ResDAC
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Using Medicare Hospitalization Information and the MedPAR

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MedPAR

- Medicare Provider Analysis and Review
- Includes information about
  - Short-stay/Long stay hospitals
    - Short stay 84.5%
    - Long stay hospital 2.43%
  - Skilled Nursing Facility (SNF) 13.1%
- This discussion will largely focus on the short stay/long-stay hospital MedPAR

MedPAR vs. Inpatient or SNF SAF

- MedPAR contains 1 record per stay
- Inpatient and SNF SAFs contain 1 record per bill
  - A single stay will have only one MedPAR record but may have multiple records in the corresponding SAF

Short stay MedPAR vs. SNF MedPAR vs. Inpatient and SNF SAFs

- Inclusion in the short stay/long stay MedPAR is based on year of discharge
- Inclusion in the SNF MedPAR is based on year of admission
- Inclusion in the Inpatient and SNF SAF files is based on year of 'claim thru' date

Denied Claims

- The MedPar does not contain denied stays
- The Inpatient SAF contains some denied claims
- Use 'Claim Medicare Non Payment Reason Code' to identify denied claims

MedPAR vs. Inpatient SAF

- Majority of fields and analytic issues discussed today apply equally to both file types
- The MedPAR is easier to work than the Inpatient SAF with because it is a fixed-length file whereas underlying data that forms the basis for the Inpatient SAF is variable length
- The inpatient SAF contains detail about the attending physician and more detailed information about specific services used in-hospital

Critical Access Hospitals

- In the MedPAR CAH hospitals are categorized as long-stay (L) not short-stay (S)
- The rules to designate hospitals as CAH changed in the 1997 BBA. This change was implemented over a period of years extending into the 2000s.
- The rules to qualify as CAH have been modified and expanded eligibility for CAH status
- Hospitals that became CAH got NEW PROVIDER NUMBERS! (these range from xx1300 to xx1399)
  - Tracking these hospitals over time requires creation of a crosswalk

Short Stay/Long Stay MedPAR

- THE REMAINDER OF THIS SESSION WILL ADDRESS THE SHORT STAY/LONG STAY FILE ONLY!!!!

- 99.7% MedPAR records (short stay) with only 1 bill (but range 1-12)
- 1.8% of MedPAR records cross a calendar year

2

3 PATIENT CONTROL NO.

5 FED. TAX NO. | 6 STATEMENT COVERS PERIOD FROM THROUGH | 7 COV D. | 8 N-C D. | 9 C-I D. | 10 L-R D. | 11

12 PATIENT NAME | 13 PATIENT ADDRESS

14 BIRTHDATE | 15 SEX | 16 MS | ADMISSION 17 DATE | 18 HR | 19 TYPE | 20 SRC | 21 D HR | 22 STAT | 23 MEDICAL RECORD NO. | CONDITION CODES 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31

32 OCCURRENCE CODE DATE | 33 OCCURRENCE CODE DATE | 34 OCCURRENCE CODE DATE | 35 OCCURRENCE CODE DATE | 36 OCCURRENCE SPAN CODE FROM THROUGH | 37 A B C

a b c d | 39 VALUE CODES CODE AMOUNT | 40 VALUE CODES CODE AMOUNT | 41 VALUE CODES CODE AMOUNT

42 REV. CD. | 43 DESCRIPTION | 44 HCPCS / RATES | 45 SERV. DATE | 46 SERV. UNITS | 47 TOTAL CHARGES | 48 NON-COVERED CHARGES | 49

50 PAYER | 51 PROVIDER NO. | 52 REL INFO | 53 ASG BEN | 54 PRIOR PAYMENTS | 55 EST. AMOUNT DUE | 56

57

DUE FROM PATIENT ▶

58 INSURED'S NAME | 59 P. REL | 60 CERT. - SSN - HIC. - ID NO. | 61 GROUP NAME | 62 INSURANCE GROUP NO.

63 TREATMENT AUTHORIZATION CODES | 64 ESC | 65 EMPLOYER NAME | 66 EMPLOYER LOCATION

67 PRIN. DIAG. CD. | OTHER DIAG. CODES 68 CODE | 69 CODE | 70 CODE | 71 CODE | 72 CODE | 73 CODE | 74 CODE | 75 CODE | 76 ADM. DIAG. CD. | 77 E-CODE

79 P.C. | 80 PRINCIPAL PROCEDURE CODE DATE | 81 OTHER PROCEDURE CODE DATE A | OTHER PROCEDURE CODE DATE B | 82 ATTENDING PHYS. ID

OTHER PROCEDURE CODE DATE C | OTHER PROCEDURE CODE DATE D | OTHER PROCEDURE CODE DATE E | 83 OTHER PHYS. ID A

OTHER PHYS. ID B

84 REMARKS

85 PROVIDER REPRESENTATIVE X | 86 DATE

UB-92 HCFA-1450

OCR/ORIGINAL

I CERTIFY THE CERTIFICATIONS ON THE REVERSE APPLY TO THIS BILL AND ARE MADE A PART HERE

Translation of Submitted Claims to MedPAR Data

- Fields that are added during processing:
  - DRG
  - Reimbursement, primary payer amount, co-payment and deductible
  - Days from admission to death
  - Claim edit codes
  - Beneficiary demographic information*

Translation of Submitted Claims to MedPAR Data

- Fields that are not retained
  - Patient name & address (12-13)
  - Non-Medicare insurance information (details) (58-66)
  - attending MD and other MD (82-83)
  - Provider representative (84)

