HITPC and ONC requested information about how much development effort would be required for their proposed Stage 3 projects. The EHR Association has included estimated development effort in this table. Estimates were gathered by the EHR Association Meaningful Use Workgroup members.

Project Sizing

Project sizes can vary across vendors, but we have collected a range of how the vendors participating in the estimates consider sizing:

|  |  |  |  |
| --- | --- | --- | --- |
| Size of project | Icon | Range (person-weeks) | Mean (person-weeks) |
| Small |  | 1-18  | 8 |
| Medium |  | 2-48 | 18 |
| Large |  | 4-88 | 33 |
| Jumbo |  | 16+ to 88+ | 49+ |

Discussion:

1. EHR developers who worked on these estimates note that it would be very helpful if regulators would engage with EHR developers at specific points in the process of defining future EHR requirements to do assessments of the development effort required. We would be happy to work with ONC and the HITPC to identify the optimal points in the process to provide estimates and on a process to allow time for estimates to be developed.
2. Estimates vary for any given developer. Each developer has a different set of existing features on which to build new functionality, different business models and methods of delivering features, and so forth. So, estimates will vary across companies and systems. The estimates here reflect our attempt to present an average/general expectation.
3. There is general effort in understanding requirements and implementing workflows regardless of the software development projects in addition to the underlying analyses. This general effort is not included in the list of estimated projects below.
4. In many cases, insufficient information about the requirement and associated standards exists to support accurate estimates. We have developed these estimates based on the available information, and have indicated where more information is needed.
5. Estimates include: development, quality testing, and preparation for certification. Estimates do not include client implementation or usability testing. Where there are great discrepancies between development and implementation effort, we have attempted to highlight this in the comments.

| **ID #** | **Stage 3 Recommendations** | **Average EHR ASSOCIATION Development Estimate** |
| --- | --- | --- |
| **SGRP101** | **Certification criteria:** EHR must be able to consume an externally supplied list of “never” DDIs, using RxNorm and NDF-RT standards along with a TBD DDI reactions value set.**Certification criteria for EPs:**EHR must have the ability to transmit lab orders using the lab order and results Interface guidelines produced by the S&I Framework Initiative. | **Overall estimate:** **Large to** **Jumbo.**Never DDI list – depends on how it is implemented. * If incorporated into medication database content, small.
* If not, large.

Transmit lab orders electronically – small to ensure current interfaces match standard. Note – if an updated interface standard introduces a large volume of data elements that are required to be captured, the estimate could grow too large. |
| **SGRP130** | **Objective:** Use computerized provider order entry for referrals or transition of care orders directly entered by any licensed healthcare professional who can enter orders into the medical record per State, local and professional guidelines to create the first record of the order.**Measure:** More than 20% of referrals/transition of care orders created by the EP or authorized providers of the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) during the EHR reporting period are recorded.  | **Overall estimate:** **Small**Small, assuming most EHRs already have this capability or close to it; that it is not specified in a way requiring EHR changes; and that electronic transmission and referrals management functionality is not required. |
| **SGRP103** | **EP objective:** Generate and transmit permissible prescriptions electronically (eRx)**EP measure:** More than 50% of all permissible prescriptions written by the EP are compared to at least one drug formulary **(reviewed for generic substitutions)** transmitted electronically using Certified EHR Technology.**EH objective:** Generate and transmit permissible discharge prescriptions electronically (eRx)**EH measure:** More than **30%** of hospital discharge medication orders for permissible prescriptions (for new or changed prescriptions) are compared to at least one drug formulary and transmitted electronically using Certified EHR TechnologyHow to include formulary checking into EHR and connection to formulary sources (e.g. PBMs)? | **Overall estimate:** **Large**Small if generic comparisons are required in a way that permits current EHR functionality to suffice.If new functionality is required, changes to medication ordering are often time-consuming so we estimate it would be a large project.Updated reporting for revised measure. |
| **SGRP104** | **Certification criteria:** • Patient preferred method of communication• Occupation and industry codes• Sexual orientation, gender identity (optional fields) • Disability status * Differentiate between patient reported & medically determined
* Need to continue standards work

**Certification criteria:** HITSC to identify what the communication preferences options should be for the clinical summary, reminders, patient educational material objectives (this will correlate to the patient’s preferred format in each of these objectives). Providers should have the ability to select options that are technically feasible for them, these could include: Email, text, patient portal, telephone, regular mail.  | **Overall estimate:****Large to** **Jumbo**Occupation and industry codes – * If adding one field for occupation and one for industry, small.
* If extensive data capture is required (e.g., primary or lifetime occupation, history of occupation, tracking over time), large.

Sexual orientation and gender identity – * If adding two fields, small.
* However, we do not think this is what is requested. Discussions seem to indicate that the data would be expected to fuel decision support, to determine patient’s form of address and pronoun usage, and other purposes that expand the scope of the project. We estimate the requested integration of this information into the EHR is likely a large-jumbo project.

