Summary of the ACR Stakeholder Meeting on Clinical Decision Support (CDS)

Held on January 20, 2016 in Washington, DC

at the offices of Hogan Lovells

Sponsored by

The American College of Radiology

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Introduction

The American College of Radiology (ACR) convened a group of over 40 stakeholders (Appendix A) consisting of healthcare providers, medical specialty societies, industry and other stakeholders to capture opinions and viewpoints regarding the implementation of Section 218(b) of the Protecting Access to Medicare Act (PAMA). The Agenda (Appendix B) was designed to enable a collaborative exchange regarding a practical implementation of the Qualified Clinical Decision Support Mechanism (QCDSM) provisions of PAMA, and through breakout sessions develop a white paper summarizing the conclusions of the meeting.

Presenters were given only general topics to address in their presentations based on their experience and role as a stakeholder. Attendees were encouraged to comment freely throughout the workshop, given time constraints. Participants were also advised that the proceedings of the workshop would be compiled into a white paper, representing a good-faith effort to articulate the consensus opinion of the stakeholders. This document represents the culmination of that effort.

Executive Summary

There is a high level of consensus regarding the operational and regulatory implementation of PAMA. Leaders of specialty societies (representing large groups of Ordering Providers (OP) and potential Qualified Provider-Led Entities (qPLEs)) understand the value and simplicity of properly implemented Clinical Decision Support (CDS).

Stakeholders shared key insights into the experience of successful CDS implementations to guide the regulatory process.

Several common implementation principles emerged from the meeting.

- All advanced diagnostic imaging services (ADIS) orders must consult a QCDSM.
- QCDSM must provide ordering physician access to all qualified Appropriate Use Criteria (AUC) at point of consultation.
- All ADIS orders must require a structured reason for exam, or indication.
- At the onset, AUC coverage should be as comprehensive as possible.
- A repository of AUC consultations is essential for program success.
- All QCDSM transactions should be reported to one or more registries; if multiple registries are to be supported, they should be accessible via a standard data format for all QCDSM.
- The QCDSM should be accessible to, and support physician organizations implementing care pathways.

Stakeholder Conclusions

The ACR meeting addressed multiple provisions in the statute and focused not only on recommendations based on PAMA, but also the Healthcare Information Technology (HIT) considerations for a QCDSM in order to fully analyze QCDSM requirements.

Already, industry and healthcare providers have been collaborating to define industry standards for interoperability and AUC delivery, even in advance of specific guidance from the Centers for Medicare & Medicaid Services (CMS). The HL7 standards group is in the process of defining standards for the representation of shareable CDS knowledge artifacts and the data exchange between various systems to effectively integrate and present AUC to providers, and exchange AUC results, including a Decision Support Number (DSN)[1]. The basis for a successful program is effective rulemaking that will guide industry and the standards bodies to develop the necessary interoperability standards.

In order to provide specific guidance to CMS in the areas of PAMA where CMS is undertaking rulemaking, the specific statutory language from Section 1834(q)(3)(B)(ii) of the Social Security Act (SSA) is linked to a specific recommendation and source.

I. *The mechanism makes available to the ordering professional applicable appropriate use criteria specified under paragraph (2) and the supporting documentation for the applicable imaging service ordered.*

Mechanisms should capture a structured reason for exam (RFE), (ICD-10), age and gender for all ADIS ordered. [Ref1, Ref2, Ref3, Ref4, Ref5, Ref6, Ref7]

II. *In the case where there is more than one applicable appropriate use criterion specified under such paragraph for an applicable imaging service, the mechanism indicates the criteria that it uses for the service.*

Each AUC should be uniquely identified. [Ref1, Ref2, Ref3]

III. *The mechanism determines the extent to which an applicable imaging service ordered is consistent with the applicable appropriate use criteria so specified*.

Mechanisms shall capture a standardized indication (e.g. ICD-10), age and gender for all applicable diagnostic imaging services ordered in order to access the AUC and record the compliance of the exam. [Ref1, Ref2, Ref3, Ref4, Ref5]

IV. *The mechanism generates and provides to the ordering professional a certification or documentation that documents that the qualified clinical decision support mechanism was consulted by the ordering professional.*

Mechanisms must record Ordering Professional (OP) National Provider Identifier (NPI) and a CDS transaction ID. [Ref1, Ref2, Ref3, Ref4]

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[1] HL7 standards are available at:
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=337;
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=12.

V. *The mechanism is updated on a timely basis to reflect revisions to the specification of applicable appropriate use criteria under such paragraph.*

Mechanisms can import AUC when they are published according to a standardized nomenclature. [Ref1, Ref2, Ref3]

VI. *The mechanism meets privacy and security standards under applicable provisions of law.*
VII. *The mechanism performs such other functions as specified by the Secretary, which may include a requirement to provide aggregate feedback to the ordering professional.*

Mechanisms must record and securely store transactions for analysis, including identifier linking OP access of AUC to AUC results. [Ref1, Ref2, Ref3, Ref4. *All users and implementations of commercial CDS leverage this approach.*]

Meeting Summary

The ACR introduced a set of assumptions and workflows based on current imaging workflow and contemplated the impact of PAMA. In order to guide the group, the QCDSM components of PAMA required for the delivery of AUC were outlined and linked to agenda items, implementation considerations and language from PAMA. In order to define a practical implementation, the current order entry process was contrasted with a PAMA compliant process. Providers also outlined their practical experience in delivering AUC through their Electronic Medical Record (EMR).

Stakeholder presentations were organized into four key areas:

- Mechanism Front End
- Mechanism Back End
- AUC Creation and Management
- AUC delivery

Breakout groups were conducted to discuss and report on implementation considerations and legislative guidance. The breakout groups were organized along these themes.

Statutory Review

Dan Todd, JD
Todd Strategy

The group reviewed the portions of the statute relevant for the meeting. In addition, other portions of the statute were reviewed to ensure continuity of the recommendations. The program's intent to create an alternative to Radiology Benefit Management (RBM) driven prior authorizations was highlighted.

