Measuring Clinical Performance:

A Guide for HIV Health Care Providers

New York State Department of Health AIDS Institute
Health Resources and Services Administration HIV/AIDS Bureau

"Untitled" - painting by Frank Holliday, HIV-positive artist

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Introduction

Introduction

Most health care providers recognize that quality is a good idea and aspire to providing the highest quality care possible to their patients. But how do we know that quality improvement actually correlates with better health care? To know for sure, we need to apply a scientific approach to performance measurement.

By measuring clinical performance, you're taking an important step in providing better care for your patients. The process of quality improvement is similar to the process of how patient care is delivered, wherein a diagnosis is made, treatment administered, and follow-up conducted. In this case, your facility's care delivery system is the "patient." Performance measurement will provide you with the diagnostic information you need to make informed improvement decisions. It is an essential element in any quality improvement strategy.

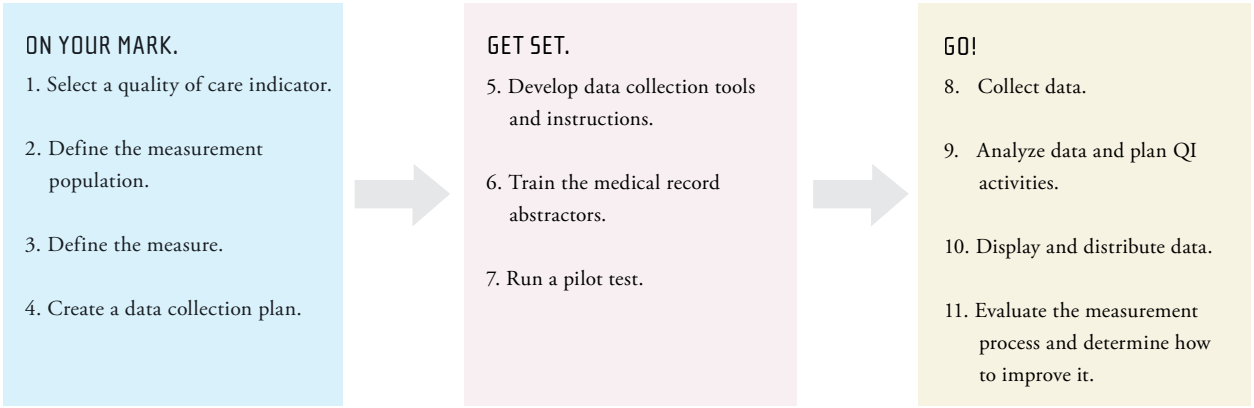
The effort is worth it. Quality improvement activities that follow from performance measurement lead to tangible benefits, including:

- Improved patient care.
- Greater employee satisfaction.
- More efficient processes.
- Opportunities to reduce costs.
- Ability to meet regulatory requirements for state and federal grants.

How? Performance measurement is a method to identify and quantify the critical aspects of care within your facility. When you measure important aspects of care, you not only create a valuable source of data regarding your facility's greatest areas of competence, but also identify those areas that require improvement and that will produce the greatest benefit for patients and staff when adequately addressed.

In an era of shorter patient visits and increased demands on productivity, a system for routine performance measurement is key. Without it, quality too often becomes a hit-or-miss endeavor in which staff invest time and energy to improve an element of care that may or may not be critical, and whose improvement may or may not have an impact commensurate to the required inputs.

Figure 1: Performance Measurement Step-by-Step



Content overview

This guide provides a step-by-step process for measuring clinical performance. The steps are organized into three phases as shown in Figure 1. Before you review them, take a moment to visualize yourself as an Olympic runner at the starting line of the finals for a well-attended track event: On your mark, get set, go!

On your mark.

During this phase of a race, runners ensure that they are in the proper lane and position themselves in the starting blocks. For the purpose of performance measurement, you will use this phase to select a quality of care indicator, to define what to measure, and then decide how to measure it.

Get set.

At this point in a race, runners settle back into the blocks and mentally perform a ”dry run” of the race as they wait for the starting gun. You will use this phase to document the measurement process, train your data abstractors, and ensure that the measurement defined in the first phase can be carried out as intended.

Go!

Finally, runners are given the cue to explode from the starting blocks and put their training to work. This is the phase when data are collected, analyzed, and distributed to management and staff. It is also the point at which planning will begin to determine the quality improvement activities that will follow from your performance measurement, including whether changes should be adopted to improve your performance.

Of course, just as an athlete’s career does not conclude with a single race, performance measurement does not conclude with a single measurement. An important part of retraining for the next race includes an evaluation of your process to determine whether it has worked and what improvements should be made the next time. The final section of the guide describes how to act on information that has been gathered and how to continue the measurement process.

Taken together, the eleven steps are a manageable approach to performance measurement, particularly given the freedom to select what to measure. This is not a marathon race in which you must measure the entire system of patient care. Rather, you will pick and choose those clinical processes that will help measure the degree to which your facility successfully achieves implementation of a particular process of care.

How to Use this Guide

This Guide to Clinical Performance Measurement may be used both as an introduction to performance measurement and as a reference tool. For example, if you are new to performance measurement, you may want to begin by reading the guide in its entirety and then go back to utilize the step-by-step guidelines. If you are already familiar with the process or have a measurement program currently in development, feel free to go directly to those steps in which you need guidance.

Limitations

This guide has certain limitations. While it will provide you with a thorough and detailed approach to measuring clinical performance, it does not explore every option for designing a measure or analyzing its results. The bibliography provides a list of additional resources should your needs extend beyond the scope of this document.

In addition, the guide is not a stand-alone instruction book for quality improvement. A patient with a fever of 101 degrees does not begin to feel better simply because a nurse takes his temperature. The thermometer only serves to measure the condition, thereby shaping the treatment decisions intended to help the patient improve.

The same applies to your facility's measurement efforts. Once you identify an area that requires improvement, the real work begins. Therefore, consider performance measurement as a tool to assist with your facility's overall quality improvement strategy.

Finally, performance measurement results will not be the whole picture of the quality of care at your facility. Care delivery is shaped by a wide range of patient and provider variables for which no measure can be a perfect indicator. However, by measuring multiple aspects of patient care, you will have the broad brush strokes required to create a more complete picture of your service quality.

The next section discusses the goal of performance measurement in more detail and provides some basic assumptions upon which the process is based. Then, it's time to step onto the track for the step-by-step approach to performance measurement.

Goals and Assumptions

Goals and Assumptions

Can you imagine beginning a race in which the finish line constantly moved—or worse yet, in which there wasn't a finish line at all? It is difficult to be strategic about your measurement efforts when the end is unclear. As you embark on measuring your facility's performance, keep the following goal in mind.

Goal

The goal of performance measurement is to measure and analyze data from the system in which care is delivered in a broader effort to:

- Monitor the quality of care provided.
- Define possible causes of system problems.
- Make the changes necessary to ensure that a larger proportion of patients receives the appropriate clinical interventions.

