

Hybrid Measures: What the heck are they? How do they work?

September 16, 2020



Meet the Speaker

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Agenda

- What is a hybrid measure?
- Defining the Hybrid Hospital-Wide 30-day Readmission Measure
- Review the CCDE and linking variables
- Obstacles to Hybrid Measure monitoring and submission
- Lessons learned from pilot submissions
- Future hybrid measure requirements



What's a Hybrid?

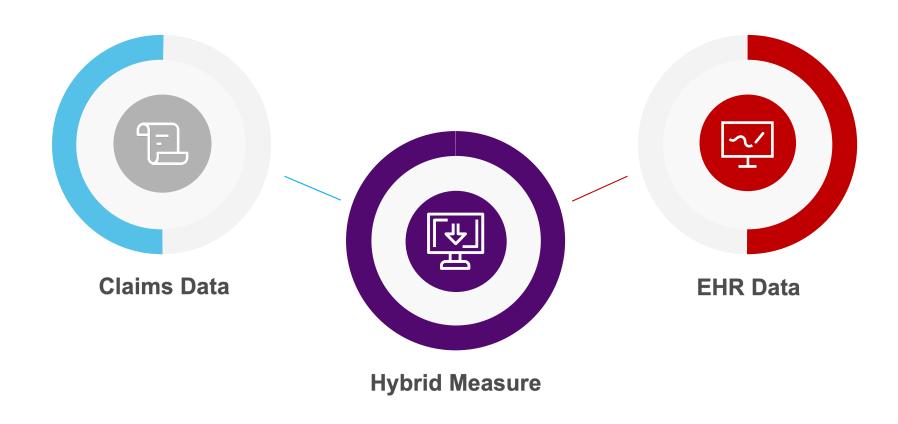




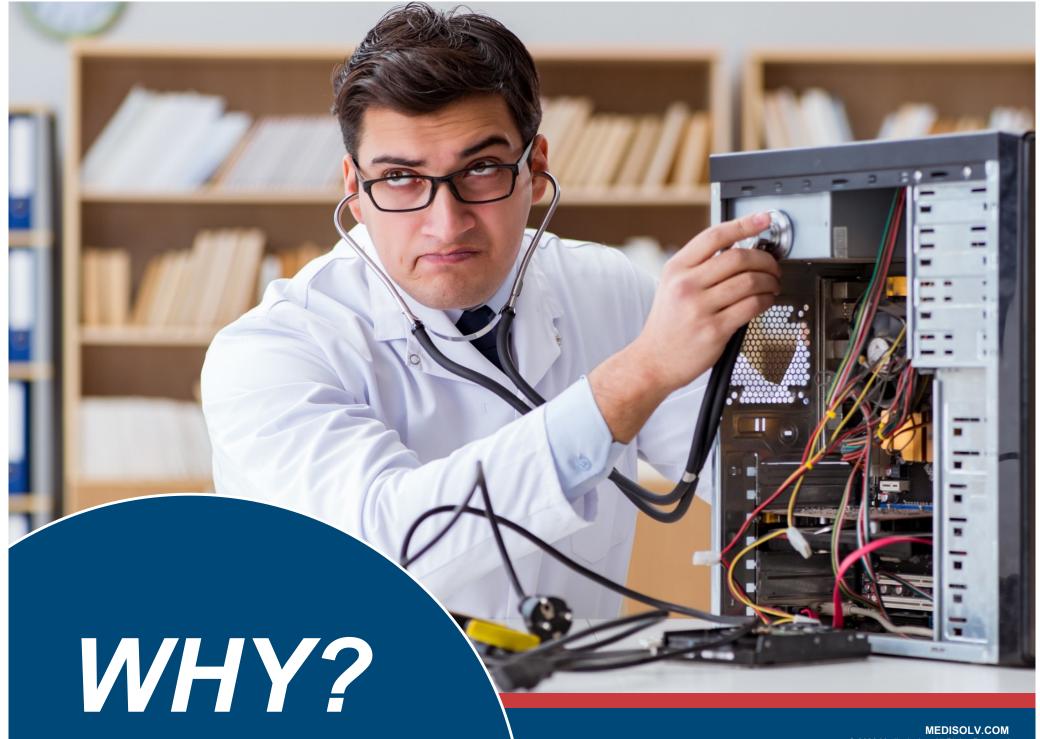




What is a Hybrid Measure?







Why do we need Hybrid Measures?



Preference

Clinicians continue to express a preference for the use of clinical data to assess hospital performance.

Clinical models have greater face validity among clinicians.



Data Collection

The transition from paper to Electronic Health Records (EHR) creates an opportunity to integrate clinical information into hospital quality measurement without the burden of manual chart abstraction.





Accuracy

Data from hospital billing systems do not contain any risk factors associated with severity. The effect of this omission can be substantial.

The best-performing risk adjustment models typically include risk factors that assess both comorbidities and severity.

Claims-based models assess the burden of comorbid conditions, but clinical data can provide a measure of the severity of the primary illness for which a patient is admitted.

