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The complete RHIS curriculum is available here: <https://www.measureevaluation.org/our-work/routine-health-information-systems/rhis-curriculum>

**6.3.1**

**Simulation Exercise**

**Monitoring of RHIS Data at HIV and AIDS Clinics to Improve Quality of Services in Africa**

Instructions for Trainers

Conduct a role-play on the analysis of quality improvement (QI) indicator results and the identification of causes of identified problems.

**Problem formulation:** When the results of QI indicators become available, it is not uncommon for facility staff or staff of supporting organizations to be a little at a loss as to “What’s next?” The fact that the indicators were successfully measured can provide a certain sense of “end of the task.” It is not always clear to a team how they can now proceed to identify the (main) reasons for which performance on certain indicators is below the desired level.

**Goal:** Provide participants with practical classroom experience (simulation) on how to proceed to implement changes once results from the measurement of QI indicators are available. Emphasis will be placed on the identification of causes of below-standard performance.

**Methods:** Simulation of a real-life situation and discussion are used to help participants identify the causes of the problem to which the indicator results point.

**Description of exercise:** Participants will work in groups of three to five 5 people. They will receive the results of the indicator “Percentage of patients who had a CD4 count during a certain 6-month review period for which the results are available in the medical record.” It will be explained how the indicator was measured and what the result means. Each group will analyze the system that has been put in place by the facility to make sure that patients have a CD4 check at least once every six months. At the end of the first part of the exercise, each group will provide an outline of the design of the system and comment briefly on its appropriateness. The group will indicate any major design flaws that were identified and, if necessary, propose suggestions for improving the system. Next, the group will answer the question, “Is the implementation of the system appropriate?” The group will indicate where the system is not properly implemented and make recommendations for improvements.

To arrive at their conclusions each group will have to assess the system, preferably with the help of drawing up a flow chart. Prior to the exercise, a brief review of the theory of the flow chart will be presented to participants. The system assessment will be done by way of a walk-through, during which a detailed flow chart will be drawn up. Facilitators of the walk-through will each have one or more roles to play (clinician, lab technician, driver, data clerk, medical records manager, etc.). Each of them will have clear instructions as to their role. And each of them will have a set of documents necessary for the exercise and pertaining to the review period. The groups will not be told who is available to them, but will be pointed to the right person when they ask for her/him (i.e., if a group never asks to speak to the lab technician, that is their choice and they will not be requested to do so).

Instructions for Teams

You are a team consisting of ministry of health (MOH) personnel and regional health office staff. You are visiting a hospital at which care and treatment services for people living with HIV (PLHIV) have been provided for the past three years. Recently, a measurement of some quality of care indicators was performed. One of the indicators, *Percentage of patients who had a CD4 count during a 6-month review period for which the result is available in the medical record*, scored quite low: only 55 percent of patients who were seen during the review period (July 1–December 31, 2009) had a CD4 result in their medical record for which the date fell within the review period. The patients who were not seen during the review period have been excluded from the study, meaning that 100 percent of the patients included in the study were seen at consultation during the review period. Your team is looking into the problem and has been tasked with establishing the cause(s) of this low score.

For a start, you only have the result of the measurement. You are at the hospital and the director of the hospital has given you access to her staff as well as to any documentation that could assist you in your task. You have a meeting room that you can use and you are free to roam the hospital. You can request to meet with any hospital worker you like. For example, if you want to talk to the clinician responsible for HIV care and treatment, ask any of the people who play the roles where you can find her/him. You can request to review any documentation that you think may help you in establishing the cause(s) of the problem. You are free to return to any of the hospital staff with whom you have already spoken if you need any additional information or documentation. As a team, you need to provide brief answers to the following questions:

**First:**

* Describe/outline the system that has been established at this hospital to ensure that patients receive timely CD4 checks (at least once every six months). Is the design of this system appropriate? (Drafting a flow chart may help you with this.)
* What kind of documentation is available that could help you to assess the different steps in the system?

