Establishing a Data Entry Quality Assurance Plan

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Agenda

1. The nature of human error
2. Definitions of quality assurance
3. Components of a quality assurance plan
4. Available quality assurance tools in Relevant


TECHNICAL GLITCH!
HUMAN ERROR!

Our Goal: A Place for Every Data Item

The “right” data is entered into the “right” place

- Definition of “right” data: the data item has a specific definition and format. For example, the patient’s date of birth, in date format
- Definition of “right” place: the field designated for the data item. This is the field that users expect to find the data item, and also the field reports, care gaps, etc. in Relevant are connected to

Human Error in the EHR

This can be:

- Entering the right data in the wrong place
- Entering the wrong data in the expected place (also includes typos, insufficient detail, missing key-words, etc.)
- Missing data in the expected place

Data Options in the EHR

- A specific location (field) exists for most data items in the EHR. For example, there is a single field for the patients last name, or the patient's date of birth
- However, parts of the EHR can be customized with new fields. Therefore, each EHR can be unique in its structure
- One challenge is that there can be more than one place to enter a piece of data. Example: sex/gender identity
- Furthermore, there are general text fields (like progress notes) where data items are placed that should actually be placed into designated fields

The User's Perspective

- The EHR is very large and complex
- Focus is on entering data efficiently
- Remember training or suggestions from others, but use intuition when necessary
- Priority may be given to entering data so it is displayed prominently on screen for other humans

Our Perspective: High Data Quality

Accurate, precise and reproducible data

- Accurate: correct and valid measurements (reflects the "truth")
- Precise: measurements free of error (low variability)
- Reproducible: consistent over time and across different locations

The Relevant Quality Measure trend graphs should measure quality of care, not data quality

Obtaining Relevant Data

Data that is **relevant** meets the requirements for your intended use. We are interested in data analysis and reporting.

Therefore, the data should also have these qualities:

- **Completeness**: the presence of the necessary data
- **Validity:** the data matches the rules specified for it, such as type (e.g., integer, string, etc.), format (e.g., date as XX-XX-XXX.) and range (e.g., minimum and maximum values)
- **Timeliness:** the correct information is available for the intended use when needed

Measuring Data Quality

- **Data quality:** the suitability of data to serve its intended purpose.
- Measuring data quality involves performing data quality assessments to determine the degree of completeness, validity and timeliness of your data

Developing a Quality Assurance Plan

Including the Data Dictionary

Three Steps to Achieving Great Data Quality

1. Develop a well-written, comprehensive and detailed procedure manual for data collection
2. Implement a rigorous and continuous training plan to reinforce the value of collecting quality data and institute the procedures for entering data
3. Monitor and evaluate the data entry process and identify areas of improvement. Provide feedback to teams.

Step 1: Create a Standard Data Dictionary

- This is an organization-wide directory of data items and corresponding fields
- In other words, the definitions state what data go where in the EHR
- The dictionary is approved by the EHR specialists and clinic managers as the standard ("best") way that data should be entered
- The dictionary is used as a basis for staff trainings

Data Dictionary (Tips)

- The procedures should be consistent and based on clearly documented steps that everyone should follow.
- This includes data input and storage, but also extraction and analytics
- The dictionary should be part of a larger data governance framework, which includes division of responsibilities and organizational structures needed to achieve the desired data quality

Data Dictionary (Tips)

- It should not be a general EHR users manual (that already exists), but rather a list of procedures that explain "this is how we enter it at our health center."
- Cover the most important and basic areas of the EHR (e.g., demographics, labs, medications, documents, etc.)
- Define specific data items that are used for essential reporting activities (i.e., UDS and QIP reports)
- Clarify items that may be ambiguous (i.e., two or more potential locations for one data item) or prone to error

Define the Data Elements in the Dictionary

- Look at your Relevant Transformers and Importers that contain code that pulls the data from the raw eCW tables
- Most of the Transformers represent one data element, like A1c labs or a blood pressures. Prioritize those that feed into the Quality Measures you report out. Your health center might have additional priority areas as well.
- Alternately, you can organize the dictionary around categories of data entry, like for example, labs. By teaching the "right" way to enter labs, you ensure data quality for all of them, including those that are not reported out

Example: HIV Linkage to Care

A dictionary would define the procedure to follow when a patient is newly diagnosed with HIV

1. (External) Make a referral to a designated provider *[by name or organization]* in the referrals section of the EHR within 30 days and then follow-up to enter the date that the patient was actually seen. Enter referral-to name in field X, appointment date into field Y, and confirmation patient seen into field Z.
2. (Internal) Make an appointment with a designated provider *[by name]* in the EHR with an appointment date within 30 days

Step 2: Implement Training Plan

- The Data Dictionary should be used to define training elements for new staff
- If patterns of data entry errors can be discerned, the Data Dictionary should be used for supplementary training of specific groups of staff
- The Data Dictionary should be placed in a location so managers and staff can readily access it. If staff generally know there is a reference for their questions like "where does this data go…?" they will be more likely to use it and less likely to guess
- It can also serve as a way to mediate disagreements on where items go in the EHR

Step 3: Monitor the Data Entry Process

- Periodically evaluate data quality, based on the standards.
- As mentioned previously, determine the degree of completeness, validity and timeliness of your data
- The goal is to produce a list of errors that can be corrected in a timely manner, but also to look for patterns in the errors so that systematic improvements can be made
- For example, there might be groups of staff or specific facilities that cause the majority of a particular type of error. Those would be targeted for further training.

