**Medical Expenditure Panel Survey Medical Provider Component (MEPS MPC)**

**Option H Pathway 2 Report**

Deliverable OT-H3

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Prepared for

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# Introduction

Sampled medical providers from the Medical Expenditure Panel Survey, Medical Provider Component (MEPS MPC) receive patient Authorization Forms (AFs), which permit the release of patient medical information to MPC data collectors, and many providers return medical and/or billing records that are then abstracted for data collection. Additional options for providers to receive and submit information could help the MPC gain efficiencies in records acquisition, abstraction efforts, or both.

Two pathways are currently being explored under Option H to identify methods to increase the use of more electronic files. Pathway 1 explores improvements that could be made to RTI’s current web portal by speaking with a select group of POCs, gathering their feedback, and documenting a list of proposed changes for a future cycle. Pathway 2 (discussed in this deliverable) provides a summary of information gathered on the potential use of Electronic Health Records (EHR) or other electronic data files, including Medicare files from the Centers for Medicare and Medicaid Services (CMS).

Proceeding sections of this deliverable will document the topics listed below. The final version of this deliverable, due at the end of the Period of Performance, will include any newly identified information that is pertinent to discussion on EHR or other electronic files.

* Context and background on previous RTI investigations into using EHR on the MPC
* Summary of meeting between staff from AHRQ, RTI, and other federal agencies
* Key takeaways from internal discussions with others at RTI on EHR
* Findings on the potential use of Medicare files from CMS
* Proposed path forward to continue exploring the use of EHR and other electronic files
  + Identify knowledgeable contacts to reignite conversations with a subset of MPC providers, with the goal of determining current ability to provide electronic files with MPC variables. Ideally, discussion should include contacts from both an analytics/IT group as well as finance group.
  + After discussing with AHRQ, reconnect with other federal contacts to better understand availability of Fast Healthcare Interoperability Resources (FHIR) standardized data for researchers (not patients), with consent for release of data coming from a patient authorization form, instead of requiring a patient to individually authorize from something like their patient portal
  + Continue discussions with RTI experts on EHR and other electronic files
  + Recommend that AHRQ consider adding the MBI number to patient AFs to allow for potential linking to CMS files in the future, to minimize one major barrier to using those files

# Previous RTI Investigations into Using EHR and other electronic files for the MPC

With AHRQ approval, RTI previously conducted a preliminary study in 2016, to determine the ability of hospitals to extract and electronically submit MPC data for the Hospital provider type. The purpose of this preliminary study was to ascertain whether MPC data are contained in hospital EHR and financial systems, and to identify the most convenient way for hospitals to extract and submit the data. Two hospitals were selected to take part in a discussion with RTI substantive experts to understand capability and willingness to provide EHR or other electronic file submissions; both hospitals used Epic as their medical records software system.

A summary of major findings from that previous work included the following items listed below; however, it is critical to note the very small number of providers that were contacted (n=2), and that this information is from approximately 8 years ago. From the final report documentation, respondents from the two hospitals seemed much more familiar with medical records type data, and less so with billing records. It is also important to note that medical records at most contain about 20% of the needed variables for the Hospital provider type, compared to the ~80% of needed variables provided in billing records.

**Summary Finding #1:** *Some hospitals have the ability to provide MPC data in electronic files.*

Both hospitals had the ability to capture MPC data as discrete and computable data, and condition, procedure/treatment and demographic data as separate text fields. Since MPC data could be captured in the systems of these 2 hospitals, it may be possible that other hospitals running Epic or other leading EHR systems could likely have the ability to do so as well. Though it is unreasonable to expect 100% of hospitals participating in the MPC program will have this ability, even some percentage of the hospitals may result in benefits to the MPC, with a potential reduction in the amount of records that ultimately need to be abstracted, thereby reducing data collection hours, as well as potentially simplifying abstraction of SBD information

**Summary Finding #2:** *Though there are existing data extraction and reporting mechanisms, those mechanisms did not appear to result in easy reuse for MPC purposes.*

Both hospitals had existing data extraction and reporting mechanisms that appeared to extract and submit a high proportion of MPC data—only payment data was in question. However, neither of the two hospitals suggested that they would use those mechanisms to directly submit MPC data.

