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H·CUP
HEALTHCARE COST AND UTILIZATION PROJECT

**STATE QUARTERLY DATA EVALUATION REPORT
DELIVERABLE #825.21A**

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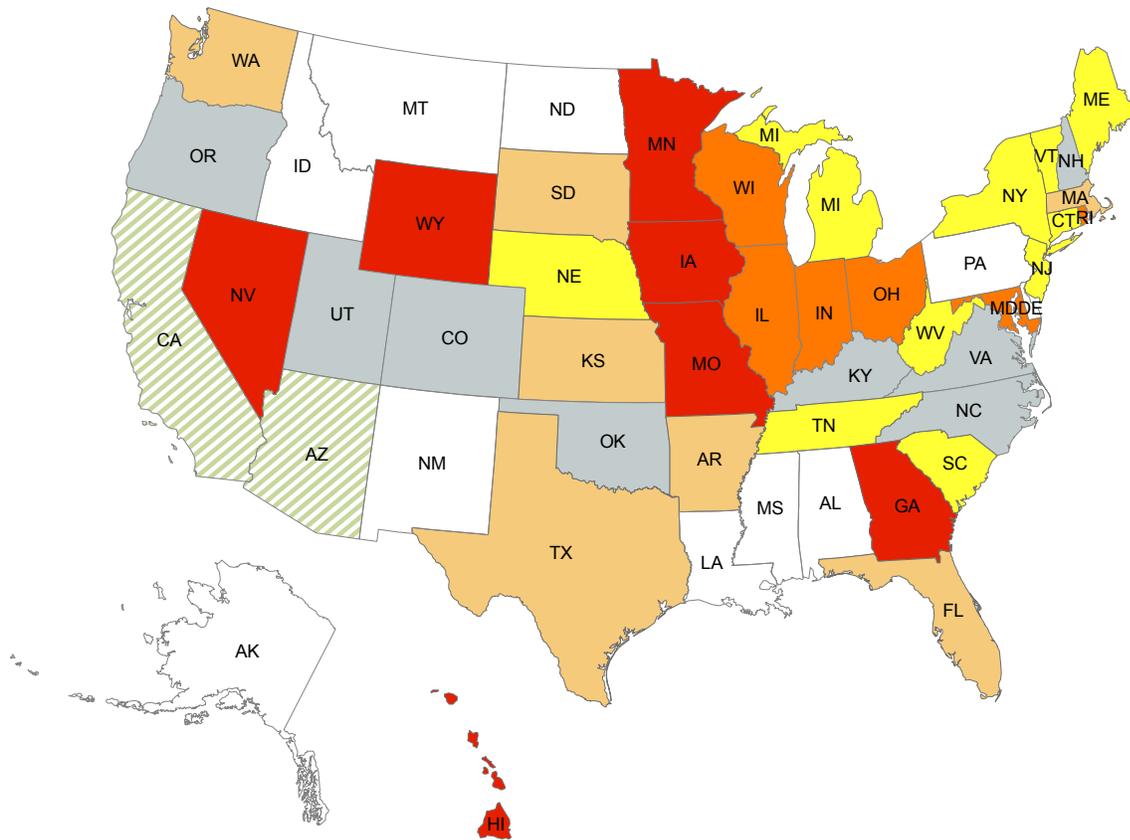
EXECUTIVE SUMMARY

The Healthcare Cost and Utilization Project (HCUP), sponsored by the Agency for Healthcare Research and Quality (AHRQ), has long been recognized for producing relevant and useful software tools, databases, and information products and making these resources available to a variety of stakeholders. These HCUP products have reliably contributed to research advances in health care for many years. Modern advances in communication, connectivity, software, and information-sharing have increased the demand for more timely health care information to support decision making by patients/consumers, clinicians and other health care providers, health care management, and policy makers. The importance of timelier data as a way to identify early trends or evaluate changes in health care has been a topic of interest for HCUP, and Thomson Reuters has actively investigated ways in which health care data are used, and has evaluated data collection timelines and availability.

HCUP relies on the continued participation of State governments, hospital associations, and private data organizations that provide statewide discharge and encounter data. At present, HCUP receives statewide data from 40 states on an annual basis. One shortcoming of receiving data on this timeline has been the lack of expediency in producing nationwide health care statistics. The HCUP Nationwide Inpatient Sample (NIS) is widely used among researchers and policymakers to analyze national trends in health care utilization, access, costs, charges, quality, and outcomes. However, the NIS is currently not made available to researchers until statewide inpatient data from all HCUP Partners has been received and the HCUP State Inpatient Databases (SID) have been created. Due to the increasing popularity of HCUP data and the growing demand for more current health care information, the HCUP team conducted a study to determine the feasibility of collecting quarterly rather than annual data from HCUP Partners.

The intention of this study was to evaluate the completeness, timeliness, and availability of quarterly state data from HCUP Partners and the efficacy of collecting that data. To accomplish these objectives, Thomson Reuters reviewed information obtained through the Annual Data Assessment sent to HCUP Partners in January 2007, and conducted a survey of HCUP Partners to supplement the information about the availability of quarterly data. In addition, quarterly inpatient data provided by 18 HCUP Partners for a special study on Rotavirus was compared with annual data they submitted to HCUP. Thirty-six of 40 HCUP Partners responded to our survey. While there are isolated differences in data types, completeness, and quality, approximately 80% of HCUP Partners were identified as collectors of quarterly inpatient data with lag time for data availability ranging from 2 months to 14 months after the end of the quarter (see Figure 1).

