



# **Pediatric Quality Measures Program**

CAHPS Child Hospital Survey  
(Child HCAHPS) Toolkit



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## Introduction

This toolkit presents a children's health care quality measure from the AHRQ-CMS Pediatric Quality Measures Program (PQMP). The measure has been developed by PQMP Centers of Excellence (COE) grantee, Center of Excellence for Pediatric Quality Measurement (CEPQM) at Boston Children's Hospital.

The CAHPS<sup>®</sup> Child Hospital Survey (Child HCAHPS) Toolkit asks patients' families or caregivers about their child's experience as an inpatient, as well as their own experience throughout their child's hospital stay. This toolkit seeks to help providers and other key stakeholders better understand the needs and experiences of both pediatric patients and their families/caregivers. This toolkit includes materials to support users in:

- 
- Assessing inpatient experience of pediatric patients and their families/caregivers
  - Tracking quality and improvement across pediatric settings
  - Providing guidance for administration and measure reporting of Child HCAHPS
- 

The intended audience(s) for this toolkit include providers, hospitals, payers, and health system administrators who are involved in administration and/or use of the CAHPS Child Hospital Survey.

This toolkit is organized into six sections:

1. Measure Specification
2. Measure Reporting
3. Key Driver Diagram
4. Quality Improvement Strategies
5. Improvement Data
6. Other Resources

## Overview

The Consumer Assessment of Healthcare Providers and Systems (CAHPS®) Hospital Survey (better known as HCAHPS) asks people about their recent experiences with inpatient care. There are two versions of this survey: one for adults and one for children. Both surveys are intended to facilitate objective and meaningful comparisons across hospitals of patients' perspectives on aspects of care that are important to them.

The Child Hospital Survey (or Child HCAHPS) asks parents or caregivers to report on both their child's experience as an inpatient and their own experience with their child's inpatient hospital stay. The survey asks questions that are designed to understand the needs and experiences of pediatric patients (persons 17 years of age and younger) in a hospital setting. Using core domains of the Adult HCAHPS survey, Child HCAHPS focuses on aspects of pediatric inpatient care that are important to patients and their parents, and for which patients and their parents are generally the best source of information. The survey asks parents and guardians about communication with clinicians such as doctors and nurses, the hospital environment, pain management, and other aspects of care that are part of an inpatient experience.

The Child Hospital Survey was developed by the Center of Excellence for Pediatric Quality Measurement (CEPQM) at Boston Children's Hospital in collaboration with the CAHPS Consortium. The Child Hospital Survey has National Quality Forum (NQF) endorsement.

This toolkit is designed for hospital and health system users to guide administration and use of the CAHPS Child Hospital Survey to assess the inpatient care experiences of pediatric patients and their parents or guardians. Child HCAHPS allows for the tracking of quality improvement within individual hospitals and for the comparison of quality across pediatric settings. Results from the Child HCAHPS survey may provide insights for patients, parents, hospitals, health plans, insurers, and policy makers.

An overview of the survey instrument and background on the survey development and refinement process can be accessed at online at <https://www.ahrq.gov/pqmp/implementation-qi/toolkit/child-hcahps/index.html>.

## About the Measure

The Center of Excellence for Pediatric Quality Measurement (CEPQM) team sought to improve administration and understanding of patient needs and their family's/caregiver's experience with their child's inpatient stay. The Child Hospital Consumer Assessment of Healthcare Providers and Systems (Child HCAHPS) was built on the core domains of the Adult HCAHPS instrument.

The Child HCAHPS Survey is a survey of parents or guardians about pediatric inpatient experience of care. The team developed Child HCAHPS as a measure that can be used nationally by payers (public and private), providers, and consumers for public reporting, quality management, and tracking purposes. The instrument has 18 single-item and composite measures categorized into five overarching groups:

- 
- Communication with parent
  - Communication with child
  - Attention to safety and comfort
  - Hospital environment
  - Hospital rating
- 

The measures are case-mix adjusted. Child HCAHPS allows for the tracking of quality improvement within individual hospitals and for the comparison of quality across pediatric settings.

