Composite Measure Questions

# General

1. A Composite Measure Scoring value set now exists in HL7 and has been added for HQMF for use with composite measures. That value set contains the following concepts:

* **Opportunity:** Opportunity scoring combines the scores from component measures by combining the numerators and denominators for each component
* **All-or-nothing:** All-or-nothing scoring includes an individual in the numerator of the composite measure if they are in the numerators of all of the component measures in which they are in the denominator
* **Linear:** Linear scoring gives an individual a score based on the number of numerators in which they appear
* **Weighted:** Weighted scoring gives an individual a score based on a weighted factor for each component numerator in which they appear

One of these values can be provided in a new composite measure scoring measure attribute field that now exists in HQMF.

**Question:** Are these the only types of composite measures that should exist for HQMF?

Yes.

I think the answer to this question depends on multiple factors, including, but not limited to, the following:

1. **Question:** Are these the only types of composites there can be? If not and more composite measure scores are needed for measures, then what composite measure scores are missing? I think we have probably covered this, but I want to make sure we are not missing anything. We are not aware of other types.
2. **Question:** Are there various types of composites within each of these composite measure scores, so that some of these concepts are too broad? For example, are there various kinds of Linear measures? If some of these concepts are too broad, it may mean updating the Composite Measure Scoring value set - Or - handling the subtypes through another mechanism. The Linear method can be aggregated at the patient or the component level. We will be recommending aggregating at the patient level.
3. **Question:** Will all of these composite measure scores be used in eCQMs? At this point, the answer is no.
4. It is not clear how the new Composite Measure Scoring field should be used in relation to the following 2 measure attribute fields which are required by HQMF:

* Measure Score – This can be Proportion, Ratio, Continuous Variable and Cohort. Would it make sense to include the list of composite score types referenced above? It also makes sense to ask developers to include guidance in the header section around the composite calculation.
* Measure Type – This includes many measure types (e.g., process, outcome), but among those values is the Composite measure type. Agree. A composite type may be a set of processes.

Some of our questions around these relationships spill into our specific Composite Measure Scoring Type questions. To avoid redundancy, we have provided our questions in relation to the more specific Composite Measure Scoring Types in the section below.

# Composite Measure Score Types

I have broken down most of our questions based on the composite measure scoring(s) they are tied to in hopes that this approach may provide clarity in terms of what I think we still need.

## All-or-Nothing Composite Measure

We have had some conversations with ESAC and the Bonnie teams on what an all-or-nothing composite measure should have in it.

**Question:** Can an all-or-nothing composite measure be something other than a proportion-based measure?

Per the CQL-based HQMF IG (R1 STU 2):

All-or-nothing scoring includes an individual in the **numerator** of the composite measure if they are in the numerators of all of the component measures in which they are in the **denominator**.

This seems to indicate that an all-or-nothing composite measure is Proportion-based. However, this understanding could be incorrect, since the IG also provides the following caveat:

Composite measures make use of multiple component measures to produce a combined score. In the most general case, a composite measure is **akin to a continuous variable measure**, where the measure observation for each population member is some combination of their component measure scores.

In addition, there is one more measure score that makes use of Denominators and Numerators – Ratio.

All or nothing measures should be considered a proportion variable.

**Question:** Must the component measures of the all-or-nothing composite measure be of the same measure score as the composite measure? Not sure what you are asking. Each component would be scored 0/1 based on whether they provided. Each patient would get a 0 or 1 based on the provision of all components (1 if all components met, 0 otherwise). The performance measure (composite) would look across all patients for a given provider and report the average (# of patients with a 1/all patients eligible for measure).

For example, if a composite measure has a Proportion-based measure score, could a component measure that is part of the composite measure have a measure score of Ratio or Continuous Variable? Very unlikely.

Based on our conversations with ESAC, the composite measure score must be the same as the measure scores of the component measures the composite is based on. But we want to make sure that is correct.

**Question:** Will measure populations be explicitly defined for an all-or-nothing composite measure? Yes.

Based on our conversations with ESAC, an all-or-nothing composite measure will not have a Population Criteria section, which means that an Initial Population, Denominator, Numerator, etc., would not be explicitly defined for it. If that’s the case, then population constraints will need to be loosened in HQMF and the CQL-based HQMF IG. Currently, population constraints are based on the measure score that is provided. At a minimum, HQMF currently requires that an Initial Population, Denominator and Numerator be provided for all proportion measures. The IG requires an Initial Population for all measures.

**Question:** What should the human readable look like for an all-or-nothing composite measure?

Based on discussions with ESAC, the human readable would only have the metadata for the all-or-nothing composite measure – i.e., the table in the human readable. This table would include pointers to the component measures – much the same way it does today. As a result, to see the logic for the actual all-or-nothing composite measure, users of the human readable would need to refer to the human readable documents for the component measures. The MAT has some concerns about this approach, because it breaks from the normal look of the human readable, but, more importantly, we are wondering if this will cause confusion for users of the human readable. We do as well. We think it would make more sense to include the measure logic sections for all the component measures in the human readable. While this will make the human readable long, it will safe implementers from having to go through extra steps to get the full picture of the measure.

**Question:** Is the component measure scoring weight required/optional/not allowed for this type of composite measure? Not allowed.

Will weighting always be the same value across all all-or-nothing composite measures? Yes. If it is, then perhaps this is a moot issue, and guidance can be provided at the HQMF level on what weighting to use. If it will defer from measure to measure, then we are wondering if measure steward should have to the ability to provide the weight that should be used at the composite measure level.

## Opportunity, Linear and Weighted scoring

We were not able to discuss these composite measures with ESAC. All of the guidance in HQMF and the IG is around all-or-nothing composite measures. As a result, we may have some less-educated questions about these measures, but the answers are needed to ensure that these types of composite measures are implemented correctly.

**Question:** What measure score will the composite measures have – e.g., Proportion, Ratio, Continuous Variable, Cohort? Do they defer from one measure to another? Proportion or CV. Does one or more of these composite measures always use the same measure scoring?

Based on the CQL-based HQMF IG, the approach being adopted for these types of composite measures would enforce that a Continuous Variable measure score would be used for the composite measure itself. The component measures could be of a different measure score – e.g., Proportion or Ratio. However, if this is the correct way to handle these measures, then, from an implementation perspective, it’s not clear how the individual components of the Continuous Variable measure would be used in a composite measure.

The individual components of a Continuous Variable measure include the following:

* Initial Population (required) – may only occur once in a measure group
* Measure Population (required) – may only occur once in a measure group
* Measure Population Exclusions (optional) – may only occur once in a measure group
* Measure Observation (required – fixed association to a Measure Population based on the definition of the Continuous Variable measure in HQMF)

**Question:** Given the components of a Continuous Variable measure above, how would Numerators and Denominators coming from a composite measure’s child measures be handled at the composite measure level? At the provider level (or whatever the measured entity is)

**Question:** What measure scores will the component measures have – e.g., Proportion, Ratio, Continuous Variable, Cohort? This will usually be dichotomous.

**Question:** Are the component measures for a composite measure all required to have the same measure score? Yes.

**Question:** Should the component measure scoring weight measure attribute only be allowed for the composite measures using the weighted composite measure scoring? Yes.

**Question:** What will the human readable look like for each of these composite measures? See our answer above.