3 File Construction and PAC Validation

3.1 Sources of Data

The principal sources of data for this study were HCFA's MedPAR and inpatient and home health Standard Analytic Files (SAFs). Inpatient SAF include admission claims from acute care hospitals; rehabilitation, psychiatric, children's and specialty care facilities and distinct part units; and skilled nursing facilities. The SAF files represent raw claims data submitted to HCFA by provider groups. Once provider submissions are near complete for a given period of time, inpatient SAFs are consolidated into the standard MedPAR format. This process of turning inpatient SAFs into MedPAR files entails, among other auditing and cleaning tasks, merging multiple or interim bills for a single inpatient admission into one record. It also involves creating standardized analytic variables. Home health SAFs are not, however, transformed into MedPAR files. Analyzing home health utilization and payment requires using the home health SAFs.

At the time this study was conducted, MedPAR files had been created only up through calendar year 1998. For calendar year 1999 records, we were forced to rely on the inpatient SAF files, which contained submissions up through September 1999. However, the second and third quarter submissions for calendar year 1999 were not complete. Given that the study required linking acute and postacute records for a given episode of care, this lack of completeness created serious problems for using these latter two quarters of claims data. The researchers felt that there was a substantial under-submission of postacute care claims, leading to a downward bias in the rate of postacute care transfers after calendar 1998. For this reason, the pre versus post-policy change analysis conducted in the following two sections of this report relies upon only two quarters of data. The post-period is defined as the fourth quarter of calendar year 1998 and the first quarter of calendar year 1999 (i.e., the first two quarters of fiscal year 1999, immediately following the implementation of the postacute care transfer payment policy change). For consistency, the pre-period sample was defined as the first two quarters of fiscal year 1998 with data obtained from the 1997 and 1998 MedPAR files.

The 1996 and 1997 Medicare cost reports were also used to construct the department-level costing factors used to convert reported charges and utilization on the MedPAR and SAF files into a measure of costs. A crosswalk was created between the department-level cost centers on the cost reports and the department-level revenue centers on the claims files. The costing factors were

then merged onto the claims files using the Medicare hospital identification numbers. Where data existed, per diems and total cost-to-charge ratios on the 1997 Medicare Cost Reports (MCRs) were used. If 1997 MCRs were not available, 1996 MCRs were used, after adjusting the accommodation per diems for cost inflation.

Before use, the costing factors were subjected to two types of edits. The first was to recode extreme values that lacked face validity. For the nursing unit per diems, values outside of the upper and lower one percent were recoded to one percent threshold values. For instance, ICU per diems less than $388 were recoded to $388. The costing factors for the ancillary departments were cost-to-charge ratios (CCRs). CCRs less than a 0.2 or 0.3 threshold value were recoded to the threshold. Likewise, CCRs greater than a 1.5 or 2.0 threshold value were recoded to the threshold. Note that a threshold value less than 0.25 means that the service cost only $0.25 for each dollar charged - indicating that the service was extremely profitable. Similarly, a CCR equal to 2.0 means that the service cost two dollars for each dollar charged, indicating that the service was a big money loser for the hospital. CCRs outside of the thresholds may not reflect the hospital's actual gains and losses for an ancillary service, but rather the shifting of accounting costs and charges as a method of gaming payment for those services reimbursed under a cost-based incentive scheme.