Disability status – Difficult to estimate without standards. Small-large.Patient preferences per type of content, small. |
| **SGRP105** | **Certification criteria:** EHR systems should provide functionality to help maintain up-to-date, accurate problem list**Certification criteria:** Use of lab test results, medications, and vital signs (BP, ht, wt, BMI), to support clinicians’ maintenance of up-to-date accurate problem lists. Systems provide decision support about additions, edits, and deletions for clinicians’ review and action. For example, if diabetes is not on the problem list but hypoglycemic medications are on the medication list: the EHR system might ask the provider whether diabetes should be on the problem list. It would not automatically add anything to the problem list without professional action.  | **Large.** Assuming that something beyond 2014 certification CDS functionality is needed, such as actions taken from the intervention.  |
| **SGRP106** | **Certification criteria:** EHR systems should provide functionality to help maintain up-to-date, accurate medication list**Certification criteria:** Use of problems and lab test results to support clinicians’ maintenance of up-to-date accurate medication lists. Systems provide decision support about additions, edits, and deletions for clinicians’ review. For example, an antibiotic (not for acne) has been on the medication list for over say a month, the EHR system might ask the provider whether the medication is a chronic medication. The system will not make any changes without professional approval.  | **Large.** Assuming that something beyond 2014 certification CDS functionality is needed, such as actions taken from the intervention. |
| **SGRP107** | **Certification criteria:** EHR systems should provide functionality to code medication allergies including its related drug family to code related reactions.  | **Cannot estimate.** Estimates need to be validated once terminologies are finalized. |
| **SGRP108** | Retire measure because it is topped out (achieved 80% threshold). Track progress to improve outcomes via CQM NQF 0018 | **Overall estimate:** **None**No development needed. |
| **SGRP109** | Retire measure because it is topped out (achieved 80% threshold). Track progress to improve outcomes via CQM NQF 0028 | **Overall estimate:** **None**No development needed. |
| **SGRP112** | Ensure standards support in CDA by 2016**EP MENU/EH core objective:** Record whether a patient 65 years old or older has an advance directive**EP MENU/EH core measure:** More than **50 percent** of all unique patients **65 years old or older** admitted to the eligible hospital's or CAH's inpatient department (POS 21) during the EHR reporting period have an indication of an advance directive status recorded as structured data. | **Overall estimate:** **Small**No development, assuming inclusion in CDA does not mandate additional documentation requirements.New data capture is likely small if needed.Updated reporting for revised measure. |
| **SGRP 113** | **Objective:** Use clinical decision support to improve performance on high priority health conditions**Measure:** 1. Implement 15 clinical decision support interventions or guidance related to five or more clinical quality measures that are presented at a relevant point in patient care for the entire EHR reporting period. The 15 CDS interventions should include two or more of one or more interventions in each of the following areas, as applicable to the EP's specialty:
* Preventive care (including immunizations)
* Chronic disease management, including hypertension\* (e.g., diabetes, coronary artery disease)
* Appropriateness of lab and radiology orders
* Advanced medication-related decision support\*\* (e.g., renal drug dosing)
* Improving the accuracy or completeness of the problem list for one or more chronic conditions
1. The EP, eligible hospital, or CAH has enabled the functionality for drug-drug and drug-allergy interaction checks for the entire EHR reporting period.

**Certification criteria:**1. Ability to track CDS triggers, how the provider responded to improve the effectiveness of CDS interventions, and the reason for overriding
2. Ability to flag preference-sensitive conditions, and provide decision support materials for patients.
3. Capability to check for a maximum dose in addition to a weight based calculation.
4. Use of structured SIG standards
5. Ability for EHRs to consume external CDS interventions from central repositories (e.g., rules for drug-drug interactions, rules for reporting diseases for public health departments immunization recommendations and rules, preference-sensitive care lists)
6. Ability to use structured information within systems to support clinicians’ maintenance of up-to-date accurate problem lists, med lists, and med allergy lists. Systems provide decision support about additions, edits, and deletions for review and action, but would not automatically add anything to these lists without professional action.

EHR systems should provide functionality to code medication allergies including its related drug family to code related reactions. Adapt and further develop existing standards to define the nature of reactions for allergies (i.e., severity). \* This will assist in achieving the CDC’s goal of improvements in hypertension control.\*\*Kuperman, GJ. (2007)Medication-related clinical decision support in computerized provider order entry systems a review. Journal of the American Medical Informatics Association: JAMIA, 14(1):29-40.\*\*\* Phansalkar, S., van der Siis, H., Tucker, A., Desai, A., Bell, D., Teich, J., Middleton, B., Bates, D (2012). Drug–drug interactions that should be non-interruptivein order to reduce alert fatigue in electronic health records. Journal of the American Medical Informatics Association: JAMIA, 2013;20:3 489-493  | **Overall estimate:**  **Large to** **Jumbo**Tracking CDS triggers and responses -- varies. * Small for EHR developers who already include this functionality, assuming it is not defined in a very specific way requiring redevelopment.
* Potentially jumbo for those who do not include currently as it involves major new data structures. Estimate that half of EHR vendors include.