Figure 1. Quarterly Data Availability by State^{1,2}



Legend

- Non-HCUP (not contacted)
- No quarterly data/unknown
- Semi-annual data
- Quarterly data available in 7+ months
- Quarterly data available in 5-6 months
- Quarterly data available in 4 months
- Quarterly data available in 3 months or less

¹ For consistency, we used the longest of the four quarterly lag times for a state.

² The following states collect annual files or did not indicate when quarterly data was available: CO, KY, NC, NH, OK, OR, UT, VA.

BACKGROUND

This document provides a summary of recent efforts by Thomson Reuters to determine the capacity of current HCUP Partners to provide more timely data. Our project addressed issues of data completeness, quality, and timeliness, and was based on responses to surveys, direct communication with Partners, and recent experience obtaining timely data from Partners. The Rotavirus task largely influenced the research behind this report because it provided insight into the concept of collecting quarterly data from all HCUP Partners on a routine basis.

In June 2008, AHRQ, in collaboration with the Centers for Disease Control and Prevention (CDC) tasked Thomson Reuters with conducting a study on the effectiveness of the new Rotavirus vaccine, approved in February 2006. Thomson Reuters was able to secure quarterly inpatient discharge data from 18 Partners on an accelerated timeline in an effort to evaluate the effectiveness of the vaccine. Specifically, HCUP Partners agreed to provide quarterly data to HCUP five months after the close of Q1 2008 and four months after the close of Q2 2008. About half of the states experienced more difficulty with the four-month window. It is important to note that the HCUP Partners were less concerned about the quality of the data elements, but instead that hospital reporting would not be complete given the aggressive timeline. Most of the HCUP Partners that were interviewed for the Rotavirus task informed Thomson Reuters that they typically allow hospitals 45, 60, or 90 days to submit after the close of the period.

The number of HCUP Partners that were able to participate in the Rotavirus task exceeded AHRQ's expectations and the project provided impetus to explore the feasibility of collecting quarterly data from all HCUP Partners. The feasibility study was aimed at gathering information from all HCUP Partners, regardless of whether they participated in the Rotavirus task. The study objectives were to:

- 1) Identify which HCUP Partners collect quarterly data.
- 2) Determine if HCUP Partners could provide quarterly data to HCUP and under what timeline.
- 3) Conduct an evaluation to establish the completeness and quality of the quarterly data, specifically regarding compatibility with the annual file HCUP currently receives from Partners.
- 4) Recommend selected states that meet desired criteria.

METHODS

Thomson Reuters reviewed information obtained through the Annual Data Assessment sent to HCUP Partners in January 2007 and identified knowledge gaps. A survey was developed to learn more from HCUP Partners about the availability of quarterly data. Lastly, data were assessed to find differences between quarterly data submitted for the Rotavirus task and annual data submitted to HCUP.

Assessment of Existing Information

In spring of 2007, the HCUP team sent its Annual Data Assessment to HCUP Partners, which included questions about frequency of data collection and transmission. A review of the responses to the Assessment indicated that 18 of 36 HCUP Partners could provide data to HCUP on a quarterly basis, four Partners could provide updates half yearly, one Partner could provide updates monthly, and the remaining 13 HCUP Partners could provide only annual updates. By evaluating these responses to the 2007 Annual Data Assessment, the HCUP team

learned approximately how many states collect data on a quarterly basis. Given that the survey was conducted in early 2007, it was determined that further follow-up would be needed to validate the responses, establish whether data collection cycles had changed, and evaluate the quality of the data that could be provided to HCUP.

Thomson Reuters then directed attention to the recent Rotavirus task to identify which states contributed data to the project, determine any limitations or difficulties related to data acquisition, and evaluate the quality of the quarterly data provided. While all HCUP Partners were contacted about the Rotavirus task, 18 geographically dispersed Partners chose to participate in the analysis. Data acquisition for the Rotavirus task was relatively uneventful with only two states requiring a special research request (MD and IN), and one state requiring an additional application (FL). Because the Rotavirus task was a special research project under the direction of AHRQ, HCUP Partners were informed that use of the data would be consistent with the data handling procedures outlined in their current HCUP Memorandum of Agreement and Security Plan documents. Partners that inquired about additional data purchase costs were given an opportunity to propose a fee which would be pre-approved by AHRQ. The eventual outcome resulted in all 18 Partners contributing data to the Rotavirus task free of charge.

While the existing understanding of Partner capabilities was an important first step, questions remained about the completeness and accuracy of the data. To deal with these issues, the project team designed and distributed a survey which specifically addressed timeliness, completeness, and accuracy.

Development of Questionnaire

The primary objectives in developing questions for the survey were (a) to identify Partners that collect quarterly data, and (b) to identify any differences that exist between the quarterly data and the annual data currently provided to HCUP, specifically with regard to data quality, completeness, timeliness, and availability.

Based on knowledge derived from the Rotavirus task about the ability of the 18 Partners to collect and provide quarterly data to HCUP under given circumstances, it was determined that the most effective approach would be to disseminate the survey to two distinct groups: Partners who participated in the Rotavirus task, and all remaining Partners. Thomson Reuters decided that the online survey tool, SurveyMonkey, would quickly and efficiently reach the Partners and collect responses. One survey was created to contain a series of questions about quarterly data which would be applicable to both groups. By using the skip-logic features in SurveyMonkey, Thomson Reuters was able to customize the survey based on each respondent's answer to the first question. For example, if a respondent answered "No" to the first question, "Does your organization collect quarterly or monthly data?" the survey would navigate to a closing page thanking the respondent for their participation. Alternatively, if a respondent answered "Yes" to the first question, the survey navigation directed the respondent to a second page prompting answers to another series of questions about quarterly data. The survey questions are provided in Appendix A.