3.2 Construction of Episode-Level Files

The next step in creating the principal analytic file used to conduct this study was to link acute care discharges with postacute care admissions or visits. For rehabilitation, psychiatric, children's, specialty, skilled nursing facilities, and distinct part units, the episode of care was defined as the initial acute care stay plus a postacute care readmission occurring on the same date. Postacute transfers to inpatient facilities spanning two days will not be captured by this method. Examination of the data revealed that inpatient transfers occurring over two days were a very small share of total postacute care transfers (less than one percent). For home health, the episode of care was defined as the initial hospitalization plus a home health visit within a 72-hour period. The immediate postacute care criterion for defining the episode of care was chosen because we were most interested in mimicking the regulations of the policy changed. The main objective of this study was to assess the impact of the policy change on PPS hospital treatment and discharge patterns. For this, we required only the immediate postacute care admission or stay. The immediate postacute care episode would further allow us to evaluate the second round effects of changes in PPS hospital behavior on postacute care resource use. While changes in PPS hospital treatment and discharge behavior would also have implications for long-term postacute care resource use, an assessment of long-term postacute treatment patterns was outside the scope of this study. However, when assessing the impact of the policy change on the time interval between acute care discharge and postacute care admission or visit, we extended the inpatient

readmission window from 1 day to 3 days and the home health window from 3 days to 5 days.

The final episode-level file is limited to patients discharged under any of the 10 pilot postacute care DRGs from hospitals paid under PPS. Subsequent postacute care providers were identified using the Medicare provider identification code as defined on the SAF and MedPAR files. PPS-exempt distinct part unit claims were identified on the SAF file using the third digit of the provider number and, on the MedPAR file, using the special unit code. The distribution of postacute care transfers across each of the 10 pilot transfer DRGs for each of the three calendar years included in the study period is shown in Table 3-1 below. Claims submissions from the first two years are complete. Claims from 1999 are incomplete and include only the first nine months. As a result, the table does not allow comparison across years to be made. Each of the 10 DRGs experienced postacute care transfer rates of over 50

percent. Three of the 10 DRGs had postacute care transfer rates of over 75 percent. The overall postacute care transfer rate in 1997 was 65 percent. In each subsequent year under review the postacute care transfer rate fell, both overall as well for each of the 10 DRGs. The overall postacute care transfer rate dropped to 64 percent in 1998 and 54 percent in 1999. The sharp decline in 1999, however, is largely due to unreported postacute care claims during the second and third quarter of calendar year 1999. An under-reporting of postacute care claims relative to acute care stays in 1999 due to the natural dely in the submission of claims for long term postacute care stays will result in an under-estimation of the transfer rate. To avoid this source of downward bias, the analytic results presented in Chapter 4 and 5 rely exclusively on claims from the first six months of fiscal year 1999 only. Claims files from this earlier post-policy change period should be fairly complete given that providers had an additional six-month period (April through September) in which to submit claims.

The distribution of observations in the episode level file across provider types and calendar years is presented in Table 3-2 below. The episode level file contains demographic, diagnostic, utilization, charge and payment information for a total of 2,706,772 acute care admissions between January 1, 1997 and September 30, 1999. Roughly two-thirds of all PPS discharges (1,678,644) received postacute care immediately following the inpatient stay. Over one-third of all cases were transferred to a skilled nursing facility. Ten percent received services from a home health agency within three days of acute care discharge

and 17 percent were transferred to a psychiatric, rehabilitation, cancer, children's, or other specialty care hospital or distinct part unit. The majority of the 1,028,128 cases that did not receive

postacute care services immediately following discharge were sent home without follow-up care. The remaining non-postacute care users were transferred to another acute care hospital, sent to a long-term care facility, received home-based intravenous drug services, died during the acute care stay, or left the acute care hospital against medical advice. Problems associated with under-reporting and truncation of the data in calendar year 1999 prevent across-year comparisons. Because of the under-reporting of cases, the pre versus post-policy change analysis presented in Chapters 4 and 5 uses the first two quarters of fiscal year 1998 and the first two quarters of fiscal year 1999 only.

3.3 Verification of Claims Discharge Destination Codes

An important preliminary task under the initial scope of work was to verify the accuracy of the discharge destination codes as reported on the PPS hospital claims submissions. As of October 1, 1998, HCFA began using the discharge destination codes to identify postacute care transfers for reimbursement purposes. Patients discharged with a discharge destination code of '3' (skilled nursing facilities or units), '5' (psychiatric, rehabilitation, children's or specialty care facilities or units) or '6' (home health agencies) were assumed to be transferred to a postacute care facility as part of their follow-up treatment and hence qualify for the postacute care payment methodology. If a patient's acute care length of stay was at least one day below the national geometric mean, the hospital would then receive the lower per diem payment. Comparing the

discharge destination codes on the claims records against actual postacute care use based on the episode-level file created for this study provides a unique way of verifying both the accuracy of the reporting, as well as any changes in reporting following the implementation of the policy reform.