**Summary Finding #3:** *Patient matching is the most challenging aspect of the data extraction and submission process.*

Both hospitals stated that patient matching would present the biggest challenge in the entire process, and that providing them with unique identifiers, such as medical record numbers or social security numbers, would result in a higher match rate.

**Summary Finding #4:** *Different approaches in linking events may inadvertently impact charge, billing, and payment analyses.*

The technical specification given to the hospitals must provide clear guidance on the allocation of charges, billings, and payments so that such impacts are avoided.

**Summary Finding #5:** *Terms such as ‘full established charge’ and ‘charge equivalent’ may be unfamiliar to the analytics staff tasked with the MPC data extraction and submission process.*

The analytics staff at both hospitals were unfamiliar with the terms ‘full established charge’ and ‘charge equivalent.’ These and other unfamiliar terms would need to be clearly defined in a technical specification to avoid confusion and potential inaccurate submission of such data. This is also a clear indication that the combined efforts of the finance team, who were not interviewed and may better understand these terms, and the IT or analytics staff is essential.

**Summary Finding #6:** *Separately billing doctors (SBDs) could be identified through EHR and financial systems.*

Through their EHR and financial systems, both hospitals reported being able to: (1) identify each physician who performed a service or procedure on the patient, (2) capture each physician’s professional fees, and (3) separate the professional fees from the hospital bill. This could allow the provider to identify SBDs who are not in the hospital bill.

It would seem likely that other hospitals using Epic or other leading EHR systems could be able to do so, as well. However, it is important to note that no members of the finance team from either hospital were present during this discussion, which would be helpful to confirm these expenditure related details.

**Summary Finding #7:** *Payment data was the one segment of the MPC data set in which there is less familiarity among analytics staff from this preliminary study, which may cause difficulties in performing data extraction and submission.*

The analytics staff at both hospitals were less familiar with payment data since they have not needed to use such data for clinical research, analyses, or reporting. It seems likely that this data is available in a data warehouse but there was a lack of experience by the analytics staff in working with these data.

With a small sample size in this preliminary study, it was difficult to extrapolate this finding to the population of hospitals participating in the MPC program. In addition, since invited finance staff were not able to attend the meeting at either hospital, it could not be confirmed that the finance staff had sufficient experience with payment data that meets the MPC needs.

**Summary Finding #8:** *Each option to submit MPC data by time period was selected, which may require the MEPS program to offer both options.*

When presented with the option to submit MPC data 3 times a year versus once all sample increments were available, both interviewed hospitals opted for different options. It would be highly likely that this pattern would continue if the options are offered to wider set of hospitals participating in the MPC, making it difficult to capture missing data through POC/DCS contacts before data file deliverables must be submitted. This will likely be a negotiation process with each provider – we need to determine their willingness to submit more than once while balancing the tradeoff of receiving data much later in the cycle, after release of Wave 3.

**Summary Finding #9:** *A data extraction and submission program appeared to be a viable solution in making MPC data collection easier.*

Given the feedback from the analytical staff, it appeared that a data extraction and submission program could be a viable solution to introduce efficiencies in MPC data collection. Neither hospital identified insurmountable obstacles; however, both hospitals stated there would be some additional effort to develop the data extraction and submission computer programs and process to support requests. Conceptually, the benefits from electronic data submission (e.g, reduced time and effort, increased data quality) could accrue.

# Summary of meeting with AHRQ, RTI, and other federal agencies

In early 2024, staff from RTI, AHRQ, and other federal project leaders met to brainstorm ideas on what EHR related resources may be useful for the MEPS MPC to explore and current status of Fast Healthcare Interoperability Resources (FHIR) standards. AHRQ and RTI presented background on the MPC, current challenges, and possible avenues for incorporating more usage of EHR or other electronic files on the MPC.