Figure 2 provides comparative data showing how various HIV care providers across New York State worked toward this goal over a two-year period (2004 and 2005). The facilities measured four care elements: HAART Usage in ARV Therapy (viral load >100,000 copies/mL), PCP Prophylaxis (CD4 <200 cells/mm3), PPD Performance (annual), and Pelvic Exam (annual). The percentages represent the proportion of patients who received the related care as defined by the facility's respective measurement criteria.

Figure 2: Comparative Performance Measurement Data

	HAART USAGE (VL>100,000)		PCP PROPHYLAXIS (CD4<200)		PPD PERFORMANCE (ANNUAL)		PELVIC EXAM (ANNUAL)	
	2004	2005	2004	2005	2004	2005	2004	2005
Median	83%	100%	91%	91%	67%	66%	77%	74%
Top 25%	100%	100%	100%	100%	83%	79%	86%	87%
Top 10%	100%	100%	100%	100%	93%	90%	94%	94%

For every measure, nearly all types of facilities showed improvement in levels of performance between the first and second year. While the measurement itself did not yield the improvements, the process did provide a starting point for making informed decisions about how to improve and track progress. Even with the positive results shown in Figure 2, the facilities continue to remeasure performance on an annual basis. Given the ever-changing nature of HIV health care delivery, ongoing assessment is key to maintaining improvement gains.

Quality and Performance Measurement

Some basic assumptions about quality form the foundation for any successful clinical performance measurement effort.

First, quality improvement requires a working environment in which the HIV program:

- Wants to improve system performance rather than
- Engages staff in the entire process, from measurement selection through process evaluation, by including and informing them about every step in order to build support and ownership in the process.
- Provides adequate resources and leadership to sustain the process.

Second, quality improvement methods and tools, including performance measurement, focus on system performance rather than individual employee performance. Employees' performance is largely dictated by the systems within which they work—everything from training to paperwork to care delivery methods. Therefore, improving a particular element of care may require altering various aspects of the system. Ultimately, as system performance improves, so too will individual employee performance.

Performance Measurement: Step-by-Step

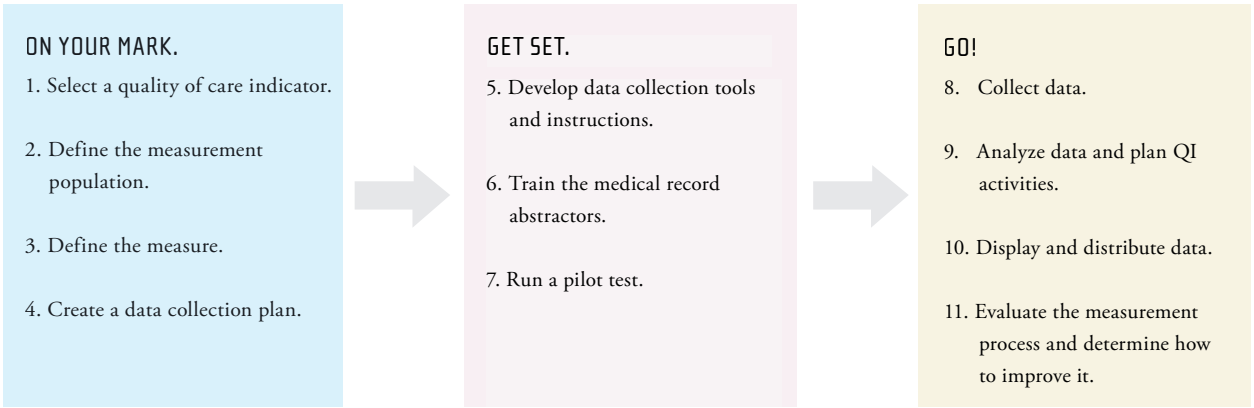
Earlier in this guide, the eleven steps of performance measurement were introduced as a three-part process modeled upon the commands at the start of a track race, as shown in Figure 3.

This section discusses the steps in detail. Each discussion begins with background information and is followed by a "to do list" for completing the step. Following each step, a shaded sidebar provides an example of how one HIV care provider team completed the related tasks. These examples do not prescribe how your facility should complete the step but rather demonstrate one way the step could be completed.

Aside from envisioning how to complete each step at your facility, you will need to consider how to assign specific tasks. Larger sites may choose to utilize individuals from an existing quality committee, while smaller sites may seek representatives from areas such as patient care, record keeping, and management.

There are several organizations to help you with decisions such as these and with strategies to organize your quality program. Some provide quality consultation free of charge; others offer services and materials for a fee. While these areas extend beyond the scope of this guide, the bibliography provides quality consultant web sites where you can find additional information.

Figure 3: Performance Measurement Step-by-Step



On Your Mark.

Step 1: Select a quality of care indicator.

Discussion

A quality of care indicator is an aspect of patient care that is measured to evaluate the extent to which a facility provides or achieves a particular element of care. Generally, indicators are based on specific standards of care derived from guidelines issued by a professional society and/or government agency.

Figure 4 lists various elements of HIV care and corresponding aspects of care, which may be used as indicators.

This list is not exhaustive. There are many elements of HIV care and any single element may have multiple indicators. But remember, performance measurement does not require that you measure your entire system of care. You need only measure those aspects that will help you determine how a particular care element is delivered to your patients.

When you use any of those indicators for the very first time, we recommend that you start with one pilot test to familiarize yourself with the development and the review processes.

To do list

Review care guidelines.

Reference both internally and externally developed care guidelines during the indicator selection process. Treatment guidelines for HIV and AIDS are available from several sources, including:

- New York State DOH AIDS Institute (www.hivguidelines.org)
- HIV/AIDS Treatment Information Service (www.aidsinfo.nih.gov)

Additional guidelines may be available at the state level. Externally-developed guidelines may not always correspond with your facility's desired care level; discuss them with your colleagues to determine if and how to adapt the guidelines to better fit your local context.

When guidelines do not exist for a particular care element, use your clinical team to establish a locally standard of care.

Identify possible indicators.

Identify aspects of care for performance measurement, keeping in mind three main criteria:

- Relevance—Does the indicator relate to a condition that occurs frequently or have a great impact on the patients at your facility?
- Measurability—Can the indicator realistically and efficiently be measured given the facility's finite resources?
- Improvability. Can the performance rate associated with the indicator realistically be improved given the limitations of your services and patient population?

If you answer "no" to any of these questions, the indicator—while still relevant to patient care—is probably either too difficult to measure or less than critical to patient care. On the other hand, if you answer "yes" to all of the questions, you have most likely found a viable indicator that will give you the most benefit for your limited measurement resources.

Other criteria for selecting them is the strength of evidence that supports the efficacy of the intervention that they measure, whether they reflect standards of care or whether they measure aspects of care that are linked to desirable patient outcomes.

Select the indicator(s).

Together with your team members, make a final selection from the list of viable indicators. Strive for consensus and, at the very least, ensure that all members are able to live with the decision. This will help secure their support throughout the measurement process. Group decision-making methods help teams establish priorities and gain buy-in among members. (Note: See the bibliography for source material on quality tools related to group decision-making.)