**Next:**

* Identify the cause(s) of the low performance on this indicator.
* If you have identified more than one cause, rank them in order of importance (i.e., the one that contributes most to the problem first).
* Make very brief recommendations for improvement.

**Roles for Simulation Exercise**

Role for Clinician

You are one of the clinicians responsible for providing care and treatment to PLHIV at the hospital where you work. Some of the staff together with a consultant performed a measurement of some quality of care indicators. One of the indicators, “Percentage of patients who had a CD4 count during a certain 6 months review period for which the results are available in the medical record” scored quite low: only 55 percent of patients that were seen during the review period had a CD4 result in their medical record of which the date fell within the review period. The patients who were not seen during the review period have been excluded from the study, meaning that 100 percent of the patients included in the study were seen at consultation either by yourself or one of your colleagues. A team that consists of the consultant, MOH personnel, and staff from your hospital is now looking into this problem and trying to establish what its cause(s).

It is possible that the team would like to talk to you about the procedures that are in place at your hospital to ensure that patients have a CD4 at regular intervals. Your hospital uses the national guidelines that state that each PLHIV should have a CD4 at least once every six months. You and your fellow clinicians are responsible for requesting CD4 on time for each PLHIV you attend to during your consultation.

Most PLHIV have one consultation every three months. The active PLHIV population your hospital is catering to currently stands at about 1,000 persons. Together with your colleagues, you see about 400 PLHIV per month. When a PLHIV needs a CD4 check, you are required to fill out a lab request. At the same time, you enter “CD4” under “Laboratory Tests Done” in the patient medical record. (Note that in the way you are using the medical record, this heading shows the tests that were requested, not the tests that were done.) Upon request of the team, you can use a sample of a medical record to show how you document CD4 requests and how the results are documented and filed in the medical record. The lab request form contains the date, patient ID#, lab test requested, and your signature. If the team requests to see a sample of this form, you can show it to them. With this form, you send the patient to the lab where a blood sample is taken, which is then sent to an external lab (about 150 km away), because your hospital does not have the capacity to perform CD4 counts. A vehicle from your hospital takes the samples every Monday, Wednesday, and Friday to the external lab. When the results come back, they are filed in the medical record of the patient for the clinician’s assessment at the patient’s next visit. You are not quite sure, but you think this is done by the person who manages the medical records. You don’t really know how the lab procedures work and how the samples are sent to the external lab. Nor do you know who receives the results at your hospital. You have noticed that commonly, results of CD4s that you requested do not seem to appear. This has been discussed internally and everyone seems to be in agreement that many of the CD4 results do not come back from the external lab and that the problem lies mainly within the external lab.

Since you are quite careful in assessing patients’ need for CD4 counts, you are confident that you didn’t miss many patients. But you have no idea how your colleagues are doing.

If the team asks to see another staff person from your hospital, please refer the team to the right person. If the team asks to see a person who is not on the list of the role play, refer the team to the person who is leading the exercise who will take on that role.

Role for Lab Technician

You are the lab technician responsible for laboratory services at the hospital where you work. Some of the staff together with a consultant performed a measurement of some quality of care indicators. One of the indicators, “Percentage of patients who had a CD4 count during a certain 6-month review period for which the results are available in the medical record” scored quite low: only 55 percent of patients who were seen during the review period had a CD4 result in their medical record of which the date fell within the review period. The patients who were not seen during the review period have been excluded from the study, meaning that 100 percent of the patients included in the study were seen at consultation. A team that consists of the consultant, MOH personnel, and staff from your hospital is now looking into this problem and trying to establish its cause(s).

