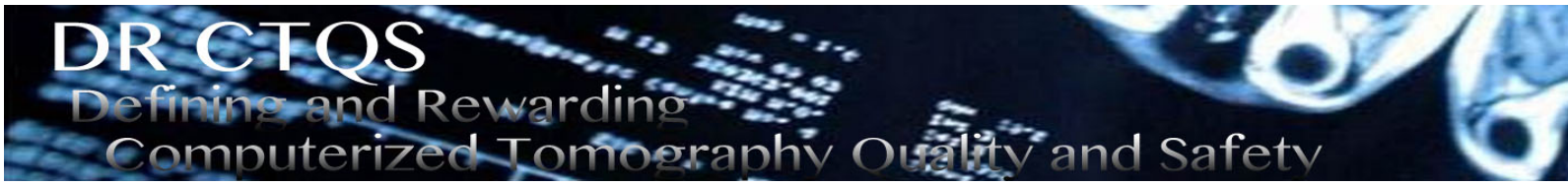
TEP Packet Contents



Technical Expert Panel Meeting Agenda

Tuesday, October 1, 2019
9:00am-12:00pm Pacific Time
Call in number: +1 669 900 6833
Zoom Meeting ID: 652-662-546
https://ucsf.zoom.us/j/652662546

9:00 AM	Call meeting to order. Minutes from prior meeting on website.	Dr. Helen Burstin
9:05 AM	Roll Call and Updated Conflicts	Dr. Burstin
9:15 AM	Measure Calculation & Reporting	Dr. Andy Bindman
9:30 AM	Discussion of Measure Calculation & Reporting	Dr. Burstin
9:50 AM	Update on Alpha Testing	Dr. Rebecca Smith-Bindman
10:05 AM	Discussion of Alpha Testing	Dr. Burstin
10:25 AM	Quick Recess	
10:35 AM	Beta Testing	Dr. Smith-Bindman
10:55 AM	Discussion of Beta Testing	Dr. Burstin
11:15 AM	Measure Stewardship	Dr. Patrick Romano
11:30 AM	Discussion of Measure Stewardship	Dr. Burstin
11:50 AM	Wrap Up and Next Steps	Dr. Bindman
12:00 PM	Adjourn	Dr. Bindman

Thank you for attending the DR CTQS TEP meeting - we look forward to your continued collaboration. Visit our website for more information, ctqualitymeasure.ucsf.edu

Welcome to the
DR CTQS
Technical Expert Panel Meeting

Thank you for joining.
Everyone will be muted upon entry, if you have questions or comments, please use the hand raising option or send a chat message to Diana.

We will begin the meeting shortly.

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University of California
San Francisco

We will unmute lines during roll call and during discussion segments of meeting. If you have questions or comments during other times, please use the hand raising option or send a chat message to Diana within Zoom.

Please make sure you are signed in to only ONE audio connection (either computer OR phone, not both) – to avoid issues with sound/echoes. Just muting your sound on the computer, while being connected by phone will not work.

If you need technical assistance during the meeting,
please email or call Naomi;
Naomi.Lopez-Solano@ucsf.edu
415.502.1370

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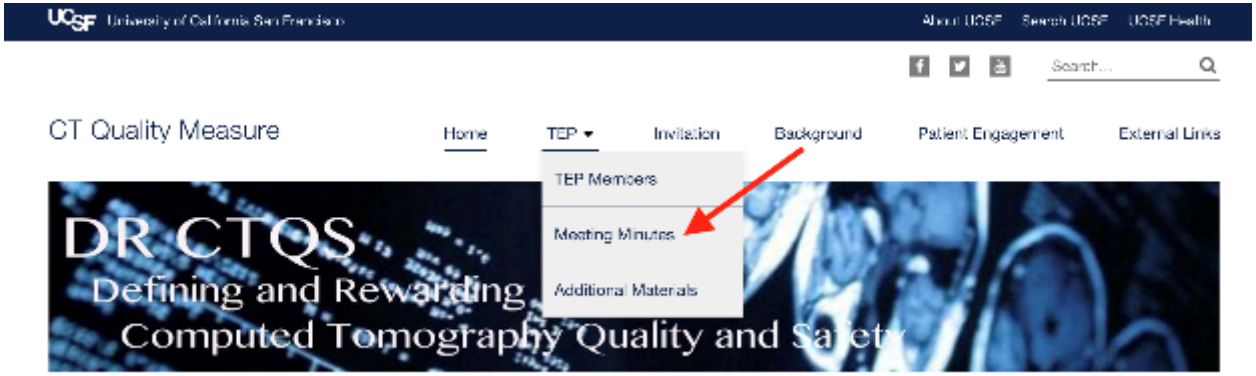
Hover over TEP (on the top menu), then select Meeting Minutes



DR CTQS - TEP Website

Minutes Posted

What Constitutes a Conflict?

- You, your spouse, your registered domestic partner, and/or your dependent children
  - 1. Received income or payment as an employee, consultant or in some other role for services or activities related to diagnostic imaging?
  - 2. Currently own, or have held in the past 12 months, an equity interest in any health care related company which includes diagnostic imaging as a part of its business?
  - 3. Hold a patent, copyright, license or other intellectual property interest related to diagnostic imaging?

What Constitutes a Conflict?

- You, your spouse, your registered domestic partner, and/or your dependent children
  - 4. Hold a management or leadership position (i.e., Board of Directors, Scientific Advisory Board, officer, partner, trustee, etc.) in an entity with an interest in diagnostic imaging?
  - 5. Received and cash or non-cash gifts from organizations or entities with an interest in diagnostic imaging?
  - 6. Received any loans from organizations or entities with an interest in diagnostic imaging?
  - 7. Received any paid or reimbursed travel from organizations or entities with an interest in diagnostic imaging?

Conflict of Interest Statements

- Each of you has submitted information to UCSF on your conflicts
- Following order on next slide please state your name, affiliation, and any conflicts you recorded on those forms
- Please state any updates in conflicts since completing the form

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San Francisco

Roll Call

TEP Chair
Helen Burstin, MD, MPH, FACP

Members
Mythreyi Bhargavan Chatfield, PhD
Niall Brennan, MPP
Jay Bronner, MD
Missy Danforth,
Tricia Elliott, MBA, CPHQ
Jeph Herrin, PhD
Hedvig Hricak, MD, PhD
J. Leonard Lichtenfeld, MD, MACP
Matthew Nielsen, MD, MS
Debra P. Ritzwoller, PhD
Lewis G. Sandy, MD, FACP
M. Suzanne Schrandt, JD
J. Anthony Seibert, PhD
Arjun Venkatesh, MD, MBA, MHS
Todd Villines, MD, FSCCT
Kenneth Wang, MD, PhD

Ex officio (non-voting) Members
Amy Berrington de Gonzalez, DPhil
Mary White, ScD

Measure Calculation and Reporting

Andrew Bindman

UCSF
University of California
San Francisco

Measure Concept

- To identify diagnostic CT scans that are performed in an unsafe manner, either because they utilize excessive radiation doses (given the clinical indications for imaging) or because they have low image quality, undermining their diagnostic value

- Balancing measure:
  - Indiscriminate efforts to reduce radiation dose may compromise image quality
  - Indiscriminate efforts to improve image quality may lead to excess radiation

Measure Concept

- Unit of analysis: individual CT scan
- Level of analysis: practitioner or practitioner group
- Each CT scan will be put into a category for the anatomic area and indication, based on information on why the study was done
- Each CT scan will then be assessed for "failure" on either of two criteria:
  - Is the radiation dose too high for that category?
  - Is the image quality too low?
- Failure rate interpretation similar to a mortality rate – higher is worse

Derived Components

- Radiation Dose
  - Compared against a threshold specified by anatomical area and clinical indication category (CT category = CT-CAT)
  - Adjusted for patient size
- Image quality
  - Above or below global image noise threshold of adequacy within CT-CAT

or

  - Above or below AI assessment of adequacy within CT-CAT

Setting Thresholds

- Guidelines
- UCSF Dose Registry
- Image Quality Study

Specific Variables

Red x = software calculated value

	Data Element	Claims	PACS. CT SCAN RDSR	PACS: CT SCAN IMAGES	Output: CMS	Output: Physician
1	Patient ID	x	x	x		Yes
2	CT Scan Date and time	x	x	x		Yes
3	Accession Number (unique for each CT scan)	x	x	x		Yes
4	Practitioner NPI	x			Yes	Yes
5	Practitioner TIN	x			Yes	Yes
6	Anatomic Area imaged	x				Yes
7	Diagnostic Codes Associate with Order Visit	x				Yes
8	Reason for Scan (CMS dose/quality category)	X: #6,7				Yes
9	Patient Size			X		
10	Total Dose		X			Yes
11	Risk adjusted dose		X: #8,9,10			Yes
12	Assessment of Risk Adjusted Dose		X: #8,9,10 + Thresholds			Yes
13	Global Noise			X		Yes
14	Assessment of Global Noise			X: #8,13 +Thresholds		Yes
15	Failure rate	X: #12,14	X: #12,14	X: : #12,14	Yes	Yes

How Measure Will Be Reported

- Either practitioner/practice group installs publicly available (UCSF developed) software and self reports to CMS with or without assistance of a 3rd party