## MEASURE SPECIFICATIONS

The Center of Excellence for Pediatric Quality Measurement (CEPQM) team developed a resource called *What's Available for the CAHPS Child Hospital Survey* to introduce users to the questionnaire, survey instructions, data analysis programs, and reporting guidance that is available for Child HCAHPS. This resource is designed for users to review as they prepare for survey administration and includes descriptions of the instructional materials that comprise the package of Child HCAHPS survey materials. This resource can be downloaded at <https://www.ahrq.gov/pqmp/implementation-qi/toolkit/child-hcahps/index.html>.

**Note:** *Materials needed to field the survey are included in this toolkit in the Other Resources section.*

The *Patient Experience Measures from the CAHPS Child Hospital Survey* document reviews the types of measures that comprise the CAHPS Child Hospital Survey. The resource lists each composite, single-item, and rating measure generated by this survey. Additionally, the resource offers basic guidance for reporting the survey results to consumers and other audiences. This document can be downloaded at <https://www.ahrq.gov/pqmp/implementation-qi/toolkit/child-hcahps/index.html>.



## MEASURE REPORTING

The Center of Excellence for Pediatric Quality Measurement (CEPQM) team developed a how-to guide for administering the Child Hospital Survey. *Fielding the CAHPS Child Hospital Survey Sampling Guidelines and Protocols* includes sampling guidelines, recommended modes for data collection and protocol templates for mail, telephone and email data collection, and instruction on tracking returned questionnaires. This resource will help users understand how to calculate the response rate, and it offers guidance on determining whether a response is complete and increasing the number of responses. This resource can be found at <https://www.ahrq.gov/pqmp/implementation-qi/toolkit/child-hcahps/index.html>.

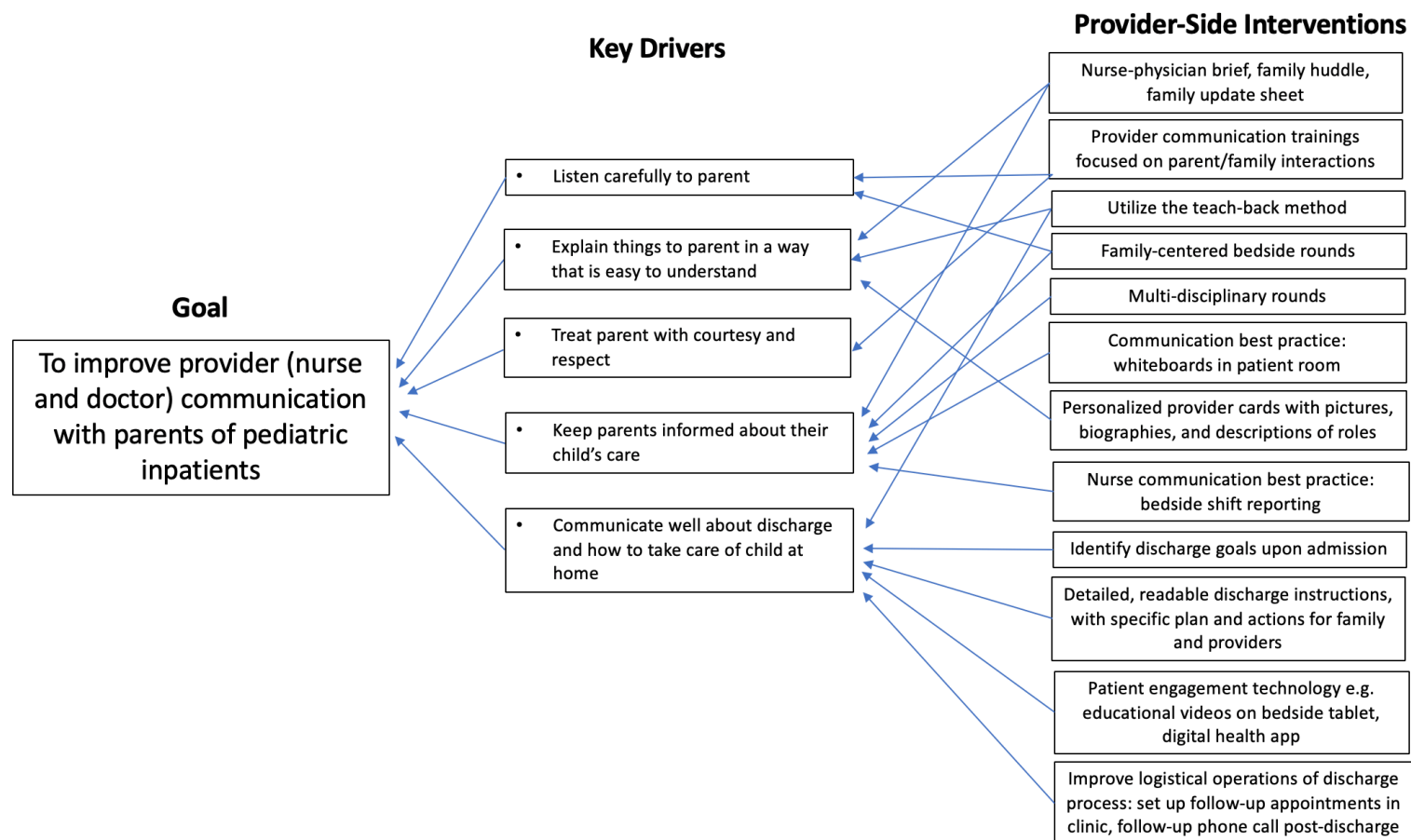
Once surveys have been administered, the *Preparing Data from CAHPS Surveys for Analysis* provides step-by-step instructions for preparing raw survey data for analysis using the CAHPS Analysis Program for SAS (also known as the CAHPS macro) or another statistical package. This document also explains how to compute scores using a variety of approaches. The document can be downloaded at <https://www.ahrq.gov/pqmp/implementation-qi/toolkit/child-hcahps/index.html>.