The following list of resources or areas to explore were generated during that discussion and preliminary findings on what those resources represent are provided in **Exhibit 1.**

Several of these resources appear to be more a set of guidelines for which variables can or should be included in EHR, as opposed to say a specific file name that can be requested from MPC providers. Most of the resources in the table are primarily focused on medical records. Only one, Athena Health, indicated that it develops software for medical billing. CARIN Alliance appears to have experience working collaboratively with government stakeholders and PointClickCare has worked with federal/state agencies and health information organizations.

As an initial first step, RTI staff reviewed the list of USCDI+ standard variables and compared them to the list of required MPC variables to determine what level of overlap was available in a USCDI+ formatted file. A preliminary crosswalk of the USCDI+ standard variables and the MPC variables is provided as **Appendix A.** An initial review of the USCDI+ standard data elements list shows that the list contains some MEPS MPC data elements, but is missing key expenditure data. The USCDI+ has fields that appear to provide location of service, diagnosis, and even some SBD information. But, while the USCDI+ has fields for procedures, there are no charge data associated with those procedures. Total charge is also not available. And while there are some payer type fields, there are no payment amounts associated with those payers. Given that dates of service, provider names, and patient names are listed among the USCDI+ standardized variables, it may be possible to use USCDI+ standardized data elements from providers set to supplement some MEPS MPC information – particularly on diagnosis and SBD information. But, it does not appear to be a source for the key expenditure information.

**Exhibit 1: Summary of Possible Resources Identified at Meeting**

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| --- | --- | --- | --- | --- |
| **Website** | **Category** | **Description** | **Possible Utility for MEPS-MPC** | **Contact Info** |
| USCDI+: [USCDI+ - USCDI+ Service Portal (healthit.gov)](https://uscdiplus.healthit.gov/uscdi?id=uscdi_ec_dashboard) | Federal EHR Guidelines | The US Core Data for Interoperability (USCDI+) is a standardized list of data elements that can be electronically exchanged. It’s a service that ONC provides to federal partners who have a need to establish, harmonize, and advance the use of interoperable datasets that extend beyond the core data in the USCDI. | Link to a list of 582 USCDI+ Data Elements:  [List - USCDI+ Service Portal (healthit.gov)](https://uscdiplus.healthit.gov/uscdi?id=uscdi_lists&table=x_g_sshh_uscdi_relation_ship_elements&view=sp)  Four domains: Maternal Health, Public Health, Quality, and Cancer.  Does not include cost related data elements. | ONC contact page: [Contact Us | HealthIT.gov](https://www.healthit.gov/topic/contact-us)  Email address: [USCDI.Plus@hhs.gov](mailto:USCDI.Plus@hhs.gov) |
| USCDI: [United States Core Data for Interoperability (USCDI) | Interoperability Standards Advisory (ISA) (healthit.gov)](https://www.healthit.gov/isa/united-states-core-data-interoperability-uscdi) | Federal EHR Guidelines | The USCDI is a standardized set of health data classes and constituent data elements for nationwide, interoperable health information exchange. | Includes classes of data such as Allergies and Intolerances, Assessment and Plan of Treatment, Care Team Members, Clinical Notes, Patient Goals, Health Concerns, Immunizations, Lab, Medications, Patient Demographics, Procedures, Smoking Status, Vital Signs.  Does not include cost-related data elements. | ONC contact page: [Contact Us | HealthIT.gov](https://www.healthit.gov/topic/contact-us) |
| Surescripts: [Trusted Health Intelligence Sharing | Surescripts](https://surescripts.com/) | EHR Network | Their customers of Surescripts are healthcare providers and pharmacies. The Surescripts Network Alliance brings together healthcare professionals and organizations across the U.S. to collaborate, tackle shared challenges and advance care. Surescripts was built to solve complex problems with the power of nationwide interoperability. | They offer a service called Specialty Medications Gateway which “lets you pull patient clinical information without contacting the prescriber, reducing phone calls, faxes, and paperwork.” | Contact sales team:  [Contact Surescripts Sales | Surescripts](https://surescripts.com/contact-sales) |
| Oracle Cerner: [Home | Oracle Cerner](https://www.cerner.com/) | EHR Software Vendor | Provides “industry-leading solutions to digitize paper processes for healthcare providers.” Focus is to “extend our core platform in order to aggregate health records from disparate systems across the care continuum and put this data into action.” | Have systems at more than 20,000 facilities worldwide. Cerner provides data in clinical information systems so that “members, caregivers and administrators can proactively manage the well-being of the state sponsored populations, communities and delivery networks.” It also serves government partners. | Contact page: [Cerner - Eloqua Form Integration Testing (oracle.com)](https://go.oracle.com/LP=135601?src1=trackingParam&flex1=Government_solution&flex2=Federal&cmid=WWMK230503P00048) |