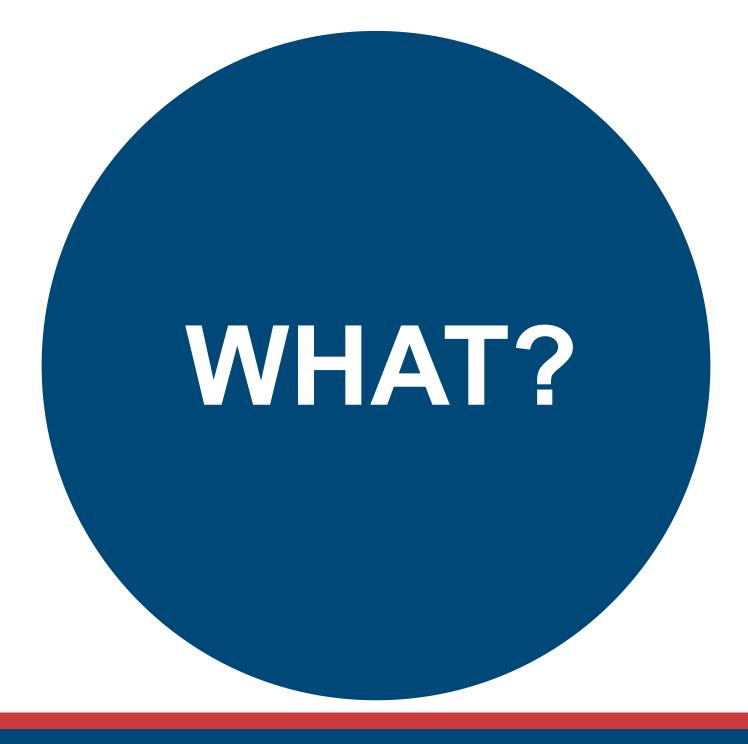
Hybrid measures more effectively risk-adjust using claims data *and* EHR data.

Why do we need Hybrid Measures?

WHAT RESEARCH SAYS

Recent research supports the use of clinical documentation to more accurately evaluate severity and comorbidities.









- Core Clinical Data Elements
 (CCDE's) = clinical data extracted
 from EHR and submitted to meet
 Hybrid measure requirements
- QRDA = File format used for submission of electronic clinical data
- Hospital Specific Reports
 (HSR) = results of hybrid measure provided to hospitals after submission



Hybrid Hospital-Wide Readmission Measure

Hybrid Risk-Standardized Readmission Rate (HRSRR):

- Unplanned readmissions w/in 30 days from index admission
- Uses claims and EHR data
- Adjusted for differences in case mix and service mix across hospitals
- Critically ill patient = Higher probability for readmission

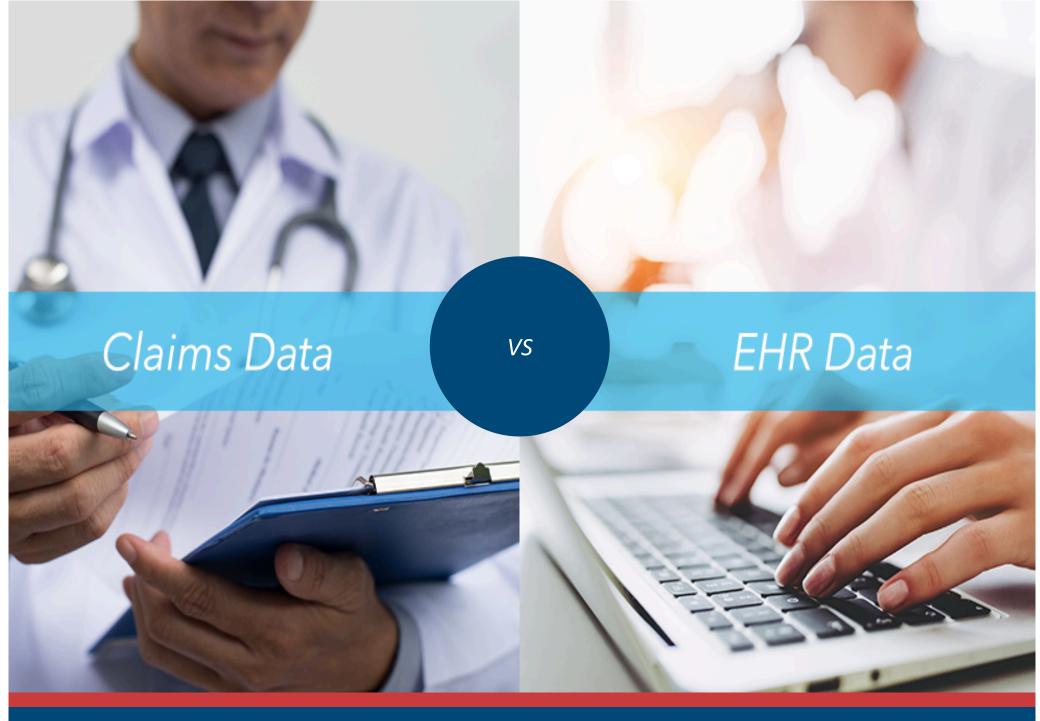


Hybrid Hospital-Wide Readmission Measure

Population

- Ages 65 or older
- Medicare
- Discharged from Non-Federal Acute Care Facilities to Non-Acute Care Settings
- **Key Exclusions:** "Planned" Readmissions, Psychiatric Diagnosis and Cancer Treatment





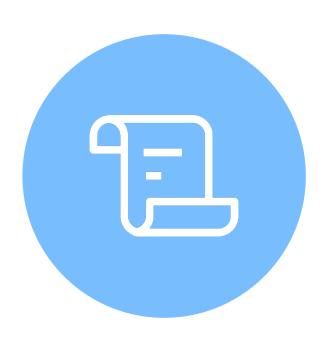


Claims Data

Submitted for a specific patient encounter

Includes:

- Demographics
- Diagnosis Codes
- Procedure Codes
- Provider / Facility
- Admission Information dates of service, discharge status
- Billed and Paid amounts



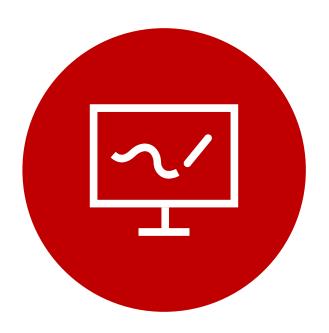


EHR Data

Defined by the Hospital Core Clinical Data Elements (CCDE) <u>specification</u>.

