

UNIFORM DATA SYSTEM



INTRODUCTION TO SAMPLING METHODS, INCLUDING USING RANDOMIZER.ORG

For CY 2012 UDS Submissions
Bureau of Primary Health Care
December 19, 2012

Agenda



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- Why discuss sampling?
- Where is sampling used in the UDS?
- Choosing between a sample and the universe for reporting
- Measure for measure – when to sample
- How to identify a random sample
- Extracting data from charts
- Reminders and strategies for success
- References and available assistance

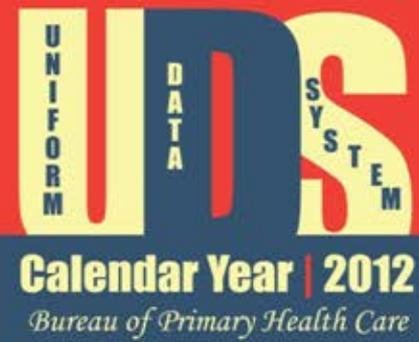
Purpose of this Webinar



- Define universe and sample for the clinical measures
- Identify when sampling is appropriate or necessary
- Focus on methods to create a random sample of charts
- Discuss some considerations when performing a chart review with a sample

Why Discuss Sampling

Why Discuss Sampling



- For 2012, over 1200 health centers will be reporting on 14 clinical measures
 - Selected to cover all life cycles and to address both prevention and treatment of chronic and acute conditions
- Health Centers have different abilities to capture and report on these data
 - Some health centers have EHRs, some do not
 - Some EHRs are brand new, some are now two – three – four or more years old

Why Discuss Sampling Continued



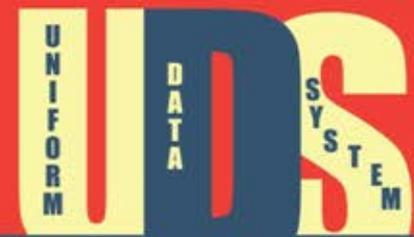
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- While some health centers are now able to generate reports which provides the data from automated systems, others do not have this capacity
- Some of the BPHC measures are somewhat different than the meaningful use measures their EHR report out

Choosing Method



- Health Centers may choose to report on *either* the “universe” or a sample for 12 of the 14 measures.
 - Determine universe from automated system
 - Sample may include results pulled from automated systems and/or chart reviews
- The choice is made independently for each of the measures.
 - There is no requirement that all measures be treated the same way.



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Clinical Measures Reporting

Clinical Profile Tables



- Two tables report on the combined 14 clinical measures:
 - Table 6B: 11 Quality of Care measures
 - Table 7: 3 Health Outcomes and Disparities measures
- Table 6A collects clinical data, but these data are not used as clinical measures.

Table 6B: Quality of Care Indicators

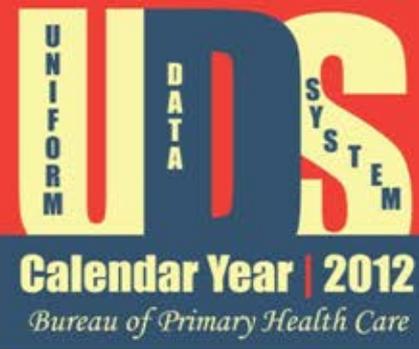
Purpose of Table

- Measure quality of care using proxy process measures

If patients receive the timely routine and preventive care described in the process measure, then we can expect improved health.

- ✓ Early entry into prenatal care
- ✓ Childhood immunizations
- ✓ Pap tests
- ✓ Weight assessment & counseling on nutrition and activities for children
- ✓ Adult weight screening & follow-up
- ✓ Tobacco use assessment
- ✓ Tobacco cessation intervention
- ✓ Asthma drug therapy
- ✓ Lipid lowering therapy for those with coronary artery disease (CAD)
- ✓ Aspirin or other anti-thrombotic therapy for those with ischemic vascular disease (IVD)
- ✓ Colorectal cancer screening

Table 7: Health Outcomes and Disparities



Purpose of Table

- Measure quality of care using proxy intermediate outcome measures

If this measurable intermediate outcome is improved, then later negative health outcomes will be less likely.