It is possible that the team would like to talk to you about the procedures that are in place at your hospital to ensure that patients have a CD4 at regular intervals. Your laboratory does not have the capacity to do CD4 counts, but your hospital has an agreement with the laboratory of the regional hospital (about 150 km away). You can send blood samples for CD4 counts to the regional lab, where they will be processed and the results sent back to you. Your hospital is responsible for transporting the samples and for picking up the results from the regional lab. Currently, transport is organized on Mondays, Wednesdays, and Fridays. On every trip, the driver is supposed to deliver the samples as well as pick up the results from the previously delivered batch.

When you receive a patient with a CD4 request, you enter the ID# of that patient in the CD4 register that you maintain, draw the sample, mark the sample with the patient ID#, keep it in the fridge for the next transport, and enter the date on which you took the sample in the CD4 register. When the driver picks up the samples for transport, you enter the date the sample was sent out in the CD4 register. You know that on average, you have about 200 CD4 requests per month.

The CD4 results are brought to you by the driver, who brings them from the regional lab. When you receive a CD4 result, you enter the date on which you received it and the result of the test in the CD4 register. Once you have done that, you take the CD4 results to the data clerk, who enters them in the electronic database.

You think the way the system for transport of samples has been set up works well and you haven’t experienced any problems with it.

If the team asks you to see the CD4 register, you show it to them. You can give them a very brief overview of what you enter in it, but it should be self-explanatory.

If the team asks to see another staff person from your hospital, please refer the team to the right person. If the team asks to see a person who is not on the list of the role play, refer the team to the person who is leading the exercise, who will take on that role.

Role for Driver

You are one of the drivers responsible for transport at the hospital where you work. Some of the staff together with a consultant performed a measurement of some quality of care indicators. One of the indicators, “Percentage of patients who had a CD4 count during a certain 6-month review period for which the results are available in the medical record” scored quite low: only 55 percent of patients who were seen during the review period had a CD4 result in their medical record of which the date fell within the review period. A team that consists of the consultant, MOH personnel, and staff from your hospital is now looking into this problem and trying to establish its cause(s). Because the hospital where you work does not have any capacity to do CD4 testing, blood samples for this test need to be sent to the laboratory of the regional hospital (about 150 kilometers away). Because you are involved in the transport of the blood samples as well as in the transport of the lab results from the regional lab back to your hospital, it is possible that the team would like to talk to you about the procedures in place to assure appropriate transport.

Currently, transport is organized on Mondays, Wednesdays, and Fridays. Before you leave, you visit the laboratory of your hospital and receive a cool box from the lab technician containing the samples to be sent to the regional lab. The lab technician tells you how many samples are in the cool box and gives you a folder containing the CD4 count requests. You take both items to your vehicle and record the blood samples in your logbook under the heading “Purpose.” You take them to the regional lab and deliver them personally to a responsible person. At that time, you also pick up the results from the previously delivered batch. You take the results back to your hospital and hand them over to the lab technician.

You are aware that some results seem to have gone missing. Clinicians have been asking you to look for more results at the regional lab, but you are quite sure that you delivered all the results that were handed to you and have been unable to find additional results at the regional lab. The lab technician from the regional lab told you that all the results have been handed over to you and that there is no backlog. You are a little worried that clinicians may think that you have lost some of the results on the way.

If the team asks you for any documentation, you tell them that you only document your trips in the driver’s log. Whenever you take a batch of CD4 samples to the regional lab, you enter “CD4 samples” in the “Purpose” section of the logbook. You have no documentation on how many samples you are taking, nor do you have any documentation on the results you are bringing back. You can show the team the driver’s log if they ask for it. Reviewing the log should make clear to the team that indeed you are regularly transporting CD4 samples to the regional lab on Mondays, Wednesdays, and Fridays.

If the team asks to see another staff person from your hospital, please refer the team to the right person. If the team asks to see a person who is not on the list of the role play, refer the team to the person who is leading the exercise, who will take on that role.