Distribution of Questionnaire

After the survey was developed and approved by AHRQ, Thomson Reuters prepared introductory e-mails to the HCUP Partners. Each message was supplemented with a link to the online survey. Because separate survey protocols were created for two groups of Partners, it

was important to create customized messages for each group. Appendix B includes a list of Partners contacted and their corresponding status in the Rotavirus task.

It was then decided that HCUP Partner Liaisons would be the most appropriate individuals to distribute the survey based on their existing relationships with Partners, knowledge of HCUP data acquisition activities, and their past experiences with the HCUP Annual Data Assessments. The Liaisons were provided with a document that included introductory e-mail templates for each of the two groups and their Partners' group designation. Please see Appendix C for details. The Liaisons e-mailed the surveys to their state Partners to request participation. Thomson Reuters allowed the Partners one week to respond to the survey and followed-up with any remaining Partners who had not yet responded. Two weeks after the survey was distributed, Thomson Reuters followed up again with all remaining non-respondents.

RESULTS

Responses to Survey

The results of this analysis are based on knowledge obtained from HCUP Partners over the course of the Rotavirus task and the State Quarterly Data survey and are focused exclusively on HCUP Partners' ability to collect and provide quarterly data to HCUP. Of 40 HCUP Partners that were surveyed, 36 responded to the survey. Of the remaining four HCUP Partners that did not respond, one participated in the Rotavirus task (AZ), which indicated that this HCUP Partner was able to provide partial-year data quickly. It should be noted that while Arizona and California were able to participate in the Rotavirus task, they both create six-month files, not quarterly files. No information was obtained from the remaining three non-respondents (OR, CO, and VA).

Appendix D includes the specific survey responses from the 36 Partners. Below is a summary of the results.

States That Collect Quarterly Data (Objective 1)

Based on the results from the quarterly data evaluation survey and the Rotavirus task, 34 of 40 states (85%) collect data at more frequent intervals than annually. This information seems very promising as it relates to ways in which HCUP data could be used to produce more timely healthcare statistics. The following states collect partial-year data:

- 32 states collect quarterly data (AR, CT, FL, GA, HI, IL, IN, IA, KS, KY, ME, MD, MA, MI, MN, MO, NE, NJ, NV, NY, OH, RI, SC, SD, TN, TX, UT, VT, WA, WV, WI, WY).
- 2 states collect six-month data (AZ and CA).

For States that collect data annually or for which no information was obtained:

- 3 states collect annual files (NC, NH, and OK).
- 3 states which are non-respondents and no existing information (OR, CO, and VA).

Evaluation of Quality of Quarterly Data Previously Provided Versus Annual Files

Thomson Reuters conducted a preliminary evaluation of the quarterly data collected for the Rotavirus task to determine compatibility with the annual HCUP files. The evaluation of the quarterly data in terms of quality and completeness was limited and intended as merely an exploration for future data use. Utility of data that may not have gone through all of the quality assurance measures applied to annual files has been a source of concern. There is uncertainty about whether the quality and completeness of the data would be sufficient to support research uses.

Initial investigations performed as part of the Rotavirus task suggest that the quarterly data quality is quite good, at least for those variables for which statistics have been run. Some of the variables examined were: age, gender, number of diagnoses, number of E codes, principal and secondary diagnoses, and data source hospital identifier. The quality of the data files provided for the Rotavirus task is consistent with the quality of the Partners' annual files.

The empirical experience and anecdotal information from data providers indicate that in general, data quality is now quite high and greatly improved over available data when the HCUP tasks first began some 20 years ago. However there appear to be varying levels of quality for different classes of variables.

Previous experience with annual files and subjective information from data suppliers suggests that there are gradations in the quality of data, with different variables having different levels of quality. We have found that variables used to calculate DRGs, which influence hospital reimbursement, are of very high quality. Some variables that provide basic patient census information are also very reliable. Other variables that are collected but seldom utilized do not engender much scrutiny or feedback and are often uneven in quality. Some providers take pains to provide accurate data even for these variables, while others will ignore them or code a default value.

Variables found to be consistently reliable include:

- Age
- Gender
- Disposition
- Diagnoses
- Procedures

Other variables that are usually of reasonably good quality include:

- Admission Date
- Discharge Date
- ZIP Code

E codes and Total Charges are often of special interest to researchers, but their quality is sometimes problematic. A careful examination of these would be required to determine whether the quality is sufficient for inclusion in a database.

The biggest concern with the quarterly data relates to obtaining all of the records in a timely manner. Delays often arise when hospitals have to resolve problems with their data processing