Note:

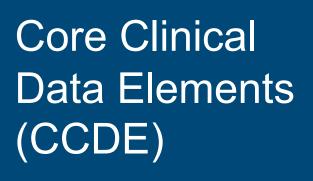
- This is not a measure specification. The logic is in the same format as Electronic Clinical Quality Measures but in this case, is only intended to guide the extraction of electronic clinical data (CCDE)
- CCDE's will be linked with administrative claims data to risk-adjust hospital-level hybrid outcome measures.





Specification Overview





Intention

Intended to reflect a patient's clinical status when the patient first presents to an acute care hospital for treatment.

Captured

Routinely and consistently captured in your EHR.

3 Extracted

Can be extracted electronically from your EHR.





MUST SUBMIT

6 LinkingVariables





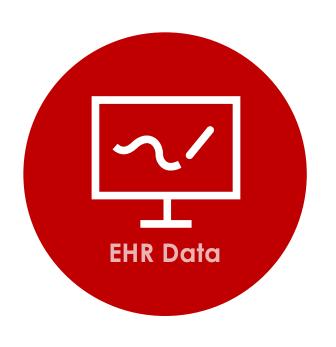
MUST SUBMIT

6 LinkingVariables



- CMS certification number
- 2. Health Insurance Claim Number or Medicare Beneficiary Identifier
- 3. Date of birth
- 4. Sex
- 5. Admission date
- 6. Discharge date



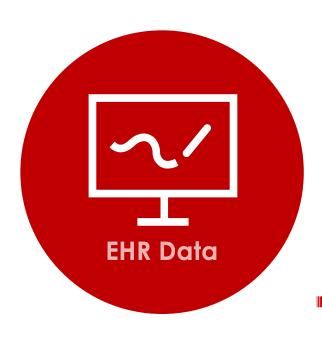


MUST SUBMIT

13 CCDE

(Vital Signs & Lab Results)





MUST SUBMIT

13 CCDE

(Vital Signs & Lab Results)

→ Vital Signs

- Heart rate
- Systolic blood pressure
- Respiratory rate
- Temperature
- Oxygen saturation
- Weight

Lab Test Results

- Hematocrit
- · White blood cell count
- Potassium
- Sodium
- Bicarbonate
- Creatinine
- Glucose



EHR Data: Specification

Same structure as current Electronic Clinical Quality Measures (eCQMs)

- Description
- Logic
- Populations
- Data elements
- OIDs / Value Sets / Codes → Value Set Authority Center (VSAC)



eCQM Title	Core Clinical Data Elements for the Hybrid Hospital-Wide Readmission (HWR) Measure with Claims and Electronic Health Record Data		
eCQM Identifier (Measure Authoring Tool)	529	eCQM Version Number	1.3.000
NQF Number	2879e	GUID	fa75de85-a934-45d7-a2f7-c700a756078b
Measurement Period	July 1, 2021 through June 30, 2022		
Measure Steward	Centers for Medicare & Medicaid Services (CMS)		
Measure Developer	Mathematica		
Measure Developer	Yale New Haven Health Service Corporation/ Center for Outcomes Research and Evaluation		
Endorsed By	National Quality Forum		
Description	This logic is intended to extract electronic clinical data. This is not an electronic clinical quality measure and this logic will not produce measure results. Instead, it will produce a file containing the data that CMS will link with administrative claims to risk adjust the Hybrid HWR outcome measure. It is designed to extract the first resulted set of vital signs and basic laboratory results obtained from encounters for adult Medicare Fee-For-Service patients admitted to acute care short stay hospitals.		



Population Criteria

▲ Initial Population

"Inpatient Encounters"

▲ Stratification

None

Definitions

▲ Initial Population

"Inpatient Encounters"

▲ Inpatient Encounters

```
["Encounter, Performed": "Encounter Inpatient"] InpatientEncounter,
["Participation": "Medicare payer"] Payer,
["Patient Characteristic Birthdate": "Birth date"] BirthDate
where ( Payer.participationPeriod overlaps before InpatientEncounter.relevantPeriod
    or start of Payer.participationPeriod same as start of InpatientEncounter.relevantPeriod
)
    and
    end of Payer.participationPeriod != start of InpatientEncounter.relevantPeriod
    and Global."HospitalizationWithObservationLengthofStay" ( InpatientEncounter ) < 365
    and InpatientEncounter.relevantPeriod ends during "Measurement Period"
    and Global."CalendarAgeInYearsAt" ( BirthDate.birthDatetime, start of InpatientEncounter.relevantPeriod ) >= 65
return InpatientEncounter.
```



```
▲ Results

      // First physical exams
        firstHR: "FirstPhysicalExamWithEncounterId"(["Physical Exam, Performed": "Heart rate"]),
        firstSBP: "FirstPhysicalExamWithEncounterId"(["Physical Exam, Performed": "Systolic blood pressure"]),
        firstRR: "FirstPhysicalExamWithEncounterId"(["Physical Exam, Performed": "Respiratory rate"]),
        firstTemp: "FirstPhysicalExamWithEncounterId"(["Physical Exam, Performed": "Body temperature"]),
        firstO2Sat: "FirstPhysicalExamWithEncounterId"(["Physical Exam, Performed": "Oxygen saturation in Arterial blood by Pulse oximetry"]),
      // Weight uses lab test timing
        firstWeight: "FirstPhysicalExamWithEncounterIdUsingLabTiming"(["Physical Exam, Performed": "Body weight"]),
      // First lab tests
        firstHemat: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "Hematocrit lab test"]),
        firstWBC: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "White blood cells count lab test"]),
        firstPotass: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "Potassium lab test"]),
        firstSodium: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "Sodium lab test"]),
        firstBicarb: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "Bicarbonate lab test"]),
        firstCreat: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "Creatinine lab test"]),
        firstGlucose: "FirstLabTestWithEncounterId"(["Laboratory Test, Performed": "Glucose lab test"])
```