3. MECHANISMS FOR CONSULTATION WITH APPLICABLE APPROPRIATE USE CRITERIA.

A. IDENTIFICATION OF MECHANISMS TO CONSULT WITH APPLICABLE APPROPRIATE USE CRITERIA.
- *i. IN GENERAL. The Secretary shall specify qualified clinical decision support mechanisms that could be used by ordering professionals to consult with applicable appropriate use criteria for applicable imaging services.*
- *ii. CONSULTATION. The Secretary shall consult with physicians, practitioners, health care technology experts, and other stakeholders in specifying mechanisms under this paragraph.*
- *iii. INCLUSION OF CERTAIN MECHANISMS. Mechanisms specified under this paragraph may include any or all of the following that meet the requirements described in subparagraph (B)(ii):*
  - *I. Use of clinical decision support modules in certified EHR technology (as defined in section 1848(o)(4)).*
  - *II. Use of private sector clinical decision support mechanisms that are independent from certified EHR technology, which may include use of clinical decision support mechanisms available from medical specialty organizations.*
  - *III. Use of a clinical decision support mechanism established by the Secretary.*

B. QUALIFIED CLINICAL DECISION SUPPORT MECHANISMS.
- *i. IN GENERAL. For purposes of this subsection, a qualified clinical decision support mechanism is a mechanism that the Secretary determines meets the requirements described in clause (ii).*
- *ii. REQUIREMENTS. The requirements described in this clause are the following:*
  - *I. The mechanism makes available to the ordering professional applicable appropriate use criteria specified under paragraph (2) and the supporting documentation for the applicable imaging service ordered.*
  - *II. In the case where there is more than one applicable appropriate use criterion specified under such paragraph for an applicable imaging service, the mechanism indicates the criteria that it uses for the service.*
  - *III. The mechanism determines the extent to which an applicable imaging service ordered is consistent with the applicable appropriate use criteria so specified.*
  - *IV. The mechanism generates and provides to the ordering professional a certification or documentation that documents that the qualified clinical decision support mechanism was consulted by the ordering professional.*
  - *V. The mechanism is updated on a timely basis to reflect revisions to the specification of applicable appropriate use criteria under such paragraph.*
  - *VI. The mechanism meets privacy and security standards under applicable provisions of law.*
  - *VII. The mechanism performs such other functions as specified by the Secretary, which may include a requirement to provide aggregate feedback to the ordering professional.*

Front End Considerations

Summary

This section of the agenda focused on the practical experience of healthcare providers and HIT vendors in delivering AUC to health care providers.

- Link between comprehensive indication coverage and success with CDSM delivered AUC
- Portal based access for non Electronic Health Record (EHR) based providers
- Implications for Furnishing Providers in an environment with multiple CDS mechanisms
- EMR based delivery AUC
- Linkage between indication creation and localization and success with CDS
- How sites can create and deploy AUC into their EMR

Presentations

Ordering Provider Access

Richard Bruce, MD
University of Wisconsin Health, Madison
MID convener, maintained AUC program post MID through present

Indication coverage for the Medicare Imaging Demonstration (MID) was limited (both by design and in contrast to current AUC), and thus limited the utilization impact. For the exams rated during the MID, there was a reduction in inappropriate orders. Expanding the coverage of indications for the same data/same time period decreased unrated orders from 60-80% to <20%.

The site continued to use their EMR integrated CDSM with expanded indication covering post MID. Subsequent improvements in the EMR user interface (Epic) also enhanced the ability of the EMR to present and search indications.

A uniformly delivered CDS is now implemented, capturing a structured (versus free text) indication for all advanced imaging orders. This also enables collection of indications for orders where AUCs do not exist, creating an opportunity to improve AUC and inform future AUC development.

Ordering providers (OPs) also access the same CDS through a web portal that allows generation of a DSN that is used to provide traceability to the AUC interaction by providers not generating orders through the EMR.

Furnishing Provider Access

Michael Bohl, MHA
e-Ordering Coalition
CEO Radiology Group, PC SC
Past President of the RBMA
Co-chair of the IHE Radiology Planning Committee and co-author of the IHE CDS Profile Proposal

In the currently implemented workflows associated with managing orders for imaging services, the furnishing site receives a free text indication, verifies with the payer (an RBM) of the eligibility of the service and creates a

structured indication. This creates overhead and pre work on behalf of the OP and is required to properly furnish a payable service. The majority of orders are still on paper, due to a lack of electronic order interface to the furnishing site. As an example, a large imaging site could furnish services for 1000's of OPs and hundreds of different groups, each having a different AUC mechanism.

The implementation of PAMA creates opportunities for improvement over the existing process.

As with commercial payers, Furnishing Provider (FP) sites will always seek to "verify" that the claim is payable. As such, FP sites will seek a means to "verify" OP access to the QCDSM via an identifier.

Therefore, in order to avoid ambiguity a uniformly implemented program is desirable, in which CDS must be consulted for all ADIS. This will eliminate guesswork by the furnishing site as to which imaging services require an AUC consult and which do not.

Ensuring that the OP access AUC and generate a structured indication for the service also improves the quality of the furnished service and eliminates the overhead of the current RBM based process.

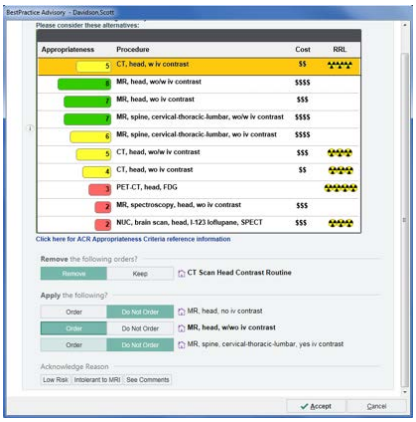
Finally, it was noted that there is an opportunity to re-evaluate Local Coverage Determinations (LCDs) for imaging services that are covered by AUC. And the question was raised if AUC consultation could meet the medical necessity requirements.

EHR Integration

Sean Bina
Epic

Epic presented its EMR integrated AUC delivery. Since first being asked to improve the accuracy of Computerized Physician Order Entry (CPOE) for radiology orders in 2007, Epic has now 58 sites live and 46 sites installing CDS to deliver the ACR's AUC.

Epic works with multiple decision support mechanism vendors and has integrated these services using web services and Application Programming Interfaces (API) employing two-way communication. There are over 290 Epic released web services with over 300 million API calls each month for applications including AUC, and other clinical applications.