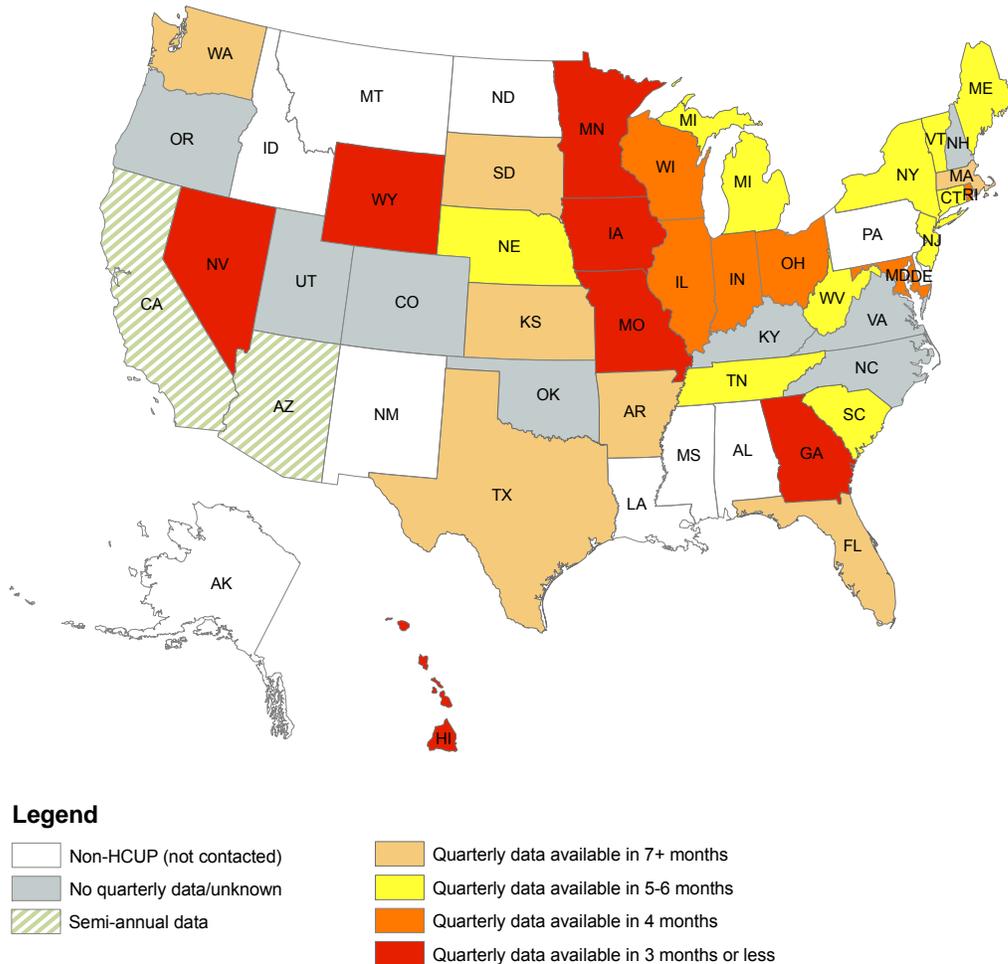
systems or make corrections to records that failed data quality edits. It is predicted that the quarterly data may not be as high quality as annual data because the quarterly production schedule does not allow sufficient time to resolve all outstanding issues before releasing a file.

Possible Timeline for Receipt Quarterly Data (Objective 2)

The lag time between a quarter's end and when the Partner reported that the data were available varied by quarter within specific states, as well as between states. The shortest lag times reported were two months (Hawaii) to 14 months (Massachusetts). Of the 32 states that collect quarterly data, 31 provided typical availability dates³. Of these 31 states,

- 8 can consistently provide data within three months from the quarter.
- 13 can consistently provide data within four months from the quarter (the 8 states within 3 months plus 5 additional states).
- 23 can consistently provide data within six months from the quarter (the 13 states within 4 months plus 10 additional states).

Figure 2. Quarterly Data Availability by State⁴



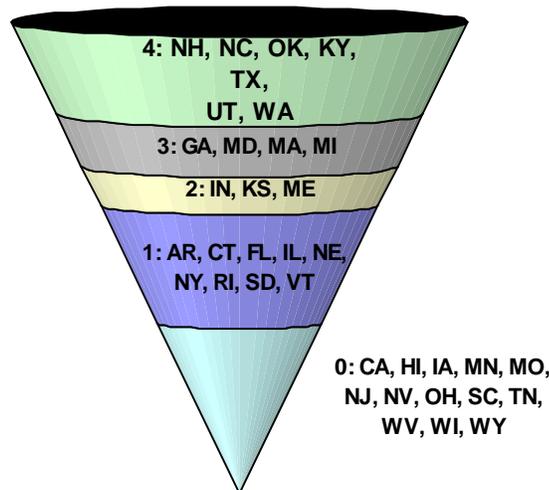
³For consistency, we used the longest lag time for a state.

⁴ The following states did not indicate when quarterly data was available: CO, KY, NC, NH, OK, OR, UT, VA.

Quality of Quarterly Data (Objective 3)

In the survey, HCUP Partners were asked a series of yes / no questions about the quality of their quarterly data, and were given the option to explain any issues related to stability, completeness, quality, and troublesome data elements. Figure 3 depicts how each state ranked in terms of these criteria. Stability refers to whether or not their data structures change between quarters; completeness refers to missing hospitals or records; and quality refers to inaccuracies in revenue or charge information, procedure codes, or diagnosis codes. The states were ranked by how many of these categories were identified as sources of concern.

Figure 3: HCUP Partner-Reported Quality of Quarterly Data: Number of Quality Concerns



Summary of troublesome data elements

Analysis of narrative responses indicated that troublesome data elements mirrored our experience with the annual data.

Table 1. Troublesome data elements

IP	AS	ED
POA (n=5 Partners)		POA (n=1 Partner)
Payer (n=2 Partners)	Payer (n=2 Partners)	Payer (n=2 Partners)
Ethnicity (n=2 Partners)	Ethnicity (n=1 Partner)	Ethnicity (n=1 Partner)
Race (n=1 Partner)	Race (n=1 Partner)	Race (n=1 Partner)
E-Codes (n=1 Partner)		E-Codes (n=1 Partner)
Patient Unique ID (n=1 Partner)		
Admit Source (n=1 Partner)		
ICD-9 Codes (n=1 Partner)	ICD-9 Codes (n=1 Partner)	ICD-9 Codes (n=1 Partner)
NPI (n=1 Partner)		

IP	AS	ED
	CPT/HCPCS (n=2 Partners)	CPT/HCPCS (n=2 Partners)
Charge (n=1 Partner)		
		Attending MD specialty (n=1 Partner)

Although Present on Admission (POA) was cited as the most troublesome data element, this may reflect the recency of collection initiation by most states rather than an intrinsic unreliability. Many of the states' challenges in obtaining accurate and consistent use of this data element may eventually be resolved as hospitals gain coding experience and develop resolutions for unusual cases.