**Note:** The CAHPS macro is included in this toolkit in the *Other Resources* section.

*Improving Response Rates and Representation of Hard-to-Reach Groups in Family Experience Surveys*, featured in *Academic Pediatrics*, discusses the research team's experience using tablets to administer the Child HCAHPS survey to difficult-to-reach populations. The article can be accessed at [https://www.academicpedsjnl.net/article/S1876-2859\(18\)30471-6/abstract](https://www.academicpedsjnl.net/article/S1876-2859(18)30471-6/abstract).

## Key Driver Diagram

The Center of Excellence for Pediatric Quality Measurement (CEPQM) team developed a Key Driver Diagram to help illustrate the key drivers toward improving provider communication with parents of pediatric inpatients. The Key Driver Diagram contains specific provider-side interventions that can be employed to attain improvements in family experience of care. The CEPQM Key Driver Diagram can be viewed below. It may be adapted and tailored for use by other organizations.



## Quality Improvement Strategies

Hospitals have utilized data from Child HCAHPS survey results and related survey measures to support and track efforts to improve patient and family experience in the inpatient pediatric setting. Below is a selection of case studies and articles about improving patient experience for pediatric patients and their families.

Case studies and articles are organized by the following sections:

- 
- Improving Communication with Providers
  - Preparing Families for Discharge
  - Engaging with Patients and Families to Improve Pain Management
  - Other Inpatient Pediatrics Quality Improvement Initiatives and Case Studies
  - Additional Research Reports and Case Studies Using CAHPS Survey Data
  - Information About QI Strategies to Improve Patient Experience
- 

The Center of Excellence for Pediatric Quality Measurement (CEPQM) team authored an article in *Pediatrics* that was published in 2020 about key drivers associated with patient and family experience during inpatient care. The article is available at

<https://pediatrics.aappublications.org/content/pediatrics/145/3/e20191264.full.pdf>

*Factors Associated With Family Experience in Pediatric Inpatient Care* presents findings from a cross-sectional study of over 17,000 Child HCAHPS surveys that looked at which aspects of inpatient experience have the strongest relationships with parents' willingness to recommend a hospital. Insights from the study can help toolkit users seeking to increase efforts to improve the pediatric inpatient experience to identify targets for improvement.