Data Criteria (QDM Data Elements)

- "Encounter, Performed: Emergency Department Visit" using "Emergency Department Visit (2.16.840.1.113883.3.117.1.7.1.292)"
- "Encounter, Performed: Encounter Inpatient" using "Encounter Inpatient (2.16.840.1.113883.3.666.5.307)"
- "Encounter, Performed: Observation Services" using "Observation Services (2.16.840.1.113762.1.4.1111.143)"
- "Laboratory Test, Performed: Bicarbonate lab test" using "Bicarbonate lab test (2.16.840.1.113762.1.4.1045.139)"
- "Laboratory Test, Performed: Creatinine lab test" using "Creatinine lab test (2.16.840.1.113883.3.666.5.2363)"
- "Laboratory Test, Performed: Glucose lab test" using "Glucose lab test (2.16.840.1.113762.1.4.1045.134)"
- "Laboratory Test, Performed: Hematocrit lab test" using "Hematocrit lab test (2.16.840.1.113762.1.4.1045.114)"
- "Laboratory Test, Performed: Potassium lab test" using "Potassium lab test (2.16.840.1.113762.1.4.1045.117)"
- "Laboratory Test, Performed: Sodium lab test" using "Sodium lab test (2.16.840.1.113762.1.4.1045.119)"
- "Laboratory Test, Performed: White blood cells count lab test" using "White blood cells count lab test (2.16.840.1.113762.1.4.1045.129)"
- "Participation: Medicare payer" using "Medicare payer (2.16.840.1.113762.1.4.1104.10)"
- "Patient Characteristic Birthdate: Birth date" using "Birth date (LOINC Code 21112-8)"
- "Physical Exam, Performed: Body temperature" using "Body temperature (2.16.840.1.113762.1.4.1045.152)"
- "Physical Exam, Performed: Body weight" using "Body weight (2.16.840.1.113762.1.4.1045.159)"
- "Physical Exam, Performed: Heart rate" using "Heart rate (LOINC Code 8867-4)"
- "Physical Exam, Performed: Oxygen saturation in Arterial blood by Pulse oximetry" using "Oxygen saturation in Arterial blood by Pulse oximetry (LOINC Code 59408-5)"
- "Physical Exam, Performed: Respiratory rate" using "Respiratory rate (LOINC Code 9279-1)"
- "Physical Exam, Performed: Systolic blood pressure" using "Systolic blood pressure (LOINC Code 8480-6)"



OBSTACLES!

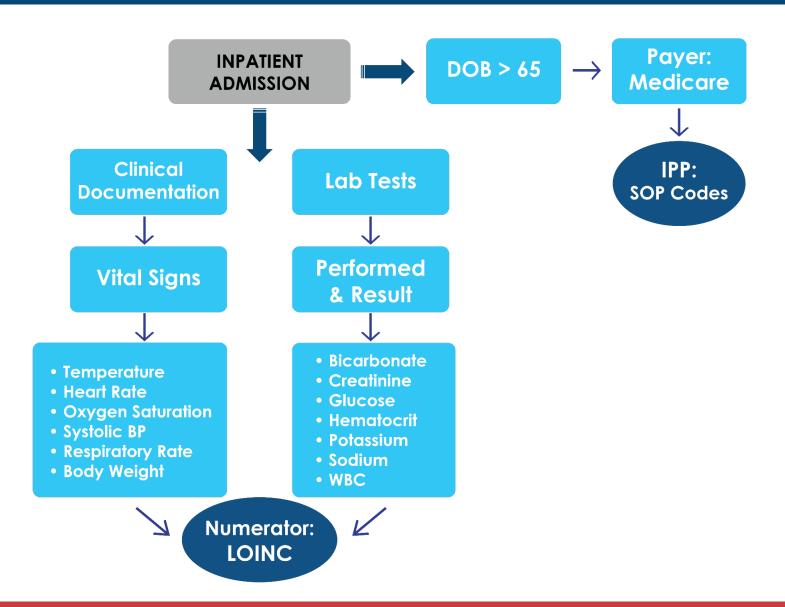


Hybrid HWR Measure

- Morkflow
- Mapping
- **Timing**
- Implementation
- Monitoring and Improvement
- Maintenance