As with POA, most of the troublesome data element issues were not related to the nature of quarterly data. These problems were also concerns on the states' annual files.

Summary of Findings (All Sources)

The following table summarizes the survey findings. Complete responses are available in the appendix.

Table 2: Summary of Findings (All Sources): Data Content

Data Org.	Collects Quarterly Data	Rotavirus Data		Stability	Completeness	Quality	Problem Data Elements
		Full File	Subset				
AZ	Half yearly		□				
AR	Yes			●	●	●	○
CA	Half yearly	■		●	●	●	●
CO							
CT	Yes			●	●	●	○
FL	Yes		□	●	●	●	○
GA	Yes		□	●	○	○	○
HI	Yes	■		●	●	●	●
IL	Yes			●	●	●	○
IN	Yes		□	●	○	○	●
IA	Yes	■		●	●	●	●
KS	Yes			●	○	●	○
KY	Yes	■					
ME	Yes		□	●	●	○	○
MD	Yes		□	●	○	○	○
MA	Yes			●	○	○	○
MI	Yes	■		●	○	○	○
MN	Yes	■		●	●	●	●
MO	Yes		□	●	●	●	●
NE	Yes			●	●	●	○
NV	Yes	■		●	●	●	●
NH	no						
NJ	Yes			●	●	●	●
NY	Yes		□	●	○	●	●

Data Org.	Collects Quarterly Data	Rotavirus Data		Stability	Completeness	Quality	Problem Data Elements
		Full File	Subset				
NC	no						
OH	Yes			●	●	●	●
OK	no						
OR							
RI	Yes			●	●	●	○
SC	Yes		□	●	●	●	●
SD	Yes			●	●	●	○
TN	Yes			●	●	●	●
TX	Yes			○	○	○	○
UT	Yes			○	○	○	
VT	Yes			●	●	○	●
VA							
WA	Yes	■		○	○	○	○
WV	Yes	■		●	●	●	●
WI	Yes			●	●	●	●
WY	Yes			●	●	●	●

States not responding to the survey are identified with shaded rows.

- = Participated in Rotavirus task and submitted full file
- = Participated in Rotavirus task and submitted extracted records
- = Data is relatively clean and comparable to annual data
- = Some notable differences exist between annual data and quarterly data

Table 2 describes the data available from HCUP Partners. Quarterly data are available from most sources, and bi-annual files are available from Arizona and California. Three HCUP Partner states did not participate in the survey. In most states, the data are reported to be complete and without quality concerns. While some Partners indicated quality concerns, the stated issues were generally also present with the Partner's annual data. In addition, a few states indicated that quarterly data may not be complete, although in our experience with insurance claims, more than 99 percent of inpatient claims are adjudicated within 90 days from discharge. Overall, the project team believes that most quarterly data is probably of comparable quality to a Partner's annual data.

Table 3: Summary of Findings (All Sources): Data Availability

Data Org.	Collects Quarterly Data	Quarterly Data: Availability Lag in Months (as reported by Partner)	Annual Data Experience 2007			State Historically Delivers Annual Files Early
			Scheduled Data Release Month	Month IP Data Received	Difference Between Scheduled Release Month and Date Received Month	
AZ	Half yearly		4	4	0	
AR	Yes	7	6	9	3	
CA	Half yearly	9	7	7	0	
CO			8	7	-1	
CT	Yes	6	8	14	6	
FL	Yes	8	10	12	2	
GA	Yes	3	9	10	1	
HI	Yes	2	7	9	2	
IL	Yes	4	6	8	2	Yes
IN	Yes	4	6	8	2	Yes
IA	Yes	3	5	6	1	Yes

Data Org.	Collects Quarterly Data	Quarterly Data: Availability Lag in Months (as reported by Partner)	Annual Data Experience 2007			State Historically Delivers Annual Files Early
			Scheduled Data Release Month	Month IP Data Received	Difference Between Scheduled Release Month and Date Received Month	
KS	Yes	8	9	11	2	
KY	Yes	n/a	8	9	1	
ME	Yes	5	7	8	1	
MD	Yes	4	7	8	1	Yes
MA	Yes	14	12	n/a	n/a	
MI	Yes	5	10	13 (01/2009)	3	
MN	Yes	3	5	7	2	Yes
MO	Yes	3	5	8	3	Yes
NE	Yes	6	10	10	0	
NV	Yes	3	5	5	0	Yes
NH	no		10	n/a	4	
NJ	Yes	5	8	7	-1	Yes
NY	Yes	6	9	13 (01/2009)	4	
NC	no		12	12	0	
OH	Yes	4	7	7	0	Yes
OK	no		10	12	2	
OR			5	5	0	Yes
RI	Yes	3	10	10	0	
SC	Yes	6	8	10	2	
SD	Yes	9	7	7	0	Yes
TN	Yes	5	8	11	3	
TX	Yes	11	12	14 (02/2009)	2	
UT	Yes		9	12	3	
VT	Yes	5	8	10	2	
VA			7	11	4	Yes
WA	Yes	9	7	8	1	Yes
WV	Yes	6	8	8	0	Yes
WI	Yes	4	5	10	5	Yes
WY	Yes	3	9	9	0	

Table 3 compares availability of quarterly data, as stated by the Partners, with the HCUP team's experience in acquiring annual data files. Only 11 Partners shipped their data within one month of the availability date. On average, usable data was received one and one-half months late. The greatest difference was 6 months. Two states – Colorado and New Jersey – sent their data sooner than expected.