Modify the indicator(s), if necessary.

If you choose to use an externally-developed indicator and it does not meet the standard of practice used in your clinic, feel free to modify its content as long as the modifications do not compromise the indicator's overall relevance and measurability. An example of where an externally developed indicator may not reflect local practice is when your standard is to perform a test more frequently than recommended by the statewide measure, such as when STI screening is performed more often than annually in high risk populations. Another might be when your practice is to monitor treatment every three months but the statewide measure is to monitor every four months.

Step 1: Selecting a Quality of Care Indicator

A community health care center offers a wide array of services, including primary care for over 200 HIV-positive patients. The director of the HIV/AIDS clinic understands the importance of performance measurement and has included it in the clinic's annual goals in order to improve health outcomes in the clinic population, patient satisfaction and increase eligibility for state grants.

A committee representing various work units is assembled to organize the effort and implement the measures. Committee members include a health care worker, data control employee, doctor, and the head nurse of the HIV/AIDS unit.

At the committee's first meeting, the director reviews the purpose of performance measurement and the concept of quality of care indicators. Then the team generates a list of potential indicators based on internally- and externally-developed standards of care, as well as those suggested by quality-related funding requirements and members' individual performance measurement "wish lists."

For the final selection, the team members prioritize each indicator based on three measurement criteria: relevance, measurability, and improvability. Discussion initially focuses on substance use and pelvic exams. Several members have recently attended a conference on substance use and are eager to begin a quality improvement project on the topic. Other members, however, question the indicator's relevance given the facility's relatively low drug use rate. Attention shifts to pelvic exams. After reconsidering the three criteria, the team selects pelvic exams as its top priority.

Figure 4: Sample Quality of Care Indicators

ELEMENT OF HIV CARE	QUALITY OF CARE INDICATORS
HIV monitoring	CD4 cell count test performed every 4 months Viral load measurement test performed every 4 months
Antiretroviral therapy	HAART usage. Discussion & change, discontinue or justify ongoing ARV for patients with viral load not suppressed or declined by 1 log
Tuberculosis screening	Annual PPD testing
OI prophylaxis	PCP prophylaxis (CD4<200 cells/mm3) MAC prophylaxis (CD4<50cells/mm3) Pneumococcal vaccination
Gynecological care	Annual pelvic exam
STD management	Annual syphilis serology
Substance use assessment	Annual assessment of substance use Annual assessment of tobacco use
Coordination of care	Annual dental exam

Step 2: Define the measurement population.

Discussion

The measurement population consists of those patients who are eligible for measurement based on pre-established criteria. Defining a population requires identifying both who is a part of your population and who is not.

To do list

Define the target population.

Assemble your team members and brainstorm a population profile. Within the profile, be sure to specify:

- Location: What facilities within the care system will be included?
- Gender: Does the indicator apply exclusively to men or women, or to both?
- Age: Are there particular age limits?
- Patient condition: Is a confirmed diagnosis required, or simply symptoms or signs? Do certain conditions make the patient ineligible?
- Active treatment status: How many visits are required for eligibility? Must the patient currently be in treatment? Must the treatment have occurred within a certain time frame?

When you are finished addressing these questions and any others deemed appropriate by your team, you will have a list of eligibility criteria.

Step 2: Defining the Measurement Population

The week after selecting an indicator, the HIV/AIDS unit measurement team reassembles to discuss the measurement in more detail. The group discusses who the population should include and takes the following notes:

- Patients of Health care center's HIV/AIDS unit
- Documented HIV diagnosis
- Female patients ≥ 16 years old
- Patients who have been seen by a clinician at least twice within the 12 months of the review period

Step 3: Define the measure.

Discussion

The measure is essentially the indicator in the form of a question (e.g. Was the CD4 count measured and the result documented in the past four months?) to which there are a certain range of responses based on patient documentation (e.g. Yes, No, NA). Figure 5 provides sample questions and response parameters for some indicators introduced in Figure 4. (See appendix, 'Sample quality of care indicators,' for more indicator definitions.)

At this step it is important to define the measure by clearly documenting the "yes" and "no" responses. Whether a test has been performed and there is documentation to that effect, or in the case of an exam, whether there is documentation in the record that the visit occurred, it is critical to specify the parameters for each response option. For example, you can further define the criteria for "yes" and "no" response options for a measure by specifying what kind of documentation is acceptable, the specific timeframe that is needed to perform the activity, or any other clinical or demographic parameters needed to make the measure as clear and precise as possible.

To do list

Write the question.

Phrase the indicator in the form of a question.

Determine whether any "not applicable" conditions exist and define them.

For example, you may find that some patients are eligible to be measured by an indicator that specifies that an exam should be performed within a specific timeframe, but that the referral was made just a few days before the end of the review period. Because a sufficient amount of time has not elapsed in which to obtain the exam, you may wish to consider this situation an "NA." This group will be your NA population and consists of those patients who are eligible based on criteria such as location, gender, age, and treatment status, but must be excluded, for example, based on treatment time frame. In some cases, your eligibility criteria will preclude the identification of any "NA" conditions.

Step 3: Defining the Measure

After defining the measurement population for pelvic exams, the committee writes the indicator in the form of a question: Was a pelvic exam recorded within the past 12 months? The team begins talking through the various responses. After listing the most obvious outcomes, the head nurse pulls a few sample charts to see if they spark additional response categories. The end result is the following:

- ☐ Yes: A pelvic exam was recorded in the past 12 months.
  Pelvic Exam Date: ____/____/____
  Pap Smear Date: ____/____/____
- ☐ No: A pelvic exam was not recorded in the past 12 months.
- ☐ NA: A pelvic exam is scheduled and the scheduled date is after the review period's end date.

Figure 5: Sample Question/Response Parameters

CD4 Cell Count

Was a CD4 count performed within the last 6 months?

- ☐ Yes: A CD4 count of ___ was documented on __ /__ /__.
- ☐ No: A CD4 count was not documented within the last 4 months of the review period.
- ☐ NA: A CD4 count was ordered within the past week with no result documented.

Viral Load

Was a viral load performed within the last 4 months?

- ☐ Yes: A viral load of ___ was documented on __ /__ /__.
- ☐ No: A viral load was not documented within the last 4 months of the review period.
- ☐ NA: A viral load was ordered within the past week with no result documented.

Antiretroviral Therapy

Was the patient taking antiretroviral drugs at the time of the review? (CD4 count < 350/mm3, Viral Load > 100,000)

- ☐ Yes: The patient was taking the following drugs at the time of the review: _____
- ☐ No: The patient was not taking any ARV drug(s) at any time during the review period.

TB Screening (Eligibility: HIV- infected patients without a history of previous TB treatment or a history of a positive PPD)

Was PPD testing performed (placed and read within 72 hours) in the past 12 months?

- ☐ Yes: PPD screening was performed (placed and read).
- ☐ No: PPD screening was not performed (or it was placed but results not documented).