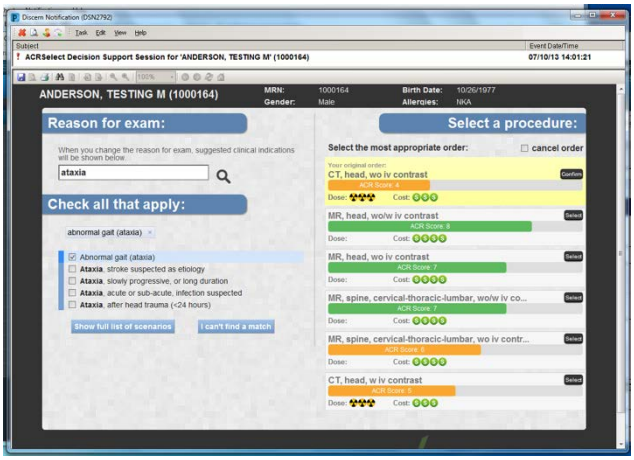


Epic demonstrated both procedure- and symptom-driven imaging AUC access, showing how properly authored AUC can be navigated from a variety of entry points. The EMR Advisory for imaging CDS presents relative scores, access to the AUC and supporting evidence, as well as an opportunity to revise the order if there are more applicable services. The Advisory is configurable to display feedback based on a number of variables.

In the next two years, Epic expects near universal adoption of their AUC CDSM implementation.

Brandon Long
Director, Cerner Corporation

Cerner Corporation outlined its commitment to delivering specialized content at the point of care through CDS. This includes the delivery of the ACR's AUC as an integrated EMR component.



Cerner reiterated its commitment to open standards including SMART and Fast Healthcare Interoperability Resources (FHIR) standard APIs to deliver applications such as AUC and indicated that their efforts to integrated the ACR's AUC was in response to customer demand.

Finally, Cerner showed how AUC can integrate into a CarePathway process, using the example of how other patient information can impact AUC delivery as in the case of Pulmonary Embolism where Geneva Score and Contrast Allergy can influence exam appropriateness. Cerner indicated that it is ready as an organization to tackle a January 1, 2018 implementation of PAMA and encouraged CMS to not delay implementation further.

AUC Intake

Daniel Siegel, MD
Henry Ford Health System (HFHS)
MID convener. As of October 15th installed a third party mechanism with ACR AUC integrated into Epic

HFHS started its AUC program as a MID convener. Due to an EMR change, HFHS terminated its involvement with the MID and implemented EMR integrated AUC as part of its Epic implementation. As of October 2015, the site had implemented the ACR AUC delivered through Medicalis (a commercially available CDSM) integrated with Epic.

Key Learning: Getting Indications Right

Provider support enabled great results

	Count of Scored ED Orders	Percent of Total
ACR Indication Used	6277	71.7%
Custom HFHS Indication Used	2460	28.1%
Both ACR & Custom Indications Used	16	0.2%
TOTAL	8753	100.0%

- ED CT MR and NM orders from10/19/15 through 1/6/16

	Appropriate	Moderate	Inappropriate	Indeterminate	Not Validated	Total # Orders
ED Orders	40.54%	19.79%	8.26%	0.47%	30.94%	8752
Non-ED Orders	40.89%	16.18%	13.51%	0.65%	28.76%	28405

Key Takeaways:
- ED champion that acted as social network lead for Department
- Diligent User Acceptance Testing to ensure appropriate indications were listed – Comprehensive from an ED physician perspective
- 300 indications created are used almost 30% of the time
- Inappropriate scores in the ED are less than other areas

It was noted that in order to effectively deliver AUC through HFHS's CDSM it needed comprehensive AUC covering a variety of clinical scenarios.

Providers bypass AUC if they are given the opportunity. To ensure compliance, HFHS required OP to always select a structured indication. This allowed gaps in indication coverage to be identified and filled with local indications. It also uncovered duplicate workflows where providers also were required to enter an ICD-10 code.

Through collaboration with OPs HFHS optimized the delivery of AUC in the Emergency Department (ED) settings by creating 300 additional indications, linking them to ICD-10 and linking to AUC then loading them into their CDSM. This improved the indication coverage, and thus improved utilization in the ED.

Discussion and Considerations Raised

- Multiple mechanisms and impact on OP/FP
- Feedback to the OP
- Recording of OP interaction with AUC
- Non EMR provider access
- Comprehensive indication coverage
- Coding structure for indications
- Deployment of new AUC and indications
- Creation of a platform for innovation and improvement
- How to record if no applicable AUC or exam is unrated
- Should AUC consultation be a safe harbor
- Requirements for small/solo practices

Back End Mechanism

Summary

To discuss and identify mechanism capabilities that can enable AUC verification, Quality Improvement and Management (QI/QM) and outlier determination.

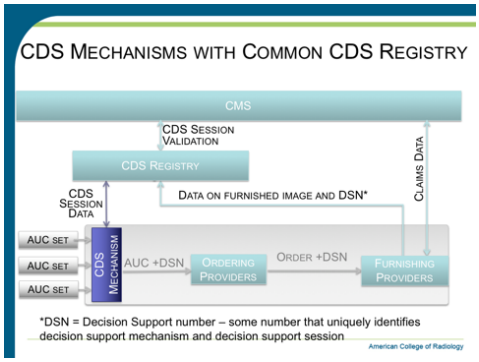
- Benchmarking and measurement of individual and aggregate interactions with AUC using a registry
- Linkage between mechanism and claims processing
- How healthcare providers measure and benchmark provider interaction with AUC
- QI/QM methods to improve compliance with AUC
- AUC and CDSM can reduce provider burden (vs. current pre-authorization methods)
- AUC and CDSM enables risk based contracting

Presentations

CDS National Registry

Mythreyi Chatfield, PhD
ACR
Provider Led Entity

ACR presented a concept for a Clinical Decision Support Registry that, when implemented within a mechanism, can provide a "clearinghouse" function for multiple QCDSM to connect OP and FP across multiple QCDSM.



This registry can join other Qualified Clinical Data Registries (QCDRs) hosted by the ACR, and would enable QI/QM benchmarking and outlier identification.

The ACR's R-SCAN: Radiology Support, Communication and Alignment Network initiative, funded by a Center for Medicare & Medicaid Innovation (CMMI) "Transforming Clinical Practice Initiative" grant, was presented as a vehicle for radiologists and referring clinicians to gain easy access to and experience with CDS nationwide. R-SCAN also serves as an opportunity and first step for radiology practices to participate in a CDS registry. Details about how R-SCAN leverages CDS, and can be broadly employed, are provided in Appendix D.