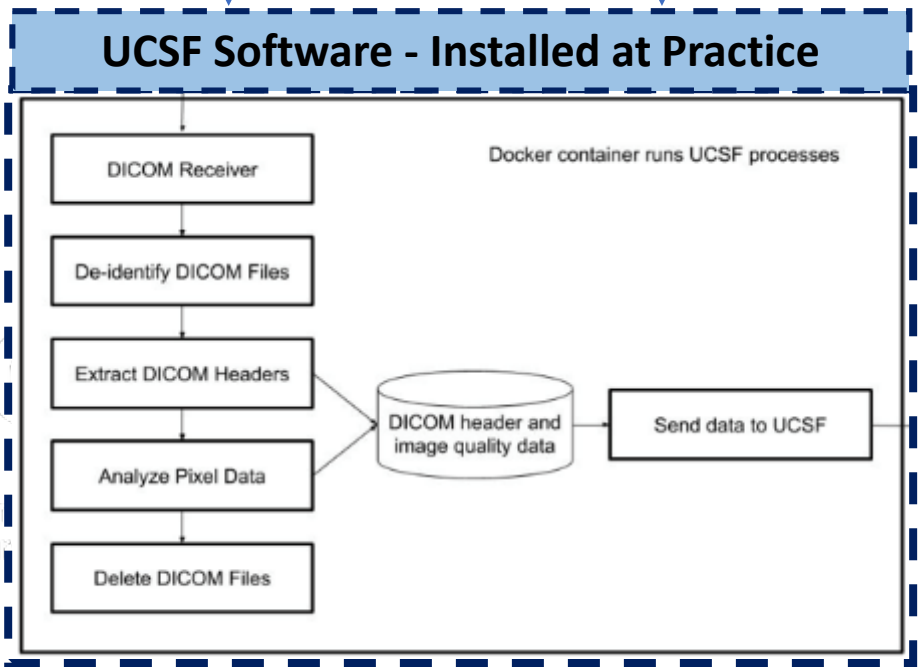
Or

- Practitioner/practice group submits all CT scans and associated claims data to a registry and then registry applies software to submitted information in order to generate reports to CMS and practitioner/practitioner group

Sources of Data for Reporting

Radiology Imaging data
iDicom Files (RDSR (dose), Images)
Linking variables

Claims data associated with test order
Including diagnoses and claims
Linking variables



Direct Reporting to CMS or via a 3rd party

Sources of Data for Reporting

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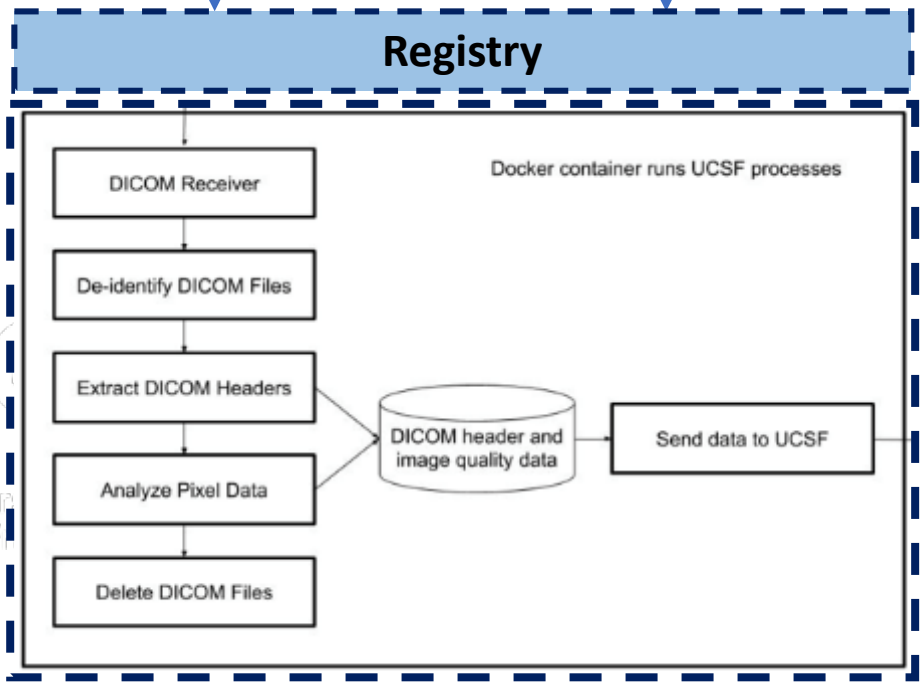

Direct Reporting to CMS

Nature of the Registry

- Repository of CT scans and linked claims
- Temporary holding space to calculate information needed for reporting but then either no data or limited data retained (e.g. de-identified dose and quality assessment but not images)

Questions

- Have we identified the right data elements to send to CMS and practitioners?
- How should we pursue reporting? Should we prioritize the registry approach?
- If we pursue a registry which approach for data storage?

Update On Alpha Testing

Rebecca Smith-Bindman

UCSF
University of California
San Francisco

Overview of Alpha Measure Testing Plan

- Purpose
  - Test application of inclusion and exclusion criteria
  - Categorize by anatomic area/clinical indication categories (CT CAT)
  - Calculate doses within CT-CAT
  - Compare doses within CT-CAT to expected doses adjusted for patient size
  - Evaluate distribution of observed vs expected to inform a failure rate

- Location: UCSF
  - Alpha 1 : Data from the UCSF International CT Dose Registry
  - Alpha 2 : Combines registry data with UCSF health data to assess validity of sorting scans into CT-CAT categories based on claims

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Update Alpha Testing Plan: Clinical Indication

- CT-CAT identified through literature review, empirical data from UCSF dose registry, and input of TEP members
  - TEP members gave initial input in May
  - TEP members asked to review and provide input on collated information in August

Results of Initial Request for Input

- Most indications should be routine with higher or lower dose exceptions
- Survey responses consistent for most categories
  - e.g. low dose = lung cancer screening, coronary calcification assessment, renal stones, CT for colon cancer screening
- Several areas where survey responses inconsistent
  - Angiography and assessment for cancer : routine versus high dose
  - Some of the inconsistency reflected misunderstanding of question
- Several comments described variation in dose (*can be done at low dose*) or identified nuanced cases (*follow up surveillance of brain CT can be low dose*)
- We collated answers, and asked TEP members to rereview and comment
- We opted for most frequent results and sought additional input of TEP members

Results of Second Request for Input

- We shared the final categories, listing all common indications for imaging and CT-CAT.
- All respondents approved the final categories
- A single new category was created (full body low dose CT for multiple myeloma)

Request for Input

	Indication 1	Indication 2	Indication 3	Indication 4	Indication 5	Indication 6	Indication 7
Head low dose	Sinus	Any skeletal bone (e.g. face)					
Head Routine	cancer	pain	trauma	hemorrage (e.g. stroke)			
Head - High Dose	stroke (perfusion imaging)						
Cardiac Low Dose	coronary calcium scoring						
Cardiac Routine	Coronary Angiography						
Cardiac High Dose	TAVR						
CHEST - Low Dose	lung cancer screening	lung nodule follow up					
Chest Routine	pulmonary embolism	lymphadenopathy	cancer (eval/ staging)	metastatic disease	infection	Interstitial lung disease	CT angiography
CHEST - High Dose	dissection						
Abdomen - Low Dose	Kidney stones	virtual colonoscopy	bladder evaluation				
Abdomen Routine	pain	cancer staging, metastasis	enterography	CT angiography			
Abdomen - High Dose	Pancrease	renal cancer, hematuria	urogram	liver	adrenal nodule	endograft leak, dissection	

Clinical Indications of Anatomic Areas with High and Low Dose CT-CATs

	Low		Routine		High	
SKULL	Sinus Cranial Floor Facial Skeleton Temporal Bone	#10				
BRAIN			**Head NOS** Trauma Stroke (rule out bleed) Pain Cancer	#11	Angiography/perfusion imaging	#12
CHEST	Lung Cancer Screening Lung Nodule Follow up	#13	**Chest NOS** Angiography Chest Chest Cancer (suspected/ staging) Interstitial Lung Disease Trauma, infection Pulmonary embolism Metastatic disease	#14	Dissection	#15
CARDIAC	Coronary Calcium Scoring	#16	**Cardiac NOS** CTA Coronary	#17	TAVR	#18
ABDOMEN	Colonography - screening Suspected Kidney Stones Bladder evaluation	#19	**Abdomen/Pelvis NOS** Angiography - Abdomen/Pelvis Enterography/ GI Tract Trauma Cancer (suspected/staging) Pain Liver NOS	#20	Metastasis Angiography for Aortic injury or Endoleak HCC (evaluate for the presence of, staging of) Pancreas all indications Renal Mass (hematuria, gross or micro, cancer) Abdominal or GI Bleeding Adrenal nodule assessment Urogram	#21