## IMPROVING COMMUNICATION WITH PROVIDERS

### IMPROVING COMMUNICATION WITH NURSES USING A COMMUNICATION BUNDLE STRATEGY

In this quality improvement (QI) initiative, a communication bundle strategy intervention was utilized to enhance nurse communication and improve patient satisfaction at an inpatient orthopedic/hematology unit in a Mid-South children's hospital. The use of best practice

communication strategies, including nurse bedside shift reporting, whiteboards, and scripting resulted in improved Child HCAHPS scores on communication at the bedside and parents' perception of nurse-child communication.

Bumpers B, Dearmon V, Dycus P. Impacting the Patient's Experience in a Children's Hospital Using a Communication Bundle Strategy. *J Nurs Care Qual.* 2019;34(1):86-90.

doi:[10.1097/NCQ.0000000000000336](https://doi.org/10.1097/NCQ.0000000000000336)

<https://pubmed.ncbi.nlm.nih.gov/29889723/>

## PARENT AND PROVIDER EXPERIENCE AND SHARED UNDERSTANDING AFTER A FAMILY-CENTERED NIGHTTIME COMMUNICATION INTERVENTION

A family-centered, multidisciplinary nighttime communication intervention (nurse–physician brief, family huddle, family update sheet) was utilized to improve experience with communication and shared understanding with providers. Top-box parent experience improved for 1 of 4 domains: Experience and Communication With Nighttime Doctors ( $p<0.05$ ). Top-box provider experience improved for all 3 domains, including Communication and Shared Understanding With Families, and Experience, Communication, and Shared Understanding With Other Providers ( $p<0.05$ ).

Khan A, Baird J, Rogers JE, Furtak SL, Williams KA, Allair B, Litterer KP, Sharma M, Smith A, Schuster MA, Landrigan CP. Parent and Provider Experience and Shared Understanding After a Family-Centered Nighttime Communication Intervention. *Academic Pediatrics.* 2017;17(4):389-402. doi:[10.1016/j.acap.2017.01.012](https://doi.org/10.1016/j.acap.2017.01.012)

[https://www.academicpedsjnl.net/article/S1876-2859\(17\)30014-1/fulltext](https://www.academicpedsjnl.net/article/S1876-2859(17)30014-1/fulltext)

## UTILIZING PERSONALIZED PROVIDER CARDS TO IMPROVE PATIENT/DOCTOR CONNECTIONS

Children's National Medical Center implemented personalized provider cards with pictures and biographies of doctors, as well as an explanation of provider roles to enhance patient and family connections with providers. Following the intervention, there were improvements in Child HCAHPS metrics, including doctors explaining things in a way that was easy to understand, and overall likelihood to recommend the hospital.

Colyer J, Halley T, Winter M, Coldren J, Parra M. Are you my doctor? Utilizing personalized provider cards to improve patient/doctor connections. *Patient Experience Journal.* 2019;6(3):124-128. doi:[10.35680/2372-0247.1341](https://doi.org/10.35680/2372-0247.1341)

<https://pxjournal.org/cgi/viewcontent.cgi?article=1341&context=journal>

## PREPARING FAMILIES FOR DISCHARGE

### USING TECHNOLOGY AND EMPATHY TO IMPROVE PATIENT EXPERIENCE

This case study discusses strategies used to improve patient experience at the new University of Iowa Stead Family Children's Hospital. High tech patient engagement platforms were implemented in each room of the inpatient units, including computer tablets on bedside tables, and large screen TV displays used for entertainment and to view educational videos about diagnoses/treatment. Experience improved on Child HCAHPS measures of Likelihood to Recommend, Receiving Instructions for Home Care, Providing Condition/Treatment Information, and Families Feeling Ready for Discharge. Since the opening of the new hospital, including the implementation of the bedside patient engagement platform, the mean satisfaction score rose from 74.8 percent (95% CI = 72.7 to 76.8) to 82.8 percent (95% CI 80.3 to 85.3).