As noted above, the data in Table 3 indicate some discrepancies between the states' reported availability of quarterly files and the HCUP team's experience receiving annual Inpatient data files. Whereas column three represents the "best case scenario" for receiving quarterly data, column five represents a more "realistic" scenario based on our experience receiving the annual Inpatient data files. Column six represents the time lag between the Partner's data release date and the point at which annual inpatient data suitable for processing was received. For most states, the Partner's survey response regarding the availability of quarterly data was sooner than the most recent HCUP experience with annual data. There are several factors that may explain this discrepancy:

- Several Partners implemented system changes that delayed the 2007 data
- Shorter lag times for the quarterly data may reflect quality differences, whereas longer delivery times for annual data reflect Partner efforts to correct errors.
- The reported information from the Partner may not be accurate, or may reflect optimistic scenarios.

Above all, the differences between the Partner's reported availability and the HCUP experience should highlight the complexities involved in collecting data: problems often delay data availability despite the best of intentions.

LIMITATIONS

While the survey was designed primarily to assess the feasibility of collecting quarterly data from HCUP Partners, there are some limitations on the scope of such an effort which should be noted.

It has not yet been determined which HCUP Partners would be willing to provide quarterly data. The initial results of the evaluation call for further follow-up with selected states to address the specific circumstances under which the data would be provided. The preliminary evaluation also does not identify issues related to further release of the data; for example, releases through the HCUP Central Distributor. Because 25 of 40 HCUP Partners participate in the HCUP Central Distributor, this is an important issue to address when considering all intended uses for the data.

Additionally, the concept of cost is one of great importance. As with other data acquisition activities, any issues related to data costs would need to be agreed on by all parties before data requests could be considered. Costs related to HCUP staffing and processing would also need to be carefully evaluated.

It is recommended that these matters be addressed in the subsequent deliverable titled "Quarterly Data Infrastructure and Recommendations Report."

RECOMMENDATIONS

The results of this analysis provide insight into the concept of collecting quarterly data from HCUP Partners and using these data to provide timelier estimates of care. While there are issues of concern around cost, willingness to provide quarterly data, and external release of the data, the enhanced timeliness of quarterly data would offer greater opportunities for health care researchers and policymakers to better develop forecasts on which to base plans and programs, as well as to more reliably assess and describe trends and emerging situations.

We have been encouraged by the initial responses to the survey as reported in this document, and by our experience with quarterly data while developing the Rotavirus database. Quarterly data may indeed be a viable data source, but questions remain about their quality. According to the survey, 26 percent of the respondents reported that the quality of their data differs from that of their annual data, and 32 percent reported that their quarterly data are less complete than those that are reported annually. To address this uncertainty we recommend that an investigation of quarterly data quality be included in the second report planned for this task.

One way to gather information about data quality would be to perform follow-up contacts with Partners that reported data resubmission issues on the survey. Partners to contact are: AR, GA, IN, MA, MI, MO, NJ, NY, SD.

Additionally, we recommend performing a variety of quantitative investigations to ascertain data quality and guide the final selection of fundamental variables. Statistics produced for these analyses would be means for continuous variables and frequencies for discrete variables. Investigating discrepancies in the number of hospitals and records will also be an important concern. Initially Thomson Reuters considered the following investigations:

- Compare statistics generated during the Rotavirus task with a quality baseline of statistics on selected variables from annual files. Although statistics are available from the Rotavirus task for only a few selected variables, this examination can be performed immediately and may help indicate problem areas where commonly used data does not attain the quality expected. Immediate comparisons can be performed for a subset of states that provided quarter 4 data for 2007, and then subsequently submitted the full year 2007 data file. These states include: FL, GA, NY, and SC.
- Compare statistics from quarterly test data with statistics from annual data for the same quarter. This analysis can not be performed by obtaining retrospective quarterly data that matches the available HCUP annual files because some states have reported that they continually refine their data. As most of the Rotavirus data are from 2008 and HCUP has not yet received corresponding annual data, initial comparisons could only be made between different data years. Although such comparisons are not as definitive as when data from the same time period could be used, this analysis would provide a preliminary indication of how similar the quality of the quarterly data is to annual data.

Due to the some of the limitations noted above, Thomson Reuters recommends delaying the analysis and waiting for the 2008 full year data files to become available so that a more definitive comparison against the quarterly data can be performed. In the interim, it is recommended that Thomson Reuters obtain permissions for the Partners that provided full quarter 2008 files for the Rotavirus task so that the data could be re-used for this new purpose. Given that we are approaching the beginning of the 2008 annual data cycle, this method will provide a window of time to secure permissions and address any questions with Partners. Additionally, this window of time could allow for permissions to be bundled with other HCUP Amendments as needed prior to data acquisition.

Table 4: Expected Timeframe for Comparing Quarterly Data to Annual Data

Rotavirus States that submitted full Quarter files	Expected month for receipt of Annual Data
California	July
Hawaii	August
Iowa	July
Kentucky	August
Michigan	November
Minnesota	June
Nevada	May
Washington	August

Rotavirus States that submitted full Quarter files	Expected month for receipt of Annual Data
West Virginia	August

Recommend the most promising states for the pilot study (Objective 4)

Oftentimes, states experience unexpected delays in sending their annual data to HCUP. These delays are typically related to late hospital submissions or incomplete fields which subsequently result in one or more data resubmissions to HCUP. In order to generalize any issues related to the quality of the quarterly data, it is important to acknowledge a few states which have historically been more problematic than others. Some of these states include but are not limited to FL, MA, SC, KS, and MI.