List of CT-CAT

No High or Low Dose Exceptions in These Anatomic Areas

1. Chest abdomen/pelvis
2. Neck
3. C-Spine
4. T-Spine
5. L-Spine
6. T/L Spine
7. Upper Extremity
8. Lower Extremity

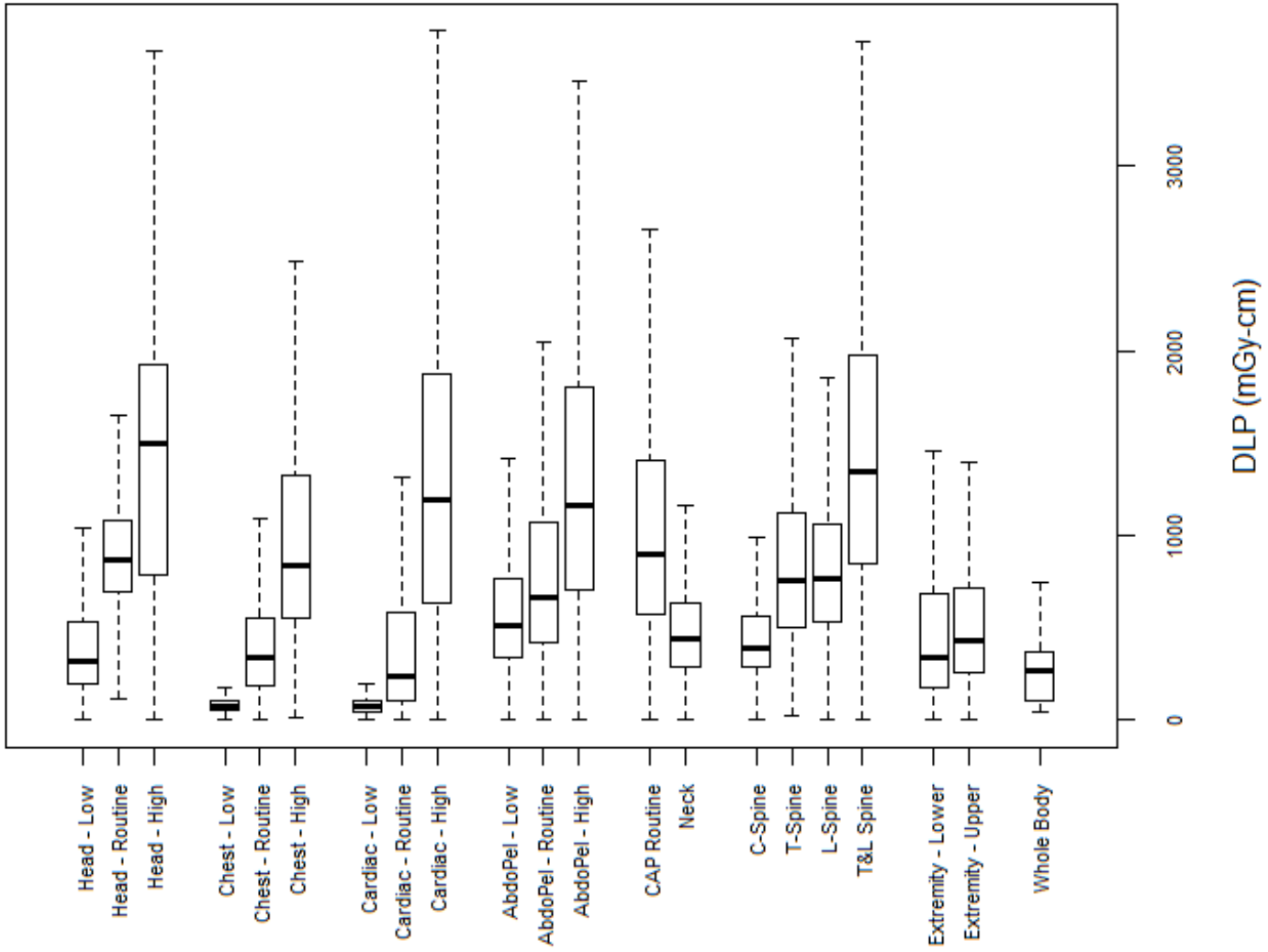
These Anatomic Areas Have High and Low Dose Exceptions

9. Full body (for multiple myeloma)
10. Head low dose (=skull)
11. Head routine dose
12. Head high dose
13. Chest low dose
14. Chest routine dose
15. Chest high dose
16. Cardiac low dose
17. Cardiac routine dose
18. Cardiac high dose
19. Abdomen low dose
20. Abdomen routine
21. Abdomen high dose

Observed Distribution and Doses of CT exams within CT-CAT Data from the UCSF Registry

	N		DLP (mGy-cm)	
Total CT Scans	3,133,072	(%)	Median	(25^{th}, 75^{th})
HEAD LOW	106,501	3%	308	(196 ,539)
HEAD ROUTINE	780,713	25%	859	(699 ,1058)
HEAD HIGH	32,511	1%	1506	(761 ,1910)
CHEST LOW	15,837	1%	73	(53 ,98)
CHEST ROUTINE	645,095	20%	325	(184 ,528)
CHEST HIGH	4,572	0%	844	(555 ,1337)
CARDIAC LOW	22,319	1%	63	(40 ,100)
CARDIAC ROUTINE	27,135	1%	235	(103 ,571)
CARDIAC HIGH	5,634	0.2%	1082	(560 ,1783)
ABDOPEL LOW	74,364	2%	504	(337 ,763)
ABDOPEL ROUTINE	819,440	26%	649	(415 ,1047)
ABDOPEL HIGH	83,718	3%	1185	(713 ,1822)
CAP ROUTINE	131,302	4%	907	(582 ,1412)
NECK	79,343	3%	431	(286 ,626)
C-SPINE	142,936	5%	390	(289 ,567)
T-SPINE	16,237	0.5%	735	(489 ,1088)
L-SPINE	111,512	4%	784	(547 ,1075)
ETREMITY - LOWER	17,089	0.5%	432	(262 ,707)
EXTREMITY - UPPER	16,401	0.5%	337	(172 ,692)
WHOLE BODY	413	0.01%	229	(101 ,342)

Observed Doses



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Potential to Further Simplify CT-CAT

- Some of the CT-CAT categories may be able to be combined

  e.g. Upper and lower extremity
  T-spine and L-Spine
  C-spine and neck
  Cardiac calcification and lung cancer screening

- We will use the results of the image quality study and physician's ratings of the adequacy to combine categories if the dose and image noise values are similar

Calculating CT-CAT Dose Thresholds

- For some indications for CT, there is a large difference between observed doses and optimized doses
  - Kidney stone CT, guidelines recommend low dose[< 4 msv] but are *typically* average dose [12 mSv]).
- There was consensus of TEP members to incorporate recommended rather than actual practice into thresholds.
- Additional guideline statements of specialty societies could support our efforts
  - CT urogram CT; CT cardiac

Alpha-2 Testing

- Purpose is to determine and validate that the indications for CT exams (CT-CAT) based on claims data are accurate.
- For each scan we will determine the clinical indication using claims and compare with the clinical indication using information in the registry (*reason for scan, study description* and *protocol name).*
- Chart review will be done when the CT-CAT determined the two approaches are different to determine the gold standard
- For each CT-CAT we will determine the accuracy of the claims

Identifying High Dose Chest CT Using Claims Data

Procedure codes (CPT/HCPCS)	
71275	Computed tomographic angiography, chest (noncoronary), with contrast material[s], including non contrast images, if performed, and image post-processing
or	
71260	Computed tomography, thorax; with contrast material
or	
71270	Computed tomography, thorax; without [contrast], followed by contrast material[s] and further sections

Diagnosis Codes (ICD-10-CM)	
I7100	Dissection of unspecified site of aorta
I7101	Dissection of thoracic aorta
I7102	Dissection of abdominal aorta
I7103	Dissection of thoracoabdominal aorta
I711	Thoracic aortic aneurysm, ruptured
I712	Thoracic aortic aneurysm, without rupture
I713	Abdominal aortic aneurysm, ruptured
I714	Abdominal aortic aneurysm, without rupture
I715	Thoracoabdominal aortic aneurysm, ruptured
I716	Thoracoabdominal aortic aneurysm, without rupture
I718	Aortic aneurysm of unspecified site, ruptured
I719	Aortic aneurysm of unspecified site, without rupture
R570	Cardiogenic shock
R571	Hypovolemic shock
R578	Other shock
R579	Shock, unspecified

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Questions

- Are you supportive of the proposed approach of categorizing CT scans into CT-CAT?
- Have we appropriately categorized those situations in which lower or higher doses than what are routinely needed by anatomic area?
- Is the approach for testing the validity of claims data for this purpose reasonable?

10 minute Break

We will resume at ____

Beta Testing

Rebecca Smith-Bindman

UCSF
University of California
San Francisco

Beta Testing Plan

- The goal is to test and validate the measure (and data elements needed for the measure) using data from diverse physician groups
- Diverse by practice size, geographic location, specialty and IT systems
- With each phase of testing we will make changes based on what we have learned from the previous stage

Beta Testing Plan

- **Beta 1 (Jan – Apr 2020)**

  = Alpha 2 + indication for imaging using claims (sorting CTs into different CT-CAT groups) + physician level analysis

- **Beta 2 (Aug – Nov 2020)**

  = Beta 1 + incorporation of specified dose and quality thresholds (incorporate image quality study results)

- **Beta 3 (Jan – Mar 2021)**

  = Beta 2 including non-radiologists (who will have a skewed distribution in CMS CT-CAT)+ incorporating assessment of physician burden

- **Beta 4 (Jun 2021)**

  = Beta 3 + incorporating public comment

Specific Variables and UCSF Software Testing

1	Patient ID	B1
2	CT Scan Date and time	B1
3	Accession Number (unique for each CT scan)	B1
4	Practitioner NPI	B1
5	Practitioner TIN	B1
6	Anatomic Area imaged	B1
7	Diagnostic Codes Associate with Order Visit	B1
8	Reason for Scan (CMS dose/quality category)	B1
9	Patient Size	B2
10	Total Dose	B2
11	Risk adjusted dose	B2
12	Assessment of Risk Adjusted Dose	B2
13	Global Noise	B2
14	Assessment of Global Noise	B2
15	Failure rate	B2
*	**Including non-radiologists and assessing physician burden**	**B3**
*	**Including modifications based on stakeholder and public comment**	**B4**