Hybrid HWR Workflow





Mapping

Mapping only

No additional documentation needed



Vital Signs



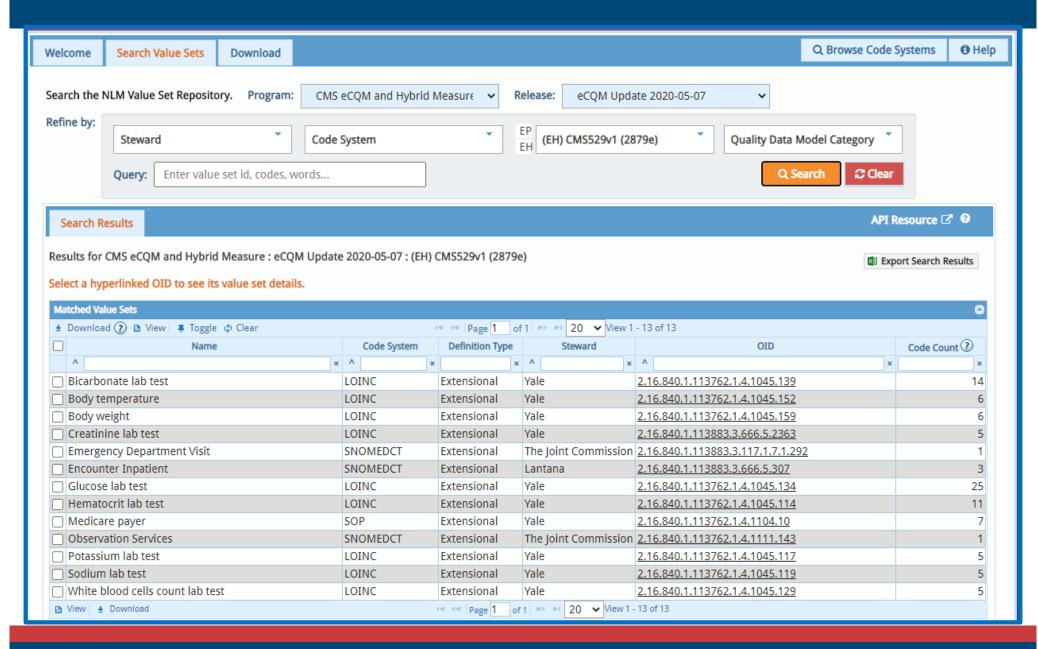
- Heart rate
- Systolic blood pressure
- Respiratory rate
- Temperature
- Oxygen saturation
- Weight

Lab Test Results

- Hematocrit
- White blood cell count
- Potassium
- Sodium
- Bicarbonate
- Creatinine
- Glucose



Mapping: Value Set Authority Center (VSAC)





Timing of Data Elements

Functions

▲ FirstLabTestWithEncounterId(LabList List<QDM.PositiveLaboratoryTestPerformed>)

```
"Inpatient Encounters" Encounter

let firstlab: First(LabList Lab

where Lab.resultDatetime during Interval[start of Encounter.relevantPeriod - 1440 minutes, start of Encounter.relevantPeriod + 1440 minutes]

sort by resultDatetime
)

return {
Encounterid: Encounter.id,
FirstResult: firstlab.result as Quantity,
Timing: firstlab.resultDatetime
}
```

▲ FirstPhysicalExamWithEncounterId(ExamList List<QDM.PositivePhysicalExamPerformed>)

```
"Inpatient Encounters" Encounter

let firstexam: First(ExamList Exam

where Exam.relevantDatetime during Interval[start of Encounter.relevantPeriod - 1440 minutes, start of Encounter.relevantPeriod + 120 minutes]

sort by relevantDatetime
)

return {
Encounterid: Encounter.id,
FirstResult: firstexam.result as Quantity,
Timing: firstexam.relevantDatetime
}
```

▲ FirstPhysicalExamWithEncounterIdUsingLabTiming(ExamList List<QDM.PositivePhysicalExamPerformed>)

```
"Inpatient Encounters" Encounter

let firstexamwithlabtiming: First(ExamList Exam

where Exam.relevantDatetime during Interval[start of Encounter.relevantPeriod - 1440 minutes, start of Encounter.relevantPeriod + 1440 minutes]

sort by relevantDatetime
)

return {
Encounterid: Encounter.id,
FirstResult: firstexamwithlabtiming.result as Quantity,
Timing: firstexamwithlabtiming.relevantDatetime
```



Timing of Data Elements

The earliest instance of documentation meeting timing requirements below will be evaluated and included in the QRDA file.



Labs & Vitals

Within the 24 hours prior to the start of the Inpatient Encounter

Labs & Weight

Within 24 hours after the start of the Inpatient Encounter

Vitals

Within the 2 hours after the start of the Inpatient Encounter

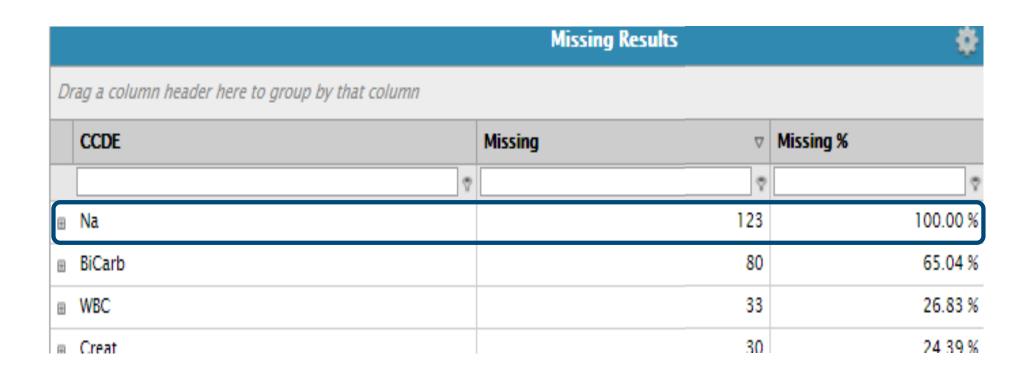


Implementation

- IT and/or Quality Input
- Education
- Provider suggestions
- Feedback on results and/or share results