Role for Data Clerk

You are the data clerk responsible for entering data in an electronic database at the hospital where you work. Some of the staff together with a consultant performed a measurement of some quality of care indicators. One of the indicators, “Percentage of patients who had a CD4 count during a certain 6-month review period for which the results are available in the medical record” scored quite low: only 55 percent of patients who were seen during the review period had a CD4 result in their medical record of which the date fell within the review period. The patients who were not seen during the review period have been excluded from the study, meaning that 100 percent of the patients included in the study were seen at consultation. A team that consists of the consultant, MOH personnel, and staff from your hospital is now looking into this problem and trying to establish its cause(s). Because you are involved in the processing of the results, it is possible that the team would like to talk to you about the procedures in place to assure appropriate processing.

Because the hospital where you work does not have any capacity to do CD4 testing, blood samples for this test need to be sent to the laboratory of the regional hospital (about 150 km away). This does not really affect your work, because you are responsible for entering the lab results for the PLHIV in your database when you receive them from the lab technician. Usually the lab technician brings the CD4 results to you. After you enter the date and the result of the lab exam for each patient, you take the results to the medical records manager (usually sometime in the afternoon) who files each result in the appropriate medical record so that it can be reviewed by the clinician at the patient’s next consultation. You are not aware of any problems with the system and you think it works fine.

If a team asks you to see the database, you show them the information in it. You can browse through the entries in the database and check how many patients have a CD4 result done during the review period. To be able to do this, you will need to practice with the database prior to the simulation exercise. A database instructions sheet is available to you to help you with this. This sheet outlines how the database works and what you can show participants. Do not show participants this database instructions sheet.

If the team asks to see another staff person from your hospital, please refer the team to the right person. If the team asks to see a person who is not on the list of the role play, refer the team to the person who is leading the exercise, who will take on that role.

Role for Medical Records Manager

You are the medical records manager responsible for filing, retrieving, and maintaining the medical records at the hospital where you work. Some of the staff together with a consultant performed a measurement of some quality of care indicators. One of the indicators, “Percentage of patients who had a CD4 count during a certain 6-month review period for which the results are available in the medical record” scored quite low: only 55 percent of patients who were seen during the review period had a CD4 result in their medical record of which the date fell within the review period. The patients who were not seen during the review period have been excluded from the study, meaning that 100 percent of the patients included in the study were seen at consultation. A team that consists of the consultant, MOH personnel, and staff from your hospital is now looking into this problem and trying to establish its cause(s). Because you are involved in the processing and filing of CD4 results, it is possible that the team would like to talk to you about the procedures in place to assure appropriate filing.

Your task in the management of CD4 results is limited to filing the results you receive from the data clerk in the appropriate medical records so that they are available for the clinicians at the patient’s next consultation. Because you often receive the results near the end of the afternoon, you commonly keep them in a drawer to be filed the next morning. However, mornings are usually quite busy and you spend most of your time retrieving medical records for patients who are registering for consultation. You are aware that some of the results have not been filed in the medical records and that this may have contributed to the poor score this indicator got. However, you think that most results have been filed and you hope that the team will find other problems that are not related to your work. You will definitely try to convince the team that you filed all or most of the CD4 results that you received. You are aware, though, that a number of the results are sitting in some drawers in your office.

If the team asks you to see some MRs, you provide them with 20 MRs and explain to the team that this is a representative sample of patients who were seen during the review period (a sample that reflects the sample on which the quality measurement was done).

You want to be rather evasive as to the poor filing job you have been doing in the hope they don’t find out. If a team presents (verbal) proof to you that they are homing in on the problem (i.e., they confront you with the number of missing CD4 results in the MR and with the fact that they couldn’t find any considerable problems in the remainder of the process), you start looking for the missing results in your drawers. This could finally expose the fact that you are keeping many unfiled CD4 results.

If the team asks to see another staff person from your hospital, please refer the team to the right person. If the team asks to see a person who is not on the list of the role play, refer the team to the person who is leading the exercise, who will take on that role.