If flagging of preference-sensitive conditions requires new EHR functionality, small.Structured SIG – assuming EHRs already accommodate this, no development.Consuming CDS from central repositories via web services, large, especially in the absence of mature and widely used standards to represent CDS rules and logic.Coding medication allergies – need more information, see earlier criterion.Family history as CDS trigger – small. |
| **SGRP114** | **Objective:** Incorporate clinical lab-test results into EHR as structured data**Measure:** More than **80%** of all clinical lab tests results ordered by the EP or by authorized providers of the eligible hospital or CAH for patients admitted to its inpatient or emergency department (POS 21 or 23) during the EHR reporting period whose results are either in a positive/negative or numerical format are incorporated in Certified EHR Technology as structured data | **Overall estimate:** **Small**No functionality development, assuming no changes to measurement and no changes to the interface specification. Updated reporting for revised measure. |
| **SGRP115** | **EP objective:** Generate lists of patients for multiple specific conditions and present near real-time (vs. retrospective reporting) patient-oriented dashboards to use for quality improvement, reduction of disparities, research, or outreach reports. Dashboards are incorporated into the EHR’s clinical workflow for the care coordinator or the provider. It is actionable and not a retrospective report. | **Overall estimate:** **Large**Difficult to estimate given vague specifications – large or jumbo, depending on how specified.  |
| **SGRP116** | **EP objective:** Use clinically relevant clinical, social, or family history information (beyond demographics) to identify patients who should receive reminders for preventive/follow-up care**EP measure:** More than 20% of all unique patients who have had one office visit with the EP within the 24 months prior to the beginning of the EHR reporting period were sent a reminder for preventive or follow-up care (does not include appointments), in the format of the patient’s preference (e.g., telephone, text, email), if the provider has the technical capability.**Exclusion:** Specialists may be excluded for prevention reminders (could be more condition specific). **Certification criteria:** HITSC to identify what the communication preferences options should be for this objective. Providers should have the ability to select options that are technically feasible, these could include: Email, text, patient portal, telephone, regular mail. | **Overall estimate:** **Small**Accommodating new standards for communication preferences – small.Updated reporting for revised measure. |
| **SGRP117** | **EH objective:** Automatically track medications from order to administration using assistive technologies in conjunction with an electronic medication administration record (eMAR)**Measure:** 1. More than 30% 50% of medication orders created by authorized providers of the eligible hospital's or CAH's inpatient or emergency department (POS 21 or 23) during the EHR reporting period are tracked using eMAR.
2. Mismatches (situations in which a provider dispenses a medication and/or dosing that is not intended) are tracked for use in quality improvement.
 | **Overall estimate:** **Small**If it is the attempt to dispense that is supposed to be tracked, assuming EHRs already do this. No development needed.If attempting to infer when actual dispenses were not intended, unsure how this is possible.Updated reporting for revised measure. |
| **SGRP118** | **EP MENU/EH CORE objective:** Imaging results consisting of the image itself and any explanation or other accompanying information are accessible through Certified EHR Technology.**EP MENU/EH CORE measure:** More than 10 imaging study encounters (anything associated with an order, e.g., radiology, photographs, images of ECG), ordered by the EP or by an authorized provider of the eligible hospital or CAH for patients admitted to its inpatient or emergency department (POS 21 and 23) during the EHR reporting period are accessible (e.g. viewed directly in the EHR or a link to a separate system reached via the EHR) through Certified EHR Technology**Certification criteria:** CEHRT should be able to display along with the image the radiation exposure associated with the imaging study**.** | **Overall estimate:** **Jumbo**Assuming that the intention is not to be overly prescriptive as to how the radiation exposure is displayed, small. (Note that display is estimated separately from capture/tracking options shown below.)Longitudinal/cumulative exposure tracking, especially if varies by body part, large.Automated capture of imaging dose exposure from imaging equipment, large.Measuring taking and use of photographs for numerator and denominator (which are usually a different medium than radiology images), large.Measuring ECGs for numerator and denominator (different than radiology images), also large.(Note, expanding of the measure changes the workflow and reporting burden significantly.)General updated reporting for revised measure. |
| **SGRP119** | **CORE objective:** Record high priority family history data **CORE measure:** Record high priority family history in 40% of patients seen during reporting period**Certification criteria:** Make sure that every appropriate CDS intervention can take into account family history for outreach (need to move that functionality along as part of preventative outreach). | **Overall estimate:** **Small**See CDS objective.Updated reporting for revised measure. |
| **SGRP120** | **CORE EP/EH objective:** Record electronic notes in patient records**EP: Within four calendar days**, record an electronic progress note, authored by the eligible professional, for **more than 30 % of unique patient office visits**. Notes must be text-searchable. Non-searchable scanned notes do not qualify but this does not mean that all of the content has to be character text. Drawings and other content can be included with text notes under this measure**EH:** Within four calendar days of admission, record an electronic progress note (excluding the discharge summary) created, edited, and signed by an authorized provider of the eligible hospital’s or CAH’s inpatient or emergency department (POS 21 or 23) for more than 30 percent of unique patients. | **Overall estimate:** **Small**New concept of “authored” – small, depending on how further specified.New measurement within four days – small.Updated reporting for revised measure. |
| **SGRP121** | **EH CORE objective:** Provide structured electronic lab results to eligible professionals. **EH CORE measure:** Hospital labs send (directly or indirectly using LOINC) structured electronic clinical lab results to the ordering provider for more than 80% 50% of electronic lab orders received. Will address threshold based upon stage 2 experience. | **Overall estimate:** **Small**No development needed if no change to measurement and no changes to interface specifications.Updated reporting for revised measure.Updates to interface specification would also require development.Note - we have significant concerns on this objective as the results are usually delivered by the lab system, not the EHR. If it is envisioned that result routing would change from the lab system to the EHR, a very significant implementation project would be required. This should not be a core measure for that reason. |
| **SGRP****122** | **EP objective:** The EHR is able to assist with follow-up on orders to improve the management of results. **EP measure:** 10% of test results, including those which were not completed are acknowledged within 3 business days of when the test was performed.**EP measure:** 10% of results (e.g., consult requests (referrals), laboratory, radiology, pathology) are acknowledged within 3 business days of when the request/test is resulted.**Certification criteria:**EHRs must have the ability to:* identify abnormal test results as determined by the laboratory
* provide the option at ordering time for the provider to indicate a due date for any order
* notify the ordering provider when results are available or not completed by a certain time
* record date and time that results are reviewed and by whom
 | **Overall estimate:**  **Jumbo**High risk to be overly prescriptive as to how, requires changes to CPOE and physician alerting as a key feature, jumbo.Reporting for new measure. |
| **SGRP204A** | * EPs should make information **available within 24 hours** if generated during the course of a visit
* For **labs or other types of information** not generated within the course of the visit, it is made available to patients **within four (4) business days** of information becoming available to EPs
* **Potential to increase both thresholds (% offer and % use) based upon experience in Stage 2**
* Add optional item: family history