Further details are provided in Appendix D.

Claims Processing

Don Moran
The Moran Company
Claims Expert

An approach to claims management was discussed where the DSN could be used as an identifier to link to a registry or database of AUC interactions or be coded to contain specific information about the consultation. This approach could be accommodated easily within CMS's existing claims processing and adjudication system.

Outlier Determination

Jeff Weilberg, MD
Massachusetts General Hospital (MGH)
CDS user since 2006

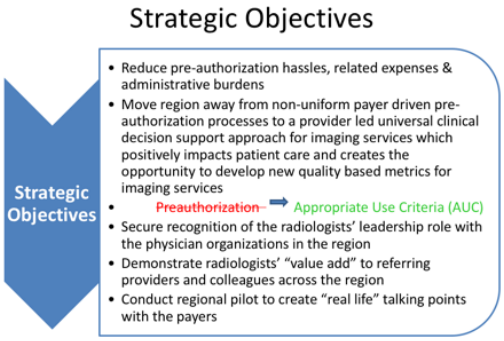
MGH presented on methodologies used to benchmark and manage physician behavior using a QI driven approach. Physician "red rate" reports were created that enabled physician-to-physician benchmarking leveraging statistical analysis to adjust for variations based on practice patterns. This methodology could be employed to provide aggregate feedback to the OP by QCDSM.

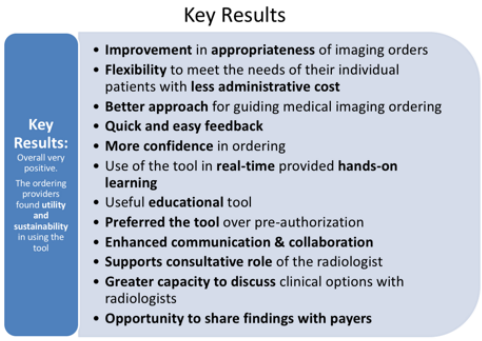
Jennifer Coleman, MHSA
Grand Traverse Radiologists, PC
FP site seeking shared savings and AUC driven prior authorizations

Grand Traverse Radiology described its experience in leveraging a CDSM in the state of Michigan with the goal of reducing provider overhead and improving quality through a uniform process for prior authorization based on AUC.

The program leveraged a web portal to provide access to a CDSM, and even when used side-by-side with the current prior authorization process, ordering providers preferred to access the CDSM due to its educational aspects in comparison to their traditional prior authorization process.

Based on this success, Grand Traverse is now embarking upon meetings with payers and developing plans to operationalize CDSM in lieu of RBM based prior authorizations as part their shared savings contracts. Further, the site is contemplating an AUC driven "consult" model, where radiologists perform consultations for exams that deviate from CDSM recommendations or where no AUC exist.





Discussion and Considerations Raised

In contemplation of both the claims and outlier rulemaking, QCDSM could incorporate the concept of a "registry", where transactions are securely recorded and referenced using an identifier to determine compliance with AUC over time.

QCDSM must be capable of securely storing a minimum set of data elements to enable QI/QM, allow FPs to verify AUC consult, and CMS to identify outliers and potentially query for other purposes such as AUC improvement.

AUC Creation and Management

Summary

This portion of the agenda focused on the requirements for qPLE to publish AUC

- A common framework for indications and exams can be used to create and publish AUC
- A common framework for indications can be used to manage multiple AUC
- Examples of communication between PLE and Mechanism
- How effectively authored AUC can support an exam/sign symptom or care pathway driven access
- A computer representation for AUC based on indication and exam framework

Presentations

ACR Framework – ACR Common

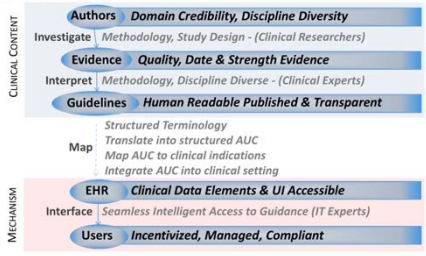
Laura Coombs, PhD
ACR
AUC publisher perspective

The ACR presented an overview of the scope of the ACR's published AUC.

The ACR highlighted the need to connect AUC publishers (qPLE) and AUC mechanisms (QCDSM).

- 149 AUC Topics
- 705 AUC Scenarios
- 6,184 AUC Rules
- 5,907 Literature References
- 20 years of continuous work

From Guidelines to CDS



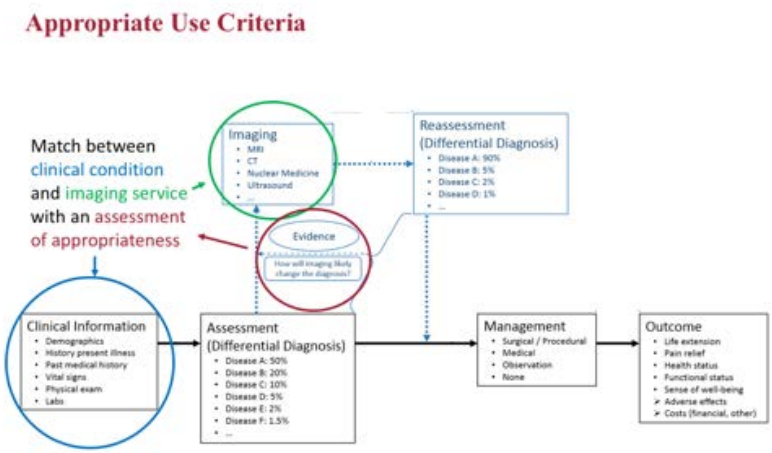
The ACR authors AUC using ACR Common, a freely available set of controlled nomenclature and semantic terms used by the ACR.

All of the ACR's AUC are expressed in terms of ACR Common, including Reason For Exam and Clinical Indication. Additionally, each of the terms in Common are also mapped to ICD-10, Systematized Nomenclature of Medicine (SNOMED) and Current Procedural Terminology (CPT®).

Having a common way to express indication (e.g. ICD-10) and exam (e.g. CPT) would allow for multiple AUC linked to the same clinical condition and enable CMS and healthcare providers to understand which AUC is applicable and was used during the ordering process.