What We Will Analyze: Beta 1

- Beta 1 :
  - Calculate the proportion of CT scans that are included/excluded
    - based on whether in CT-CAT
    - Based on technical reasons (missing data)
  - Compare the distribution of scan types (CT-CAT) with that in UC Dose Registry
  - Compare dose distribution in each CT-CAT with those in UC Dose Registry

What We Will Analyze: Beta 2

- Beta 2 expands Beta 1 to additional sites

Plus

- Calculate the patient size to calculate expected dose
  - Evaluate percentage of scans where this can be done successfully

- Calculate global image noise to support assessment of image quality
  - Evaluate percentage of scans where this can be done successfully
  - Evaluate distribution of image noise by CT-CAT

What We Will Analyze: Beta 3 and Beta 4

- Beta 3 expands Beta 2 to additional sites

  Plus

  - Evaluate physician burden of reporting
    - Survey of practitioners
    - Experience with reporting
    - Time involved

- Beta 4 expands Beta 3 to additional sites

  Plus will incorporate responses from public comment

Approach for Choosing Beta-Testing Site

- Beta testers will either use software at their location or will send data to the UCSF Registry
- We are beginning the beta testing with radiologists, and will expand to include other specialties
  - We have identified a urology group
  - We welcome TEP member help
- We are considering testing in collaboration with one of the radiation dose management software vendors

Questions

- Is the approach for testing reasonable?
- Have we adequately addressed the different types of CT providers who would be reporting on this measure?

Measure Stewardship

Patrick Romano

UCSF
University of California
San Francisco

What is a Measure Steward?

- NQF Glossary: “An individual or organization that owns a measure is responsible for maintaining the measure. Measure stewards are often the same as measure developers, but not always. Measure stewards are also an ongoing point of contact for people interested in a given measure.”
- CMS Blueprint: “Measure developers create, edit, and submit measures to a designated steward… Stewards have permission to approve, reject, and publish measures… Stewards provide overall coordination and management of the measures created by developers…

NATIONAL QUALITY FORUM

MEASURE STEWARD AGREEMENT
BETWEEN
NATIONAL QUALITY FORUM
AND

This **MEASURE STEWARD AGREEMENT** (the "Agreement") is entered into by and between National Quality Forum ("NQF") and _____ ("Steward"), effective upon NQF's acceptance of the Agreement.

WHEREAS, NQF is a nonprofit organization whose mission is the improvement of the quality of American health care; and

WHEREAS, the evaluation of health care performance measures through an endorsement process is part of that mission; and

WHEREAS, Steward wishes certain health care performance measures to be considered for endorsement; and

Obligations of Stewardship

A. Steward must make the Measure specifications generally available for Permitted Uses, free of charge and on a non-discriminatory basis…

B. Steward must maintain the Measure throughout the period of endorsement. Steward's failure to maintain the Measure may result in the removal of endorsement.

C. If Steward changes a Measure following endorsement, Steward must notify NQF of the changes as soon as practicable and make them available to the public free of charge…

D. Steward agrees to cooperate with ad hoc reviews. Triggers for ad hoc reviews include, but are not limited to, a material change in a Measure or a change in evidence supporting the Measure.

E. Steward agrees to comply with guidelines that NQF may issue in connection with publicizing the status of the endorsed measure.

Stewardship is an Ongoing Commitment

If Steward does not wish to continue as Steward of a Measure, Steward must provide written notice to NQF as soon as practicable following such decision and such Measure will be handled in one of the following ways:

a. Steward may request removal of endorsement from the Measure…;

b. Steward may transfer stewardship of the Measure to an identified organization according to NQF process and the Steward will have no responsibility for such Measure;

c. Steward may authorize NQF to search for a replacement steward; or

d. NQF may remove Measure endorsement.

If Steward does not maintain the Measure and does not respond to NQF's inquiries regarding the Measure, NQF may, in its discretion, search for a replacement steward or remove endorsement…

Implications for CT Dose Measure

- Steward will need to maintain and support the measure for at least 3 years after NQF endorsement (2021/2022)
- Given rapidly evolving technology, maintenance and support is likely to require changing dose thresholds, risk-adjustment parameter estimates, and quality assessment (noise/AI) tools
- With very limited exceptions, Steward must make the measure and essential tools available “free of charge and on a non-discriminatory basis,” which limits revenue opportunities

Who Can Be a Steward?

Anyone who is willing to accept the obligations of stewardship:

- Most commonly, Federal agencies such as CMS, AHRQ, CDC, HRSA, and VA
- State and regional health departments
- National accrediting and certification organizations
- Professional “specialty” societies, including PCPI
- Employer, consumer, and multi-stakeholder coalitions
- Private vendors, including insurers and consultants
- Academic medical centers and other health systems
- Other 501(c)3 entities such as IHI, ICSI, AHA

Business Models for Stewardship

- Congressional appropriations to Federal agencies
  - Actual stewardship activities often delegated to contractors
  - Example: Measure Instrument Development and Support (MIDS)
- Membership dues or assessments
  - Typical for registry-based measures maintained by professional societies
- Accreditation or certification fees
  - The Joint Commission, NCQA, ACS Commission on Cancer
- Philanthropic support (limited for stewardship)
- User fees or product/service sales
  - Rare when measures developed with public resources
  - Conflict of interest issues (e.g., scanner manufacturers)

Business Models: What Usually Doesn't Work

- Relying on internal resources of academic organizations or other developers
- Hoping for grant support from foundations and other donors
- Selling stuff (especially for measures developed with public resources)

Opportunities and Threats

- Increasingly, stakeholders “expect” CMS to provide or support stewardship
- Provider organizations (e.g., ACR) may be perceived as having a vested interest in making the performance of accountable entities look better than it is
- Accrediting organizations may be perceived as having a vested interest in performing more surveys and reviews
- Who has a capacity and resources to handle “changing dose thresholds, risk-adjustment parameter estimates, and quality assessment (noise/AI) tools”?
- Steward must reflect all specialties that will report on the measure
- Stewardship relationships must be put into place BEFORE submission to NQF

Challenges for This Measure

- Resources to be the steward
- Resources to build a registry for data collection and reporting

Initial Responses from TEP on Measure Reporting & Stewardship

	Is your organization		
TEP Member	The steward for any NQF endorsed measures?	Involved in data reporting to CMS?	Receptive to considering a role in stewardship / CMS data reporting
J. Leonard Lichtenfeld, American Cancer Society	No	No	No
Jeph Herrin, Yale	No	No	No
Tricia Elliot, The Joint Commission	Yes	No, but we align the TJC submission with CMS	Yes
Jay Bronner, Radiology Partners	Yes	Not yet	Yes
Missy Danforth, Leapfrog	No	No	No
Arjun Venkatesh, Yale (Emergency Medicine)	ACEP (I am a volunteer)	ACEP reports to CMS via the ACEP QCDR	No
Hedi Hricak, MSK (Radiology)	No	No	Unsure
Mythreyi Chatfield, American College of Radiology	Yes	Yes	Yes
Todd Villines, Cardiology	No	No	Yes

Questions

- What advice do you have for UCSF for how it should prepare to be a measure steward for the radiation measure?
- If CMS is not able to directly fund the role of measure steward or to financially support measure reporting how do you think UCSF should pursue a business model to support these roles?
- What are the potential strengths and challenges of UCSF working with different partners to be able to perform the stewardship and measure reporting roles?

Wrap Up & Next Steps

- Thank you for your attention and input
- The University of California team will reflect on advice and develop a plan in cooperation with CMS on next steps
- Information about this TEP meeting and future meetings will be posted at ctqualitymeasure.ucsf.edu
- We will be reaching out to you soon to set the date for the next TEP meeting (April 2020)
- Honorarium request reminder

We are adjourned!

DEFINING AND REWARDING COMPUTED TOMOGRAPHY QUALITY AND SAFETY

TEP Meeting #3 Minutes

Meeting Date: 10/01/2019
Meeting Time: 9:00am-12:00pm Pacific
Meeting Location: Virtual Conference via Zoom
Approval Date: 10/29/2019
Recorded by: UC Team

Project Overview:

The Centers for Medicare & Medicaid Services (CMS) has granted an award to the University of California San Francisco (UCSF) to develop a measure of computed tomography (CT) image quality and radiation safety. The project is a part of CMS's Medicare Access & CHIP Reauthorization Act (MACRA)/Measure Development for the Quality Payment Program. The project title is "DR CTQS: Defining and Rewarding Computed Tomography Quality and Safety". The Cooperative Agreement number is 1V1CMS331638-02-00. As part of its measure development process, UCSF convened groups of stakeholders and experts who contributed direction and thoughtful input to the measure developer during measure development and maintenance.

Project Objectives:

The goal of the project is to create a quality measure for CT to ensure image quality standards are preserved and harmful effects of radiation used to perform the tests are minimized. Radiation doses delivered by CT are far higher than conventional radiographs (x-rays), the doses are in the range known to be carcinogenic, and there is a significant performance gap across health care organizations and clinicians which has consequences for patients. The goal of the measure is to provide a framework where health care organizations and clinicians can assess their doses, compare them to benchmarks, and take corrective action to lower them while preserving the quality of images so that they are useful to support clinical practice. The measure will be electronically specified using procedural and diagnostic codes in billing data as well as image and electronic data stored with CT scans, typically stored within the Picture Archiving and Communication Systems (PACS) - the computerized systems for reviewing and storing imaging data or Radiology Information Systems (RIS).

