

Carequality Advisory Council Monthly Call

Accelerating seamless, interoperable health information exchange

December 3, 2014



Agenda

Discussion Topic	Facilitator	Time
Call to Order Review Agenda Approve Meeting Notes	Matt Eisenberg, MD, Stanford Laura McCrary, KHIN	1:00 – 1:05
Steering Committee	Michael Hodgkins, MD, MPH, AMA Kathy Lewis, Surescripts	1:05 – 1:10
Trust Framework Work Group	Marc Chasin, MD, St. Luke's Steve Gravely, Troutman Sanders	1:10 – 2:10
Query Workgroup	Hans Buitendijk, Siemens Seth Selkow, Kaiser Permanente	2:10 – 2:20
Performance Measures Subgroup	Laura McCrary, KHIN	2:20 – 2:25
Next Steps	All	2:25 – 2:30

Carequality Advisory Council

Representative Group	#	Applicant Name	Organization
Behavioral Health / Consumer	1	Christina Van Regenmorter	Centerstone
Network	2	Paul Matthews	OCHIN
	3	Laura McCrary	KHIN
	4	Keith Willard	Surescripts
Other Type of Healthcare Setting	5	Renee Smith	Walgreens
	6	Rich Brennan	National Association for Home Care & Hospice (NAHC)
Governmental agencies, federal, state or local	7	Margaret Donahue	Veterans Health Administration
	8	Barclay Butler	Department of Defense
Healthcare Physician	9	Sandy Chung	Fairfax Pediatric Associates
	10	Matt Reid	AMA
Healthcare Provider Organization	11	Matthew Eisenberg , Chair	Stanford Health Care
	12	Andrew Kling	Geisinger
	13	Marc Chasin	St. Luke's Health System
Vendor	14	Peter Devault	Epic
	15	Brian Ahier	Medicity
	16	AJ Peterson	Netsmart (LTPAC)
Public Health	17	John Loonsk	CGI Federal/JHU Ctr for Pop Health IT
Health Plan	18	Candidate identified – SC approval 12/4	
Standards development organizations	19	Chuck Jaffe	HL7
	20	Dr. David Mendelson	IHE International
Patient Safety Organization	21	Ronni Solomon	ECRI
Research	22	Shaun Grannis	Regenstrief Institute
Accreditation, Certification or testing	23	Alisa Ray	Consultant
Subject Matter Experts	24	Erik Pupo	Deloitte
	25	Lorraine Fernandes	IBM
	26	Aaron Goldmuntz	Center for Medical Interoperability

Steering Committee Report

Michael Hodgkins and Kathy Lewis



Steering Committee Next Steps

- Continue to provide guidance to the Trust Framework and the Query Work Groups
- Develop plan to operationalize Carequality process
 - Determine how use cases and principles can be legally enforceable
 - Explore options of verifying Implementer compliance
 - Develop plan to pilot and launch Carequality Implementer program
 - Establish process for Implementers to address disputes
 - Develop change management process, as well as process for identifying and prioritizing new use cases
- Prepare to approve Principles for Trust for pilot
- Develop strategy, plan and related budget for 2015 in coordination with Healthway
- Next meeting on 12/4, 12:30 – 2pm EST

Trust Framework Work Group

Dr. Marc Chasin and Steve Gravely



Summary of Work to Date

- Completed series of meetings/conference calls to develop set of universal and customizable principles for trust, including detailed examples
- Initial draft principles presented to Advisory Council and Steering Committee for input in October
- Revised draft principles and detailed examples presented to Advisory Council and Steering Committee for input on 11/7
- Comments due 11/20; few received
- Work Group consensus to present draft for final input from Advisory Council and Steering Committee approval on 11/25

Principles of Trust Overview

- Principles of Trust will guide each Use Case Work Group as they develop their deliverables
- Universal vs. Customizable Principles of Trust
 - Universal - applicable to every Use Case in exactly the same way, there is no variation
 - Customizable - applies to every Use Case but the Work Group will need to decide how to implement it on a Use Case by Use Case basis
- The Use Case Work Group will produce an Implementation Guide that all Implementers of the Use Case must adopt
 - The Implementation Guide must incorporate the Universal Principles of Trust and must address the Customizable Principles of Trust

How Will Carequality be Operationalized?