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| Epic: [Epic | ...With the patient at the heart](https://www.epic.com/) | EHR Software Vendor | From homepage: “Our software makes it possible for every patient to have a single comprehensive medical record that informs and is informed by their health experiences.” | Offers software for AI: [Artificial Intelligence | Epic](https://www.epic.com/software/ai/) and Interoperability: [Interoperability | Epic](https://www.epic.com/software/interoperability/)  AI software is used in many forms, including generative AI and predictive models.  Interoperability software brings together patient data across systems for better care coordination and improved health care. Community Connect offers independent providers and healthcare organizations a unified and integrated patient record by extending the EHR for an organization that uses Epic.  There are about 50 large healthcare organizations they are connected to: [Connect Accredited Sites | Epic](https://www.epic.com/epic/page/connect-accredited-sites/) | Contact page: [Contact | Epic](https://www.epic.com/contact/) |
| AthenaHealth: [EHR/EMR System: Electronic Health Record Service | athenahealth](https://www.athenahealth.com/solutions/electronic-health-records) | EHR Software Vendor | An all-in-one practice management solution that delivers comprehensive EHR, Revenue Cycle Management (RCM), and patient engagement software and services. | Develops both EHR and RCM (medical billing) software. | Contact page: [Customer Service, Support and Contact Information | athenahealth](https://www.athenahealth.com/about/contact-us) |
| PointClickCare: [Cloud-Based Healthcare Software Provider - PointClickCare](https://pointclickcare.com/) | EHR Software Vendor | Offers cloud-based healthcare software that connects the care, services, and financial operations of medical providers. | Have experience working with and in federal and state agencies and health information organizations. Their solutions provide support for the advancement of interoperability, and health IT policy and standards.  Have longstanding partnerships with Health Information Exchanges. | Customer support: [Customer Support - PointClickCare](https://pointclickcare.com/customer-support/) |
| CARIN Alliance: [Home - CARIN Alliance](https://www.carinalliance.com/) | EHR Network | Vision is to advance the ability for consumers and their authorized caregivers to easily get, use, and share their digital health information when, where, and how they want to achieve their goals. | The CARIN Alliance is a non-partisan, multi-sector alliance led by providers, payers, consumers, pharmaceutical companies, consumer platform companies, health IT companies, and consumer-advocates who are working collaboratively with other stakeholders in government to overcome barriers in advancing consumer-directed exchange across the U.S. | Contact page: [Contact Us - CARIN Alliance](https://www.carinalliance.com/about-us/contact-us/) |
| ResDAC homepage:  [Find, Request and Use CMS Data | ResDAC](https://resdac.org/) | CMS Contractor: provides claims data to researchers | A CMS contractor that provides assistance to researchers interested in CMS data, including Medicare claims data. Assistance provided to academic, non-profit and government researchers. | Fee information page: [CMS Fee Information for CMS Research Identifiable Data | ResDAC](https://resdac.org/cms-fee-information-research-identifiable-data)  Price list for research data files: [CMS Fee List for Physical Research Data Requests.pdf (resdac.org)](https://resdac.org/sites/datadocumentation.resdac.org/files/2024-02/CMS%20Fee%20List%20for%20Physical%20Research%20Data%20Requests.pdf) | Contact page: [About Us | ResDAC](https://resdac.org/about-resdac#contact) |