Schedule a Data Evaluation

- Schedule the evaluation so that errors can be resolved prior to the majority of the data being collected during the year. This gives you a chance to implement appropriate PDSA cycles.
- In other words, do not perform it at the end of the year, scramble to make corrections, and then forget about it after reporting. The cycle of correctable errors will continue!
- It is preferable to monitor data quality throughout the year (not just once)

Feedback to Data Entry Staff

- Frequent feedback gives staff an opportunity to learn and reinforce changes
- Give data quality feedback in a timely manner
- Obtain buy-in/agreement with supervisors of data entry staff and clinic managers
- Ideally, results should go to the person who originally entered the data

Look at the Larger Picture

- Are there patterns in the errors? Are the same errors happening over and over again?
- For each data quality issue raised, start with a root cause analysis.
- The data quality problems will only go away if the solution addresses the root cause. Prevention of errors as close to actual data entry point is preferrable to data cleaning later on
- Suggestion: maintain a data quality issue log with an entry for each major issue, including the impact of the issue, the assigned data steward, and the resolution and the timing of the necessary corrections.

Measuring Data Quality With Process Indicators

- Ratio of Data to Errors =

$$\frac{\text{Total number of errors}}{\text{Total number of items in the data set}}$$

- Number of Empty Values =

$$\frac{\text{Total number of empty (null) values}}{\text{Total number of items in the data set}}$$

Define Your Tolerance for Errors

- There is a balance between time + effort and getting better results
- It is hard to make things perfect, but you can make things better or at least into the tolerable range
- For example, your health center might be close to the threshold for full points for some of the QIP measures. Therefore, for something like pap tests or mammograms, you want to make sure that all of them are counted so you get credit. These should be high priorities
- But for other items, decide the level of error that will trigger an intervention like a root cause analysis

RCHC Validation Reports

Prepared in Relevant

Data Quality Validation Reports

- Your organization should have a set of reports that can be used to track errors
- They can summarize process indicators or display the details of the errors themselves
- The targets of your reports should be based on the definitions and priorities identified in your Quality Assurance Plan
- The plan should also specify when the reports should be run and who should receive the results

RCHC Validation Report Set

- RCHC provides some reports that can be used for identifying errors
- They focus on some of the most common errors on records that need to be reported on the UDS and QIP measures
- These reports do not evaluate process indicators. Although certain process indicators may be related to the errors described in these reports, your heath center will have to develop those reports based on your unique quality assurance plan.

RCHC Validation Report Set

- Because of customization of EHRs, the reports are like templates for further work. You have to set them up and make sure they are working. You also have to make sure they conform to the definitions in your Data Dictionary
- The reports can be **part** of your QA plan, but are not the plan itself. They are not an out-of-the-box solution to all of your quality assurance needs

Instructions for Using the Relevant Validation Report Set
(NextGen Edition, Version 3)

Serving Sonoma, Napa, Marin & Yolo Counties

Instructions for Using the Relevant Validation Report Set
(eCW Edition, Version 3)

Serving Sonoma, Napa, Marin & Yolo Counties

Labs and Images

- Generally, the lab and image sections of the EHR require dates and results to be entered into specified fields. The record then needs to be marked as reviewed by the provider and closed.
- Completing the entry of a lab or image is defined by procedures recommended by the EHR vendor, but the health center should describe the workflow in the Data Dictionary. This includes roles and responsibilities for different kinds of staff and the specific fields that need to be completed

RCHC Lab and Image Validation Reports

- Display labs and images that appear to be incomplete according to generally accepted standards. However, health centers can modify the report to fit their own unique standards.
- Labs and images described on the report are those that are required by the UDS and QIP reports. However, health centers can add other priority labs and images.
- The names of the labs and images picked up by the report, as well as the completion standards used, are described in the instruction manual

Lab and Image Report Names

eCW

- RCHC Incomplete Lab Validation Report
- RCHC Incomplete Image Validation Report
- RCHC Unattached Lab and Image Validation Report

NextGen

- RCHC Incomplete Lab Validation Report NG

The image report and the unattached report seem like they are not applicable to NextGen records like they are to eCW records. However, if a NextGen health center disagrees and would work with Ben to develop a report, please contact him!