<https://www.theberylinstitute.org/page/CASE11181>

## A QI COLLABORATIVE TO IMPROVE THE DISCHARGE PROCESS FOR HOSPITALIZED CHILDREN

In this multicenter QI collaborative with 11 tertiary-care freestanding children's hospitals, interventions and subsequent Plan-Do-Study-Act (PDSA) cycles were implemented to improve discharge planning, quality of discharge instructions, and post-discharge support. Following the intervention, there were lower rates of discharge-related care failures, decreasing from 34 percent in the first quarter of the project to 21 percent at the end of the collaborative ( $p < 0.05$ ). Family readiness for discharge improved from 85 percent of families reporting the highest rating to 91 percent ( $P < .05$ ). There was no improvement in unplanned 72-hour (0.7% vs 1.1%,  $P = .29$ ) and a slight increase of the 30-day readmission rate following the collaborative (4.5% vs 6.3%,  $P = .05$ ).

Wu S, Tyler A, Logsdon T, Holmes NM, Balkian A, Brittan M, Hoover L, Martin S, Paradis M, Sparr-Perkins R, Stanley T, Weber R, Saysana M. A Quality Improvement Collaborative to Improve the Discharge Process for Hospitalized Children. *Pediatrics*. Published online August 1, 2016. doi:[10.1542/peds.2014-3604](https://doi.org/10.1542/peds.2014-3604)

<https://pediatrics.aappublications.org/content/early/2016/07/25/peds.2014-3604>

## ENGAGING WITH PATIENTS AND FAMILIES TO IMPROVE PAIN MANAGEMENT

### IMPROVING SATISFACTION WITH PEDIATRIC PAIN MANAGEMENT BY INVITING THE CONVERSATION

Nurses on rounds at the Lucile Packard Children's Hospital asked a standardized question about how well a child's pain was being controlled. Patients who received the intervention reported a higher satisfaction with pain management than those who did not ( $p < 0.0001$ ).

Caruso TJ, Kung TH, Good J, Taylor K, Ashland M, Cunningham C, Gonzalez E, Wood M, Sharek P. Improving Satisfaction with Pediatric Pain Management by Inviting the Conversation. *The Joint Commission Journal on Quality and Patient Safety*. 2018;44(4):227-232.

doi:[10.1016/j.jcjq.2017.10.003](https://doi.org/10.1016/j.jcjq.2017.10.003)

<https://www.sciencedirect.com/science/article/abs/pii/S1553725017304889>

### LEVERAGING INTERACTIVE PATIENT CARE TECHNOLOGY TO IMPROVE PAIN MANAGEMENT ENGAGEMENT

Interactive technology was used to stimulate conversations about pain treatment plans, expectations, and perceptions of plan effectiveness on a pediatric surgical unit and hematology/oncology unit of a free-standing children's hospital. Plan-Do-Study-Act cycles were utilized to integrate the technology system with medication dispensing and the electronic health record. Proportion of positive family satisfaction responses for pain management significantly increased from 2014 to 2016 ( $p = 0.006$ ).

Rao-Gupta S, Kruger D, Leak LD, Tieman LA, Manworren RCB. Leveraging Interactive Patient Care Technology to Improve Pain Management Engagement. *Pain Management Nursing*. 2018;19(3):212-221. doi:[10.1016/j.pmn.2017.11.002](https://doi.org/10.1016/j.pmn.2017.11.002)

<https://www.sciencedirect.com/science/article/abs/pii/S1524904217304332>

### OTHER INPATIENT PEDIATRICS QI INITIATIVES AND CASE STUDIES

1. [\*\*A Framework for Improving Parent Satisfaction with the Inpatient Pediatric Admission Process: The Aga Khan University Hospital\*\*](#)

