and regional HIEs, the following specific objectives with timeframes have been identified:

### 2011:

- Encourage pharmacists in all practice settings to become active participants in local, state, and regional HIEs.

### 2012-2013:

- Attain the ability for pharmacists in all practice settings to actively exchange information and be integral participants in local, state, and regional HIEs.

### 2013-2015 or before:

- Demonstrate and document how the involvement of pharmacist-provided patient care services enhances the value of HIEs.

*Strategies identified as necessary for moving objectives forward:*

- Contact existing HIEs to encourage involvement of pharmacists in all practice settings.
- Work with policymakers, including state Medicaid agencies, ONC, CMS, HHS, and other members of the health care industry, to promote the importance of pharmacist participation in HIEs.
- Work with other members of the health care community to encourage recognition of the importance of pharmacist involvement in HIEs.
- Leverage existing relationships with other health care and consumer organizations to recognize the importance of having pharmacists engaged in HIEs.
- Assist with the demonstration and documentation of the value that pharmacist participation brings to HIEs.

## Goal 10: Establish the Value and Effective Use of HIT Solutions by Pharmacists

### Rationale

Research demonstrating the value of the pharmacist's role in health care highlights the importance of the pharmacist's ability to share electronic clinical information with other health care providers. The value of the pharmacist's role in health care has been established in a variety of practice settings, including the following areas of patient care:

- Disease state management models (e.g., Diabetes Management, Asheville project)[24,25,26,27,28,29,30]
- Medication therapy management and care coordination[7,31,32,33,34,35,36,37]
- Team-based care [32,33,38,39]
- Outcomes research [40,41,42]

**Well-documented evidence demonstrates that pharmacists' clinical services improve patient care and reduce morbidity and mortality.**

A well-documented body of clinical evidence also demonstrates that pharmacists' clinical services improve patient care outcomes and reduce morbidity and mortality. Pharmacists often provide clinical services to achieve clinical quality measures under the MU objectives for heart attack, including smoking cessation programs and blood pressure monitoring. Studies have shown physician-pharmacist collaborative interventions to be most effective in improving systolic blood pressure control.[39,43,44] The ongoing study "Collaboration Among Pharmacists and Physicians to Improve Outcomes Now (CAPTION)" has developed a pharmacist intervention focusing on the improvement of hypertension and asthma in 48 primary care clinics in the Pharmacist Practice-based Research Network. Electronically integrating the data collection would improve future MU of EHR quality measures for these clinics.[45] Technology and software applications used in pharmacies have also been shown to benefit patient safety and medication compliance, validating the value and effective use of HIT in pharmacies.[46]

**HIT solutions can enhance pharmacists' abilities to contribute to patient-centered team-based care and can assist in improving outcomes in existing and emerging patient care delivery models.**

It is evident that access to HIT solutions can enhance the pharmacist's ability to improve the overall medication-related safety and quality of patient care in coordination with other health care providers. Some HIT solutions are currently in use in the pharmacy but may require standardization. E-prescribing as a component of the EHR is one example of a viable HIT solution for exchanging prescription information. Having access to electronic prescription information provides a partial data set needed by pharmacists to demonstrate the value of effective medication use. Current e-prescribing transactions and networks can be leveraged as an HIT solution to exchange clinical information in a bidirectional manner. Pharmacists in health systems also use clinical messaging to exchange health information. Although this is an HIT solution in use, uniform standards that can be incorporated in all practice settings outside of an individual health system are encouraged.

The Collaborative is working with national EHR certification organizations and pharmacy system vendors to ensure that the PP-EHR functionality is adopted, including the development of certification criteria to meet the MU of the EHR concepts related to pharmacists using the PP-EHR in a meaningful way. Demonstration of the value of the pharmacist's role in health care continues to be important for the integration of pharmacist-

provided patient care services into the national HIT infrastructure.  A common, shared HIT solution with access to clinical health information available to all health care providers in need of that information is an important priority.

## 2011-2015 Overall Objectives:

To establish the value of the pharmacist's role in HIT by demonstrating its effective use by pharmacists in various care models and promote research and quality measures demonstrating the value of the pharmacist's role in health care, specific objectives with timeframes have been identified.  In addition, specific objectives have been established for leveraging the pharmacist's role in HIT by ensuring that existing research outcomes and quality measures from pharmacists' contributions to patient care are incorporated into the HIT processes for all health care providers.

### 2011:

- Define the pharmacist's role in HIT solutions and ensure that pharmacists are integrated into the national HIT framework.
- Promote the pharmacist's role in ensuring the safe and effective use of medications by sharing clinical information with other health care providers in a bidirectional manner.
- Identify and promote examples of pharmacists effectively using the PP-EHR functionality in their workflow in all practice settings.
- Publicize to all pharmacists and health care providers research demonstrating the value of the pharmacist's role in HIT.

### 2012-2013:

- Fully integrate the PP-EHR functionality into pharmacist HIT solutions and secure pharmacists' recognition as meaningful users of the EHR by exchanging clinical information in a bidirectional manner with other health care providers.

### 2013-2015 or before:

- Achieve recognition of pharmacists by payers, providers, and policymakers, including the ONC, CMS, and ACOs, as meaningful users of the EHR.
- Support research by adopters of the PP-EHR and the MU of the EHR to demonstrate the value of pharmacists using HIT solutions.

### *Strategies identified as necessary for moving objectives forward:*

- Ensure that pharmacists are recognized as providers of patient care services by payers, providers and policymakers, such as the ONC, CMS, and ACOs.
- Use an MTM Value Set to define MTM, such as SNOMED-CT codes for aggregate quality reporting.