- Use Case and Implementation Guides establish requirements for Carequality Implementers
 - Business, technical and validation requirements
 - Customizable principles for trust tailored to that use case
- Those who wish to be a Carequality Implementer must
 - Select the use cases they wish to support
 - Declare their role in that use case
 - Successfully complete validation that their system, policies and processes comply with the Use Case and Implementation Guide
 - NOTE: The validation process could include any of the following: self-attestation, self-testing using available tools and resources, point to other existing testing and certification programs; or be a new method established by Carequality
 - Ongoing compliance will be legally enforceable (contractually or another legally enforceable mechanism)
 - Conduct exchange in a manner consistent with the Principles for Trust

Universal Principles

Overview

Steve Gravely, Troutman Sanders



1. HIPAA Compliance

- Carequality Implementers will protect the privacy and security of information exchanged through their networks or used in their services by adopting, at a minimum, the HIPAA privacy and security standards.
 - Example 1: An information exchange network, who is most likely a business associate (BA), is already required to comply with HIPAA
 - This Principle simply reinforces that requirement but does not expand it
 - Example 2: Certain Personal Health Records vendors are not covered entities (CE) or BAs under HIPAA and may *not* be required by state law to further protect information
 - As a Carequality Implementer, vendor must comply with the HIPAA Privacy and Security Rules as if a BA
 - Example 3: Social Security Administration (SSA) is not a CE or a BA under HIPAA, but must comply with FISMA and other, more stringent federal laws
 - Since already subject to stricter laws, only required to comply with applicable federal laws as a Carequality Implementer
 - Example 4: Two Implementers are based in different states and are subject to different state laws (e.g. TX – state law pre-empts HIPAA; CA – state law does not pre-empt HIPAA). Each must comply with HIPAA and applicable state laws.
 - The fact that both Carequality Implementers operate in different states will not cause either of them to be subject to the other's state law.

2. Comply with Use Case Implementation Guide

- Carequality Implementers will, to the extent not prohibited under applicable law, implement all mandatory aspects of the Use Case Implementation Guide (IG)
 - Example 1: Some Carequality Implementers will only request information and never provide information (“Requestor Only”) (e.g. SSA – for disability benefits). Others may only respond to requests, but never initiate requests (“Responder Only”)
 - The IG will identify which components apply to Implementers who serve different roles. (e.g. Responder Only Implementers would not be required to comply with the components applicable to “requesters”, etc.)
 - Example 2: The Query IG might include specific requirements for patient matching, mandatory or optional, and will specify to which role the requirements apply (e.g. initiators only, responders only, both)
 - If mandatory for responders, then every Carequality Implementer who serves as a responder is required to comply with the patient matching requirement unless doing so is prohibited by applicable law.
 - Example 3: The Query IG will likely include mandatory and optional components that vary based upon the role that the Implementer decides to implement, e.g. initiator, responder, both.
 - An organization would be allowed to become an Implementer for one role and then add more roles later.

3. Non Discrimination

- Carequality Implementers will promote interoperability by not discriminating against other Carequality Implementers.
 - Example 1: A Carequality Implementer participates in a use case that requires authorization-based queries. The Implementer wishes to only respond to authorization-based queries from SSA, but does not wish to respond to other authorization-based queries from other Carequality Implementers (e.g. payors, providers, ACOs). This violates the principle.
 - Example 2: A Carequality Implementer decides to not permit exchange with any Carequality Implementers who use a particular software or who are part another competing network. This violates the principle.
 - Example 3: A Carequality Implementer allows its customers to exchange information with each other without any additional legally binding arrangements. This same Implementer requires additional legal arrangements, above and beyond the Trust Principles, to enable their customers to exchange with other Carequality Implementers. This violates the principle.
 - Example 4: Carequality Implementer A requests information from all other Implementers, except Implementers B and C, since B and C simply do not have enough information to justify the request. This is a reasonable restriction to impose; therefore, Implementer A would not be violating the Non-Discrimination Principle.