PCP Prophylaxis

Did the patient with fewer than 200 CD4 cells/mm3 and no sustained CD4 cell increase > 200/mm3 during the last 6 months of the review period receive PCP prophylaxis?

- ☐ Yes: The patient received PCP prophylaxis.
- ☐ No: The patient did not receive PCP prophylaxis.

Step 4: Create a data collection plan.

Discussion

The most complete source of information about diagnosis, treatment, and clinical outcomes of care is the medical record. Different facilities store information in different ways. Some maintain paper medical records, others use software to create electronic medical records (EMRs), and still others use software to convert individual records into aggregate data. In Step 4, your task is to find the most efficient way to collect information from your facility's records, to draw a sample of those records for measurement, and to select the person(s) who will collect the data.

Sampling allows you to make inferences about a large group (total population) based on observations of a smaller subset of that group (sample). Most facilities utilize random sampling, wherein medical records are drawn from the total population in such a way that each time a record is selected, every record in the population has an equal opportunity to appear in the sample.

As you draw your sample, keep in mind that performance measurement is intended for evaluation, not research. A research project may encompass several years of data in order to make conclusive additions to a body of knowledge. But performance measurement based on ten year old data is hardly relevant to the quality improvements you seek today. Therefore, it is critical to place a premium on obtaining the most current, complete, and accurate information possible.

(Note: Your right to review confidential medical records for health care system oversight is protected by the Health Insurance Portability and Accountability Act of 1996, provided that information disclosure is limited to the minimum necessary to achieve the purposes of the use. Demonstrate respect for patient confidentiality, however, throughout the measurement process. For example, identify your data by medical record number rather than patient name or use aggregate data if individual records are not required. See bibliography for more information.)

Figure 6: Collection Method: Pros and Cons

	PROS	CONS
Record Review	• Ability to tailor measure to match the information requested by the committee • Direct applicability of the question to the medical record • Immediate response to findings in medical record • Learning experience through peer review process • Inter-rater reliability procedures provide potential for thorough validation of data*	• Resource commitment for frequent chart reviews • Potential for breach in confidentiality • Potential difficulty in obtaining specific medical records
Administrative Review	• Universal data sets are available • Data are easily aggregated • Trends easily detected once reports are established • Ability to link with outcomes captured by database • Facilitated data manipulation (e.g. longitudinal file construction) • Reproducibility of established reports	• Available information may not match that of the indicator • Often requires retrospective interpretation of data • Expertise in database management required • Dependence on quality of data entry • Limited opportunity to validate clinical information which is often extrapolated from coded information • Requires review of medical records to validate information

To do list

Identify and validate existing data.

Determine if any data related to your defined population have already been collected. If you have databases that already exist in your facility that capture the patient-specific information you are measuring and can be queried to produce information in the specified timeframes, you may substantially reduce your workload. Investigate all possible sources. Aside from central administration, your facility may store data in areas such as the pharmacy or lab. If you find an existing data source, determine the ease with which you can parse out patient charts. Even the most expansive database may not be practical if it cannot be queried for eligible patient files; however, an electronic medical record system may well contain the necessary information.

If you find usable data, validate its accuracy through an independent review of medical records. For data collected directly from record review, pull 8 to 10 charts from the sample to assess the reliability of the chart abstraction process. For computer generated data, review the entire report to ensure that it makes sense on a practical level and review a sample of the records to verify the accuracy of the database. More likely than not, you will need to collect at least some data on your own. The remaining steps assume this is true.

Select a data collection method.

Clinical data abstraction, the process of gleaning data from a larger data set, is primarily achieved through record review and/or administrative review. With record review, the abstractor collects data manually from individual medical records, whereas with administrative review, the abstractor gathers information from data previously collected by the facility's central administration. In the event that both options are available, Figure 6 provides some pros and cons for each to help you select the most appropriate method.

Identify eligible records.

Separate out the records that are eligible for measurement using the eligibility criteria developed in Step 2. If your facility tracks any of the data in a centralized database, determine if you can query it to narrow down the initial batch of eligible patient files.

Draw a random sample.

The minimum sample size required for an accurate measurement is based on the number of eligible cases. Oversampling of one group within your population may be required if one or more indicators in a set pertains exclusively to that group. For example, if annual pelvic exams are among a group of indicators, a larger number of records from female patients should be reviewed to ensure that annual pelvic exam performance rates are calculated from a sufficient number of files to provide for adequate statistical strength. Another reason to oversample is to compensate when records are actually ineligible or are unavailable for review.

Step 4: Creating a Data Collection Plan

The measurement team reconvenes to develop a data collection plan. To begin, the members look for usable data within a report printed from the administrative database. After a quick review, they realize that the database only tracks whether a patient received a Pap smear and GC culture. In addition, it does not indicate when the pelvic exam was performed, only when the test results became available. Since this is insufficient to answer the team's basic question, the group decides to use record review as the primary collection method.

Next, the team members identify the number of all women in the HIV/AIDS unit meeting the team's eligibility criteria. The head nurse runs a report and lists 78 eligible records (41 females and 27 males) using patient ID numbers. She reviews the table (Figure 7) and determines that 46 (35 females and 11 males) records will need to be reviewed to ensure an adequate sample size.

To select which 46 records to select from the cases out of the total of 78, the team uses a random number list technique. One member writes down 46 numbers between 1 and 78 from a random numbers list without repeating any numbers, ensuring 35 female and 11 male records are selected. Another selects the medical records that correspond with the random number list.

Finally, the group discusses who will collect the data and decides to involve the medical providers in this process. However, one provider cautions that given the high caseload of patients in the clinic, some providers might not find time to collect data. The group decides to speak with the clinic leadership to free up some time for those providers who are involved in the collection process, and requests that 30 minutes be set aside every month for chart review. The clinic leadership understands the importance of collecting data for quality purposes and agrees with this plan.

Figure 7 lists the minimum sample sizes calculated for the New York State Department of Health AIDS Institute HIV Quality of Care Program. You may use these figures or calculate a sample size based on your own facility's requirements.

To calculate the total number of eligible patients, you need to first divide the entire case list into male and female lists to ensure sufficient numbers for the GYN indicator. These lists will now provide you with two numbers, the total number of eligible males and the total number of eligible females. (The total eligible population is the sum of the two.) Using the number of eligible female patients, determine the minimum number of female records needed from the Minimum Sampling Table 7. To determine the number of male records you need to subtract the minimum female records from the total minimum records.

Select the required number of records required from the total eligible records using a random process. Be aware that each medical record should have an equal chance of being included in the sample. Most spreadsheet programs offer random number tables. See Appendix for an example of a random table.

Select the data abstractor(s).

Decide who will collect measurement data from the sample. If possible, engage providers in a peer-review process to broaden the sense of ownership and learn from each other. At a minimum, abstractors should be familiar with:

- Medical record.
- Relevant terminology.

Other factors to consider are employee availability and comfort level working with data.