**Note:** Depending on experience in Stage 2, CMS may want to give credit to some providers (e.g. specialists) for view/download/transmit where the patient has requested that they prefer info to be sent to a location they specify (such as another provider portal or PHR), rather than only making available information on the provider’s portal.**Certification criteria:** CEHRT should provide the ability for patients to designate to whom and when a summary of care document is sent to a patient-designated recipient, building upon the Automated Blue Button Initiative (ABBI)). | **Overall estimate:**  **Large**False precision around measuring 24 hour ranges of visits, small.Adding family history to portal, small.Automated transmit, small.Updated reporting for revised measure. |
| **SGRP204B** | **EP/EH MENU objective:** Patients have the ability to electronically submit patient-generated health information.**EP/EH MENU measure:** Provide the ability to electronically submit patient-generated health information through structured or semi-structured questionnaires (e.g., screening questionnaires, intake forms, risk assessment, functional status) for more than 10 percent of all unique patients seen by the EP during the EHR reporting period.Standards work needed to incorporate and acknowledge PGHD – feedback from HITSC needed. Certification criteria for devices, continue to work with the standards committee. Consumer technology will have information by the end of the August. | **Overall estimate:**  **Jumbo**Devices – jumbo, varying greatly by type of device and method of support. This work would also be dependent on devices supporting standards used for certification. Patient questionnaires – small.Incorporation and acknowledgment of questionnaires – large. We have some uncertainties about what would be involved in terms of labeling all patient generated data within the EHR once incorporated, which could change estimates.Reporting for new measure. |
| **SGRP204D** | Provide patients with an easy way to request an amendment to their record online (e.g., offer corrections, additions, or updates to the record)  | **Overall estimate:** **Small to** **Large** Small because we suggest using secure messaging for this purpose.A more sophisticated project would be large, for example: Templates in the portal for the patient to make updates, routing features for those updates to be reviewed by clinicians or medical records before being final.  |
| **SGRP205** | The clinical summary should be pertinent to the office visit, not just an abstract from the medical record.**EP objective:** An office-visit summary is provided to a patient or patient-authorized representative with relevant and actionable information and instructions pertaining to the visit in the format requested as indicated by the patient. **EP measure:** An office visit summary is provided to a patient or patient-authorized representative with relevant and actionable information and instructions pertaining to the visit in the format requested as indicated by the patient (e.g., available online, via email, print out of summary, etc.), if the provider has the technical capability within 1 business day for more than 50 percent of office visits. **Certification criteria #1:** Intent is to make sure the EHR can draw from the range of existing specified information and enable providers to include and exclude data based upon patient needs. **Certification criteria #2:** HITSC to identify what the communication preferences options should be. Providers should have the ability to select options that are technically feasible, these could include: Email, patient portal, regular mail.  | **Overall estimate:** **Large to** **Jumbo**Tracking format requested by patient and provision, small. Including/excluding data in multiple media formats.Updated reporting for revised measure.For communication preference estimates, see row 208. |
| **SGRP206** | **Objective:** Provide patient specific educational material in at least one non-English language, in the format preferred by the patient, if the provider has the technical capability **Measure:** Deliver at least one patient specific educational material to one patient in that patient’s preferred non-English language identified by CEHRT and in the patient’s preferred format (e.g., online, print-out from CEHRT).**Certification criteria #1:** Expand the InfoButton standard to include disability status. Disability status needs to be defined and flagged at the point of entry (e.g. registration or appointment gathering). **Certification criteria #2:** HITSC to identify what the communication preferences options should be. Providers should have the ability to select options that are technically feasible, these could include: Email, patient portal, regular mail.  | **Overall estimate:** **Large to** **Jumbo**Small, if patient education vendor has support for patient education in the required languages. If this requires translation or more complex search of patient education materials, then large.Infobutton to include disability status – small. What standard will be used for disability status, estimate could be dependent on standard. Note that not all registration clerks might be comfortable capturing the information. Updated reporting for revised measure.For communication preference estimates, see row 208. |
| **SGRP207** | **Measure:** More than 5% of patients use secure electronic messaging to communicate with EPs **Certification requirement:** Provide the capability to: 1. measure and report the response timeframe
2. for the patient to indicate that no response is needed
3. mode of response (e.g., telephone, secure message)
 | **Overall estimate:** **Jumbo** Additional tracking of response timeframe including multiple modes of response – large.Patient indication of no response needed – small.Tracking of mode of response – small. (See first estimate for support for multiple modes of response.)Updated reporting for revised measure. |
| **SGRP208** | **Certification criteria:** HITSC to identify what the communication preferences options should be for the clinical summary, reminders, patient educational material objectives (this will correlate to the patient’s preferred format in each of these objectives). Providers should have the option to select options that are technically feasible for them, these could include: Email, text, patient portal, telephone, regular mail.  | **Overall estimate:** **Small to** **Large** Multiple communications preferences, small.New standards for communication preference, small.Functionality to deliver each type of communication in all patient requested formats. (We are unsure if this is envisioned or if the intention is simply to record preferences for methods already part of the software.) |
| **SGRP209** | **Certification criteria:** Capability for CEHRT to query research enrollment systems to identify available clinical trials. | **Overall estimate:** **Large**  Large, needs work from standards community and dependency on standards use and integration capability for research enrollment systems.  |
| **SGRP302** | **EP/EH/CAH objective:** The EP, EH, or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant should perform reconciliation for medications**EP/EH/CAH measure:** The EP, EH, or CAH who receives a patient from another setting of care or provider of care or believes an encounter is relevant performs reconciliation for medications for more than 50% of those patients. **Certification criteria:** CDS intelligence to ensure lists are accurate (see SGRP113 as well) | **Overall estimate:** **None**PAM reconciliation is already in 2014 certification, so no development needed.See 105 and 106 for comments on CDS intelligence. |
| **SGRP303** | **EP/EH/CAH objective:** EP/EH/CAH who transfers their patient to another setting of care (including home), requests a consult from a provider in another setting of care, or provides consultation results to a provider in another setting of care provides a summary of care record that pertains to the type of transition:* Transfers of care from one site of care to another (e.g. Hospital to SNF, PCP, HHA, etc.; SNF, PCP, etc. to HHA; PCP to new PCP)
* Consult (referral) request (e.g., PCP to Specialist; PCP, SNF, etc. to ED)
* *C*onsult result note (e.g. ER note, consult note)