AUC Creation

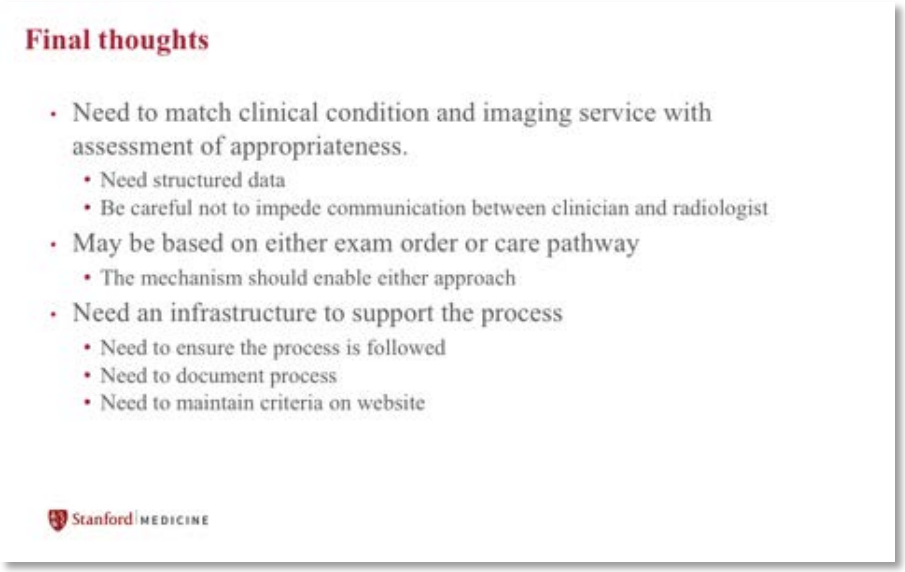
David Larson, MD
Stanford University
Provider Led Entity perspective
Member High Value Healthcare Collaborative



Stanford Health System reviewed the statutory requirements to publish and create AUC, and defined an AUC as linking a clinical condition, an imaging service and an assessment of appropriateness.

The ACR's AUC were then reviewed against these requirements to indicate how the concepts of Evidence Review and Appropriateness are reflected in the AUC.

The presenter then demonstrated how an AUC linking clinical condition and imaging service could be applied in a care process model.



AUC Authoring and Export

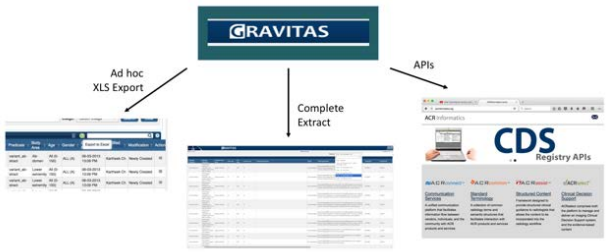
Mike Tilkin, MS
ACR
AUC publisher perspective

The ACR then described how AUC authored with ACR Common could be exported and used by a QCDSM.

The ACR introduced "Gravitas", an AUC management and published platform used to manage all aspects of AUC management, linking clinical guidance and structured terminology into an exportable, computer readable AUC. Gravitas can export AUC in a variety of formats.

Published AUC are organized by topic areas, linked to ICD-10 and formatted into human readable, computer ready AUC based on ICD-10 and CPT.

Delivering AUC to Mechanism



TERM	CATEGORY	AUC TOPIC	SCENARIO (A)	RULE (A1)	RULE (A2)	RULE (AX)
NAME	MUSCULOSKELETAL	LOW BACK PAIN	NO RADICULOPATHY	MR L-SPINE (W/O)	CT L-SPINE (W)	ACTION (AX)
ICD-10-CM	M00-M99	M54.06	M54.15 (-)	-	-	...
SNOMED-CT		-	23056005 (-)	-	-	...
CPT4		-	-	72148	72132	CPT4 (AX)
APPROPRIATENESS		-	-	NO	NO	APPROPRIATENESS
TERM			SCENARIO (B)	RULE (B1)	RULE (B2)	RULE (BX)
NAME			RADICULOPATHY	MR L-SPINE (W/O)	CT L-SPINE (W)	ACTION (BX)
ICD-10-CM			M54.15 (+)	-	-	...
SNOMED-CT			23056005 (+)	-	-	...
CPT4			-	72148	72132	CPT4 (BX)
APPROPRIATENESS			-	YES	EQUIVOCAL	APPROPRIATENESS
TERM			SCENARIO (Z)	RULE (Z1)	RULE (Z2)	RULE (ZX)

Discussion and Considerations Raised

- Linkage between PLE terminology and coding schemes such as ICD or SNOMED
- How specific should CMS be in defining terminology?
- Should QCDSM be able to communicate with other QCDSM to record usage of all Applicable AUC?
- How should a QCDSM provide aggregate feedback to the OP?