4. Local Autonomy

- Carequality Implementers will be able to honor their local rules so long as such rules are applied consistently and do not unfairly / unreasonably limit interoperability
 - Example 1: A Carequality Implementer has implemented a local rule that it will only respond to requests based on treatment as the permitted purpose. The Implementer believes that this rule is consistent with its applicable law. Assuming that the Implementer never responds to requests for any other permitted purpose, the Implementer is permitted to honor this rule since it is applied consistently
 - Example 2: A Carequality Implementer has implemented a local rule (based upon policy, but not required by law) that it will only respond to requests from healthcare providers. If the IG includes a mandatory requirement that Implementers respond to requests from Permitted Users (which is defined more broadly), the Implementer must comply with this mandatory requirement
 - Example 3: A Carequality Implementer in TX has established business rules, based upon TX law, that allow it to respond to requests from other Carequality Implementers within TX, but prevent it from responding to requests from Carequality Implementers outside of TX. This would not violate the local autonomy principle as long as the Implementer does not respond to any requests outside of TX
 - Example 4: A Carequality Implementer has implemented an “opt-in” policy for its network, that is not required by applicable law. The Implementer will only release information in response to a request if an individual has “opted-in.” While this policy may inhibit exchange to the extent that individuals have not opted-in, this is a reasonable business rule that is consistent with Local Autonomy.

5. Accountability

- Each Carequality Implementer will be responsible and accountable for its own actions.
 - Example 1: In making an update to its system, a Carequality Implementer inadvertently implemented a change that made it non-compliant with the Carequality IG. This non-compliance led to a failure in interoperability with other Carequality Implementers. This failure in interoperability was brought to the attention of the Implementer. The Implementer must remedy this non-compliance or cease being a “Carequality Implementer.”
 - Example 2: In making an update to its system, a Carequality Implementer modified its software, which resulted in an unintended change to the functions governing Permitted Users. As a result of the modification, the Implementer allowed persons within its network to initiate requests for information even though those persons did not meet the definition of a Permitted User for that Use Case. Other Implementers, relying on the accuracy of the request responded with information. The non-compliant Implementer will be responsible for damages associated with its non-compliance.
 - Example 3: An end use connected to Carequality Implementer A’s network uses the network to obtain data from other Carequality Implementers for a malicious purpose in violation of the rules governing Implementer A’s network. The other Carequality Implementers from whom data was obtained suffer damages as a result of Implementer A’s end-user’s actions. Implementer A will be responsible for the damages incurred by other Carequality Implementers due to its user’s actions. Depending on the relationship between Implementer A and the end-user, Implementer A can then hold the end-user responsible for the damages incurred by Implementer A.

6. Cooperation

- Carequality Implementers will cooperate with each other on matters relating to interoperability and shared Use Cases.

- Example 1: Carequality Implementer A begins receiving complaints from its end-users that Carequality Implementer B has stopped responding to requests. In the spirit of cooperation, Carequality Implementer A will reach out to and notify Implementer B, who will work to identify and resolve the issue so that it resumes responding to requests. To the extent that Implementer A and B must work together resolve the issue, they will do so in a cooperative manner.
- Example 2: The Steering Committee will develop a process that enables Carequality Implementers to work together in a collaborative manner to resolve disputes (e.g. interpretation of a Carequality IG requirement). This type of dispute should be resolved through open communication in which Implementers agree to participate.
- Example 3: There might be situations in which an Implementer believes that its business is being damaged because another Implementer is not complying with its obligations as a Carequality Implementer. Instead of initiating legal proceedings, Carequality Implementers will agree to participate in dispute resolution process in hopes of resolving the dispute.
- Example 4: Implementers agree that they will commit personnel and resources to work collaboratively to develop new specifications that advance interoperability instead of working in “silos”.

7. Acceptable Use

- Carequality Implementers will only use the widespread interoperability that is available through use of the IG for permitted purposes as defined in the IG and on behalf of their customers.

- Example 1: If the Carequality Implementer is an EHR vendor, the Implementer may not request information for its own purposes independent of a request initiated by its end-user customer (e.g. to build a data warehouse).
- Example 2: A Carequality Implementer end-user might want to take advantage of the increased interoperability to request records from many sources to create its own database for use with its analytics tools for population health. Unless this is a permitted purpose, the Implementer cannot allow this.
- Example 3: Today, in the world of paper exchanges, once an end-user receives information in response to a request, that information becomes part of the end-user's official records. The end-user is allowed to re-use and re-disclose that information in accordance with applicable law. This will continue to be true in the world of electronic exchange. The difference is that the end-user's official record may be hosted or maintained by a Carequality Implementer. The Acceptable Use Principle prevents the Carequality Implementer from using that official record, to which it has access, for any purpose or in any way unless authorized by the end-user.