TEP Objectives:

In its role as a measure developer, the University of California San Francisco is obtaining input from a broad group of stakeholders to develop a set of recommendations to develop a radiology quality and safety measure. The proposed measure will be developed with the close collaboration of the leadership from diverse medical societies as well as payers, health care organizations, experts in safety and accreditation, and patient advocates. A well-balanced representation of stakeholders on the TEP is intended to ensure the consideration of key perspectives and obtain balanced input.

Scope of Responsibilities:

The TEP's role is to provide input and advice to the measure developer (University of California San Francisco) related to a series of planned steps throughout the 3-year project. The specific steps will include developing and testing a risk-adjusted measure which can be used to monitor CT image quality in the context of minimizing radiation doses while maintaining acceptable image quality. The TEP will assist UCSF in conceptualizing the measure and any appropriate risk adjustment of it. The TEP will assist UCSF with identifying barriers to implementing the proposed measure and test sites in which the developer can assess the feasibility and

performance of its use. The TEP will assist UCSF with interpreting results obtained from the test sites and in suggesting modifications of the measure prior to it being incorporated into a software tool which will be made available to providers to enable them to report and monitor their performance. The TEP will provide input and advice to UCSF regarding the software tool to ensure that it is valuable for a wide range of stakeholders and CMS.

Guiding Principles:

Participation on the TEP is voluntary. Individuals participating on the TEP understand that their input will be recorded in the meeting minutes. Proceedings of the TEP will be summarized in a report that may be disclosed to the general public. If a participant has disclosed private, personal data by his or her own choice, then that material and those communications are not deemed to be covered by patient-provider confidentiality. Questions about confidentiality will be answered by the TEP organizers.

All potential TEP members must disclose any significant financial interest or other relationships that may influence their perceptions or judgment. It is unethical to conceal (or fail to disclose) conflicts of interest. However, the disclosure requirement is not intended to prevent individuals with particular perspectives or strong points of view from serving on the TEP. The intent of full disclosure is to inform the TEP organizers, other TEP members and CMS about the source of TEP members' perspectives and how that might affect discussions or recommendations.

All potential TEP members should be able to commit to the anticipated time frame needed to perform the functions of the TEP.

Estimated Number and Frequency of Meetings:

TEP is expected to meet three times per year either in-person or via a webinar.

Table 1. TEP Member Name, Title, and Affiliation

Name	Title	Organization
Attendees		
Niall Brennan, MPP	CEO	Health Care Cost Institute
Helen Burstin, MD, MPH, FACP	Executive Vice President	Council of Medical Specialty Societies
Mythreyi Bhargavan Chatfield, PhD	Executive Vice President	American College of Radiology
Jay Bronner, MD	President and Chief Medical Officer	Radiology Partners
Missy Danforth	Vice President of Health Care Ratings	The Leapfrog Group
Tricia Elliot, MBA, CPHQ	Director, Quality Measurement	Joint Commission
Jeph Herrin, PhD	Adjunct Assistant Professor	Yale University
Hedvig Hricak, MD, PhD	Radiology Chair	Memorial Sloan Kettering Cancer Center

Name	Title	Organization
Attendees		
Leonard Lichtenfeld, MD, MACP	Interim Chief Medical Officer	American Cancer Society, Inc.
Matthew Nielsen, MD, MS	Professor	UNC Gillings School of Global Public Health
Debra Ritzwoller, PhD	Patient	Patient Representative
Lewis Sandy, MD	Executive Vice President, Clinical Advancement	UnitedHealth Group
Mary Suzanne Schrandt, JD	Patient	Patient Representative
Arjun Venkatesh, MD, MBA, MHS	Assistant Professor	Yale School of Medicine
Kenneth Wang, MD, PhD	Adjunct Assistant Professor	University of Maryland, Baltimore
Not in Attendance		
Anthony "Tony" Siebert, PhD	Professor	University of California, Davis
Todd Villines, MD, FSCCT	Professor and Director of Cardiovascular Research and Cardiac CT Programs	University of Virginia

Ex Officio TEP		
Amy Berrington de Gonzalez, DPhil	Branch Chief & Senior Investigator	National Cancer Institute; Division of Cancer Epidemiology & Genetics, Radiation Epidemiology Branch
Mary White, ScD	Chief, Epidemiology and Applied Research Branch	Centers for Disease Control and Prevention
CMS & CATA Representatives		
Janis Grady	Project Officer	Centers for Medicare & Medicaid Services
Marie Hall	CATA Team	Health Services Advisory Group
UC Team		
Rebecca Smith-Bindman, MD	Principal Investigator	University of California, San Francisco
Andrew Bindman, MD	Principal Investigator	University of California, San Francisco
Patrick Romano, MD, MPH	Co-Investigator	University of California, Davis
Naomi López-Solano, CCRP	Project Manager	University of California, San Francisco
Diana Ly, MPH	Project Manager	University of California, San Francisco
Susanna McIntyre	Research Assistant	University of California, San Francisco

Technical Expert Panel Meeting
Prior to the meeting, TEP members received a copy of the agenda, presentation slides, link to DR-CTQS study website which contains minutes from the prior TEP meetings, honorarium documentation, and a conflict of interest form. The meeting was conducted with the use of PowerPoint slides.

9:00 AM Call meeting to order by TEP Chair Dr. Helen Burstin

Dr. Helen Burstin called the meeting to order. She noted that the meeting will last for three hours with a break at the halfway point and will include a discussion period after each presentation.

9:05 AM Roll Call and Updated Conflicts Dr. Helen Burstin

TEP Members and Ex Officio members attendance listed above.

Conflict of interest defined as you, your spouse, your registered domestic partner, and/or your dependent children:

1. received income or payment as an employee, consultant or in some other role for services or activities related to diagnostic imaging
2. currently own, or have held in the past 12 months, an equity interest in any health care related company which includes diagnostic imaging as a part of its business
3. hold a patent, copyright, license or other intellectual property interest related to diagnostic imaging
4. hold a management or leadership position (i.e., Board of Directors, Scientific Advisory Board, officer, partner, trustee, etc.) in an entity with an interest in diagnostic imaging
5. received and cash or non-cash gifts from organizations or entities with an interest in diagnostic imaging
6. received any loans from organizations or entities with an interest in diagnostic imaging
7. received any paid or reimbursed travel from organizations or entities with an interest in diagnostic imaging

COIs were disclosed to UCSF prior to this TEP meeting via paperwork. No members had new financial conflicts that precluded their participation. TEP members were also asked to verbally disclose any COIs when introducing themselves for the purpose of group transparency. TEP members re-stated their affiliations and any existing conflicts. Dr. Helen Burstin stated her affiliation as the CEO of the Council of Medical Specialty Societies. She is now on the board of the Society to Improve Diagnosis in Medicine, although this is not a conflict of interest. Dr. Jay Bronner stated no new conflicts of interest. Dr. Jeph Herrin stated his affiliation with Yale University, and no new conflicts of interest. Dr. Matthew Nielsen reported his affiliation with the University of North Carolina. He noted he is the Quality Improvement Chair at the American Urological Association,

however this association is not directly related to imaging. Dr. Debra Ritzwoller stated her affiliation with Kaiser Permanente Colorado and as a patient/guardian stakeholder. Dr. Kenneth Wang noted his affiliation with the Veterans Administration in Baltimore and University of Maryland. Of note, he is participating on his personal time not representing government. His conflicts include a small start-up and occasional reimbursements from Radiology Society of North America. Dr. Mary White reported her affiliation with the Centers for Disease Control & Prevention and had no new conflicts of interest. Dr. Arjun Venkatesh reported no updates to conflicts of interest, but reminded the group that he works under contract with CMS for the development of hospital quality measures and quality rating systems, and also leads quality measure development for the American College of Emergency Physicians. Niall Brennan stated that he had no new conflicts and that he is currently the President and CEO of the Health Care Cost Institute. Dr. Hedvig Hricak is currently the Chair of the Memorial Sloan Kettering Cancer Center Department of Radiology. She disclosed her current conflict as a board member of IBA. Dr. Mythreyi Chatfield stated her affiliation with the American College of Radiology, as the Executive Vice President of Quality and Safety, and had no new conflicts of interest to disclose. Tricia Elliot restated her role as the Director of Quality Measurement at The Joint Commission, and no new conflicts of interest. Dr. Leonard Lichtenfeld reminded the panel of his role as the Interim Chief Medical Scientific Officer of the American Cancer Society. He did not have any conflicts but mentioned his stock ownership in Google and noted that they have some interest in using augmented intelligence in radiology analytics. Dr. Lewis Sandy stated his affiliation with UnitedHealth Group as the Executive Vice President of Clinical Advancement, and had no new conflicts of interest to disclose. Dr. Amy Berrington restated her role as the Branch Chief and Senior Investigator in the Radiation Epidemiology Branch at the National Cancer Institute, and had no new conflicts of interest to disclose. Suzanne Schrandt restated her role as the Director of Patient Engagement at the Arthritis Foundation, and did not have new conflicts to disclose. Finally, Missy Danforth restated her role as the Vice President of Health Care Ratings at the Leapfrog Group, and had no new conflicts to declare.