Figure 7: Minimum Sample Table, National HIVQUAL Project

TOTAL SAMPLE TABLE		
TOTAL ELIGIBLE POPULATION	MINIMUM TOTAL RECORDS	CHARTS TO PULL
Up to 20	All	All
21 - 30	24	31
31 - 40	30	39
41 - 50	35	46
51 - 60	39	51
61 - 70	43	56
71 - 80	46	60
81 - 90	49	64
91 - 100	52	68
101 - 119	57	74
120 - 139	61	79
140 - 159	64	83
160 - 179	67	87
180 - 199	70	91
200 - 249	75	98
250 - 299	79	103
300 - 349	82	107
350 - 399	85	111
400 - 449	87	113
450 - 499	88	114
500 - 749	94	122
750 - 999	97	126
1000 - 4999	105	137
5000 or more	107	139

FEMALE SAMPLE TABLE		
TOTAL ELIGIBLE FEMALES	MINIMUM FEMALE RECORDS	CHARTS TO PULL
Up to 20	All	All
21 - 30	24	31
31 - 40	30	39
41 - 50	35	46
51 - 60	39	51
61 - 70	43	56
71 - 80	46	60
81 - 90	49	64
91 - 100	52	68
101 - 119	57	74
120 - 139	61	79
140 - 159	64	83
160 - 179	67	87
180 - 199	70	91
200 - 249	75	98
250 - 299	79	103
300 - 349	82	107
350 - 399	85	111
400 - 449	87	113
450 - 499	88	114
500 - 749	94	122
750 - 999	97	126
1000 - 4999	105	137
5000 or more	107	139

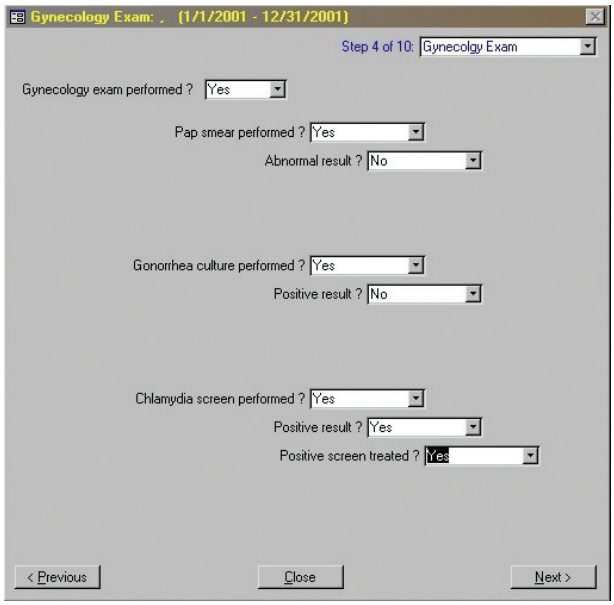
Get Set.

Step 5: Develop data collection instructions.

Discussion

By now, you have invested a significant amount of time and resources to specify a critical quality of care indicator and a corresponding measurement. To ensure that the measurement is conducted as intended, it is important to write detailed instructions to guide abstractors through the data collection process. Written instructions also provide an opportunity to stress an important point: performance measurement is not research. Abstractors have an obligation to flag questionable care delivery and to ensure that identified problems are addressed immediately.

Figure 8: HIVQUAL3 Input Screen for GYN Exam



To do list

Document review criteria.

Create a paper or electronic document listing your review criteria. Be sure to include eligibility criteria, and question/response parameters that define the "yes" and "no" responses, and N/A conditions.

Create a data entry form.

Develop a paper or electronic data entry form on which abstractors will record information during the collection process. The form should be straightforward and concise to facilitate accurate data collection as well as any future data compilation efforts. Software packages such as HIVQUAL3 provide electronic input screens, unique to specific indicators (see Figure 8).

Step 5: Developing Data Collection Instruments

The team documents its review criteria on the following form:

Indicator: Annual Pelvic Exam

A) Eligible Population:

Patient in Health care center's HIV/AIDS unit:	☐ Yes	☐ No	MR:_____
Documented HIV Diagnosis:	☐ Yes	☐ No	Date of Review: ____/ ____/ ____
Female patients ≥ 16 years old:	☐ Yes	☐ No	Reviewer: _____
Two visits within the past twelve months:	☐ Yes	☐ No	

Only proceed if all criteria are met!

B) Was a pelvic exam recorded in the past 12 months?

☐ Yes (A pelvic exam was recorded in the past 12 months)
Date of Exam: ___ /___ /___
Pap Smear: ☐ Yes ☐ No (in the past 12 months)

☐ No (A pelvic exam was not recorded annually)

☐ NA (A pelvic exam is scheduled and the scheduled date is after the review period's end date)

C) Notes

Step 6: Training the Abstractors

The measurement team meets with the providers to review the measurement process. They begin by explaining the measure and reviewing the significance of each field in the data collection form. Next, they walk through where to find the information required to complete each field to ensure that everyone is looking at all possible data sources.

At the end of the meeting, one provider asks how to use the "Notes" portion of the data collection form. The team clarifies that this space should be used to identify issues that need further clarification, or to flag any charts that require follow-up to ensure appropriate patient care. They add that a staff member should be alerted to such cases immediately for follow-up.

Step 7: Running a Pilot Test

For the measurement committee's pilot test, one provider collects data from three medical records taken from the sample. When the group meets to review the data, the provider explains that patients' risk factor data are incomplete due to the time required to find them. The team empathizes with the provider's frustration, but stresses the importance of patient information for future analysis. Several team members provide hints for finding the risk factor more quickly.

Step 6: Train the abstractors.

Discussion

Written review criteria have the greatest impact when explained in person. During a brief training session with your abstractors, you not only have the opportunity to review the measurement process, but also to provide useful context on how data collection will contribute to the facility's overall quality improvement.

To do list

Schedule approximately 30 minutes for an informal training session with the abstractors selected in Step 4 as close to the actual time of data collection as possible. Distribute the review criteria and data collection form before the meeting.

Begin the meeting by reviewing the basic purpose of performance measurement and the specific clinical aspects of the subject under review. Next, walk abstractors through the process. Clearly indicate patient eligibility criteria and where to find required information in patient charts. In addition, emphasize the importance of responding to problem charts immediately. For example, if a patient with fewer than 200 CD4 cells/mm^3 is not on PCP prophylaxis and the count has been less than 200 CD4 cells/mm^3 for over 6 months, the file should be flagged and the chart immediately forwarded to the appropriate providers for further review and follow-up.

If possible, allow abstractors to do a "dry run" using a sample medical record at the end of the training session. This may help reveal any points of confusion in your documentation and surface general questions about the process. Also by recording the time for reviewing each chart, you will be able to estimate your time requirements.

Step 7: Run a pilot test.

Discussion

The purpose of a pilot test is to assess the efficiency of the measurement process and to ensure that the abstractors are able to get the information they need from the sample before starting the full-scale measurement.

To do list

Pilot test 2 or 3 records in the sample.

Select 2 or 3 records from the total sample and ask the abstractors to collect the required information as explained during the training session.