- ✓ Normal birthweight (≥ 2500 grams)
- ✓ Controlled hypertension (BP < 140/90)
- ✓ Controlled diabetes (Hba1c ≤ 9)

Options for Reporting

Table 6B Format Options for Reporting



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- **Column a: Universe**
 - All patients who meet the reporting criteria.
- **Column b:** Grantee chooses to report findings for all patients in the **Universe** or for a **sample** of 70 patients
 - Must report on the universe for entry into prenatal care and birth weight measures
 - Must report on the universe when the universe is 70 or less.
- **Column c: Performance Measurement** – Grantee reports the number of patients whose clinical records have been reviewed where the record indicates the measurement criteria has been met.

CHILDHOOD IMMUNIZATION		TOTAL NUMBER OF PATIENTS WITH 2 ND BIRTHDAY DURING MEASUREMENT YEAR (a)	NUMBER CHARTS SAMPLED OR EHR TOTAL (b)	NUMBER OF PATIENTS IMMUNIZED (c)
10	Measure: Children who have received age appropriate vaccines who had their 2 nd birthday during measurement year (on or prior to 31 December)	Universe	Sample or Universe	Records meeting performance measurement

Table 7 Format Options for Reporting



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Hispanic/Latino	
1a	Asian
1b1	Native Hawaiian
1b2	Pacific Islander
1c	Black/African American
1d	American Indian/Alaska Native
1e	White
1f	More than One Race
1g	Unreported/Refused to Report Race
	<i>Subtotal Hispanic/Latino</i>
Non-Hispanic/Latino	
2a	Asian
2b1	Native Hawaiian
2b2	Pacific Islander
2c	Black/African American
2d	American Indian/Alaska Native
2e	White
2f	More than One Race
2g	Unreported/Refused to Report Race
	<i>Subtotal Non-Hispanic/Latino</i>
Unreported/Refused to Report Ethnicity	
h	Unreported/Refused to Report Race and Ethnicity
i	Total

- Columns are used to report:
 - Total Universe of Patients meeting criteria
 - For *either* the Universe *or* a sample of 70 patients, was the Performance Measurement met, as defined by measurement rules and criteria.
- The data reported for each measure is broken down by race *and* ethnicity
- *If* a random sample is used, it is a total of 70, not 70 for each race / ethnicity

Sample or Universe



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- Review of performance measurement *can* be based on a random **Sample or Universe** for
 - 10 of Table 6B performance measures
 - 2 of Table 7 performance measures
 - Can report on Universe for some measures while using a Sample for others
- Must report **Universe** for the measures with less than 70 patients meeting the criteria and all patients meeting criteria for the following measures:
 - Early entry into prenatal care
 - Normal birthweight (≥ 2500 grams)

Making the Decision: When to use a Sample

Reporting the Universe



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- To report the Universe, your data source must:
 - Include all medical patients who meet the selection criteria
 - Report services at all sites within the scope of your 330 supported program
 - Cover the time period to be reviewed (which is often multiple years)
 - Be able to exclude records that do not meet criteria (e.g., women who have had a hysterectomy in the pap test measure)
 - Be searchable to permit extraction of clinical data as required (e.g., HbA1c result)

When to Use a Sample

- Use a sample when:
 - your EHR or other automated system does not have the data necessary to report on the universe
- Do Not use a sample when:
 - you have problems in finding the universe – you need to find the universe no matter which method is used

When to use a Sample for Immunizations and Pap Tests



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- Use a sample when your automated system is not adequately programmed:
 - Immunizations:
 - Include data on every vaccination received regardless of who provided it
 - Include vaccination data for all of 2010, 2011 and 2012
 - Pap tests:
 - Include data on all Pap tests for all women regardless of who did the test
 - Include Pap test data for all of 2010, 2011, 2012

When to use a Sample for Child and Adult Weight



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- Use a sample when your automated system is not adequately programmed:
 - Child and Adolescent Weight:
 - Show if BMI *percentile* was recorded
 - Specifically identify nutrition and physical activity counseling
 - Include information for all of 2012
 - Adult Weight and Follow-up:
 - Include recorded BMI
 - Include a code for follow-up plan
 - Include information for July 1, 2011 through December 31, 2012