# Key Takeaways on Internal Discussion on EHR

Taking the information gathered during the meeting, RTI MPC leaders began discussions with other experts at RTI to understand what data is currently being gathered by RTI from EHR and to better understand the process of how that information is obtained.

The following high-level information was obtained from those meetings:

* At this time, and with emphasis from the Affordable Care Act (ACA), EHR availability is predominantly considered to be a product for the patient, not necessarily researchers, and has been heavily focused on patient access for clinical care.

* RTI researchers have worked on clinical and data coordinating center studies that have developed apps to access EHR, with access authorized by the patient through their current patient portal.
* The most common records software vendors (notably Epic and Cerner) do work with research entities to allow for externally developed applications that can connect to their systems and extract data. All software used on the MPC will need to be discussed with the AHRQ IT Security team to ensure security requirements are being maintained.
* However, provider-level approval would still be needed from any given MPC provider to obtain their data (i.e. blanket approval to receive the data is not done through Epic or Cerner directly). We continue to explore whether Authorization Forms (AFs) from patients would suffice for requesting this type of information.
* “Bulk FHIR” was referenced as a potential future path for researchers to more easily access EHR. To date, bulk FHIR has been specified and piloted in smaller use cases but not operationalized at scale. To align with MPC operations, data from a bulk FHIR resource would be needed at a provider/entity level for specific HC patients and for specific dates of service.

# Potential Use of Medicare Files

MEPS oversamples Medicare patients, so access to Medicare data could have an impact on the completeness of MEPS expenditure data. The Centers for Medicare & Medicaid Services (CMS) makes available annual data sets with some expenditure data that can be parsed by medical event for patients covered by Medicare or Medicaid, and patients who are dual eligible. An initial comparison of the CMS file variable listing to the MEPS MPC variables collected indicates that many of the key data elements (including at least some expenditure data) appear to be present in the CMS files; the crosswalk of these variables can be found in ***Appendix B***. However, there are several complications or barriers associated with using CMS data to complete MEPS MPC medical events that would have to first be overcome.

The CMS provides files associated with hospital inpatient settings, hospital outpatient settings, skilled nursing facilities, home health agencies, hospices, carriers (OBDs/SBDs), as well as various pharmacy files. Data files of interest to the MEPS MPC are primarily the Fee-For-Service (FFS) files and the Encounter files. FFS files contain claims submitted by providers for reimbursement of facility costs. These claim records represent covered events. The Encounter files contain Medicare Advantage plan records from providers. Many Medicare Advantage Plans offer extra coverage in addition to services covered under FFS Medicare. Encounter file data may include records for some of these additional items and services provided.

The initial comparison of the CMS hospital inpatient and outpatient FFS variable lists to the MEPS MPC variables indicates that total charges and total payments by medical event may be possible, although some calculations may be required depending on the CMS file type. Calculating total costs (facility plus professional fees) would likely involve using both a hospital file and a carrier (OBD/SBD) file. Payments by payer type are included in the files, although when Medicare is not a primary payer (such as dual eligible Medicare-Medicaid patients) the use of additional Medicaid files would be necessary. Patient payments can be calculated using the data.

An initial comparison also shows that SBD information appears to be available within the hospital FFS files – including provider name and NPI number. By coupling a hospital file with a carrier file, it may be possible to identify providers who are SBDs and providers who had charges included in the facility bill. The FFS files also include event dates, diagnosis codes, and non-payment reason data that may map to the MEPS MPC reasons that charges do not equal payments.