Discuss pilot test results.

Meet with the abstractors to review the results and collect feedback about the process. Tweak the measurement process as needed.

Go!

Step 8: Collecting data.

Discussion

Your time spent crouched in the starting blocks pays off during data collection. Armed with clear instructions and a successful pilot test, abstractors launch from the starting pad into the data collection phase of performance measurement.

To do list

Inform other staff of the measurement process.

Before abstractors begin collecting data, describe the performance measurement process and distribute the collection tools to the rest of the staff. Sharing information helps build support for the facility's quality improvement efforts.

Remain available for guidance.

During data collection, an experienced staff member should be available to answer questions and guide the process.

Document existing data, if necessary.

If you are incorporating existing data into your measurement, transfer the relevant information onto a separate data collection form at this time.

Step 8: Collecting Data

A few days before the first measurement session, the director sends an e-mail to the entire staff with a brief history of the performance measurement project and an outline of what employees should expect during the measurement cycle. The director also announces the project in a staff meeting to emphasize the importance of this aspect of care, particularly the benefits to patients. Finally, the director passes out a copy of the data collection form and assures staff members that they will be the first to receive measurement results in a meeting following data collection.

Subsequently, each provider is assigned 9-10 charts of the 46 files and provided with an experienced staff contact should questions arise. They collect the pelvic exam data in the following week.

Step 9: Analyze data.

Discussion

When data collection is complete, data analysis begins. The review of your performance data is a starting point to identify whether care meets or exceeds the desired quality level and to define possible causes of performance problems, if they exist. These activities are the initial steps of the quality improvement planning process. They enable you to prioritize your work and select the areas for improvement that will be addressed by the team.

To do list

Review data.

As you review the raw data, keep the results in perspective. Deficient performance measurement data for one indicator do not necessarily reflect the quality of care provided by the facility as a whole and may be caused by secondary factors, such as access to equipment or other resources, specific to that aspect of care.

Compile and analyze longitudinal data, if possible.

Longitudinal data studies show changes in performance over a period of time. If historical data are available, longitudinal studies are useful in tracking upward and downward trends in clinical performance. Long-range trend analysis can be useful in strategic planning and management as well as research and evaluation, while short-range trend analysis can be used to trigger quality improvement activities. You may also want to analyze your data by different patient groups to determine whether there are disparities between them in receiving care.

Quality tools such as run charts and control charts are helpful in displaying longitudinal data and detecting performance trends. This graphic display can effectively present information and portray changes over time. See Step 10 and Figure 9. (Note: For additional information, see the bibliography for source material on quality tools.)

Step 9: Analyzing Data and Planning QI Activities

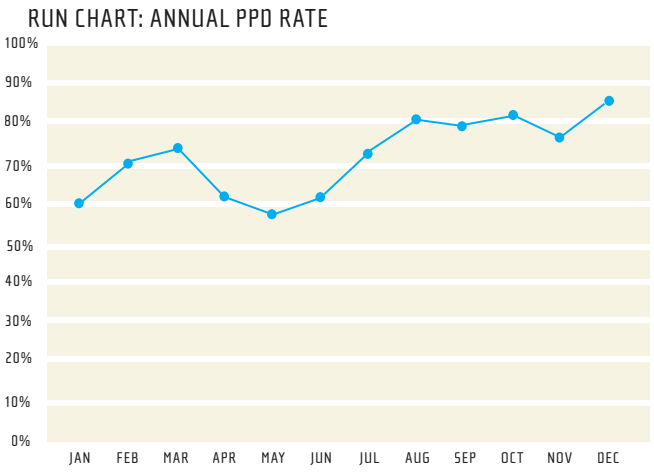
The measurement team meets over lunch to calculate and discuss preliminary results:

Pelvic Exam?
- ☐ Yes: 65%
- ☐ No: 34%
- ☐ NA: 1%

Pap Smear?
- ☐ Yes: 88%
- ☐ No: 12%

The team agrees that it would like to improve on the 65% success rate for pelvic exams. They decide to convene a performance improvement team to continue the process of quality improvement by identifying the possible causes for this rate of performance. They begin a series of follow-up meetings. In the first meeting, they develop a project plan for reducing their patients' refusal rate for pelvic exams. The plan includes developing a patient and provider education program and establishing key milestones for the next activities.

Figure 9: Measurement Data in Graphic Form.



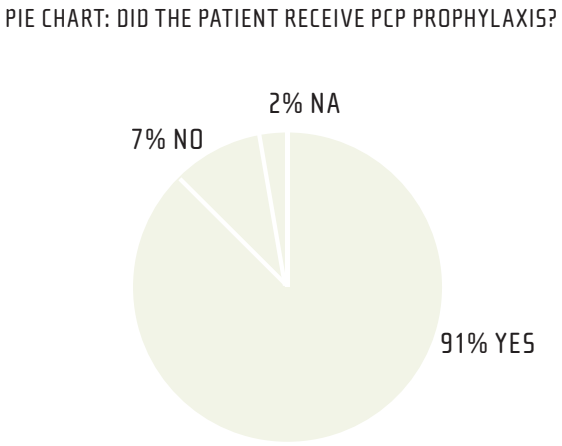
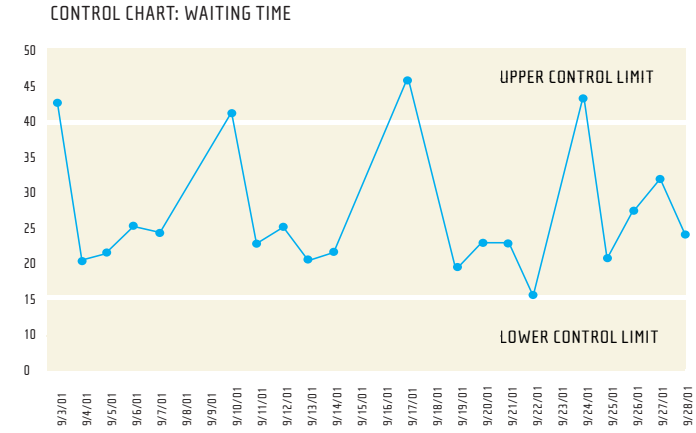


Figure 9: Measurement Data in Graphic Form.



Step 10: Display and distribute data.

Discussion

To help galvanize support for the performance measurement process, it is important to summarize and display your data and tell people what it means. Step 10 describes how to get the word out about your performance measurement results.

To do list

Identify the target audience.

Your measurement team members and staff should be among the first to receive the results. However, several groups may be interested in your performance measurement data including health care providers, consumers, governing boards, and governmental agencies. Tailor your message to meet individual audience needs.

Summarize/display data.

Whenever possible, put your results into graphic forms such as tables, bar charts, or pie charts. Graphic data displays help to convey outcomes at-a-glance. Use text sparingly for background and/or explanatory information.

Figure 9 provides five examples of how data may be displayed graphically.

Present data.

By presenting results in person, you will have the opportunity to discuss and clarify problem areas as well as to explain the next steps in the process.