9:15 AM Measure Calculation & Reporting Dr. Andrew Bindman

The presentation began with a review of the measure concept to identify diagnostic CT scans that are performed in an unsafe manner, with a balancing measure to prevent compromised image quality or excessive dose. In terms of measurement, the level of analysis will be done on each individual CT scan. CT scans will be bundled to the level of the individual clinician, or to the associated clinician-group. Each CT scan will be put into a category combining the anatomic area scanned with the indicated reason for study so as to account for the varying dosage depending on clinical need for high quality images. After scans are categorized, they will be judged on image adequacy and dose appropriateness to determine the failure rate. There will be two derived components that go into this assessment: radiation dose and image quality. Radiation dose will be compared against a threshold specified by anatomic area and clinical indication, as well as adjusted for patient size. Image quality will be compared against a threshold of calculated

image noise, or compared against an artificial intelligence (AI) assessment of image quality adequacy. Setting of the thresholds will be driven by current clinical guidelines, evidence from the UCSF Dose Registry, and results from the DR-CTQS Image Quality Study. Currently there are 15 specific variables that contribute to the measure. These variables are either directly extracted or derived from combination of extracted variables from multiple sources including billing codes and diagnoses in claims data, PACS CT-scan RDSR, and PACS CT-scan images.

Next the presentation moved into reviewing potential methods for how the measure will be reported to CMS. The first option entails the reporting clinician/clinician-group installing publicly available software, developed by UCSF within its IT local environment. This software would have the capability of calculating the measure and enabling the clinician or clinician-group to self-report to CMS with or without the assistance of a 3rd party. The second option entails the clinician or clinician-group submitting all CT scans and associated billing code data to a registry. The registry will then analyze the data in order to calculate the failure rate and would report to CMS. If the registry approach is utilized, it is anticipated that the image data would be used to calculate the failure rate, but once the necessary calculations are completed, the registry will retain limited data, or no data at all. The size of the image files makes it impractical to retain all of them over time.

9:30 AM *Discussion*: **Measure Calculation & Reporting** **Dr. Burstin**

Discussion opened with talk of prospective challenges of the software required for retaining in a registry. TEP members reported on feedback that they had elicited from colleagues at their institutions that any software associated with the measure not be maintained on servers local to the imaging sites. A TEP member from a large radiology practice noted that the practice sites associated with his practice expressed anxiety about having software foreign to their institution interacting with patient imaging data. As a result TEP members expressed a strong preference for a registry model. TEP members identified the process of linking multiple data sources (claims, PACS, etc.) using protected health information (PHI) then de-identifying the data prior to its transmission to a registry could present some technical challenges. Concerns were expressed about the ability to scale the bandwidth required to maintain and grow an image registry. TEP members put forth the idea of seeking public comment on the approach of reporting.

Another concern voiced by some TEP members is that although the measure's intended use is to assess the quality of clinicians, the data needed to calculate the measure are often under the control and ownership of the hospital which maintains the data systems for hospital-based clinicians whose failure rate would be assessed by the measure. One TEP member pointed out the changing attitudes of hospitals; hospitals are beginning to view their data as a valuable asset, and they may not be willing to share the data for this purpose. It was also mentioned that many hospitals already receive several hundred data sharing requests on a monthly basis, and the proposed radiology measure could be a source of excessive burden if it also has an additional level of difficulty related to data security and governance. One TEP member commented that imaging centers may be more open to implementing the measure, as they have less of a stake in the asset value of their data. A panelist expressed knowledge of a hospital that was very interested in our measure for the value that it could bring to their patients.

Another concern that was expressed was about implementing the measure at the level of the individual clinician. There was concern about the reliability of reporting this measure at the individual clinician level. It was also stated that it might be a burden for an individual clinician to do all that is required. Participants suggested an option might be to apply this measure at the clinician-group TIN level. It was also suggested that applying this measure at the level of the facility might improve the reliability of the measure and ease the burden of reporting.

The UC Team acknowledged these concerns and will assess these as a part of the beta testing. If these concerns are found to be valid then the UC Team may recommend to CMS to apply this measure at the clinician-group level defined by a minimum size at the TIN level. The UC team will also explore whether the CMS testing program focused on facility level quality could also support and adopt the measure.

9:50 AM Update on Alpha Testing Dr. Rebecca Smith-Bindman

Dr. Smith-Bindman reviewed the elements of what is being tested as part of alpha testing using UCSF Health billing data and UCSF International CT Dose Registry data. The Registry data are used to: 1) test application of inclusion and exclusion criteria, 2) categorize by anatomic area & clinical indication, 3) calculate dose within each category, 4) compare observed dose to expected dose, 5) evaluate the distribution of observed vs. expected dose to inform the construction of a failure rate. Alpha testing phase 1 only uses data from the Registry, while alpha testing phase 2 combines Registry data with the UCSF electronic health record data to support the assessment of whether the method the UC Team creates to put CT scans into categories for assessment is valid. These CT-categories (named CT-CAT by the UC Team) were obtained through literature review, empirical data from the UCSF Dose Registry, and the input and expertise of the TEP members. For example, one TEP member alerted the UC Team to a previously unidentified category of full body low dose CT for multiple myeloma. Dr. Smith-Bindman noted that TEP members had provided feedback indicating they believed that when there was a discrepancy between observed doses in the field and recommended doses from guidelines that TEP members felt the guidelines should be the basis for setting of dose thresholds. In the end, the UC Team is proposing 21 CT-CAT categories, some of which have different radiation thresholds for different clinical indications within anatomic areas.

Dr. Smith-Bindman reviewed data on the distribution of CT-CAT within the UCSF Registry. Within the UCSF Registry, 71% of all CT scans are in CT-CAT that would use routine doses for the designated anatomical area. Dr. Smith-Bindman believes there is potential to combine some CT-CAT. For example, the anatomical distinction between different parts of the spine may not be necessary as the observed doses for those scans are remarkably similar. Future decisions about whether to combine CT-CAT will be informed by the results of the image quality study and clinicians' ratings of dose adequacy. The quality study will directly assess the image quality clinicians believe is required for different diagnostic tasks, and will be used to further refine the CT-CAT.

Dr. Smith-Bindman then turned to the topic of Alpha testing phase 2. In this phase of testing the UC Team is attempting to validate that the indications for CT exams based on claims data and diagnoses at the time the test was ordered are accurate. Accuracy is determined by comparing the

proposed approach with more robust clinical data available within the UCSF Registry and from UC Health. For cases where there is disagreement, we will be conducting chart review to support a gold-standard determination of the clinical indication against which to judge the accuracy of the approach using claims and diagnoses at the time the CT scan was ordered. The results of this testing phase will be presented at the next TEP meeting.

10:05 AM *Discussion*: **Alpha Testing** **Dr. Helen Burstin**

Discussion opened with a question regarding the source of the diagnostic codes used for determining clinical indication. Dr. Smith-Bindman clarified that the diagnostic codes would be gleaned from the clinician order rather than the diagnosis after the CT scan is performed. TEP members asked that the UC Team provide clarification on data sources moving forward. A TEP member asked the UC Team to provide the specific coding list and assessment of the completeness of the ICD-10 coding list. Dr. Smith-Bindman recommended that the question be deferred for discussion until the next TEP meeting, when the UC Team will have data to address it from testing and re-testing of the method on data from UCSF as well as external sites. The UC Team will share the accuracy of the approach for determining the CT-CAT and the accuracy tradeoffs involved with different algorithms. Dr. Romano also highlighted that the UC Team has an ICD-10 expert coder on the team to help with this process.

10:25 AM Quick Recess

10:35 AM Beta Testing **Dr. Rebecca Smith- Bindman**

Dr. Smith-Bindman began by reminding TEP members that Beta testing is designed to determine whether the approaches tested within the UCSF Dose Registry are generalizable to a wider variety of settings as would be needed for CMS quality reporting. Beta 1 testing will be performed in 6 sites and will support an assessment of the proportion of CT scans that are included or excluded and to enable a comparison of the distribution of CT scan types and dose distribution in the CT-CAT with what is observed in the UCSF Registry. Beta 2 testing will expand to additional sites, incorporate risk adjustments based on patient size, and include calculations of global image noise to support the assessment of image quality or potentially AI assessments of quality. Beta 3 testing will expand to additional external sites, potentially incorporate AI assessments of image quality, and capture information on the burden of reporting. The assessment of burden will be done by surveying clinicians, capturing their experience of collecting and preparing the data for reporting. Beta 4 testing will include modifications from earlier testing steps and any additional modifications related to requested public comments.

Beta testing may include applying software within the local practice or may evolve over time to just a registry model, depending on input from TEP members and testing sites. The UC Team will begin testing with radiologist groups, and in later rounds of Beta testing, expand to include sites where the CT scans are performed by other clinical specialties. For example, the UC Team has identified a urology group interested in serving as a Beta testing site, and the UC Team welcomes advice from TEP members about other potential testing sites. The UC Team is also

discussing the possibility of conducting testing in collaboration with one of the major radiation dose management software vendors in the United States.

10:55 AM *Discussion*: **Beta Testing** **Dr. Burstin**

TEP members asked about the role of non-radiologists during these testing phases. Dr. Smith-Bindman explained that a large proportion of CT scans are performed and sometimes interpreted, by non-radiologists. These include urologists, cardiologists, as well as a number of other specialties. Many of these specialties have their own CT scanners, and they bill to CMS, either for the technical fee alone, or for the total cost of the study. This moved into a discussion of who is held ultimately responsible for appropriate dosage: the clinician who interprets the CT scan or the personnel such as the technician at the facility performing the scan. There was a discussion about possible tension between those who perform the scans and those who read them, and who are to be responsible for the work of ensuring they are done in a safe manner. TEP members suggested investigating how many non-radiologists are billing to CMS for interpretation of CT scans. There was discussion but no clear consensus among TEP members as to whether the proposed radiation measure should be applied only to the clinician who interprets the scan or if the facility that performs the scan should also be held accountable. One TEP member suggested, and several TEP members were supportive, of an approach in which both the clinician and the facility share responsibility and any incentives.