When to use a Sample for Tobacco Measures



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- Use a sample when your automated system is not adequately programmed:
 - Tobacco use assessment:
 - Show tobacco use assessment for all
 - Identify all current patients with at least *two* visits in 2011 and/or 2012
 - Include information for 2010, 2011 and 2012
 - Tobacco use treatment:
 - Identify all tobacco users for 2010 through 2012 with at least *two* visits in 2011 - 2012
 - Show counseling and/or medications prescribed or taken
 - Include information for 2010, 2011 and 2012

When to use a Sample for Asthma and CAD



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- Use a sample when your automated system is not adequately programmed:
 - Asthma drug therapy:
 - Use a specific code for *persistent* asthma
 - Identify all current patients with at least *two* visits in 2011 and/or 2012
 - Include drug prescribed / dispensed data
 - CAD and lipid lowering therapy:
 - Identify all current CAD patients with at least *two* visits in 2011 - 2012
 - Show medications prescribed or taken

When to use a Sample for IVD and Colorectal Cancer



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- Use a sample when your automated system is not adequately programmed:
 - IVD and anti-thrombotics :
 - Include drug prescribed / dispensed / taken data
 - Colorectal cancer screening:
 - Identify all tests done in-house or by another provider

When to use a Sample for Hypertension and Diabetes



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- Use a sample when your automated system is not adequately programmed:
 - Hypertension:
 - Permit a query which identifies the most recent 2012 blood pressure recorded
 - Diabetes:
 - Permit a query of all HbA1c tests done either in-house or by another provider in 2012

Sampling Methods

Reporting Random Sample



- A Random Sample must:
 - Be generated from the entire universe of medical patients who meet the selection criteria
 - Include all sites, contract services, all grant funded programs, and activities of all medical providers

Random Sample Defined

- **Random Sample...***a part of the universe where each member of the universe has the exact same chance of being selected as every other member of the universe.*

- Reason for 70 Sample Size
 - Can produce accurate data with a reasonable confidence limit
 - Minimum data collection burden on health centers
 - OMB mandate of 70 for sample size
- Sample is used for measuring performance measurement and does not replace identification of Universe of patients

Reporting Using a Random Sample

Process for Reporting Using a Random Sample



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- **STEP 1:** Identify the patient population to be sampled (the universe)
 - Create a list and number each member of the universe
- **STEP 2:** Select 70 patients to be included in the random sample
 - (May select more to use as replacements)
 - May use EHR to identify the sample
 - Two methods to be discussed

Process for Reporting Using a Random Sample continued



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- **STEP 3:** Review the charts sampled to determine if performance measurement met
 - Use available data sources (e.g., EHR, disease registries, state immunization registries, logs, Practice Management Systems, etc.)
- **STEP 4:** Replace charts for patients that do not meet the requirements and/or should be excluded (e.g., not a medical patient or, exclude pregnant patients in the weight measures)

Creating a Random Sample

Option 1: Using a Random Number List



- Prepare numbered list of all patients in universe
- Generate random numbers - can use web site such as <http://www.randomizer.org/form.htm>
- Random numbers correspond with the charts identified in the numbered list of patients
- Identify a replacement set - for exclusions
- Review identified charts