When planning the presentation, write down the one or two most important items you'd like to communicate during the meeting. Then create a presentation that helps you reach your goal, keeping in mind peoples' busy schedules and relatively short attention spans. Utilize your measurement team to test different presentation strategies and find the most effective style for your audience.

Use every opportunity to share and discuss your measurement data and improvement plans. For example, if you have a 3-month process improvement cycle, hold a status meeting after one month to keep people informed.

Step 10: Displaying and Distributing Data

After measurement results are compiled, the team meets to discuss with whom to share them. Aside from the HIV/AIDS unit staff, the group decides to provide hospital administration with the measurement data.

The centerpiece of the team's data display is a percentage distribution table:

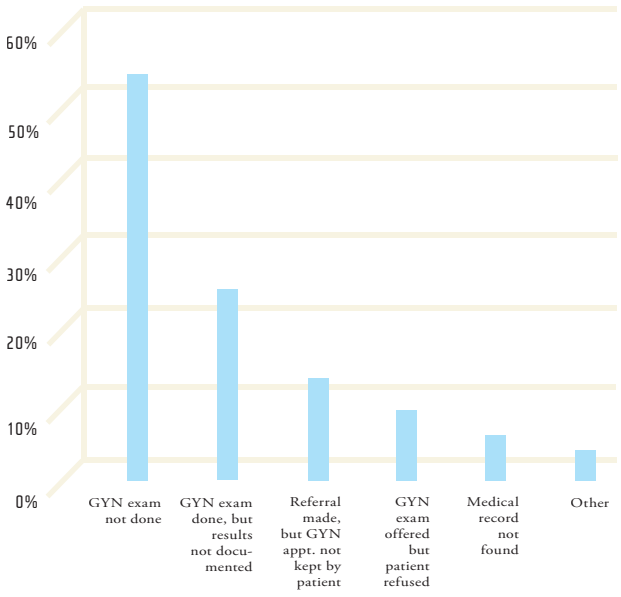
INDICATOR: ANNUAL PELVIC EXAM	
RESPONSE	PERCENT
Yes: A pelvic exam was recorded within the past 12 months.	65%
No: A pelvic exam was not recorded within the past 12 months.	34%
NA: A pelvic exam is scheduled and the scheduled date is after the review period's end date.	1%

The team decides to present the results at two different meetings. They meet with clinical employees first to congratulate them on the current performance level and begin discussing improvement strategies. Employees brainstorm ways to reduce the cases in which a pelvic exam was not recorded. Several employees point to patient refusal as one possible target.

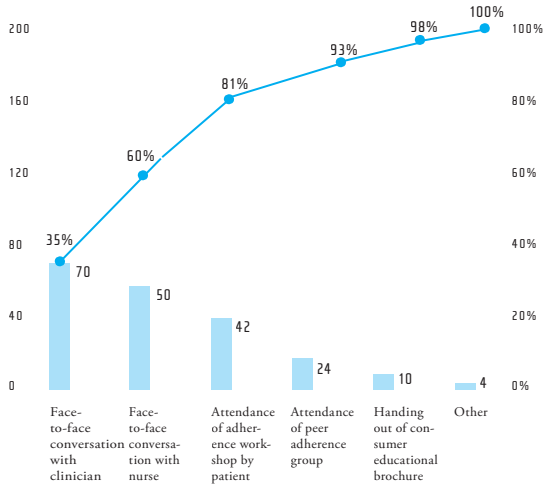
Next, the measurement team develops a brief presentation of its findings and its improvement plans for the administration's annual budget meeting. A reviewer offers feedback at a team practice session, suggesting that members "sell" the tangible benefits of performance measurement. During the meeting, members discuss how long-term performance measurement can lead to improved patient care in the HIV/AIDS unit.

Figure 9: Measurement Data in Graphic Form.

Histogram: Reasons for No GYN Exam in Medical Record



Pareto Chart: Which Adherence Interventions Work?



Step 11: Evaluate the measurement process and determine how to improve it.

Discussion

Your performance measurement data are only as good as the process from which they are collected. Make sure the process works by assessing its reliability and effectiveness following each performance measurement cycle.

Reliability is defined as the consistency of an instrument's measurements when used under the same conditions with the same subjects. The reliability of a measure is important for ensuring comparability of results over time. Frequently used in medical record abstraction, inter-rater reliability is defined as the reliability between two or more abstractors. In this case, the instrument includes both the review criteria and data collection form. (See the bibliography for source material on reliability.)

To do list

Solicit process feedback.

Ask abstractors to evaluate what aspects of the process worked well and what posed challenges.

Test inter-rater reliability.

To test inter-rater reliability, examine both the degree to which values recorded by different reviewers are the same and the extent to which there is agreement on the final scores.

For example, consider a project in which an abstractor reviews 50 patient files for a given indicator. The abstractor records a "yes" or "no" response for each file. At the end of the measurement process, the evaluator repeats the data entry process using the same set of charts. The two abstractors have matching "yes" responses for 45 of the 50 charts, a 90% agreement, and 100% agreement for the "no" response catagory.

While additional information on reliability testing is beyond the scope of this document, the bibliography lists source material on statistical analysis.

Improve the measurement process.

Based on abstractor feedback and reliability data, make any necessary changes to the process before the next measurement effort. This may require that you modify the process and its related forms, retrain abstractors, and/or reconsider the chosen indicator as a critical aspect of care.

Step 11: Assessing the Measurement Process and Determining How to Improve It

After the team's presentation to the hospital administration, team members facilitate a series of follow-up meetings. In the first meeting, HIV/AIDS unit staff members develop a project plan for reducing their patients' refusal rate for pelvic exams. The plan includes key milestones and status meeting dates.

Team members meet to evaluate the measurement process. In preparation, one member conducts an inter-rater reliability test. Results show that while agreement between individual values and final yes/no tallies are high, there is room for improvement in the "yes" category. The team brainstorms potential causes and decides to develop a more detailed data collection form to improve the abstraction process.

Finally, the members celebrate their considerable successes: the establishment of a performance measurement infrastructure and the potential for improved gynecological care in the HIV/AIDS unit.

You're on your way!

Consider what you've accomplished by completing the 11 steps of performance measurement. You

- Defined a quality of care indicator and determined how to measure it.
- Documented a data collection plan.
- Analyzed and summarized performance data.
- Shared performance data with internal and external groups.
- Evaluated the performance measurement process.
- Established an infrastructure for future measurement.

But don't stop now. Performance measurement slows to walk if you don't act on the information you've collected and remeasure targeted indicators. The final section of this guide explains some important next steps.

Next Steps

Performance measurement is an integral part of quality improvement, but it is only that—one part. Now that you have some hard data upon which to make informed improvement decisions, make the incremental changes needed to improve clinical performance, remeasure, and track your progress.

Remeasurement

It is important to remeasure your indicator once you have implemented system changes. This helps to identify any incremental performance improvement or decline between measurements, as well as to track performance trends. Usually, you will want to re-measure your performance at least annually, although you may decide that a shorter interval is warranted, depending on your performance.