**Measure:** The EP, EH, or CAH that transfers their patient to another setting of care (including home), requests a consult from a provider in another setting of care, or provides consultation results to a provider in another setting of care, provides a summary of care record for 50% of transitions (consult note, consult request, transfer of care, as indicated above) and at least 10%\* electronically.**Certification criteria #1:** EHR is able to set aside a concise narrative section in the summary of care document that allows the provider to document clinically relevant rationale such as reason for transition and/or consult request.**Certification criteria#2:** Ability to automatically populate a consult request form for specific purposes, including a referral to a smoking quit line. **Certification criteria #3:** Care team should include all care team members as defined in the consolidated CDA | **Overall estimate:** **Large to** **Jumbo**Adding consult result workflows, large or jumbo, see entry in next row also.Auto-consult request forms, small.Narrative in CCDA, small.Updated reporting for revised measure. |
| **SGRP305** | **EP/EH/CAH objective:** EP/EH/CAH to whom a patient is referred acknowledges receipt of external information and provides referral results to the requesting provider, thereby beginning to close the loop. **Measure:** For patients referred during an EHR reporting period, referral results generated from the EHR, 50% are returned to the requestor and 10% of those are returned electronically **Certification criteria:** Include data set defined by S&I Longitudinal Coordination of Care WG and expected to complete HL7 balloting for inclusion in the C-CDA by Summer 2013: Shared Care Encounter Summary (Consultation Summary, Return from the ED to the referring facility, Office Visit)  | **Overall estimate:** **Jumbo**Updated content types (need to know final content standard to estimate).Transport standards (need to know acceptable standards to estimate).Acknowledgement messages (need to know standard).Tracking receipt of non-electronic results (associate consult letter with original referral request).Reporting for new measure. (Note, whether referrals are received electronically not necessarily in control of referring provider.)We would be happy to further discuss appropriate standards with the HITSC. |
| **SGRP****308** | **MENU EH objective:** The EH/CAH will send electronic notification of a significant healthcare event in a timely manner to key members of the patient’s care team, such as the primary care provider, referring provider or care coordinator, with the patient’s consent if required. Significant events include:* Arrival at an Emergency Department (ED)
* Admission to a hospital
* Discharge from an ED or hospital
* Death