- a. Intervention: Messages delivered within 1 hour of inpatient admission, training providers to reduce parental anxiety related to hospital admissions, inform parents regarding basic amenities

- b. Outcome Measure: Overall satisfaction with admission process improved, patient anxiety score within 24 hours of admission decreased
2. **Patient Navigation in Pediatrics: A Promising Practice for Eliminating Healthcare Disparities at Seattle Children’s Hospital**
- a. Intervention: Patient navigators who speak families’ language were available to remove barriers to timely, safe, and effective care for Somali- and Spanish-speaking families and their children with chronic/complex medical needs.
  - b. Outcome measure: Inpatient admission rates were lower for children after their involvement with patient navigators as compared to before they were a part of the program. The average length of stay for children with admissions was lower after their involvement with patient navigators as compared to before.
    - i. Children with navigators had a lower proportion of missed opportunities for care than they did before their involvement with the program and as compared to children in their same language groups without navigators and to the English-speaking Medicaid population.
3. **Designing Technology Solutions to Improve the Patient Experience: Phoenix Children’s Hospital**
- a. Intervention: Imaging innovations to reduce patient anxiety and improve image quality, making videos to show children how the imaging process works
  - b. Outcome Measure: Patient experience surveys
4. **Navigating Your Way to a Better Patient Experience: Children’s Healthcare of Atlanta**
- a. Intervention: Mobile App to improve care coordination, give directions in hospital, links to pharmacies, access mobile chart, view wait times at urgent care
  - b. Outcome Measure: More than 9,000 downloads, 76% users returned to app, improved patient experience and workflow
5. **Increasing Patient Comfort and Reducing Anxiety through Movie Entertainment: Arnold Palmer Hospital for Children**
- a. Intervention: Customized, multi-channel patient engagement content broadcast in patient rooms and throughout the hospital
  - b. Outcome Measure: Program expanded to 7 channels across three hospitals, positive reports from patients, families, staff

6. **Engaging with Patients and Families by Creating a Virtual Advisory Council: Nemours**
  - a. Intervention: Creation of Virtual Advisory Council with families who had received care at Nemours, expanding feedback beyond physical family advisory councils
  - b. Outcome Measure: Actionable improvement to senior management, process improvement workshops
  
7. **Building an Expanded Patient Experience Program: Women and Infants**
  - a. Intervention: Restructuring Patient and Family Centered Care Program to include Patient and Family Advisory Councils, patient relations, patient and guest services, interpretation services, patient and family experience team with four key roles
  - b. Outcome Measure: Numerous initiatives to integrate hospital services and improve patient experience

## **ADDITIONAL RESEARCH REPORTS AND CASE STUDIES USING CAHPS SURVEY DATA**

Accessible on the AHRQ website at <https://www.ahrq.gov/cahps/quality-improvement/reports-and-case-studies/index.html>.

## **INFORMATION ABOUT QI STRATEGIES TO IMPROVE PATIENT EXPERIENCE**

1. Quigley DD, Palimaru A, Lerner C, Hays RD. [A Review of Best Practices for Monitoring and Improving Inpatient Pediatric Patient Experiences](#). *Hospital Pediatrics*. 2020;10(3):277-285. doi:10.1542/hpeds.2019-0243
2. [CAHPS Quality Improvement Guide](#)
3. [CAHPS Ambulatory Care Improvement Guide](#)
4. [CAHPS 4 Ways to Approach the Quality Improvement Process](#)



## Improvement Data

States have a particular interest in quality measurement and improvement. They insure their most vulnerable children through Medicaid/CHIP and are responsible for promoting effective and efficient care for them. States are interested in developing efficient systems for quality reporting with the goal of stimulating improvements in care for their residents. However, it has been challenging to find pediatric measures that allow for fair comparisons across institutions, account for differences in patient populations (e.g., prevalence of chronic conditions), and provide information that is understandable and useful to families and providers.