Another TEP member raised a question of whether a different standard for judging performance should be applied to radiologists versus non-radiologists who read CT scans. The point was made that non-radiologists might need higher doses to make up for less expertise in reading CT scans. A TEP member representing patient interests touched upon the need to focus on what is best for the patient, i.e., the best dose possible regardless of the specialty of the clinician reading the scan.

The UC Team agreed with this perspective and noted that there are no data to support a recommendation for using different doses for the same test based on whether the clinician is a radiologist or a non-radiologist. The UC Team noted that some consideration was given to the idea of including non-radiologists in the image quality study but the UC Team decided this was impractical because non-radiologists would generally not be able to read scans outside of the narrow clinical area in which they furnish services.

11:15 AM **Measure Stewardship** **Dr. Patrick Romano**

Dr. Romano began by describing the definition of a measure steward, as defined by both the NQF Glossary and the CMS Blueprint. Dr. Romano also provided an example of the agreement between NQF and the measure steward. The ongoing commitment of measure stewardship was emphasized. The measure steward for the radiation measure would need to anticipate maintaining support for the measure for at least 3 years after NQF endorsement. The UC Team is currently planning to submit the measure for endorsement in the 2021/2022 cycle, meaning that a steward would have to be prepared to sustain the measure three years beyond that time. Dr. Romano pointed out that the rapidly evolving technology in this field requires refinement of the

dose thresholds, risk-adjustment parameter estimates, and the image quality assessment/AI tools. Dr. Romano stated that measures are most commonly stewarded by federal agencies such as CMS, CDA, VA, etc. State and regional health departments are also known to serve as measure stewards, as well as national accrediting and certification organizations. Business models for stewardship was then described. These include congressional appropriations to federal agencies, membership dues, accreditation or certification fees, philanthropic support, or user fees and service sales. Some business models that typically do not work for measures developed with public resources include: relying on internal resources of the measure developer, wishful thinking for grant support from donor foundations, or user fees. Dr. Romano identified potential opportunities and threats related to stewardship of the proposed radiation measure. First, CMS has stated that it will not be able to provide financial resources for measure stewardship after the project period ends. Opportunities to develop a business model may be hampered by any expectations that CMS has for making the software tools that support the measure publicly available at no cost to clinicians. He emphasized that resources would be needed to support the necessary technical expertise to maintain the measure over time. He pointed out that there might be a role for a specialty society such as the American College of Radiology to act as a measure steward, but that this might be problematic given there are likely to be clinicians not in the specialty of radiology who would be assessed on this measure and would not report through the ACR. Dr. Romano also raised the possibility of an accrediting organization to play the role as measure steward, but that it might be challenging to find an organization that does accrediting in all of the settings in which CT scans are performed.

Prior to the TEP meeting, the UC Team asked TEP members to let the UC Team know of their organization's role in measure stewardship and reporting. Dr. Romano shared the results of the input. Out of the 19 TEP members, 9 responded to the UC Team's inquiry. Four representatives reported that their organization would under certain circumstances consider the role of stewardship of the quality measure. These organizations were the Joint Commission, Radiology Partners, American College of Radiology, and University of Virginia.

11:30 AM *Discussion*: **Measure Stewardship** **Dr. Burstin**

TEP members acknowledged the challenges of measure stewardship. One TEP member suggested a consortium model in which the relevant specialty societies would each financially support measure stewardship. It was also suggested that UC Team explore the potential of incorporating the measure into accreditation programs, such as the imaging accreditation program offered by the American College of Radiology (ACR). A TEP member representative of the ACR indicated that the ACR's current accreditation program is focused on the technical component of imaging, not the clinician component which is being targeted by this measure. The ACR did not express interest in a measure stewardship role related to assessing clinician performance. Another idea raised was for CMS to incorporate the measure into required hospital level reporting. It was discussed that this would facilitate reporting. In many settings, such as when a radiologist works in a hospital, the clinician who would be responsible for reporting the measure does not control the information systems that contain the required data. In such cases, the clinician could face significant barriers to reporting. On the other hand, if the facility that controlled the information system were also held accountable for the quality of the CT scans, then the barriers for reporting at the clinician level would be reduced. Such an approach could

also support the business case for maintaining the measure over time. When hospitals have been held accountable for other measures, they have typically contributed to registry fees which, were it to happen with the proposed radiology measure, it could help to support the maintenance of the proposed measure over time. A TEP member representative from the Joint Commission said that if the measure was also applied at the hospital level, then there would be interest for the Joint Commission to consider a role in measure stewardship. TEP members emphasized once again the challenges of producing the measure at the individual clinician level, and encouraged the UC Team to focus on the clinician-group or facility level. There was discussion about using the measure to assess both the facility level failure rate and clinician-group level failure rate. Another TEP member recommended contacting other academics who have taken on the role of measure steward and learning from their experience. A question was raised about whether single or multiple registries might be used to support the measure. TEP members responded that it was most practical to rely upon a single registry to ensure that the measure is captured and reported in a consistent manner.

The UC Team expressed appreciation for the TEP members input. Based on the discussion the UC Team has not identified any organization that is currently prepared to take on the role of measure steward if it is only applied at the practitioner level. Furthermore TEP members have identified a risk that the data needed to calculate the measure may be controlled by hospitals and other institutions where many of the clinicians work. The UC Team plans to discuss this risk with CMS to see if there are ways to apply the measure not only at the clinician/clinician group level but also at a facility level to make it more likely that the necessary data will be made available. Another important consideration for building a business case for the measure has to do with whether or not the measure will be required or optional. The UC Team will discuss this with CMS and share what it learns at an upcoming meeting of the TEP in order to further refine a business case for measure stewardship.

11:50 AM Wrap Up and Next Steps Dr. Bindman

The UC Team thanked the TEP members for their active engagement. TEP members were informed that the UC Team would carefully consider all of the input and discuss suggestions with CMS sponsors. The TEP would be updated on progress at upcoming meetings. The next TEP meeting is anticipated to be in-person in the spring of 2020. TEP members were reminded of the process to submit a request for an honorarium.

12:00 PM Meeting Adjourned Dr. Helen Burstin

Substitute W-9 & Supplier Information Form

SUPPLIER INFORMATION

1

NAME (as registered with the IRS)

TRADE NAME/DBA

PRIMARY ADDRESS (number, street, and apt or suite no)

REMITTANCE ADDRESS (if different from primary)

CITY, STATE, and ZIP+4 CODE

CITY, STATE, and ZIP+4 CODE

PHONE

FAX

EMAIL

TAX CLASSIFICATION

☐ INDIVIDUAL/SOLE PROPRIETOR ☐ C CORPORATION ☐ S CORPORATION
☐ PARTNERSHIP ☐ TRUST/ESTATE
☐ LLC – Tax Classification (C=C Corporation, S=S Corporation, P=Partnership) _____
☐ OTHER _____

EXEMPTIONS

EXEMPT PAYEE CODE (if any) _____
EXEMPTION FROM FATCA REPORTING CODE (if any) _____

TAXPAYER IDENTIFICATION NUMBER (TIN)

SOCIAL SECURITY NUMBER ¦ ¦

OR

EMPLOYER IDENTIFICATION NUMBER ¦

DUN & BRADSTREET NUMBER

UNSPSC CODE (if applicable)

PURCHASE ORDERS

2

PO FAX

PO EMAIL

Select **ONE** option below:

PAYMENT TERMS		DISCOUNT PAYMENT TERMS	REQUIREMENTS
☐ N30	**OR**	☐ 2%10,N30	Payment by ACH **AND** electronic invoicing
☐ N45	**OR**	☐ 1%20,N45	Payment by ACH **OR** electronic invoicing
☐ N60	**OR**	☐ 1%20,N60	None
☐ IMMEDIATE			Payment by Virtual Card/Payment Plus

Refer to the Guide on page 2 for electronic invoicing registration

BUSINESS DIVERSITY

3

FEDERAL CERTIFICATIONS
(self-certify on the federal System for Award Management website)

☐ ANC1 (Alaska Native Corp not certified as SDB with SBA)
☐ ANC2 (Alaska Native Corp not a small business)
☐ HBCU/MI (Historically Black College or Minority Institution)
☐ Hub Zone (Historically Under-Utilized Small Business)
☐ MBE (Minority Business Enterprise)
☐ SBE (Small Business Enterprise)
☐ SDB (Small Disadvantaged Business)
☐ SDVOSB (Service-Disabled Veteran-Owned Small Business)
☐ VOSB (Veteran-Owned Small Business)
☐ WBE (Women Business Enterprise)
☐ WOSB (Women-Owned Small Business)

STATE OF CALIFORNIA CERTIFICATIONS
(self-certify on the State of CA website)

☐ DBE (Disadvantaged Business Enterprise)
☐ DVBE (Disabled Veteran Business Enterprise)
☐ SBE (Small Business Enterprise)
☐ WBE (Women Business Enterprise)

ABILITY ONE PROGRAM

☐ ABILITY ONE

REQUESTER'S INFORMATION

4

UCSF CONTACT NAME

UCSF CONTACT EMAIL

UCSF CONTACT PHONE

CERTIFICATION

5

Under penalties of perjury, I certify that:

1. **The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and**
2. **I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and**
3. **I am a U.S. citizen or other U.S. person (defined in the instructions); and**
4. **The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.**

You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because of underreporting interest or dividends on your tax return. The Internal Revenue Service does not require your consent to any provision on this document other than the certifications required to avoid backup withholding.