Incomplete or Non-Standard Demographic Data

- The report looks for missing or invalid entries into the common fields needed for reporting the UDS and QIP patient demographic data
- They are also useful to identify when non-standard data is being put into "unknown" categories by the Relevant Transformers(for example, race and ethnicity). This gives the programmers an opportunity to adjust the relevant Transformers to pick up additional data
- The default report evaluates nine items (e.g., zip code, age, language, etc.). The health center can modify the report to add or remove items, or to adjust the standards for identifying them.

RCHC Demographic Data Report

eCW

- RCHC Demographics Validation Report

NextGen

- RCHC Demographics Validation Report NG

Cancer Exclusions

- For the three cancer screening measures, patients can be excluded if the entire organ has been removed and screening is no longer needed
- Specified diagnosis codes can be used for this purpose, but if providers are entering text into Surgical History, they must indicate complete removal using key words
- For example, the 2021 QIP instructions specify, "Documentation of hysterectomy alone does not meet the criteria because it does not indicate that the cervix was removed…. document permanently in the patient's chart a 'complete,' 'total' or "'radical' abdominal or vaginal hysterectomy…"

RCHC Cancer Exclusions Report

eCW

- RCHC Cancer Exclusion Validation Report

NextGen

- RCHC Cancer Exclusion Validation Report NG

Problem List Diagnoses

- Assuming the Problem List is the "source of truth" to whether a patient has a chronic disease or condition, these reports help identify candidates for further review. The review concludes that the patient should or should not be officially diagnosed with the disease or condition

<u>eCW</u>

- RCHC Problem List Validation Report

<u>NextGen</u>

- RCHC Problem List Validation Report NG

Incomplete OB Records

- Occasionally, after an OB patient has given birth, the details needed for UDS reporting are not entered in a timely manner
- This report helps identify records with missing information

eCW

- RCHC Incomplete OB Record Validation Report

NextGen

It looks like the OB data in NextGen is structured in a way that makes it very difficult to identify individual pregnancies. If a NextGen health center disagrees and would like to work with Ben to develop a report, please let him know!

Suggested Frequency for Running the Validation Reports

Instructions for Using the Relevant Validation Report Set (eCW Edition, Version 3)

REDWOOD HEALTH COMMUNITY COALITION

Appendix D: Recommended Frequency for Running the Validation Reports

Suggested Frequency	Report General Name	Report Relevant Name
Monthly (run mid-month for the Measurement Period of the previous month)	Incomplete Labs	RCHC Incomplete Labs Validation Report
	Unattached Labs and Images	RCHC Unattached Lab and Image Validation Report
	Incomplete Images	RCHC Incomplete Images Validation Report
	Incomplete or Non-Standard Demographic Data	RCHC Demographics Validation Report
Quarterly (run mid-month for the Measurement Period of the previous quarter)	Incomplete OB Records	RCHC Incomplete OB Record Validation Report
	Persistent Asthma Diagnosis	RCHC Persistent Asthma Diagnosis Validation Report
Semi-annually (run mid-month for the Measurement Period of the previous six months)	Problem List	RCHC Problem List Validation Report
	Cancer Exclusions	RCHC Cancer Exclusion Validation Report
	All Providers, Resources and Staff	RCHC List All Providers, Resources and Staff
	All Insurance Names	RCHC List All Insurance
Annually (run in December for the Measurement Period of year-to-date)	QM Lab Names and Attributes in EHR	RCHC List of QM Lab Names and Attributes
	All Lab Names and Attributes	RCHC List All Lab Names and Attributes
	All Images	RCHC List All Images
	QM Medications in EHR	RCHC List of QM Medications
	All Medications and Rx Groups	RCHC List All Medications and Rx Groups
	QM Vaccines in EHR	RCHC List of QM Vaccines
	All Vaccines	RCHC List All Vaccines
As needed (reference only)	QM Value Set Codes	RCHC List of QM Value Set Codes
	All Diagnosis Codes	RCHC List All Diagnosis Codes
	All Medication Flags	RCHC List All Medication Flags
	All Structured Data Items	RCHC List All Structured Data Items
	All OB Items	RCHC List All OB Items

Reality Check: The Time Balance

- The RCHC validation reports or other reports health centers create may yield lots of records
- Consult with clinic managers about their data priorities and how much time is available for "correcting" errors
- Who is going to need to make corrections and how much time are they going to need to do it? If their time is limited, then what do you give them?

The Quality Assurance Plan in Action

The RCHC reports described here are potential tools for you to use. Along with clinic managers, decisions should be made on:

- Which reports to use
- Who is going to get the data
- How frequently are they going to get the data
- How much time do they have to make corrections

Questions?