



# **Hospital Inpatient Quality Program Measures: Understanding Population and Sampling**

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# Purpose

This presentation will provide an overview of the Initial Patient Population (IPP) and sampling for the Hospital Inpatient Quality Reporting (IQR) Program.

# Objectives

Participants will be able to:

- Understand how the IPP is determined.
- Understand sampling, sample size requirements, and sampling approaches.
- Understand the required data to submit to CMS.

# Acronyms and Abbreviations

<b>CM</b>	Clinical Modification
<b>CMS</b>	Centers for Medicare & Medicaid Services
<b>EOC</b>	episode of care
<b>ICD</b>	International Classification of Diseases
<b>IPP</b>	Initial Patient Population
<b>IQR</b>	Inpatient Quality Reporting
<b>n</b>	sample size
<b>N</b>	population size
<b>UB</b>	Uniform Bill
<b>VIQR</b>	Value, Incentives, and Quality Reporting

# Webinar Questions

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- If your question is about a specific slide, please include the slide number.
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# Initial Patient Population (IPP)

- The IPP includes all patients (Medicare and non-Medicare) who share a common set of specified, administratively derived data elements, with a length of stay less than or equal to 120 days (Admission Date minus Discharge Date less than or equal to 120 days\*).
- Administratively derived data may include the following:
  - International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM) Diagnosis codes
  - Age
- The IPP typically utilize the uniform billing (UB) or claims data to identify the cases that meet the IPP criteria.

\* Cases that are greater than 120 days are excluded from the IPP due to the probability of crossing over specifications manuals which could inappropriately fail cases.

# Sampling

Sampling is a process of selecting a representative part of a population in order to estimate the hospital's performance, without collecting data for its entire population. Using a statistically valid sample, a hospital can measure its performance in an effective and efficient manner.

- The “sample” is the fraction of the population that is selected for further study.
- A “case” refers to a single record (or an episode of care [EOC]) within the population. For example, during the first quarter, a hospital may have 100 patients who had a principal or other diagnosis associated to the Sepsis measure set. The hospital's IPP would include 100 cases or 100 patient records for this measure set during the first quarter.
- Hospitals are not required to sample their data.

# Sample Size Requirements

- If sampling, you have the option to sample monthly or quarterly.
- Due to exclusions, hospitals selecting sample cases **MUST** submit **AT LEAST** the minimum required sample size. The sample size tables for each option automatically build the number of cases needed to obtain the required sample sizes.
- Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter/month for the measure set cannot sample.
- A hospital may choose to use a larger sample size than is required.
- Hospitals that have five or fewer discharges (both Medicare and non-Medicare combined), for a measure set, are not required to submit patient-level data.



# Population Size vs. Medicare Claims Count

For determining the sample size required, CMS uses the greater of the population size versus the Medicare Claims Count on the Provider Participation Report.

For example:

- If the population size is 7 and the Medicare Claims Count is 0, then the hospital would use the population size and would be required to submit 7 records.
- If the population size is 0 and the Medicare Claims Count is 7, then the hospital would use the Medicare Claims Count and would be required to submit 7 records.

# Sampling Approaches

Hospitals should use either the simple random sampling or systematic random sampling methods and the sampling techniques should be applied consistently within a quarter.

- Simple random sampling: Selecting a sample size ( $n$ ) from a population size ( $N$ ) in such a way that every case has the same chance of being selected.
- Systematic random sampling: Selecting every  $k^{\text{th}}$  record from a population of size  $N$  in such a way that a sample size of  $n$  is obtained, where  $k$  is less than or equal to  $N/n$ . The first sample record (i.e., the starting point) must be randomly selected before taking every  $k^{\text{th}}$  record. This is a two-step process:
  1. Randomly select the starting point by choosing a number between 1 and  $k$ , using a table of random numbers or a computer-generated random number.
  2. Then, select every  $k^{\text{th}}$  record thereafter until the selection of the sample size is completed.

# Submission of Population and Sampling

- The submission is required to contain three monthly time periods which comprise the calendar quarter
- Hospitals who have no cases that meet the IPP are required to enter zeros.
- *Sampling Frequency* indicates if the hospital has sampled using the monthly or quarterly methodology, whether the entire population was used for the specified time period, or the hospital had five or fewer discharges for the discharge quarter and did not submit patient level data.

Submission Period: 07/01/2021 - 02/01/2022  
 With Respect to Reporting Period: 07/01/2021 - 09/30/2021  
 Last Updated: 12/30/2021 7:39 AM

Current Submission Period: **Open**

Enter
  Preview

**IQR-SEPSIS** ✔ Complete  
 Severe Sepsis and Septic Shock

**Sampling Frequency**

Monthly

**Population**

	July	August	September	Total
Medicare	185	183	167	535
Non-Medicare	79	87	79	245
<b>Total</b>	<b>264</b>	<b>270</b>	<b>246</b>	<b>780</b>

**Sampling**

	July	August	September	Total
Medicare	24	19	22	65
Non-Medicare	11	13	10	34
<b>Total</b>	<b>35</b>	<b>32</b>	<b>32</b>	<b>99</b>

Specifications Manual for National Hospital Inpatient Quality Measures:  
Understanding Population and Sampling

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**Thank You**

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