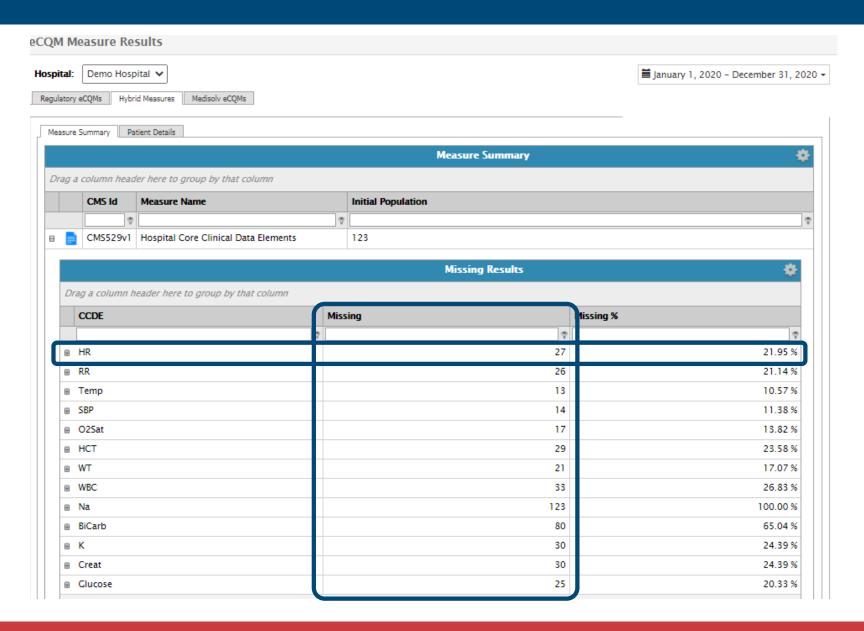


Monitoring and Improving



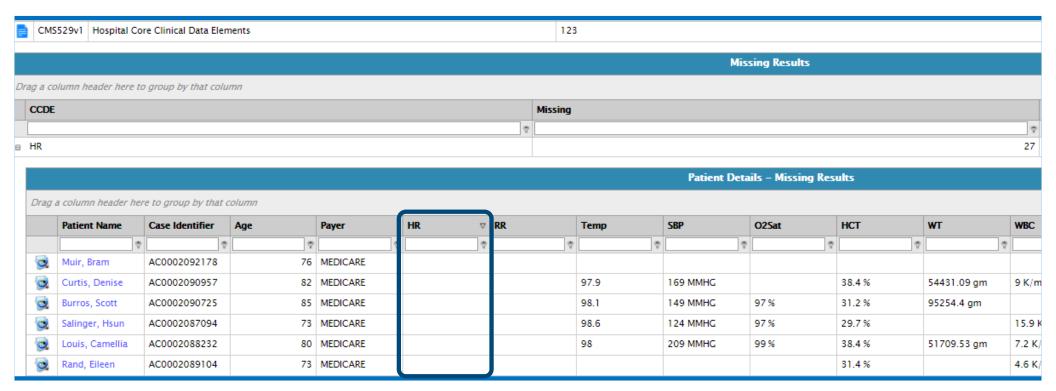


Monitoring and Improving

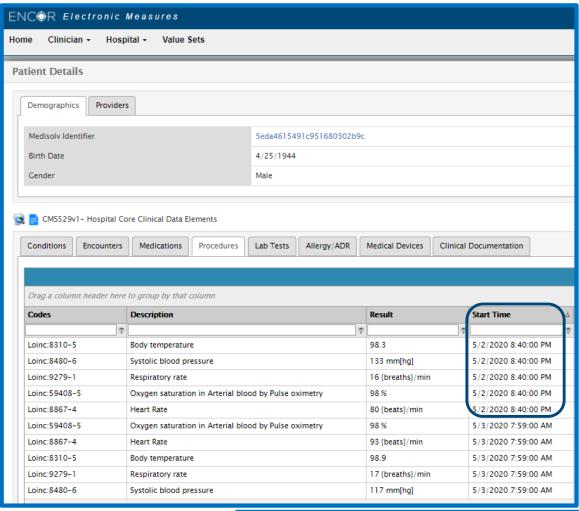




Monitoring and Improving



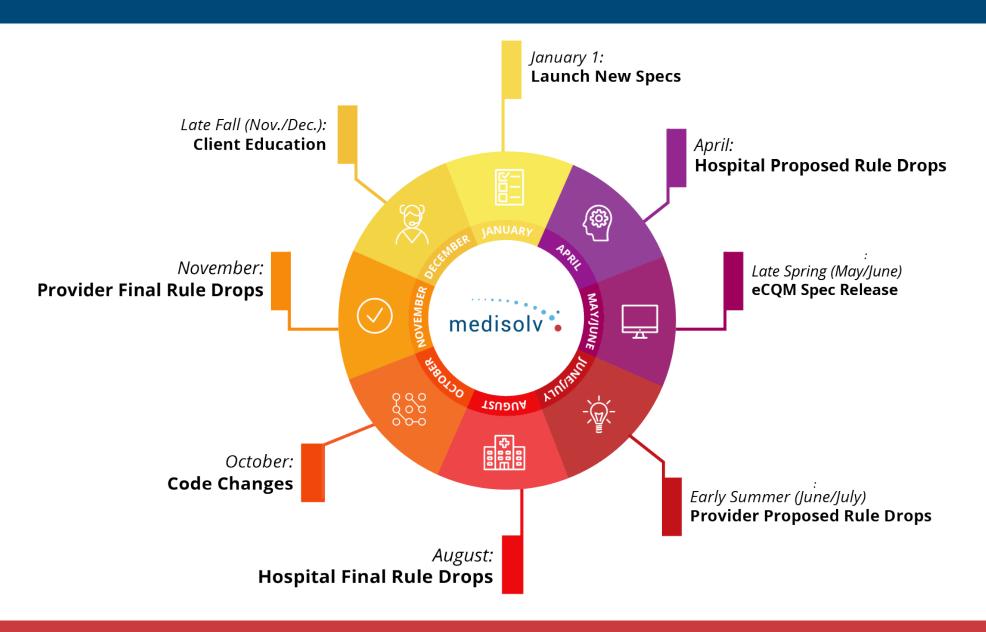








Maintenance: Annual Cycle









Lessons Learned

2018 Voluntary Reporting



Core Clinical Data Elements (CCDE)

- EHR data elements require Mapping to Standardized Nomenclature
- Requires accurate interpretation of logic



QRDA I File Format

- Different from fully specified eCQM format
- No measure "scoring"



Submission Prep

- Maintain and monitor mapping changes
- Validate results throughout the reporting year
- Confirm all data elements populating reports as expected
- Units of measurement





file Format

Report one QRDA I formatted file with required data elements for each patient meeting the Initial Patient Population.

QRDA I files are distinct from eCQM reporting formats.

Submission
Submitted through QualityNet Portal





- Review
 Review specification & regulatory changes
- Track Results

 Track HWR "results" throughout the reporting year
- Submit Submit QRDA I files via QualityNet
- Validate

 Validate and confirm submission
- Document

 Document your submission



Hybrid Hospital Specific Report

Table I: Your Hospital's Performance on the 30-Day Hybrid HWR Measure HOSPITAL NAME

Hospital Discharge Period: January 1, 2018 through June 30, 2018

Performance Information	Hybrid HWR Composite [d]	Medicine	Surgery/ Gynecology	Cardio- respiratory	Cardio- vascular	Neurology
Your hospital's H-RSRR [a]	15.5					
Total number of unplanned readmissions at your hospital (numerator) [b]		37	9	24	6	2
Total number of eligible discharges included in the calculation of the Hybrid HWR measure (denominator) [c]		281	64	152	38	32
Your hospital's Observed Unplanned Readmission Rate (numerator/denominator)	13.8	13.2	14.1	15.8	15.8	6.3
Overall observed readmission rate for all hospitals participating in the 2018 Voluntary Reporting (numerator/denominator)						
Total number of unplanned readmissions for all hospitals participating in the 2018 Voluntary Reporting (numerator)		10,811	3,187	2,663	1,703	939
Total number of eligible discharges for all hospitals participating in the 2018 Voluntary Reporting (denominator) [c]		61,821	27,012	14,920	11,755	7,548

- [a] Your Hybrid Risk-Standardized Readmission Rate (H-RSRR) may not accurately reflect your hospital's true performance on the Hybrid HWR measure as it is calculated using (i) only a portion of the data from your hospital, (ii) data from only a small number of hospitals participating in the 2018 voluntary reporting, and (iii) values assigned to replace missing data.