**EH measure:** For 25 patients with a significant healthcare event (arrival at an Emergency Department (ED), admission to a hospital, discharge from an ED or hospital, or death), EH/CAH will send an electronic notification to at least one key member of the patient’s care team, such as the primary care provider, referring provider or care coordinator, with the patient’s consent if required, within 24 hours of when the event occurs.**Certification criteria:** Ability to send/receive notification of a significant healthcare event  | **Overall estimate:** **Jumbo**Estimate depends on approach and the availability of standards. Would have both development and implementation impact.Identification of appropriate triggersSending the notificationCapture who the patient wants to send notifications toCapturing patient consent for sending the notificationsTracking/auditing of notificationsDirectory of recipients of notificationsReporting for new measure.We would be happy to further discuss appropriate standards with the HITSC. |
| **SGRP401A** | **EP/EH objective:** Capability to receive, generate or access appropriate age-, gender- and immunization history-based recommendations (including immunization events from immunization registries or immunization information systems) as applicable by local or state policy.**Measure:** Implement an immunization recommendation system that: 1) establishes baseline recommendations (e.g., Advisory Committee on Immunization Practices), and 2) allows for local/state variations. For 20% of patients receiving an immunization, the EP/EH practice receives the recommendation before giving an immunization.Exclusion: EPs and EHs that administer no immunizations. **Certification criteria:** EHR uses a standard (e.g., national, state and/or local) rule set, plus patient age, gender, and prior immunization history to recommend administration of immunizations; capture the act and date/time of recommendation review. | **Overall estimate:** **Jumbo**Consuming discrete immunization data would be similar to clinical information reconciliation for problems, meds, and allergies. Would need to match to individual formularies for CDS to work. Allowing for large variety in local and state variations.Reporting for new measure. (Note, we think the measure should track patient receiving correct immunization, not physician view of recommendation.)Is the S&I project on external CDS a presumed portion of “external” receive/generate/access? That would also be a large project. |
| **SGRP401B** | **EP/ EH objective:** Capability to receive a patient’s immunization history supplied by an immunization registry or immunization information system, and to enable healthcare professionals to use structured historical immunization events in the clinical workflow, except where prohibited, and in accordance with applicable law and practice.**Measure:** Documentation of timely and successful electronic receipt by the Certified EHR Technology of vaccine history (including null results) from an immunization registry or immunization information system for 30 10% of patients who received immunizations from the EP/EH during the entire EHR reporting period. At least 10 query results received by the EHR from the immunization registry or immunization information system within the reporting period.**Exclusion:** EPs and EHs that administer no immunizations or jurisdictions where immunization registries/immunization information systems cannot provide electronic immunization histories.**Certification criteria #1:** EHR is able to receive and present a standard set of structured, externally-generated, immunization history and capture the act and date of review within the EP/EH practice.**Certification criteria #2:** Ability to generate a report that the functionality was enabled for the entire reporting period. | **Overall estimate:** **Jumbo**Reconciliation. There is hesitance to base actions in the EHR off of external IIS data without reconciliation, is there an assumption of reconciliation in this requirement? Lots of unanswered questions on the workflow. Reconciliation/mapping functionality could be large. Query external source.Auditing of queries and tracking of receipt. Tracking of enabled functionality would also be a project. If the measurement is at least 10 query results, why is certification #2 necessary? Reporting for new measure. |
| **SGRP402A** | **EH objective (unchanged):** No change from current requirement for electronic lab reporting which generally is sent from the laboratory information system | **Overall estimate:** **Small**No development assumed if unchanged. If interface specification is updated, then will need development. |
| **SGRP404** | **EP objective:** Capability to electronically submit standardized (i.e., data elements, structure and transport mechanisms), commonly formatted reports to two registries (e.g., local/state health departments, professional or other aggregating resources) from the Certified EHR Technology, except where prohibited, and in accordance with applicable law and practice. This objective is in addition to and does not replace prior requirements for submission to an immunization registry. **Measure:** Documentation (or registry acknowledgement) of ongoing successful electronic transmission of standardized reports from the CEHRT to two registries (either mandated or voluntary)) Attestation of submission for at least 10% of all patients who meet registry inclusion criteria during the entire EHR reporting period as authorized, and in accordance with applicable State law and practice.Registries examples include: cancer, children with special needs, and/or early hearing detection and intervention or external entities that maintain the registry (e.g., hypertension, diabetes, body mass index, devices, and/or other diagnoses/conditions) that could include accountable care organizations, public health agency, professional society, or specialty community.**Certification criteria:** EHR is able to build and then send a standardized report (e.g., standard message format) to a registry, maintain an audit of those reports, and track total number of reports sent.**Exclusion:** Where local or state health departments have no mandated registries or are incapable of receiving these standardized reports merged registry objectives. | **Overall estimate:** **Jumbo**Cannot estimate precisely without exact content and transport standards expected.Past registry work has been large **per registry** as registries do not accept standardized formats. Cancer case reporting is a separate standard than other examples given, that should remain a separate objective.Reporting for new measure. |
| **IEWG101** | **MENU objective:** For patients transitioned without a care summary, an individual in the practice should query an outside entity. The intent of this objective is to recognize providers who are proactively querying. **Certification criteria:** The EHR must be able to query another entity for outside records and respond to such queries. The outside entity may be another EHR system, a health information exchange, or an entity on the NwHIN Exchange, for example. This query may consist of three transactions: 1. Patient query based on demographics and other available identifiers, as well as the requestor and purpose of request.
2. Query for a document list based for an identified patient
3. Request a specific set of documents from the returned document list