A pilot study to collect, process, and analyze quarterly data would provide further insight into the usefulness of quarterly files. Based on survey responses, the timing for releasing quarterly data, and the HCUP team's experience with processing and analyzing data from the various states, Thomson Reuters recommends selecting two of the following three states as potential candidates for a pilot study:

- Illinois
- Minnesota
- Nevada

All three states indicate that quarterly data is available with short lags: Minnesota and Nevada data are obtainable within three months, while Illinois files are available within four months. All three states provide “early” annual data, making comparisons between aggregated quarterly data and annual data possible sooner rather than later. From our experience, these states also provide high-quality data. Illinois indicated issues with admission source (inpatient) and payer (outpatient) fields, but these problems are small and similar to troubles observed with most state data. Finally, the three states provide a mix of both urban and rural areas that might offer information on the relationship between hospital setting and data submission. The Illinois and Nevada Partners are public (state departments), while the Minnesota Partner is a private (hospital association) organization. The three states mentioned above were recommended for a pilot study based on their history of high-quality, timely data and geographic distribution; however it should be noted that the scope of work for this project mentions only two states for a pilot study. Thus, additional analysis would be needed to further narrow down the selection, or discussion of additional funding would need to be considered.

APPENDICES

APPENDIX A. STATE QUARTERLY DATA QUESTIONS FOR PARTNERS

Survey: 1st Page:

Contact Information

Name of individual completing this survey: _____

State and organization: _____

Phone number: _____

Does your organization collect quarterly or monthly data? (please check data types)

- inpatient (IP)
- ambulatory surgery (AS)
- emergency department (ED)
- None

Survey: 2nd Page:

How does the quarterly/monthly data differ from the annual data?

- Does the quarterly/monthly data contain a different set of data elements than the annual data?
 - IP please explain: _____
 - AS please explain: _____
 - ED please explain: _____
 - No difference for any type of data
- Are the quarterly/monthly data less complete? (Ex. missing hospitals or records)
 - IP please explain: _____
 - AS please explain: _____
 - ED please explain: _____
 - No difference for any type of data
- Does the quarterly/monthly data differ in quality? (Ex. inaccuracies in revenue or charge information, procedure codes, or diagnosis codes)
 - IP please explain: _____
 - AS please explain: _____
 - ED please explain: _____
 - No difference for any type of data
- Are any data elements more troublesome than others?
 - IP please explain: _____
 - AS please explain: _____
 - ED please explain: _____
 - None for any type of data
- Do your data structures often change between quarters?
 - IP please explain: _____
 - AS please explain: _____
 - ED please explain: _____
 - No

- Is there any other important information about your quarterly/monthly data regarding differences with the annual data?
-

When during the year is your quarterly/monthly data typically available?

- CY2008 Quarter 1
- CY2008 Quarter 2
- CY2008 Quarter 3
- CY2008 Quarter 4

- Do you have a data release policy for the quarterly/monthly data?

Yes

Would you be able to provide this information to us?

Yes

No

No

APPENDIX B. HCUP PARTNERS SURVEYED

Group 1: HCUP Partners who agreed to participate in the Rotavirus task

State	Data Source
Arizona	Arizona Department of Health Services
California	Office of Statewide Health Planning and Development
Florida	Florida Agency for Health Care Administration
Georgia	Georgia Hospital Association
Hawaii	Hawaii Health Information Corporation
Indiana	Indiana Hospital Association
Iowa	Iowa Hospital Association
Kentucky	Kentucky Cabinet for Health and Family Services
Maryland	Health Services Cost Review Commission
Maine	Maine Health Data Organization
Michigan	Michigan Health & Hospital Association
Minnesota	Minnesota Hospital Association
Missouri	Hospital Industry Data Institute
Nevada	Nevada Department of Health and Human Services
New York	New York State Department of Health
South Carolina	South Carolina State Budget & Control Board
Washington	Washington State Department of Health
West Virginia	West Virginia Health Care Authority

Group 2: All remaining HCUP Partners (*not participating in the Rotavirus task*)

Arkansas	Arkansas Department of Health
Colorado	Colorado Hospital Association
Connecticut	Connecticut Hospital Association
Illinois	Illinois Department of Public Health
Kansas	Kansas Hospital Association
Massachusetts	Division of Health Care Finance and Policy
Nebraska	Nebraska Hospital Association
New Hampshire	New Hampshire Department of Health & Human Services
New Jersey	New Jersey Department of Health and Senior Services
North Carolina	North Carolina Department of Health and Human Services
Ohio	Ohio Hospital Association
Oklahoma	Oklahoma State Department of Health
Oregon	Oregon Association of Hospitals and Health Systems
Rhode Island	Rhode Island Department of Health
South Dakota	South Dakota Association of Healthcare Organizations
Tennessee	Tennessee Hospital Association
Texas	Texas Department of State Health Services
Utah	Office of Health Care Statistics, Utah Department of Health
Vermont	Vermont Association of Hospitals and Health Systems
Virginia	Virginia Health Information
Wisconsin	Wisconsin Department of Health and Family Services
Wyoming	Wyoming Hospital Association

APPENDIX C. SAMPLE E-MAIL TEMPLATE PROVIDED TO STATE LIAISONS

Blue Team

Rotavirus Partners: CA, HI, IN, NY, SC, WA

Subject: HCUP: State Quarterly Data Evaluation Survey

Dear _____,

We understand your data organization provides quarterly inpatient data for the Rotavirus Project, and we thank you for all your efforts in this exciting analysis.