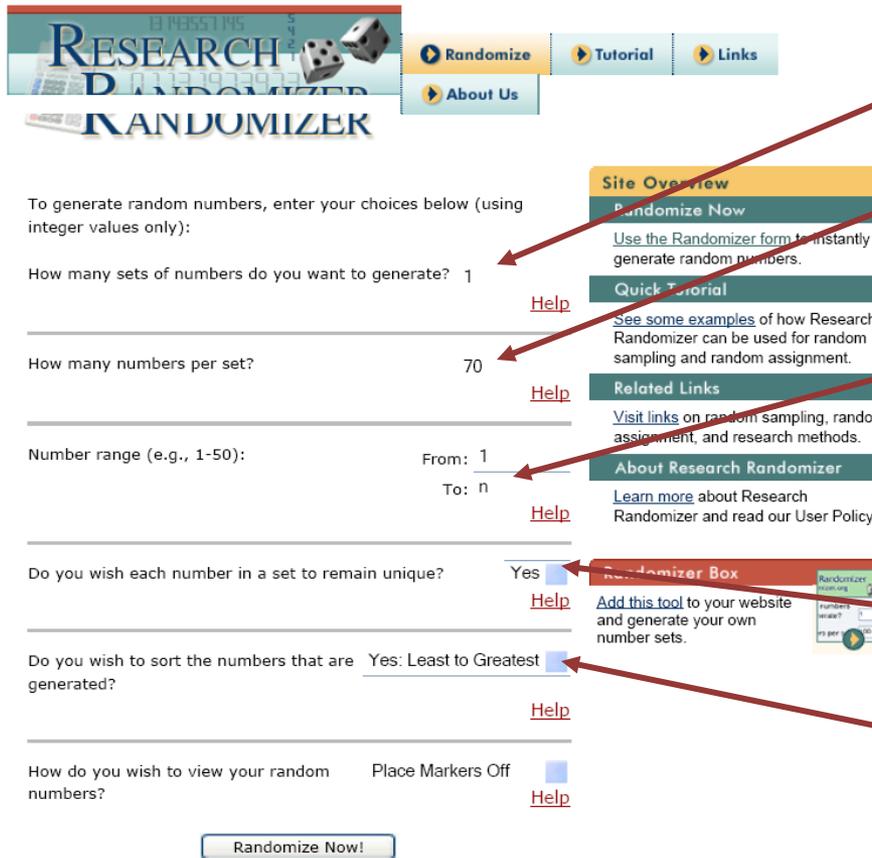
Randomized Sets



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- Prepare two randomized sets
 - Initial sample of 70
 - Replacement set of 5 or more

Input	Initial Sample	Replacements
Set of Numbers	1	1
Number per set	70	At least 5 or as many as needed
Number range = 1-“n”	Last sequence number in list	Last sequence number in list
Unique numbers	Yes	Yes
Sort numbers	Yes, least to greatest	No



The screenshot shows the Research Randomizer website interface. At the top, there are navigation buttons for 'Randomize', 'Tutorial', 'Links', and 'About Us'. Below the navigation is a 'Site Overview' section with links for 'Randomize Now', 'Quick Tutorial', 'Related Links', and 'About Research Randomizer'. The main form contains several input fields and checkboxes:

- 'How many sets of numbers do you want to generate?' with a value of 1.
- 'How many numbers per set?' with a value of 70.
- 'Number range (e.g., 1-50):' with 'From: 1' and 'To: n'.
- 'Do you wish each number in a set to remain unique?' with a checked 'Yes' radio button.
- 'Do you wish to sort the numbers that are generated?' with a checked 'Yes: Least to Greatest' radio button.
- 'How do you wish to view your random numbers?' with 'Place Markers Off' and an unchecked checkbox.

At the bottom of the form is a 'Randomize Now!' button. Red arrows point from the text boxes on the right to the corresponding input fields in the form.

Sets of numbers = 1

Numbers per set = 70

Number range = 1- "n"
(enter last sequence number in your numbered list)

Unique numbers – Yes

Sort numbers –
Yes: Least to Greatest

Option 2: Interval

- Prepare numbered list of all patients in universe
- Randomly select a patient from universe
- Calculate a sampling interval
 - Divide number of patients in universe by 70
- Select every n th patient based on sampling interval until reach 70 patients
- Substitute replacement records (exclusions) with the next patient in list
- Review identified charts

Interval Method Example

Interval Method: Example

1	951456
2	234951
3	492374
4	157614
5	736812
6	453764
7	416145
8	801784
9	481454
10	487151
11	158124
12	484504
13	789415
14	781763
15	745485

Sample Interval (SI) = 3

First record = #2
(selected at random
from between 1 and 3)

Next records = #5 (2+3)

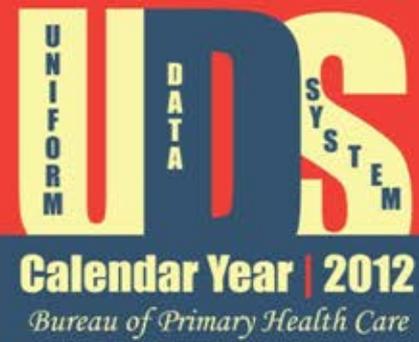
#8 (5+3)

#11 (8+3)

#14 (11+3)

Extracting Data from Charts

Extracting Data



- Before charts are actually pulled and reviewed, use other sources to cross-check accuracy of the data:
 - Sources which may include some but not all patients who meet the criteria such as EHRs, PMSs, and disease registries
 - Immunization registries maintained by the state
 - Logs or other “off line” lists