SIGNATURE

DATE

PRINT NAME

TITLE

SUBMIT COMPLETED FORM TO ONE OF THE FOLLOWING

6

EMAIL (preferred): vendors@ucsf.edu

MAIL: UCSF Supply Chain Management
1855 Folsom St Ste 304
San Francisco, CA 94143-0910

Guide for the Substitute W-9 and Supplier Information Form

1. **SUPPLIER INFORMATION** – provide information about your company.

2. **PURCHASE ORDERS** – provide a fax number and/or email address for Purchase Order delivery and select only ONE of the seven payment terms options.

   PAYMENT TERMS:
   - N30 – payment is generated 30 days from invoice date
   - N45 – payment is generated 45 days from invoice date
   - N60 – payment is generated 60 days from invoice date
   - Immediate – payment is generated 1 business day after the invoice is processed and approved
   - 2%10,N30 – a 2% discount is taken if the invoice is paid within 10 days of the invoice received date; otherwise, invoice is paid in full 30 days from invoice date
   - 1%20,N45 – a 1% discount is taken if the invoice is paid within 20 days of the invoice received date; otherwise, invoice is paid in full 45 days from invoice date
   - 1%20,N60 – a 1% discount is taken if the invoice is paid within 20 days of the invoice received date; otherwise, invoice is paid in full 60 days from invoice date

   PAYMENT METHODS:
   - ACH – payment by electronic funds transfer. A business bank account is required.
   - Virtual Card/Payment Plus – payment via a one-time use virtual credit card number issued by US Bank. Once an invoice is processed, US Bank will provide the credit card information necessary to access and process the payment. Merchant interchange fees apply. Supplier information will be forwarded to US Bank to facilitate registration and payment notification.
   - Paper Check

   ELECTRONIC INVOICE SUBMISSION METHODS:
   - Transcepta – a third party service provider that handles supplier electronic invoice submissions for UCSF. Register at: http://connect.transcepta.com/ucsf
   - UCSF BearBuy Supplier Portal – an alternate method to submit invoices electronically. Register at: https://solutions.sciquest.com/apps/Router/SupplierLogin?CustOrg=UCSF

3. **BUSINESS DIVERSITY** – select all for which your business has self-certified as defined in the Ability One Program, the System for Award Management, or on the State of California website. Refer to the links for each program and the State of California for self-certification.

4. **REQUESTER'S INFORMATION** – provide your UCSF contact's name, email address, and phone number.

5. **CERTIFICATION** – sign and date the Certification.

Substitute W-9 Form Disclosures

PRIVACY ACT NOTICE:
Section 6109 of the Internal Revenue Code requires you to provide your correct TIN to persons who are required to file information returns with the IRS to report interest, dividends, and certain other income paid to you; mortgage interest you paid, the acquisition or abandonment of secured property; the cancellation of debt; or contributions you made to an IRA, or Archer MSA or HSA. The person collecting this form uses the information on the form to file information returns with the IRS, reporting the above information. Routine uses of this information include giving it to the Department of Justice for civil and criminal litigation, and to cities, states, the District of Columbia, and U.S. possessions for use in administering their laws. The information also may be disclosed to other countries under a treaty, to federal and state agencies to enforce civil and criminal laws, or to federal law enforcement and intelligence agencies to combat terrorism. You must provide your TIN whether or not you are required to file a tax return. Under section 3406, payers must generally withhold a percentage of taxable interest, dividend, and certain other payments to a payee who does not give a TIN to a payer. Certain penalties may also apply for providing false or fraudulent information.

PENALTIES:
Failure to furnish TIN. If you fail to furnish your correct TIN to a requester, you are subject to a penalty of $50 for each such failure unless your failure is due to reasonable cause and not to willful neglect.
Civil penalty for false information with respect to withholding. If you make a false statement with no reasonable basis that results in no backup withholding, you are subject to a $500 penalty.
Criminal penalty for falsifying information. Willfully falsifying certifications or affirmations may subject you to criminal penalties including fines and/or imprisonment.
Misuse of TINs. If the requester discloses or uses TINs in violation of federal law, the requester may be subject to civil and criminal penalties.

ADDITIONAL INSTRUCTIONS: See IRS Form W-9, Request for Taxpayer Identification and Certification.

ACH Enrollment Form

Electronic Funds Transfer Authorization

☐ New Request (Not available to individuals) ☐ Account Change ☐ Cancel

	PAYEE/COMPANY INFORMATION	
1	**NAME**	
	ADDRESS	
	CITY, STATE, and ZIP+4 CODE	
	A/R CONTACT NAME	**A/R CONTACT PHONE**
	BUSINESS EMAIL ADDRESS (for payment notification)	**EMPLOYER ID NO (EIN)**
	PREVIOUS BANKING INFORMATION (REQUIRED IF REQUESTING AN ACCOUNT CHANGE)	
2	**DEPOSITORY INSTITUTION NAME**	
	TRANSIT ROUTING NUMBER	**ACCOUNT NUMBER**
	NEW BANKING INFORMATION	
3	**DEPOSITORY INSTITUTION NAME**	
	TRANSIT ROUTING NUMBER	**ACCOUNT NUMBER**
	ACCOUNT TYPE ☐ CHECKING ☐ SAVINGS	

IMPORTANT NOTE: The person signing the Authorization must be a designated officer from the Finance Department and a person other than the contact listed above.

	AUTHORIZATION	
4	I hereby authorize the University of California San Francisco (UCSF) to initiate electronic transfer of funds to the account stated above using the National Automated Clearing House (NACHA) Cash Concentration or Disbursement (CCD) for settlement of invoices. If funds to which I, or the company I represent, am not entitled are deposited in the account stated above, I authorize the University to initiate a correcting (debit) entry. This authorization will remain in effect until UCSF receives written notification of its termination. I understand payment details will be sent to the business email address provided above.	
	SIGNATURE	**DATE**
	PRINT NAME	**TITLE**

ATTACH A VOIDED CHECK OR BANK VERIFICATION LETTER TO CONFIRM ACCOUNT INFORMATION

	SUBMIT FORM AND REQUIRED DOCUMENTATION TO ONE OF THE FOLLOWING	
5	**EMAIL (preferred):** vendors@ucsf.edu	**MAIL:** UCSF Supply Chain Management C/O Supplier Registration 1855 Folsom St Ste 304 San Francisco, CA 94143-0910

Conflict of Interest Declaration for Technical Expert Panel (TEP) to Develop a Radiation Quality and Safety Measure

Please answer each of the questions below and submit the completed form to the University of California San Francisco (UCSF). UCSF will confirm prior to each TEP meeting that the information you have submitted is up to date and if you indicate that it is not, we will ask you to provide an update as a part of your participation in the TEP.

1. Have you, your spouse, your registered domestic partner, and/or your dependent children received income or payment as an employee, consultant or in some other role for services or activities related to diagnostic imaging?

☐ No ☐ Yes (please describe each person as well as all roles with specified organizations)

1.

2.

3.

4.

5.

2. Do you, your spouse, your registered domestic partner, and/or your dependent children currently own, or have held in the past 12 months, an equity interest in any health care related company which includes diagnostic imaging as a part of its business?
DO NOT REPORT Mutual Funds or Index Funds.

☐ No ☐ Yes (please describe each person and the equity interests)

1.

2.

3.

4.

5.

3. Do you, your spouse, your registered domestic partner, and/or your dependent children hold a patent, copyright, license or other intellectual property interest related to diagnostic imaging?

☐ No ☐ Yes (please describe each person and nature of the patent, copyright, license, or other intellectual property)

1.

2.

3.

4.

5.

4. Do you, your spouse, your registered domestic partner, and/or your dependent children hold a management or leadership position (i.e., Board of Directors, Scientific Advisory Board, officer, partner, trustee, etc.) in an entity with an interest in diagnostic imaging?

☐ No ☐ Yes (please describe each person and nature of the patent, copyright, license, or other intellectual property)

1.

2.

3.

4.

5.

5. Have you, your spouse, your registered domestic partner, and/or dependent children received and cash or non-cash gifts from organizations or entities with an interest in diagnostic imaging?

☐ No ☐ Yes (please describe each person, whether the gift was cash or non-cash, and the organization which provided the gift)

1.

2.

3.

4.

5.

6. Have you, your spouse, your registered domestic partner, and/or dependent children received any loans from organizations or entities with an interest in diagnostic imaging?

☐ No ☐ Yes (please describe each person who received any loans and the organization which provided it)

1.

2.

3.

4.

5.

7. Have you, your spouse, your registered domestic partner, and/or dependent children received any paid or reimbursed travel from organizations or entities with an interest in diagnostic imaging? Do not include travel paid/reimbursed by (a) local, state or federal governments; (b) US institutions of higher learning; (c) academic teaching hospitals or medical centers; or (d) research institutions affiliated with US institutions of higher education.

☐ No ☐ Yes (please describe each person who received paid or reimbursed travel as well as the organization which provided it)

1.

2.

3.

4.

5.

Printed Name_____

Signature _____ Date Signed_____

Email completed form to Naomi.Lopez-Solano@ucsf.edu