AUC Delivery

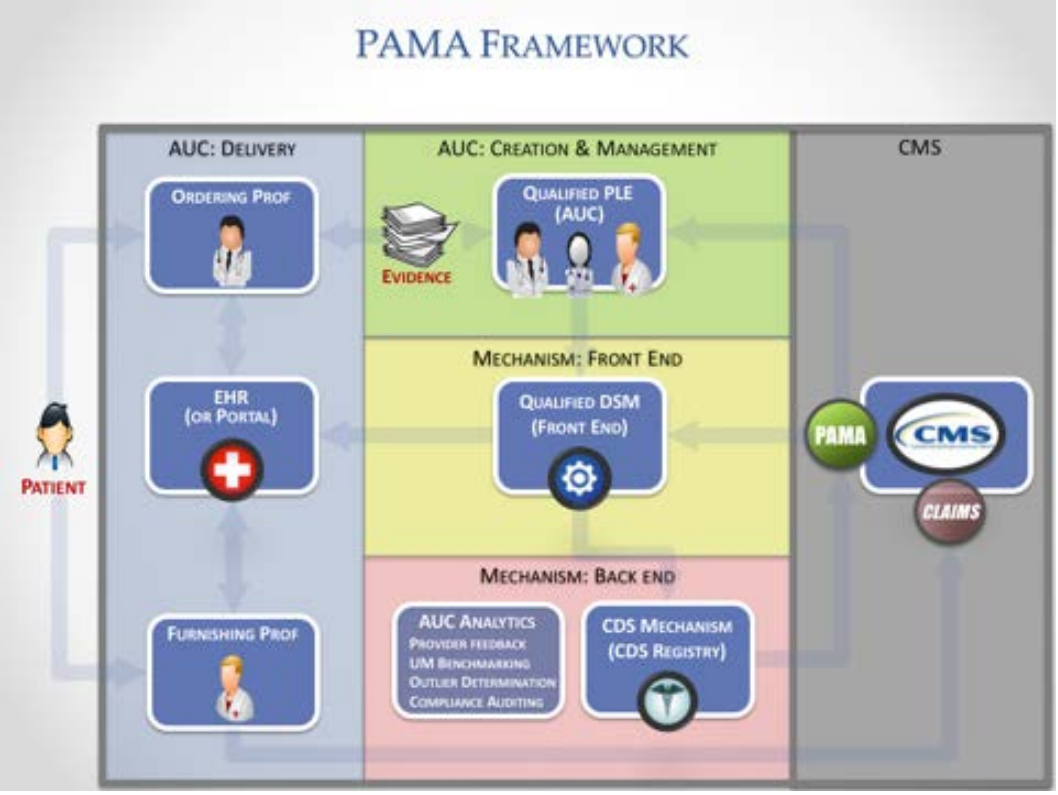
Summary

The concepts presented in prior sessions were tied together into a single picture for AUC delivery to providers via a mechanism.

- Mechanism Front End
- Mechanism Back End
- AUC Creation and Management
- AUC delivery

In particular, these concepts were linked to statutory language in preparation for analysis by the various breakout groups.

Using the framework established at the onset of the meeting, each of the four areas of focus were linked to relevant PAMA language, and linked to concepts explored during the morning.



The stakeholders were provided all provisions of PAMA for review and consideration. Although the scope of the workshop was to inform CMS regarding the current rulemaking task at hand (QCDSM), review of related provisions will ensure that all aspects of the implementation were considered.

In order to ensure a successful implementation, a specific “straw man” implementation was presented, including the technical aspects such as data structures, information flow and codification. Although these

aspects will likely not be covered or addressed specifically in rulemaking, in order to ensure a successful implementation, these aspects required analysis so as to inform the conclusions of the meeting.

Breakout group were organized to review the considerations presented during the meeting and to make specific recommendations in the assigned areas.

Group A: Front End Mechanism (Provision 3)

Group B: Back End Mechanism (Provision 3, 5, 6)

Group C: AUC Creation and Management (Provision 2)

Group D: AUC and CDS Delivery (Provision 4)

Provider Experiences

Selected healthcare providers were asked to present their individual experience with CDS delivered AUC during a working lunch.

Mt Sinai

David Mendelson, MD
The Mount Sinai Hospital
early adopter of CDSM

Mt. Sinai began implementation of EHR integrated CDS in 2012 after three years of evaluation and piloting of solutions. Initial implementation had constraints, and the site opted to collect data for one year regarding appropriateness of the exam based on the OP selecting a structured RFE. Providers often bypassed CDS and used free text.

After enabling provider feedback for low utility exams, structured indication use increased as it offered providers education and guidance. Today, after an EMR upgrade, providers are no longer allowed to enter free text and consult CDS for all advanced imaging for both inpatient and outpatient settings.

CDS is now a routine part of the health system, regularly used by providers. The health system has initiated plans to manage provider compliance with AUC with a reporting approach similar to that described by MGH earlier in the day.

New York University (NYU)

Michael Recht, MD
NYU Langone Medical Center
CDSM user

NYU began using CDS on June 2015. Initial results of using the system have yielded insights into the appropriateness of ordering system wide. Over 80% of exams are appropriate and approximately 20% of orders are unrated.

The site plans to restrict free text usage in future and implement provider reporting/benchmarking to improve compliance.

NYU noted that the foundation to successful CDS is complete coverage of indications. NYU anticipates expanding its AUC program to include dose, cost, allergies and lab results.

Aurora Healthcare

Sarah Reimer, MD
Aurora Health Care
CDSM user

Aurora performs 265,000 advanced imaging studies annually. The goals in implementing CDS were to gain relief from RBM based prior authorizations and increase appropriateness, as well as define, benchmark and impact value.

In particular, Aurora is using CDS to improve appropriateness in the ED. The experience so far is that there is higher percentage of unrated orders in the ED versus the enterprise leading Aurora to embark on a similar exercise of local indication development as HFHS.

The opportunity in the ED is that based on preliminary data, 40% of the ED patients for uncomplicated headache were imaged, although less than 8% complied with the AUC.

Breakout Reports

Stakeholders were organized into breakout groups and each provided with a copy of the considerations raised in the morning and the relevant statutory language and asked to record consensus and any outlier opinions regarding the various topics. This report is constructed from the notes submitted by the assigned scribes and facilitators to each breakout group.

Group A: Front End

AUC Access

The group was concerned that the CDS requirement will burden the FP unless properly implemented. FPs will seek to verify AUC access, and we have to design for a heterogeneous environment (multiple mechanisms, multiple AUC sources).

The group indicated that as with current RBM based prior authorizations schemes, the FP could access the mechanism on behalf of the OP; however, the group agreed that this would minimize the impact of the program and eliminate the QI/QM opportunity.

Stakeholders expressed concerns about confusion created by multiple AUC sources and mechanisms and in particular, for solo practices or external referrals not generated within the EMR, a freely available public portal could be made available.

The only way an effective program can work is to consistently access QCDSM for all ADIS.

Data Elements

It is critical to have commonly defined data elements including identifiers for QCDSM, qPLE, and Qualified AUC so that transactions across mechanisms and AUCs can be compared. A Comparative Effectiveness Research database is desirable to enable QI/QM and benchmark providers for outlier calculations.

Multiple qPLE and AUC updates

The group discussed the concept of an AUC clearinghouse, where qPLEs would be required to submit new criteria. Hosting AUC on a qPLEs web site could also satisfy this requirement.

This reinforced the discussion on a standard structure based on known data elements for an AUC.

Other Topics

Identifiers are needed across the system, including optimally a registry.

The group also discussed if free text should be permitted when placing orders for ADIS and concluded that given the experience of providers, a structured indication should always be required.