The results of the discharge destination code verification analysis are summarized in Table 3-3 below. The complete results of the verification analysis are presented in the

appendix. The figures in the first column of Table 3-3 represent the number of postacute care transfer cases PPS hospitals reported using the discharge disposition code on their patient bills. HCFA uses this variable to determine the method of payment. The second column in the table reflects the number of immediate postacute care transfers found on the episode-level created for this evaluation. The ratio of the two count variables is presented in the third column. A value of 1.00 indicates a close to perfect match. A value greater than one represents the degree of 'over-reporting' on the claims file and a value less than one represents the magnitude of 'under-reporting.' Because of the data truncation and claims submission problems discussed earlier, the reported-to-actual ratios are calculated for two periods: a pre-policy change period defined as October 1, 1997 through March 31, 1998 and a post-policy change period defined as October 1, 1998 through March 31, 1999.

The verification analysis shows over-reporting of postacute care transfer cases to PPS-exempt facilities. The discharge destination codes on the claims

files indicate 11 percent more cases of transfers to PPS-exempt facilities than were actually identified on the episode-level file. Hospitals appear to be over-reporting transfers to PPS-exempt facilities consistently across the two reporting periods. This result is somewhat surprising given that, as a result of such coding, some of these cases would qualify for the lower per diem

payments in 1999 regardless of actual postacute care use. One reason for the over-reporting may be that some patients entered the postacute care facility on the day after acute care discharge and thus not included in the episode file. Another possible reason is the absence of a submitted claim by the postacute care provider.

The verification analysis shows a fairly accurate reporting of postacute care transfers to skilled nursing facilities. There was a near complete match of records during the 1998 period and a five percent 'over-reporting' found in 1999. Again, given that the discharge destination codes determine the payment methodology during the later period, the over-reporting during 1999 is surprising. It is unclear whether the over-reporting is an artifact of the way in which the episode-level file was constructed or due to a lack of submitted postacute care claims. In contrast, PPS hospitals appear to be under-reporting home health agencies during the pre-policy change period. Under-reporting of home health referrals during the early period may be due to the fact that a significant number of home health visits are unrelated to PPS hospital discharge and thus not part of the PPS hospital discharge plan. Under such a scenario, 'under-reporting' would be an accurate reflection of postacute transfers for hospital reimbursement purposes. However, the discrepancy in the number of reported home health transfers compared with the number of actual cases virtually disappears after the implementation of postacute care transfer payment policy.

The verification results for skilled nursing facilities and home health agencies should be reassuring to HCFA. In both cases, a comparison of reported to actual transfers shows only a small and, in the case of home health, declining discrepancy between postacute care referral and postacute care use. The results for PPS-exempt facilities are more troublesome, particularly for the post-policy change period when fair payments rely on accurate reporting. Knowing that they stood to earn less revenue once the payment reform took effect, one might expect hospitals to under-report postacute referrals. However, PPS hospitals do not appear to be responding to the postacute care transfer policy change by reducing the number of reported cases relative to actual cases. In fact, the number of unreported non-postacute care cases remained constant after the policy change went into effect. HCFA should employ similar methods to continue closely monitoring the accuracy of the discharge destination codes as more complete claims files become available.