Quality Improvement

Once you have successfully accomplished your first goal to measure one specific aspect of care, the next task is ahead of you. If your performance measurement data lead you to pursue opportunities for improvements, you need to start a new race.

The key to quality improvement is identifying causes affecting your performance and changing systems of care to make improvements. For example, in the case of the HIV/AIDS unit discussed in the previous section, patients' relatively high refusal rate has a significant impact on the unit's overall success rate in performing pelvic exams and PAP smears. Their decision to develop a patient education program about the importance of pelvic exams is a first step in improving their performance, and becomes the immediate focus of their quality improvement activities.

If you are lucky, you already have a hunch as to what your specific causes are and can begin consulting with your staff to address them.

The implementation of a quality improvement project requires a new set of tools. The bibliography lists resources that will get you started. But remember, at this point you have mastered the measurement of clinical performance and this knowledge will help you to track your improvements over time.

Appendix

Sample quality of care indicators

MAC Prophylaxis (Eligibility: CD4 cells < 50 and no sustained CD4 cell increase to > 50 during the last 3 months of review period)

Did the patient receive MAC prophylaxis?
- ☐ Yes: The patient received MAC prophylaxis.
- ☐ No: The patient did not receive MAC prophylaxis.

Pneumococcal Vaccination

Was the patient given a pneumococcal vaccination?
- ☐ Yes: The pneumococcal vaccination was given on __ /__ /__.
- ☐ No: The pneumococcal vaccination was not given.
- ☐ NA: A pneumococcal vaccination is scheduled and the scheduled date is in the future.

Annual Pelvic Exam

Was a pelvic exam performed within the past 12 months?
- ☐ Yes: A pelvic exam was recorded.
  - ☐ Pap done (Abnormal? ☐ Yes ☐ No If abnormal, 2nd Pap or GYN referral? ☐ Yes ☐ No)
- ☐ No: A pelvic exam was not recorded within the past 12 months.
- ☐ NA: A pelvic exam is scheduled and the scheduled date is in the near future.

Annual Syphilis Serology

Was a syphilis serology performed within the past 12 months?
- ☐ Yes: A syphilis serology was performed.
- ☐ No: A syphilis serology was not performed within the past 12 months.

Annual Assessment of Substance Use

Was substance use discussed with the patient during the past 12 months?
- ☐ Yes: Substance use was discussed. Results identified:
- ☐ Current user (within 6 months):
  - ☐ Heroin (☐ Injected ☐ Intranasal ☐ Smoked)
  - ☐ Cocaine (☐ Injected ☐ Intranasal ☐ Smoked)
  - ☐ Pills
  - ☐ Marijuana

  If a substance was injected, was safer injection/needle exchange addressed? ☐ Yes ☐ No

  Patient in treatment during review period? ☐ Yes ☐ No

  If No:
  - ☐ Treatment discussed; no referral made
  - ☐ Treatment discussed; referral made
  - ☐ Treatment not discussed

  If Yes, or if referral made:
  - ☐ Detox
  - ☐ Methadone
  - ☐ 12-step self-help
  - ☐ Outpatient, not methadone
  - ☐ Residential treatment
  - ☐ Other
- ☐ Past user only (last use over 6 months):

  Months since used: ☐ 6-12 ☐ 13-24 ☐ Over 24

  Prevention/ongoing treatment discussed? ☐ Yes ☐ No
- ☐ No current use (within 6 months) or past use (over 6 months) identified
- ☐ No: Substance use was not discussed with the patient during the review period.

Annual Assessment of Tobacco Use

Was tobacco use discussed with the patient during the past 12 months?
- ☐ Yes: Tobacco use was discussed.
- ☐ No: Tobacco use was not discussed.

Annual Dental Exam

Was a dental exam performed within the last 12 months?
- ☐ Yes: A dental exam was performed on __ /__ /__.
- ☐ No: A dental exam was not performed.
- ☐ NA: A dental exam is scheduled and the scheduled date is in the near future.

RANDOM NUMBER TABLE

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Eligible Cases=41-50; Minimum Total Records=35
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Eligible Cases=61-70; Minimum Total Records=43
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Eligible Cases=71-80; Minimum Total Records=46
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RANDOM NUMBER TABLE

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Eligible Cases=350-399; Minimum Total Records=85
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RANDOM NUMBER TABLE

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Eligible Cases=750-999; Minimum Total Records=97
21, 22, 46, 49, 53, 54, 57, 59, 61, 84, 91, 100, 109, 140, 176, 180, 204, 229, 234, 240, 249, 275, 277, 287, 297, 311, 313, 324, 330, 346, 354, 355, 358, 380, 385, 399, 401, 407, 414, 434, 443, 449, 461, 466, 479, 491, 499, 512, 530, 542, 543, 557, 562, 580, 595, 616, 653, 666, 676, 687, 694, 701, 702, 708, 711, 719, 721, 746, 756, 778, 781, 791, 795, 802, 813, 817, 824, 834, 843, 844, 864, 877, 878, 884, 897, 898, 901, 913, 915, 933, 957, 973, 980, 986, 993, 994, 997

Eligible Cases=1000-4999; Minimum Total Records=105
40, 100, 300, 322, 349, 406, 489, 496, 541, 581, 649, 656, 660, 707, 745, 778, 779, 800, 902, 917, 955, 1030, 1083, 1105, 1173, 1179, 1202, 1214, 1296, 1344, 1373, 1442, 1501, 1527, 1570, 1578, 1608, 1705, 1742, 1757, 1771, 1774, 1778, 1800, 1843, 1872, 1880, 2040, 2112, 2426, 2494, 2530, 2558, 2611, 2790, 2960, 3048, 3076, 3117, 3159, 3225, 3235, 3324, 3331, 3351, 3403, 3450, 3463, 3525, 3529, 3555, 3605, 3685, 3752, 3758, 3835, 3916, 3919, 3920, 3934, 3935, 3941, 4045, 4093, 4125, 4145, 4170, 4240, 4396, 4436, 4467, 4522, 4537, 4560, 4590, 4642, 4668, 4670, 4747, 4811, 4830, 4868, 4903, 4937, 4986

Eligible Cases=5000 or more; Minimum Total Records=107
(visit www.randomizer.org)

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Online Resources

- New York State Department of Health AIDS Institute - www.hivguidelines.org and www.hivqual.org
- New York State Department of Health AIDS Institute - NationalQualityCenter.org
- Agency for Healthcare Research and Quality (AHRQ) - www.ahrq.gov/qual
- HIV/AIDS Treatment Information Service - www.aidsinfo.nih.gov
- HRSA Center on Quality - www.hrsa.gov/quality
- Institute for Healthcare Improvement (IHI) - www.ihi.org
- Johns Hopkins AIDS Service - www.hopkins-aids.edu
- National Quality Measures Clearinghouse - www.qualitymeasures.ahrq.gov

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Health Resources and Services Administration HIV/AIDS Bureau
9569