When receiving inbound patient query, the EHR must be able to: 1. Tell the querying system whether patient authorization is required to retrieve the patient’s records and where to obtain the authorization language\*. (E.g. if authorization is already on file at the record-holding institution it may not be required).
2. At the direction of the record-holding institution, respond with a list of the patient’s releasable documents based on patient’s authorization
3. At the direction of the record-holding institution, release specific documents with patient’s authorization

The EHR initiating the query must be able to query an outside entity\* for the authorization language to be presented to and signed by the patient or her proxy in order to retrieve the patient’s records. Upon the patient signing the form, the EHR must be able to send, based on the preference of the record-holding institution, either: 1. a copy of the signed form to the entity requesting it
2. an electronic notification attesting to the collection of the patient’s signature

*\*Note:* The authorization text may come from the record-holding EHR system, or, at the direction of the patient or the record-holding EHR, could be located in a directory separate from the record-holding EHR system, and so a query for authorization language would need to be directable to the correct endpoint. | **Overall estimate:** **Jumbo**Query transactionsPatient authorizationResponding to queries with lists of documentsSending authorizationSending documentsReporting for new measure if a particular measure is needed. Note: it appears that the EHR would need to be capable of queries to a wide variety of organizations? Would these all have to be using a common set of standards? |
| **IEWG102** | **Certification criteria**: The EHR must be able to query a Provider Directory external to the EHR to obtain entity-level addressing information (e.g. push or pull addresses). | **Overall estimate:** **Large**Still much uncertainty. |
| **IEWG103** | **Certification criteria**: Enable a user to electronically create a set of export summaries for all patients in EHR technology formatted according to the standard adopted at § 170.205(a)(3) that represents the most current clinical information about each patient and includes, at a minimum, the Common MU Data Set and the following data expressed, where applicable, according to the specified standard(s):(i) *Encounter diagnoses.* The standard specified in § 170.207(i) or, at a minimum, the version of the standard at§ 170.207(a)(3);(ii) *Immunizations.* The standardspecified in § 170.207(e)(2);(iii) Cognitive status;(iv) Functional status; and(v) *Ambulatory setting only.* Thereason for referral; and referring or transitioning provider’s name and office contact information.(vi) *Inpatient setting only.* Discharge instructions. | **Overall estimate:** **Small**Assuming only small development necessary to upgrade CCDA content as needed. |
| **123** | **MENU objective:** EPs and EHs should record the FDA Unique Device Identifier (UDI) when patients have devices implanted for each newly implanted device.**MENU measure:** EPs and EHs should record the UDI when patients have the device implanted for 80% of patients seen within the EHR reporting period.Definition of a Medical Device (FD&C Act) Section 201(h): “A medical device is: an instrument, apparatus, implement, machine, contrivance, implant, in vitro reagent, or other similar or related article, including a component part, or accessory which is:* recognized in the official National Formulary, or the United States Pharmacopoeia, or any supplement to them, intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease, in man or other animals, or
* intended to affect the structure or any function of the body of man or other animals, and which does not achieve its primary intended purposes through chemical action within or on the body of man or other animals and which is not dependent upon being metabolized for the achievement of any of its primary intended purposes.”
 | **Overall estimate:** **Small to**  **Large**Questions that would affect estimates – Are you going to map devices to a terminology?Is there an expectation of bar coding?Is there an expectation of sharing this information in the CCDA?Manually entering the identifier.Reporting for new measure. |