## BACKGROUND

As part of the AHRQ Pediatric Quality Measures Program (PQMP), the Center of Excellence for Pediatric Quality Measurement (CEPQM) at Boston Children's Hospital worked with state programs to ensure that states could meaningfully use the Child Hospital Consumer Assessment of Healthcare Providers and Systems (Child HCAHPS) Survey to compare within and across state-level hospitals. Due to the lack of publicly available Child HCAHPS datasets during the time period of the AHRQ grant, the analysis was simulated in two ways.

### STATE-LEVEL SIMULATION #1

CEPQM worked with two states to test Child HCAHPS for validity, feasibility, and usability. The results were intended for state users to inform further development of strategies to streamline data collection and measure reporting.

To simulate the calculation of hospital case-mix adjusted Child HCAHPS scores at the state level, the states were provided with a deidentified raw dataset of survey results from a subset of hospitals that participated in the Child HCAHPS National Field Test. With permission from the hospitals, data was securely transferred from seven hospitals to each of the CEPQM team's state partners. Using Child HCAHPS technical specifications, the states analyzed and calculated case-mix adjusted hospital-level and state-level scores.

### Findings

Both states were able to successfully analyze hospital and state performance utilizing the dataset provided.

## STATE-LEVEL SIMULATION #2

State-level comparisons of Child HCAHPS measures is also important as Medicaid/CHIP currently follow state-level performance.

Given the lack of a national database, the CEPQM team wanted to simulate state-level comparisons using the Child HCAHPS National Field Test data. The data included 69 hospitals in 32 states. To provide sufficient hospitals within each “state,” the CEPQM team analyzed the hospital-level adjusted mean scores by U.S. Census Bureau regions (Northeast, Midwest, South, and West) and divisions (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific). Using Child HCAHPS SAS program, included in this toolkit in the *Other Resources* section, the team was able to analyze regional performance for the 18 single-item and composite measures that comprise Child HCAHPS across the geographic regions.

### Findings

Significant variation was noted for most of the items. Results of the regions, divisions, and variation across both are found in the Excel file, which can be downloaded at <https://www.ahrq.gov/pqmp/implementation-qi/toolkit/child-hcahps/index.html>. These findings suggest that meaningful state-level differences in Child HCAHPS performance could be found if performance were measured.

## Other Resources

The Center of Excellence for Pediatric Quality Measurement (CEPQM) team prepared several resources that can be used by other organizations and institutions using the Child HCAHPS survey. Links to these resources are available at <https://www.ahrq.gov/pgmp/implementation-qi/toolkit/child-hcahps/index.html>.

## TOOLS FOR PREPARING FOR, FIELDING, AND ANALYZING CHILD THE HCAHPS SURVEY

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- Sample Notification Letters: Sample letters, emails, and reminder postcards about the Child HCAHPS survey that hospitals can customize for their own use. Materials are available in English and Spanish.
  - Survey Instrument: Available in an English version and a Spanish version.
  - Sample Telephone Script: Instructions for vendors and for interviewers administering the survey. Materials are available in English and Spanish.
  - Day of Discharge Survey Administration: Instructions for administering the survey in-person on the patient's day of discharge
  - CAHPS Macro: The CAHPS Analysis Program for SAS contains a macro that allows the user to apply the case mix adjustment variables. This macro is the same one referenced in the *Preparing Data from CAHPS Surveys for Analysis* resource.
  - Translating the Survey: The survey instrument is patient-reported and this document provides general guidance for translating results into languages other than English and Spanish.
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## PUBLISHED ARTICLES ABOUT CHILD HCAHPS SURVEY DEVELOPMENT

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[The Development of a Pediatric Inpatient Experience of Care Measure: Child HCAHPS](#) (*Pediatrics*)

[Variation in Family Experience of Pediatric Inpatient Care As Measured by Child HCAHPS](#) (*Pediatrics*)

[Factors Associated With Family Experience in Pediatric Inpatient Care](#) (*Pediatrics*)

Improving Response Rates and Representation of Hard-to-Reach Groups in Family Experience Surveys (*Academic Pediatrics*)

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