3.4 Distortionary Effects of Declining GLOS on PAC Impact Analysis

The financial incentives created by the postacute care transfer payment reform apply to short-stay transfer cases only (e.g., those cases with an inpatient length of stay at least one full day below the geometric mean length of stay). Only such short-stay transfers qualify for the lower per diem payment. If a patient's length of stay (LOS) is not at least full day less than the geometric mean

length of stay (GLOS), the sending hospital receives the full DRG payment. The GLOS is set prospectively by HCFA using a previous year's discharge caseload and published in the Final Rules of the *Federal Register* prior to the beginning of each federal fiscal year. As a result, the GLOS serves as a known moving threshold that determines which cases will qualify for lower per diem payments in the rate year and which ones will be limited to the full DRG payment.

Complicating the BBA impact analysis is the fact that the GLOS is calculated and reported at the one decimal level (e.g., 5.2 days, 3.4 days, etc.), while the individual inpatient LOS is recorded on HCFA's claims files in discrete one-day units (e.g., a 1 day stay, a 2 day stay, etc.) A decline in the GLOS from one day-level integer to another (say, from 5.1 in 1998 to 4.9 in 1999) has the effect of converting many postacute care transfer cases from "short-stay" to "long-stay" and, hence, shifting them from a per diem payment to a full DRG payment. For example, in 1998, transfers with an inpatient LOS of four days (recorded as 4.0) were technically less than the GLOS-1 (or 5.1-1=4.1 days) and, thus, qualified for lower per diem payments. By 1999, the same four-day transfers were no longer less than GLOS-1 (now 4.9-1=3.9 days) and, thus, hospitals received the full DRG payment for all patients with the same 4-day LOS. In other words, the number and rate of qualifying postacute care transfers, as well as the average inpatient LOS of such cases, may exhibit dramatic and discontinuous declines over time – even when hospital treatment patterns

remain constant, thus confounding a BBA impact analysis that tries to isolate provider behavioral responses..

The GLOS cutoffs for each of the 10 pilot postacute care transfer DRGs, along with each DRG's share of short-stay transfers, are reported in Table 3-4 below. The GLOS thresholds for most of the pilot DRGs remained within the same day between the two study periods. However, the GLOS thresholds for the two DRGs with the highest share of qualifying postacute care transfers fell to the next lowest day. The GLOS thresholds for DRGs 14 and 209 (representing over two-thirds of all qualifying cases before the policy change) fell from 5.1 to 4.9 and from 5.3 to 4.9, respectively. As a result, short-stay cases

before the policy change included all patients with lengths of stay equal to one, two, three and four days. After the policy change, qualifying cases included only transfers with inpatient lengths of stay of one, two and three days. The elimination of four-day postactute care transfers from the set qualifying for per diem payment under DRGs 14 and 209 will have a major effect on short-stay postacute care transfer volumes, rates, and average lengths of stay, as will be seen in Chapter 4. The elimination of four-day transfers from qualifying per diem cases under DRGs 14 and 209 will have the opposite effect on the volume and rate of long-stay postacute care transfers.

Unfortunately, there is no easy way to disentangle the 'real' response rate of providers from the effect of declining GLOS on observed short-stay postacute care transfers. However, as stated earlier, hospitals know the GLOS cutoff for each DRG prior to admission. Using the above example of DRGs 14 and 209, hospitals realized beforehand that all four-day postacute care transfers will be exempted from the lower per diem payment methodology in 1999. Thus, providers understood that treating these four-day cases the same in 1999 as they

did in 1998 (in effect, maintaining their inpatient lengths of stay) was an equally effective strategy for avoiding the lower per diem payments as is increasing the patient's length of stay given the GLOS drop to the next lowest integer. The results from the impact analysis presented in this report incorporate the effect of the one-day decline in GLOS for DRGs 14 and 209. As such, they reflect the actuarially observed differences between pre and post-policy change periods. However, policy makers will want to know the degree to which the observed change is directly related to the payment reform. When the research aim is to understand the direct effects of the policy change, an effort is made to quantify the magnitude of the GLOS factor on the observed actuarial rates. In such cases, the response variables are re-calculated holding the GLOS constant between the two study periods by applying the 1998 GLOS to the post-policy reform data.