- Ensure that performance measures track the quality of pharmacist-provided patient care and reduction of overall health care costs.

- Support the standardization and adoption of plans for measuring and reporting performance information related to medications, such as the Pharmacy Quality Alliance's (PQA's) quality metrics, and integrate those plans into HIT solutions.

- Ensure that pharmacists use HIT within models of care delivery, such as the medical home, community health teams, and care transition teams.

- Work with system vendors to certify PP-EHR functionality in pharmacy practice management systems.

- Work with pharmacists to adopt the PP-EHR functionality in their practice management systems using the Collaborative member organizations to help educate them about these HIT solutions.

- Identify adequate funding sources for quality research demonstrating the value of the pharmacist's role in HIT.

- Work with pharmacists and system vendors to incorporate the quality measures and research outcomes demonstrating the value of pharmacists into the HIT processes used by all health care providers in all practice settings.

## Conclusion

The *Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care* provides an overview of  the pharmacy sector's needs for the integration of pharmacists' patient care services into the national HIT infrastructure and lists goals, objectives, and strategies for meeting those goals over the next four years.  Demonstration of the value and effective use of HIT solutions by pharmacists is critical to the integration of pharmacist-provided patient care services into the national HIT plan.  Promotion of the Roadmap to pharmacists, policymakers, and other stakeholders to encourage support to include pharmacists as recognized providers in the national HIT infrastructure is an immediate priority.  Education of pharmacists and other health care providers on the importance of the accelerated adoption of PP-EHR and the provision of tools and resources to help pharmacists implement HIT solutions are needed.  Finally, collaboration with health care organizations, policymakers, vendors, and other stakeholders to facilitate the inclusion of pharmacist-provided patient care services in all facets of the national HIT system is essential to the success of pharmacy HIT.  The Roadmap provides guidance to provider organizations, policymakers, vendors, payers, and other stakeholders to advance pharmacists' HIT issues through coordinated efforts. The Pharmacy e-HIT Collaborative will continue to contribute to specific aspects within the Roadmap that are aligned with the scope, goals, objectives, and strategies of the Collaborative. For additional information on the Collaborative's activities visit *www.pharmacyHIT.org.*

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# The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care

**Developed by the  Pharmacy e-Health Information Technology Collaborative**

**About the Pharmacy e-Health Information Technology Collaborative**

Founded in the fall of 2010, the Pharmacy e-Health Information Technology Collaborative (Collaborative) is committed to ensuring the meaningful use (MU) of standardized electronic health records (EHR) that support safe, efficient, and effective medication use; continuity of care; and access to the patient care services of pharmacists in conjunction with other members of the interdisciplinary patient care team. The goal of the Collaborative is to ensure that the pharmacist's role of providing patient care services is integrated into the national health information technology (HIT) interoperable framework by advancing EHR standards that effectively support the delivery, documentation, and billing for pharmacist-provided patient care services in all care settings.

The Collaborative's founding pharmacy organizations,  representing more than 250,000 members in all patient care settings and other facets of pharmacy, including pharmacy education and pharmacy education accreditation, are the Academy of Managed Care Pharmacy (AMCP), Accreditation Council for Pharmaceutical Education (ACPE), American Association of Colleges of Pharmacy (AACP), American College of Clinical Pharmacy (ACCP), American Pharmacists Association (APhA), American Society of Consultant Pharmacists (ASCP), American Society of Health-System Pharmacists (ASHP), National Alliance of State Pharmacy Associations (NASPA), and National Community Pharmacists Association (NCPA). The Collaborative's associate members represent e-prescribing networks, standards development organizations, transaction processing networks, pharmacy companies, and other organizations that support pharmacists providing patient care services.  Associate members at the time of publication are Surescripts, National Council for Prescription Drug Programs (NCPDP), RelayHealth, Medco Health Solutions, Mirixa and ScriptPro.  For additional information, visit *www.pharmacyHIT.org.*

Members of the Collaborative were involved in working with a joint HL7 and NCPDP work group in the development of the Pharmacist/Pharmacy Provider Electronic Health Record (PP-EHR) functional profile, an HL7 functional profile that represents *"the functionality required and desired for a care setting or application, or reflect the functionality incorporated in a vendor's EHR system."*  The Collaborative continues to work with national EHR certification organizations and pharmacy system vendors to assure that the PP-EHR functionality is adopted with the development of certification criteria to meet the MU of EHR concepts related to pharmacy services.

**Pharmacy e-HIT Collaborative Guiding Principles**

- Identify, through the consensus work of expert panelists, the minimum data set and functional EHR requirements for the delivery, documentation, and billing of pharmacist-provided medication management services. Such requirements include access to key medical information, such as laboratory data and bidirectional communication flow among all practitioners.

- Structure and support implementation of a Pharmacy HIT Roadmap (Roadmap). The Roadmap is a document that directs and establishes benchmarks. These benchmarks will describe the development, implementation, and application of technology in an efficient and effective manner for pharmacists to affect improved medication use.

- Build cooperative relationships within pharmacy and among pharmacy and other stakeholders to communicate and advocate the Pharmacy Practitioner Minimum Data Set and Roadmap leading to a certified EHR as defined in the Federal Register.

- Ensure pharmacy representation on key HIT-related committees and workgroups.

*The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care* is available at *www.pharmacyHIT.org.*

# The Roadmap for Pharmacy Health Information Technology Integration in U.S. Health Care