Group B: Back End

CMS needs data from each mechanism for any education or outlier identification to be robust. There may be a single or multiple databases, and outlier identification is only one of the uses.

At a minimum, the data need to have a unique identifier for a decision support session that can be used to query data from a CDS mechanism.

Data standards are necessary to link data and data dictionaries from different mechanisms, and any analytical needs should be accomplished with minimal changes to or demands on the claim form.

There needs to be some mechanism for hardship exemptions and a modifier or something similar for claim exemptions.

Group C: Creation and Management

qPLE must be transparent and display not only appropriateness but ratings of appropriateness.

Specified AUC should be distinguished from Care Pathways. Care Pathways are point of service, and AUC are point of order. Nonetheless, AUC can be applied during a care pathway.

AUC (point of order) should have standards for content provision, allow the selection of AUCs from multiple qPLEs, and keep the market place open rather than restrict to a few providers. Content provision is defined as Standardized AUC content so all AUCs will have specific elements that make up the AUC and a uniform way of expressing each element. For example, one element may be an ID for the imaging order and its length and other data standardization restrictions (e.g. alphanumeric) are uniform across qPLEs or CDS mechanism providers.

The idea of a registry of AUC was initiated. The "order" could point to the AUC identified in the registry.

Some of the required elements discussed included: the order (indications, procedure); a provider identifier; an AUC identifier, which include some qPLE identification; dates of service; appropriateness rating. The data structure would be standardized so it could be implemented in multiple qPLEs and across CDS providers.

It was suggested that a repository could house a template for the required elements. Standardizing these elements would ensure that qPLEs could develop AUCs that could be consumed by anyone using Decision Support.

Group D: Delivery

Recommendations

- The OP should consult a QCDSM for all ADIS.
- The ordering physician must enter an NPI and a standardized indication (e.g., ICD-10) for all ADIS ordered.
- The QCDSM must record whether the service ordered adheres, does not adhere, or is not applicable to the AUC.

- The QCDSM should record the AUC used and the information fed into the system to arrive at the AUC, but the specific data fields should not be mandated.
- Each QCDSM vendor must have a unique ID.
- The QCDSM must create a unique CDS transaction ID.
- A DSN should include the unique DSM number and the CDS transaction ID (mechanism + unique transaction ID for the mechanism)
- The FP must provide the NPI of the OP, the DSN, and whether the service ordered adheres, does not adhere or is not applicable to the AUC.

Discussion and Considerations

For QCDSM:

- We recommend that the mechanism (QCDSM) record all transaction information about the patient even in the event of 'no applicable AUC', but this should not be mandated.
- Need to establish the base minimum requirements for a DSM so that smaller physician groups can participate.
- Best practice is for the QCDSM to provide a method for furnishing professionals to validate a DSN (e.g., the QCDSM could provide a portal).
- DSM should consider assigning a score of null to indicate "no guidance available".
- In qualifying a DSM, need to consider the breadth of implementation (number of indications covered). What if a DSM reports no guideline available because the system has limited options?
- DSM needs to timestamp and store the AUC set being used (e.g., ACR Select provides AUC from different organizations. Need to know whether AUC came from ACR or American College of Cardiology (ACC).
- DSM must generate a DSN for each test ordered.

In General:

- Need a central repository/registry to make DSM data most useful.
- It is important that the regulations can be implemented by the community provider.
- Need to determine when there is an applicable AUC for consultation. Sometimes indications are available but they are not found.
- Need to have an all-encompassing system. Cannot just implement five clinical pathways.

Appendix A: Participants

ACR Stakeholder Meeting
Attendee List

Joseph Allen, MA	American College of Cardiology
JoAnna Baldwin, MS	Centers for Medicare & Medicaid Services
Sean Bina	Epic
Michael Bohl, MHA	e-Ordering Coalition
Manuel Brown, MD	Henry Ford Hospital
Richard Bruce, MD	University of Wisconsin Health
Judy Burleson, MHSA	American College of Radiology
Mythreyi Chatfield, PhD	American College of Radiology
Jennifer Coleman, MHSA	Grand Traverse Radiologist, PC
Robert Cooke	National Decision Support Company
Laura Coombs, PhD	American College of Radiology
Joshua Cooper	American College of Radiology
Keith Dreyer, DO, PhD	Massachusetts General Hospital
Daniel Durand, MD	Johns Hopkins Medicine
Nancy Fredericks, MBA	American College of Radiology
Sarah Fulton, MHS	Centers for Medicare & Medicaid Services
Lisa Goldstein, JD	American College of Cardiology
Becky Haines, MSM, CAE	American College of Radiology
Keith Hentel, MD	Weill Cornell Medicine/ New York Presbyterian Hospital
Joseph Hutter, MD, MA	Centers for Medicare & Medicaid Services
Jay Kaplan, MD	American College of Emergency Physicians
Katie Keysor	American College of Radiology
Angela Kim, MS	American College of Radiology
David Kurth, MPH, MA	American College of Radiology
David Larson, MD	Stanford University
Brandon Long	Cerner Corporation
Michael Mabry, MA	Radiology Business Management Association
Mike Mardini	National Decision Support Company
Joan McClure, MS	National Comprehensive Cancer Network
Geraldine McGinty, MD, MBA	Weill Cornell Medicine/ New York Presbyterian Hospital
Sharon McIlrath	American Medical Association
Debbie McKay, RN, BHS, JD	Allscripts
David Mendelson, MD	The Mount Sinai Hospital
Kent Moore, MPA	American Academy of Family Physicians
Cindy Moran	American College of Radiology
Don Moran	The Moran Company
Oran Muduroglu	Medicalis
Kellyn A Pearson, MSN	American College of Physicians
Michael Peters	American College of Radiology
Branis Pesich	Altarum
Michael Recht, MD	NYU Langone Medical Center
Sarah Reimer, MD	Aurora Health Care

Beth Roberts, JD	Hogan Lovells, US LLP
Daniel Siegel, MD	Henry Ford Hospital
Ezequiel Silva, MD	South Texas Radiology Group
Julia Skapik, MD, MPH	Inova Health System
Tamara Syrek-Jensen, JD	Centers for Medicare & Medicaid Services
Mike Tilkin, MS	American College of Radiology
Dan Todd, JD	Todd Strategy
Jeff Weilberg, MD	Massachusetts General Hospital
Keith White, MD	Intermountain Healthcare