As a follow-up to the Rotavirus analysis we hope you can provide additional information to help us assess the availability, quality, and timeliness of quarterly data in your state. Specifically, we are interested in whether your organization collects quarterly or monthly inpatient (IP), ambulatory surgery (AS), and emergency department (ED) encounter-level data similar to the annual file your organization currently provides to HCUP. For this effort, we request your participation in a quick survey. Your participation is greatly appreciated. This short survey will require less than 10 minutes of your time. We would appreciate receiving your feedback by **December 12, 2008**. Thank you for your continued participation in HCUP. We look forward to hearing from you.

Survey http://www.surveymonkey.com/s.aspx?sm=I1XSLpDvshid6wVVhkzKUw_3d_3d

Regards,

<State Liaison>

Blue Team

Non-Rotavirus Partners: OH, OR, VT, WY

Subject: HCUP: State Quarterly Data Evaluation Survey

Dear _____,

We would like to request your participation in a quick survey regarding the availability, quality, and timeliness of quarterly data in your state. Specifically, we are interested in whether your organization collects quarterly or monthly inpatient (IP), ambulatory surgery (AS), and emergency department (ED) encounter-level data similar to the annual file your organization currently provides to HCUP. Your participation is greatly appreciated. This short survey will require less than 10 minutes of your time. We would appreciate receiving your feedback by **December 12, 2008**. Thank you for your continued participation in HCUP. We look forward to hearing from you.

Survey http://www.surveymonkey.com/s.aspx?sm=I1XSLpDvshid6wVVhkzKUw_3d_3d

Regards,

<State Liaison>

APPENDIX D. SURVEY RESPONSES

Inpatient

Data Org.	Collect Quarterly Data	Different Set of Data Elements	Less Complete	Differ in Quality	Troublesome Data Elements	Change in Data Structures	Data Release Policy	Availability of Data Release Policy
AZ								
AR	X				X		No	
CA							Yes	Yes
CO								
CT	X						No	Yes
FL	X				X		Yes	Yes
GA	X		X	X	X		Yes	Yes
HI	X						Yes	Yes
IL	X				X		Yes	Yes
IN	X		X	X			Yes	Yes
IA	X						Yes	Yes
KS	X		X		X		Yes	Yes
KY	X							
ME	X			X	X		Yes	Yes
MD	X			X			Yes	Yes
MA	X		X	X	X	X	No	No
MI	X		X	X	X		No	
MN	X						No	
MO	X						Yes	
NE	X				X		Yes	Yes
NV	X						Yes	Yes
NH								
NJ	X						Yes	Yes
NY	X		X				Yes	Yes
NC								
OH	X						Yes	Yes
OK								
OR								
RI	X						Yes	Yes
SC	X						Yes	Yes
SD	X						No	
TN	X						Yes	No
TX	X	X	X	X	X	X	No	
UT	X	X	X				No	No
VT	X			X			No	
VA								
WA	X		X	X	X	X	Yes	Yes
WV	X						Yes	Yes
WI	X						Yes	Yes
WY	X						No	

Ambulatory Surgery

Data Org.	Collect Quarterly Data	Different Set of Data Elements	Less Complete	Differ in Quality	Troublesome Data Elements	Change in Data Structures	Data Release Policy	Availability of Data Release Policy
AZ								
AR							No	
CA	X						Yes	Yes
CO								
CT	X				X		No	Yes
FL	X						Yes	Yes
GA	X		X	X	X		Yes	Yes
HI	X						Yes	Yes
IL	X				X		Yes	Yes
IN	X		X	X			Yes	Yes
IA	X						Yes	Yes
KS							Yes	Yes
KY	X							
ME	X				X		Yes	Yes
MD	X		X		X		Yes	Yes
MA							No	No
MI	X		X	X			No	
MN	X						No	
MO	X						Yes	
NE	X						Yes	Yes
NV							Yes	Yes
NH								
NJ	X						Yes	Yes
NY	X		X				Yes	Yes
NC								
OH	X						Yes	Yes
OK								
OR								
RI							Yes	Yes
SC	X						Yes	Yes
SD	X				X		No	
TN	X						Yes	No
TX							No	
UT	X	X	X				No	No
VT	X			X			No	
VA								
WA							Yes	Yes
WV							Yes	Yes
WI	X						Yes	Yes
WY	X						No	

Emergency Department

Data Org.	Collect Quarterly Data	Different Set of Data Elements	Less Complete	Differ in Quality	Troublesome Data Elements	Change in Data Structures	Data Release Policy	Availability of Data Release Policy
AZ								
AR							No	
CA	X						Yes	Yes
CO								
CT	X				X		No	Yes
FL	X				X		Yes	Yes
GA	X		X	X	X		Yes	Yes
HI	X						Yes	Yes
IL	X				X		Yes	Yes
IN	X		X	X			Yes	Yes
IA	X						Yes	Yes
KS	X						Yes	Yes
KY	X							
ME	X				X		Yes	Yes
MD	X		X		X		Yes	Yes
MA	X		X	X	X	X	No	No
MI							No	
MN	X						No	
MO	X						Yes	
NE	X						Yes	Yes
NV							Yes	Yes
NH								
NJ	X						Yes	Yes
NY	X		X				Yes	Yes
NC								
OH	X						Yes	Yes
OK								
OR								
RI	X				X		Yes	Yes
SC	X						Yes	Yes
SD	X				X		No	
TN	X						Yes	No
TX							No	
UT	X	X	X				No	No
VT	X			X			No	
VA								
WA							Yes	Yes
WV							Yes	Yes
WI	X						Yes	Yes
WY	X						No	