Reviewing the Charts



- Eventually, some or all charts in the sample for one or more of the measures will need to be reviewed
- With multiple locations:
 - All charts may be brought to a central point
 - Single reviewer may travel to each site
 - Multiple reviewers may review at each site
- Data Entry Tool available from the Support Line to assist with recording chart details
 - Can be used for future QI initiatives

Addressing Exclusions in a Sample



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- Report the universe unadjusted for exclusions
 - Example: *Pap test*
 - Column A will equal the universe (including an unknown number of women who have had a hysterectomy)
 - Use a sample of 70. Enter 70 for Column B and review the 70 for number meeting performance measurement and report in Column C
 - If a woman with a hysterectomy is included in your initial sample, do not reduce Column A but substitute another randomly selected patient for the excluded woman (sample remains 70 eligible women)

Obtaining a Sample of 70 Patients – Special Situations



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- Under certain situations a large number of charts may need to be pulled to identify 70 charts
 - When unable to determine universe from existing system
- Use alternative instructions to determine universe and performance measurement
- Systems should be put in place to capture information for future
- Most likely used with the Persistent Asthma measure, but may also be needed to identify Tobacco Users

Sample Generated Universe



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Determining the size of the persistent asthma universe from a sample of asthmatic patients:

- Identify all patients with a diagnosis of asthma
- Randomly select 300 charts
- Review charts until you have 70 asthma patients who were first diagnosed with “persistent asthma.” Keep track of how many charts were reviewed to find 70 cases
- Divide 70 by the total number of charts of asthmatic patients reviewed to find 70 patients with persistent asthma
- This percentage will be used as the percent of all asthmatics who have persistent asthma
- Multiply percentage by the total asthmatics found
- The calculated result is the estimated universe of patients with persistent asthma (Column A)
- Review the 70 charts to assess performance measurement

References and Reminders

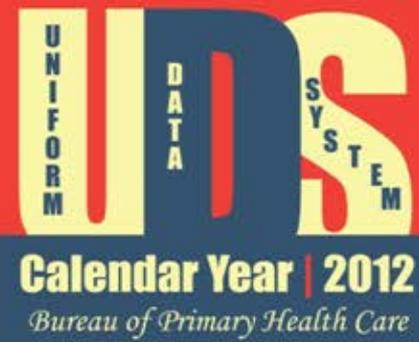
Sampling Resources



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- UDS Support Training website:
<http://www.bphcdata.net>
 - Clinical Measures Data Entry Tool (Excel)
 - UDS Reporting Instructions
 - Clinical Measures Reporting Methods pre-recorded module and other training topics
 - Data and reports at
<http://bphc.hrsa.gov/healthcenterdatastatistics/reporting/index.html>
- Random sample website: www.randomizer.org
- In-person Trainings (11 left for the year) and UDS Reviewers
- Reporting Support Line telephone and email helpline
 - 866-UDS-HELP or udshelp330@bphcdata.net
- Technical support to review submission
 - EHB Support
 - HRSA Call Center: 877-464-4772
 - BPHC Help Line: 1-877-974- BPHC (2742)

Critical Dates in the UDS Process



- DATA ENTRY: Report through EHB (“Electronic Handbook”) beginning January 1, 2013
<https://grants.hrsa.gov/webexternal/login.asp>
- REPORT DUE DATE: February 15, 2013
- REPORT FINALIZED: March 31, 2013
- REPORT FEEDBACK: Trend, Rollups, Summary, and Performance Comparison reports available in summer
 - Final data can be used for internal QI initiatives

Strategies for Successful Reporting



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- Work as a team
 - Tables are interrelated
- Adhere to definitions and instructions
 - Read manual and apply defined criteria, codes, exclusions, and specifications
- Check your data before submitting
 - Review data and relationship of clinical information to patients served, activity, and race and ethnicity across tables
 - Address edits in EHB by correcting or providing explanations that demonstrate your understanding
 - Identifying that the data are directly from the PMS or EHR is not a sufficient response
 - Report timely, accurate data
- Work with your reviewer

Thank you for attending this webinar
and for all of your hard work to provide
comprehensive and accurate data to BPHC!

Ongoing questions can be addressed to
UDSHelp330@BPHCDATA.NET
866-UDS-HELP