Appendix B: Agenda

ACR Stakeholder Meeting
January 20, 2016
8:00 AM – 3:30 PM

Agenda

8:00-8:15 Welcome and Introductions

8:15-12:00 CDS Mechanism Considerations

8:15-8:25 Statutory Requirements, Dan Todd, Todd Strategies

8:25-8:30 *Questions and Answers*

Front End Mechanism

8:30-8:40 Ordering Provider Access, Dr. Richard Bruce, University of Wisconsin Health

8:40-8:50 Furnishing Provider Access, Michael Bohl, e-Ordering Coalition

8:50-9:00 EHR Integration, Sean Bina, Epic

9:00-9:10 EHR Integration, Brandon Long, Cerner Corporation

9:10-9:20 AUC Intake Process, Dr. Daniel Siegal, Henry Ford Hospital

9:20-9:35 *Questions and Answers - Front End Mechanism*

Back End Mechanism

9:35-9:45 CDS National Registry, Mythreyi Chatfield, ACR

9:45-9:55 Claims Processing, Don Moran, The Moran Company

9:55-10:05 Outlier Determination, Dr. Jeffrey Weilburg, Massachusetts General Hospital

10:05-10:15 Managing Outlier Status: A Radiology Benefit Management Alternative, Jennifer Coleman, Grand Traverse Radiologists

10:15-10:30 *Questions and Answers - Back End Mechanism*

10:30-10:45 BREAK

AUC Creation and Management Considerations

10:45-10:55 Provider led entity (PLE)/AUC (Final Rule) Regulatory and Statutory (PAMA) Requirements, Dan Todd, Todd Strategies

10:55-11:05 AUC Framework - ACR Common, Laura Coombs, ACR

11:05-11:15 AUC Creation Process, Dr. David Larson, Stanford University

11:15-11:25 AUC Export Process, Mike Tilkin, ACR

AUC and CDS Delivery Considerations

11:25-11:40 Integrating Multiple AUC Sources and Multiple CDS Mechanisms with Multiple Ordering and Furnishing Providers, Keith Dreyer, Massachusetts General Hospital

11:40-12:00 *Questions and Answers/Discussion*

12:00-1:00 LUNCH (12:15-12:45 *Provider Experience Presentations)*

1:00-1:45 Breakout Sessions

Group A: Front End Mechanism Considerations
(Facilitator: Dr. David Mendelson, Scribe: Mike Tilkin)

Group B: Back End Mechanism Considerations
(Facilitator: Jennifer Coleman, Scribe: Mythreyi Chatfield)

Group C: AUC Creation and Management Considerations
(Facilitator: Dr. Daniel Durand, Scribe: David Kurth)

Group D: AUC CDS Delivery Considerations
(Facilitator: Robert Cooke, Scribe: Laura Coombs)

1:45-2:00 BREAK

2:00-3:00 Breakout Reports

3:00-3:30 Summary/Discussion

3:30 Adjourn

Appendix C: Glossary

QCDSM – Qualified Clinical Decision Support Mechanism

CDSM – Clinical Decision Support Mechanism

PLE – Provider Led Entity

qPLE – Qualified Provider Led Entity

ADIS – Advanced Diagnostic Imaging Services

AUC – Appropriate Use Criteria

PAMA – Protecting Access to Medicare Act of 2014

EMR – Electronic Medical Record

RBM – Radiology Benefits Manager

MID – Medical Imaging Demonstration Project

DSN – Decision Support Number

OP – Ordering Provider

FP – Furnishing Provider

API – Application Programming Interface

ED – Emergency Department

SMART – An Application Development platform for healthcare. http://smarthealthit.org/an-app-platform-for-healthcare/about/

FHIR – Fast Healthcare Interoperability Resources (an emerging standard for EMR interoperability)

QI – Quality Improvement

QM – Quality Management

QCDR – Qualified Clinical Data Registry

Appendix D: R-SCAN

Radiology Support Communication and Alignment Network (R-SCAN) Overview

R-SCAN™ is a collaborative action plan that brings radiologists and referring clinicians together to improve imaging appropriateness and streamline image ordering. R-SCAN delivers immediate access to web-based tools and clinical decision support (CDS) technology to optimize imaging care, reduce unnecessary imaging exams, and lower the cost of care. R-SCAN is funded through a CMS Transforming Clinical Practice Initiative grant awarded to the American College of Radiology. Participation is free for all physicians.

R-SCAN's goal is to optimize imaging utilization in outpatient and emergent care settings. Radiologists, primary care physicians, emergency care physicians, and other clinicians who order imaging exams in these settings are welcome to participate.

How CDS Is Used in R-SCAN

One of R-SCAN's many free tools is a CDS product that delivers a digital version of the ACR Appropriateness Criteria® (or other certified appropriate use criteria) to participating clinicians' desktops. R-SCAN participants use the web-based CDS tool to rate the appropriateness of imaging exams ordered by referring clinicians who are collaborating with radiologists to improve the ordering of imaging exams.

The team uses CDS to rate the appropriateness of exams ordered for one of R-SCAN's Choosing Wisely topics before and after a site-specific educational program is carried out. R-SCAN participants can select from presentations, case review, podcasts, videos, and articles featuring the most current evidence to support clinicians ordering the right imaging exam for the right reason for patients.

Referring clinicians participating in R-SCAN can gain CDS experience several ways:

1. **By registering for R-SCAN, referring clinicians gain free access to an ACR Select web portal on the R-SCAN website.** For each of R-SCAN's Choosing Wisely topics, sample cases show how to enter patient and clinical information to view a list of possible imaging exams that could be ordered and the associated appropriateness rating. Referrers can explore recommended imaging for hundreds of other indications and clinical scenarios.
2. **R-SCAN participating referrers and radiologists can review cases ordered for their patients as a team and use ACR Select to guide the discussion about the most appropriate imaging option.** R-SCAN's Choosing Wisely imaging topics are among those with the most potential for improved ordering through joint case review and discussion.
3. **Referring clinicians can try CDS to experience how it facilitates selecting the best exam for their patients.** As part of the education to improve the ordering of imaging exams for one of R-SCAN's Choosing Wisely topics, a referring practice can opt to use CDS when placing an order for each exam.

For more information, visit rcan.org or e-mail questions to RSCANinfo@acr.org.