|  | **Certification criteria:** The EHR uses external data to prompt the end-user when criteria are met for case reporting. The date and time of prompt is available for audit. Standardized (e.g., consolidated CDA) case reports are submitted to the state/local jurisdiction and the data/time of submission is available for audit. | **Overall estimate:** **Jumbo**Need more information, estimate jumbo.Pieces of project:Prompts based on external data. Need more information. What is the external data (what elements)? How does the system receive the external data (what format? periodic import versus real time API)?Ability to show prompts to user and track prompts shown. Generation of standardized care reports (need to know the standard of the report to be used, is it CCDA?).Transport of report (need to know transport standard).  |
|  | **Clinical Quality Measures** |  |
|  | **New measures:** Simple CQMs similar in scope to previously used simple measuresSupport for 5 new electronically specified CQMs including QRDA I and QRDA III xml generation.Examples:* EP: CMS125: Breast Cancer Screening
* EH: We don’t believe that any of the EH measures can be categorized as small.
 |  Small. (Multiply by minimum number of CQMs required for certification for estimate.) *Estimate intended to include adding any new data capture requirements into the workflow as well as updated calculations.****Assumption – The measure specifications will be delivered fully QA’ds with no errors, fully specified Value Sets, and no issues, errors or subsequent updates to the measure certification tool, data set and criteria. This assumption applies to ALL categories of new and revised measure specifications.***  |
|  | **New clinical quality measures:** Complex CQMs similar in scope to previously used complex logic, and/or composite measuresSupport for 5 new electronically specified CQM including QRDA I and QRDA III xml generation.Examples:* EP: CMS155: Weight Assessment and Counseling for Nutrition and Physical Activity for Children and Adolescents
* EH: All of the EH measures
 |  Large See Assumption above. |
|  | **New clinical quality measures:** Very complex CQMs that are new ground, longitudinal in nature or patient-reported, require system functionality development and/or major new data requirements.Support for 5 new electronically specified CQM including QRDA I and QRDA III xml generation.Examples: * As discussed in the HITPC ACO QM WG, Patient-collected measures of functional status, risk assessment
* Care Coordination measures
 | Large – This could be assuming the any new functionality is already covered in another MU3 objective.  Jumbo – If cost for building functionality is not incurred as part of other MU3 objectives. *Something would be considered “new ground” if it is a CQM that utilizes brand new EHR functionality – including patient reported functional status measures, etc.*  |
|  | **QRDA I import** (not required of EHRs in Stage 2)  |  Jumbo for EHRs that do not have this capability. We suggest it should not be a requirement for certification. |
|  | **New reporting methods** – * Group-based reporting
* New standards for electronic submission

**New data models** (QDM versus vMR) | Not estimated, not enough information although we think that many of these could be jumbo projects. |
|  | **Qualified Clinical Data Registries** |  Jumbo |
|  | **Measure updates/revisions** – small: Support for 5 updated electronically specified CQM including QRDA I and QRDA III xml generation.Examples: As recommended in the EHR Association comments to the MPFS NPRM, minor changes in value sets (for example, a medication is removed from a value set because it is no longer on the market or a SNOMED CT code is added) |  Small. Multiply by minimum number of CQMs required for certification for estimate.\*Note that all April and June updates need to be categorized as small projects in order to meet the current timelines of updates in April/June, and start of collection of data in October/January.  |
|  | **Measure updates/revisions:** Large: Support for 5 updated electronically specified CQMS including QRDA I and QRDA III xml generation Examples: Many of the measure revisions in both the April EH and June EP measures would be classified as a large example. Any major changes to value sets, and additions or deletions of full value sets can have a significant impact on clinician workflow and can require software changes.  |  Large\*Note that any April and June updated measure specification that is classified as a “large” project would jeopardize the ability of the provider to start their data collection period on time.  |