8. Universal Customer Flow Downs

- Carequality Implementers must ensure that their customers or network members agree to act in accordance with the applicable components of the IGs and have the ability to suspend or terminate those who fail to do so.
 - Permitted Purposes: Each Carequality Use Case Work Group will select from among a pre-determined list of acceptable Permitted Purposes the ones defined for that Use Case. All Carequality Implementers will be required to take measures to require that its network members and customers agree to only use the connectivity for a Permitted Purpose.
 - Cooperation: An Implementer will require its customers or network members cooperate with other Carequality Implementers (including their customers or network members) with respect to the Use Cases.
 - Non-Discrimination: Carequality Implementers must take steps to require that its customers or network members not discriminate against other Carequality Implementers, and their customers or network members. Without this requirement, the Non-Discrimination Principle would have little practical effect.

9. Identity Proofing & Authentication

- Carequality will adopt identity proofing and authentication requirements for all Implementers and will require Implementers to adopt measures that will ensure that only those who are allowed to access the Implementer's network or services do so.

10. Information Handling Transparency

- Carequality Implementers will make their information handling practices transparent and easily available to customers and the public.

Customizable Principles

Steve Gravely, Troutman Sanders



1. Permitted Purposes

- Permitted Purposes – Use Cases will only be used for certain permitted purposes.
- The primary goals of health information exchange networks and services are to improve the health of patients and the efficiencies of health care delivery. While those participating in HIE all share this common goal, they may desire to exchange information for a number of different purposes to reach this goal. Some of these purposes may be acceptable to all, while others may only be acceptable to a few. To ensure that expectations are clearly defined and that all Carequality Implementers understand for what reasons they can use an Implementation Guide, each Use Case Work Group will establish a list of specific "permitted purposes."

2. Permitted Users

- Permitted Users – Carequality Implementers will only allow permitted users to use their Use Case services.
- A code of conduct for health information exchange should not only describe what is expected of the participants regarding their health information exchange activities, but should also specifically identify the types of entities and individuals that will be allowed to participate in the health information exchange activity. These are the Permitted Users. By identifying the types of Permitted Users, the network can help ensure that only those who need to exchange information for legitimate purposes, and who have been identity proofed and authenticated, will be allowed to do so.
- To ensure that expectations are clearly defined and that all Carequality Implementers understand what types of organizations and individuals can use a Use Case, each Use Case Work Group will establish a list of specific "Permitted Users." Each Carequality Implementer will make sure that its customers, network members or end users that use the Use Case services are of the type that are allowed to be Permitted Users.

3. Full Participation

- Full Participation – Carequality Implementers will fully participate in the Use Cases that they implement.
 - Example: The Query/Retrieve Use Case Work Group may determine that for Carequality Implementers that act as “responders,” “full participation” means that they respond to all requests based on treatment as the permitted purpose. They may respond to requests based on other permitted purposes, but they can do so at their discretion, consistent with the Equality and Local Autonomy Principles. For purposes of this example, the Equality Principle would mean that an Implementer cannot pick and choose which other Implementers it will respond to and the Local Autonomy Principle would mean that an Implementer can refuse to respond based on its local rules, but that decision must be applied uniformly. The Work Group may further define a “response” to include both sending the requested data and sending a message that the requested data is not available. As long as the Implementer responds to messages based on treatment as the permitted purpose, it will meet its obligations to fully participate.

4. Service Level Agreements (SLA)

- SLAs – Carequality Implementers will meet the service level agreements (SLAs) for each Use Case in which they participate. Each Use Case Work Group will establish appropriate service level agreements (SLAs) for its Use Case. These SLAs may include performance expectations, system availability, response times, accuracy of matching, or data accuracy. For instance, for information in a provider directory, the Provider Directory Use Case may require that the Carequality Implementer provide an accurate list of provider names and end points/addresses. By contrast, the Query/Retrieve Use Case may require that any records exchanged be an accurate reproduction of the information in the customer's production electronic health record or other information system.