- [b] For further information on how the measure counts readmissions, please refer to Section 2.2.2 of the 2019 All-Cause Hospital-Wide Measure Updates and Specifications Report: Hospital-Wide Readmission, or the Hybrid Frequently Asked Questions. This may not be equal to the total number of discharges with successfully linked claims and CCDE information. Instead, the total number of eligible discharges is derived from applying the measure inclusion and exclusion criteria to the total number of successfully linked claims. For information on the measure inclusion and exclusion criteria, please see 2019 All-Cause Hospital-Wide Measure Updates and Specifications Report: Hospital-Wide Readmission.
- [c] This may not be equal to the total number of discharges with successfully linked claims and CCDE information at the hospital. Instead, the total number of eligible discharges is derived from applying the measure inclusion and exclusion criteria to the total number of successfully linked claims. For information on the measure inclusion and exclusion criteria, please see 2019 All-Cause Hospital-Wide Measure Updates and Specifications Report: Hospital-Wide Readmission.
- d] Specialty Cohort Model: The Hybrid HWR Composite is calculated based on performance on the included specialty cohort models.



Hybrid Hospital Specific Report

Table II: Summary of Your Hospital's Submission of CCDE Information for the 30-Day Hybrid HWR Measure HOSPITAL NAME

Hospital Discharge Period: January 1, 2018 through June 30, 2018

Submission Information	Number	Percentage (%)
Total discharges (based on claims)	701	
Total discharges for which CCDE were successfully submitted	1,184	
Total discharges with successfully linked claims and CCDE information [a] [b]	652	55.1%
Total discharges with failed linkage of claims and CCDE information	532	44.9%
Total discharges with missing heart rate [c]	1,184	100.0%
Total discharges with missing respiratory rate [c]	1,184	100.0%
Total discharges with missing temperature [c]	10	0.8%
Total discharges with missing systolic blood pressure [c]	2	0.2%
Total discharges with missing oxygen saturation [c]	1,184	100.0%
Total discharges with missing hematocrit [c]	14	1.2%
Total discharges with missing weight [c]	1,184	100.0%
Total discharges with missing white blood cell count [c]	41	3.5%
Total discharges with missing sodium [c]	15	1.3%
Total discharges with missing bicarbonate [c]	15	1.3%
Total discharges with missing potassium [c]	15	1.3%
Total discharges with missing creatinine [c]	15	1.3%
Total discharges with missing glucose [c]	15	1.3%



Best Practices



Start early **and** participate in voluntary reporting.