As noted previously, there are a number of potential barriers or limitations to using the CMS data sets. First, the timing of data set releases greatly limit their usefulness to the MEPS MPC production schedule. The FFS files from a previous year are typically not released until October, such as the 2023 data not being released until October of 2024 at the earliest. This could greatly limit the ability to use CMS data to complete MEPS MPC patient events, given the timing of required file deliveries.

If the CMS data could be provided in a similar manner as VA data is currently provided to RTI – requiring nothing other than concatenating to our MPC datasets – a similar timeline to the VA file submission could suffice, sometime in mid-September; however, this assumes very little is required to manipulate the file once received. It is also an open question as to how much time would be required to process any SBD information that could be obtained through these files; with SBD data collection typically beginning in August of any given cycle, having the files no later than early May would allow for two months of time to understand the contents of the file before the first wave of SBD sample is typically processed.

Another potential barrier is the limited availability of patient identifiers in the CMS FFS data. The main patient identifier is an encrypted CCW Beneficiary ID, which can be linked by the MBI. Without this ID number, it could be difficult to link data to MEPS patients (and their events); however, there is a possibility that SSN, name, DOB and other identifiers could be used to send a finder file to the CCW to assist with linkage. The [CMS RIF DUA Policy Guide](https://nam04.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.cms.gov%2Ffiles%2Fdocument%2Fresearch-identifiable-file-data-use-agreement-policies.pdf&data=05%7C02%7Cesaleska%40rti.org%7C243c3b59585b4dff2eb408dc8c854a80%7C2ffc2ede4d4449948082487341fa43fb%7C0%7C0%7C638539751326083108%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C0%7C%7C%7C&sdata=U47ZgBGroC0VULVM8wtkTLYBHWYchJe4CgY8W%2FB%2B1FY%3D&reserved=0) describes this further in Section 5.3.

For providers, NPIs are included in the CMS FFS data, making it potentially easier to determine the provider associated with specific events. Finally, the CMS data are limited to only those events with Medicare as a payer (and/or Medicaid, for the Medicaid files).

# Proposed Path Forward

Given the information gathered from these various sources, RTI proposes the following steps be taken to continue identifying options for obtaining data from EHR and other electronic files.

* RTI would like to have exploratory conversations with a select number of large providers to understand how best to work with them directly on obtaining MPC data electronically for the Hospital provider type. Ideally, conversations should include representatives from both analytics/IT groups as well as finance groups.
  + Discussion should include specific investigation on the ability to extract and submit payment data according to MPC needs.
  + RTI is also particularly interested in understanding the ability of providers to identify and provide SBD names, as SBD names are the most critical data element that require the acquisition of medical records.
* Clear and concise technical specifications provided by the project is likely an important step to understanding provider capabilities. The technical specification should at least contain unambiguous definitions of the data, algorithms to compute appropriate data elements (e.g., total payments), and guidance and validation procedures for patient matching. Guidance on the allocation of charges, billings, and payments materials should also be included in the technical specification.
* A follow-up conversation with AHRQ and other federal agencies may be useful to better understand the accessibility of EHR/FHIR standardized data for researchers, including the idea that a patient authorization form is the consent mechanism, instead of a patient authorizing from their patient portal. RTI experience with accessing EHR has primarily been via the latter method, and understanding how an authorization form might work as a proxy in this situation is an important detail for the MPC.
* Continued discussions with RTI experts on EHR and other electronic files could be beneficial.
* Further investigation is needed to understand the types of formats that EHR is likely to be delivered and how best to process that data into MPC systems.
* On the potential use of Medicare files, collecting the Medicare Beneficiary Identifier (MBI) on patient authorization forms during HC data collection appears to be a critical step in the potential use of Medicare files on the MPC.