5. Data Sufficiency and Integrity

- Carequality Implementers will transact data sufficient to meet the Use Case goals and that is an accurate representation of the data the Implementer intends to transmit. A key challenge with health information exchange today is the lack of consistency around what information is provided in response to a request. This challenge has two distinct dimensions:
 - Data sufficiency: Given the absence of nationally accepted standards, there is wide variability in what information is actually provided in response to requests for information. Sometimes there is too much, non-relevant information and sometimes there is too little information. In either case, the data that is returned is of little value to the end user. A Use Case Work Group may develop specifications around data sufficiency to help ensure that data returned in response to a request is of value to the receiving end user.
 - Data integrity: All Carequality Implementers are at different stages with respect to the electronic data that is available for exchange. In some cases, information that is sent is unreadable by the receiving software (the issue of semantic interoperability) or the information is simply gibberish. There is a general recognition that if the end-user believes that the data is not “complete” or accurate, the information will have little value and the end-users will not continue to participate in exchange and interoperability initiatives.

Data Sufficiency and Integrity Examples

- Example 1: A Use Case Work Group may identify a minimum data set that must be transmitted in response to a request for information for purposes of treatment in connection with the administration of an immunization (assuming such transmission would not violate applicable law). The Use Case Work Group might also set a ceiling on what information is sent to avoid inundating the requestor with too much data.
- Example 2: A Use Case Work Group may identify a different minimum data set that must be transmitted in response to a request for information for purposes of treatment in connection with a referral to a specialist (assuming such transmission would not violate applicable law). The Use Case Work Group might also set a ceiling on what information is sent to avoid inundating the requestor with too much data.
- Example 3: A Use Case Work Group may adopt specifications related to data integrity to help ensure that data is not modified in transit.

6. Customizable Customer Flow Downs

- Carequality Implementers must ensure that their customers agree to act in accordance with specific rules that pertain to the Use Case. In addition to the Universal Flow Downs described earlier, each Use Case Work Group may establish specific requirements that a Carequality Implementer will have to require its customers, network members or end-users to comply with. It is important that any flow downs be well thought out by the Use Case Work Group so as not to overburden Implementers with a host of changes to the Implementer's network or software.

Trust Framework Work Group

Next Steps

- Extension (timeframe TBD by Steering Committee)
 - Submit written comments (redlined in document or summarized in e-mail to: admin@carequality.org)
- Facilitate Steering Committee approval of Final Principles
- Convene joint group (Policy and Technical Subgroup) to work with Query Work Group on applying customizable principles

Query Work Group Report

Hans Buitendijk and Seth Selkow



Query Work Group Survey Respondents

- Responses Received: 23
- Organizations represented:
 - Alaska eHealth Network
 - Care Connectivity Consortium
 - Carolinas Healthcare
 - Centerstone (Behavioral Health Provider)
 - Central Virginia Health Network
 - CommonWell Health Alliance
 - DoD VLER
 - ECRI (Patient Safety Organization)
 - eHealth Exchange
 - EHR|HIE Interoperability Work Group
 - Epic Care Everywhere
 - ICA-CareAlign
 - Kansas Health Information Network
 - MEDITECH
 - Netsmart
 - NextGen
 - Physicians Medical Group of Santa Cruz County (HIE)
 - Regenstrief – Indiana Network for Patient Care
 - San Diego Health Connect
 - Siemens
 - Social Security Administration
 - Surescripts
 - Veterans Health Administration

Q12: Which of the following exchange protocols and implementation statuses are applicable to your network for RLS and query across networks?

Answer Options	Currently Supported / In Use	Preferred	Planned	Not Planned
PIX/PDQ MLLP	10	4	1	4
PIX/PDQ SOAP	14	3	1	2
XCPD	13	8	1	3
XCA	14	8	1	1
XDS.b	16	8	1	1
Other (please clarify in comment box below)	6	2	1	1

Q14: What attributes does the network require for patient matching?