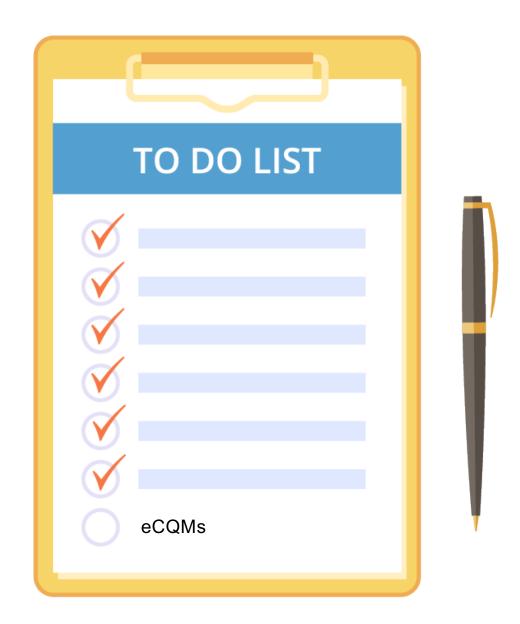
Hybrid Measure Reporting Requirements

Program	Reporting Requirement	Performance Year	Payment Year Public Reporting
Inpatient Quality Reporting (IQR) Program (2021 IPPS Final Rule)	Voluntary	Jan 1, 2018 – June 30, 2018*	N/A
	Voluntary	July 1, 2021 – June 30, 2022	N/A
	Voluntary	July 1, 2022 – June 30, 2023	N/A
	Mandatory	July 1, 2023 – June 30, 2024**	FY 2026 (10/1/2025) Payments
			July 2025 Hospital Compare "Refresh"



^{*}CMS Received EHR data from 150 Hospitals for the CY 2018 Reporting. **Medisolv successfully submitted for 69 of those hospitals.**

^{**}CMS is removing the Claims-based HWR Measure with the July 1, 2023-June 30, 2024 Mandatory Reporting for FY 2026 Payment Year.





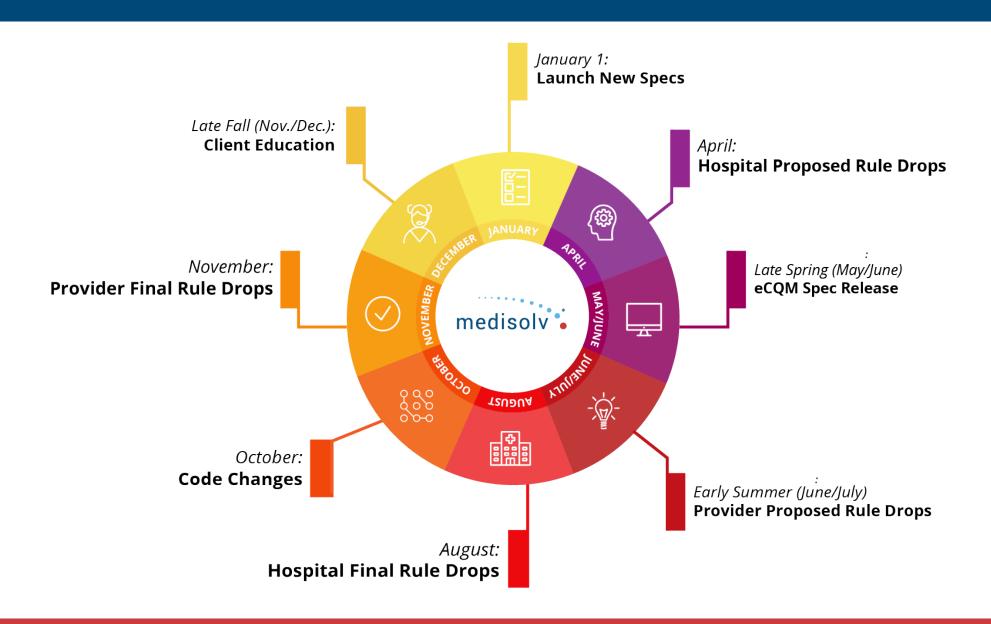
CCDE Tracking and Reporting

Eliminate hospital burden

- o Gradual integration
- o Low-risk
- Current work = future reward
- Align with hospital's needs
 - You already collect this data
 - Accounting for patient risk
- Speak to the future of measurement
 - Capitalizes on your EHR investment
 - CMS effort to measure quality for Medicare patients
- Gain performance insights



Best Practices





2021 IPPS Final Rule

Fiscal Year 2021 Inpatient Prospective Payment Systems (IPPS) for Acute Care Hospitals and the Long-Term Care Hospital (LTCH) Prospective Payment System (PPS) Final Rule.

Finalizing proposal to expand the requirement to use EHR technology certified to the 2015 Edition for submitting data on not only the previously finalized Hybrid Hospital-Wide Readmission but all hybrid measures in the Hospital IQR Program.









Questions?

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