Answer Options	Required	Optional	Not Used
Patient Name	18	2	0
Alias/Previous Name	0	7	6
Administrative Gender	15	5	0
Date of Birth	18	2	0
Address	7	13	2
Local ID (e.g., MRN, Account No.)	4	11	3
Birth Place Address	0	8	9
Birth Place Name (e.g., hospital name)	0	8	9
Mother's Maiden Name	0	11	7
Telephone and/or Email Address	5	13	3
Principal Care Provider	1	7	9
Social Security Number - SSN Full	8	12	2
Social Security Number - SSN Partial	1	7	9
State ID/Driver's License	1	6	9
Health Plan/Insurance ID	2	7	8
Other Identifier	1	3	7

Presentations from Existing Organizations

	RLS	Simple Query
eHealth Exchange [™]		✓
 Care Connectivity Consortium	✓	✓
 commonwell HEALTH ALLIANCE	✓	✓
 surescripts [™]	✓	
 Epic Care Everywhere	✓	✓
 EHR HIE Interoperability WORKGROUP	✓	✓

Monday, December 8 – All Day In-Person Meeting Agenda

Time	Item	Responsible Party
Introductions—8:30am to 9:30am		
8:30am-9:00am	Breakfast	All
9:00am-9:15am	Introductions and Call to Order	Hans Buitendijk, Seth Selkow, Mariann Yeager
9:15am-9:25am	Review the Agenda	Hans Buitendijk and Seth Selkow
9:25am-9:30am	Approve Meeting Minutes	All
Survey Wrap-Up—9:30am to 11:00am		
9:30am-10:30am	Review Survey Responses	Hans Buitendijk and Seth Selkow
10:30am-11:00am	FHIR Profiles for HIE Update, Roadmap, Gaps	Eric Heflin, Others TBD
11:00am-11:30am	Security and Access Control Requirements	Group Discussion facilitated by Hans Buitendijk and Seth Selkow
11:30am-12:15pm	Lunch	
Recommendations & Deep Dives—12:15pm to 2:00pm		
12:15pm-1:15pm	Message Orchestration	Hans Buitendijk and Seth Selkow
1:15pm-2:15pm	Review Proposed Protocols and Set Recommendations	Hans Buitendijk and Seth Selkow
2:15pm-2:25pm	Break	
Planning for Connectivity		
2:25pm-3:35pm	Work plan development (Identify SMEs, technical needs, opening up networks, etc.)	Hans Buitendijk and Seth Selkow
3:35pm-4:35pm	Securing Pilot Participants	Hans Buitendijk and Seth Selkow
Closing Remarks		
4:35pm-5:00pm	Next Steps	Hans Buitendijk and Seth Selkow
Adjourn		

Roadmap: Short-term (3-6 month)

1. Harmonize the current document exchange to develop consistent protocols for exchange across the networks
 - Include Simple Query and Record Locator Services
2. Tasks
 - Inventory existing document query capabilities across the networks (In Progress)
 - Inventory existing Record Located Service capabilities across networks (In Progress)
 - Develop a set of criteria to evaluate the capabilities (December In-Person Meeting)

Roadmap: Long-term (Timeline: TBD)

1. Enhance and expand to the data-element level
2. Investigate asynchronous Direct transport method to accommodate query exchange
3. Incorporate Trust Framework principles

Summary of Work To Date

- Launched marketplace inventory survey to gain better understanding of current landscape
- Performed preliminary analysis and review of survey responses
- Initiated hour-long presentations from networks/organizations with specifications or implementations of RLS/Simple Query
- Developing analysis of commonality, extensions, and constraints across specifications used by networks

Query Work Group Next Steps

- Begin to build out the content of the Use Case & Implementation Guide
- Develop workplan for pilot and demonstrations
- Identify other sample implementations to consider for the Query Use Case & Implementation Guide

Performance Measures Subgroup

Mariann Yeager



Subgroup Participants

- Brian Ahier, Medicity
- Matt Eisenberg, MD, Stanford
- Laura McCrary, KHIN
- Eric Pupo, Deloitte
- Renee Smith, Walgreens

Objective

- Establish performance measures to gauge how Carequality fulfills its mission, “Accelerating seamless, interoperable health information exchange”
- Determine how Carequality is impacting:
 - Acceleration
 - Seamless
 - Interoperable exchange

Performance Measures Subgroup

- 1st call on 12/1/14
- Discussed mission, scope and assumptions
- Drafted set of possible measures
- Will circulate draft to Advisory Council in Jan 2015
- Final draft in Feb 2015
- Present to Steering Committee for approval in Mar 2015

Advisory Council Next Steps

- Provide input regarding Draft Principles for Trust
- Next meeting:
 - Wednesday, 1/7/2015, 1:00 – 2:30 pm ET
 - Steering Committee and Work Group updates
 - Trust Principles pilot plan
 - Review draft Performance Measures