Using Age information from the MedPAR

- The MedPAR does NOT include DOB
- Age in the MedPAR is reported in years with no cap (3 digits)

State, zip code and county (residence variables)

- Residency is based on information from CMS sources and is based on residency at the time the bill is processed.
- Beneficiaries with different states in denominator and MedPAR records changed residence between bill processing and March when the denominator record is finalized.
- 1.3% of MedPAR records have different state of residence than the denominator

State

- The first two digits of provider number tell the state of the provider
- Comparing provider state and beneficiary state can be used to examine persons receiving care out of state
- 5.8% of MedPAR records have provider state and beneficiary state different

PPS

- This field indicates whether the facility is being paid under the prospective payment system (PPS)
- There are no PPS hospitals in Maryland. All other states have PPS hospitals
- There are 10 cancer hospitals that are PPS-exempt
- Overall, 6.6% of stays non PPS
- MedPAR records for PPS and non-PPS hospitals look the same

Managed Care

- Prior to BBA, HMOs encouraged to provide hospital encounter data, but not required.
- Although inpatient encounter data is currently mandated (effective 1/1/99), there is no experience to date about its completeness, accuracy or validity.
- This mandated encounter data are kept in separate files from FFS encounter data; it is not clear whether they will be made available to researchers

Managed Care - part 2

- There may be occasions where parts of risk managed care data may appear in the MedPAR. These are related to supporting other aspects of the program and likely will reflect incomplete information.
- RISK MANAGED CARE ENROLLEES SHOULD BE EXPLICITLY DELETED FROM THE MEDPAR EVEN IF THE FILE CONTAINS RECORDS FOR THEM

Managed Care - part 3

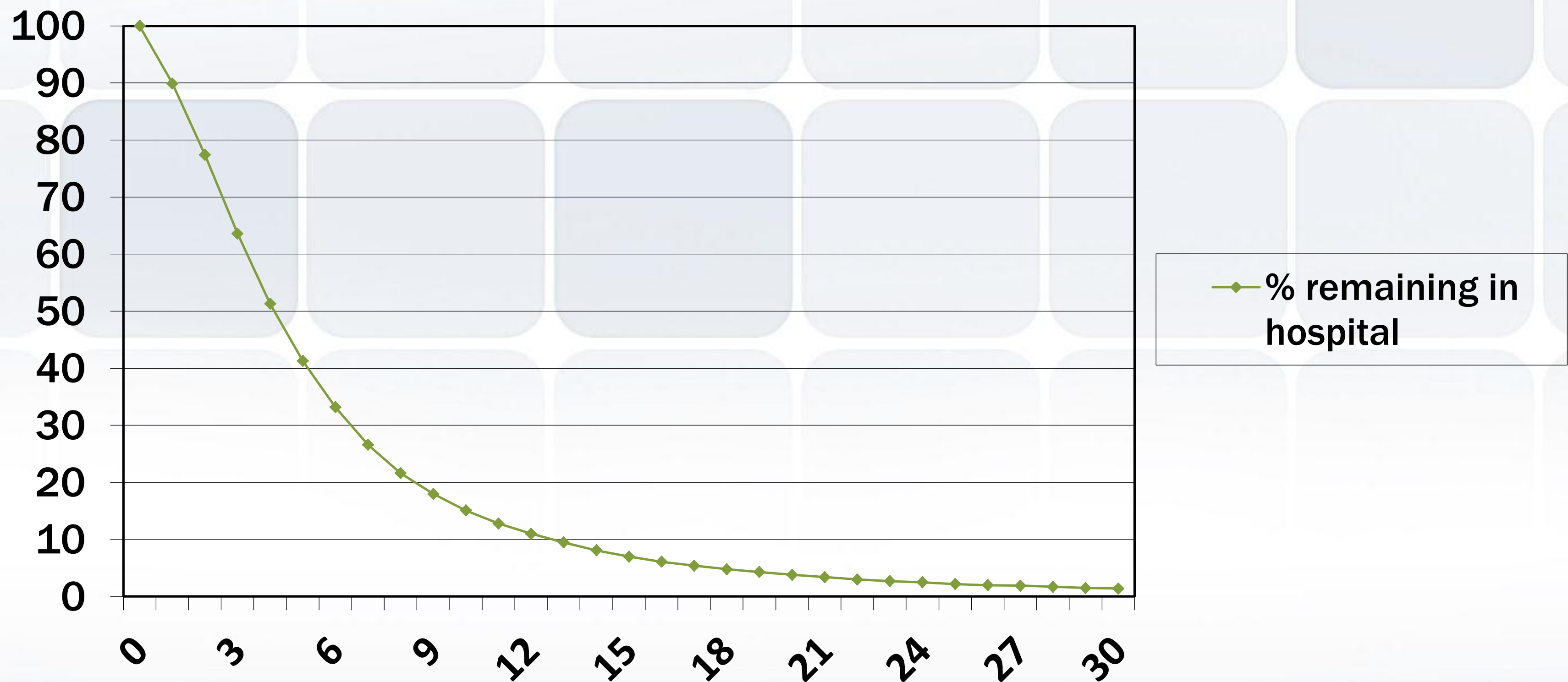
- Cost managed care enrollees will have their MedPAR claims processed by CMS. These claims will appear in the MedPAR.
  - The same holds true for Outpatient data
- With few exceptions, the Carrier claims will be processed by the HMO
  - Take this into account with deciding whether to keep Cost-MC benes in your study

Admission and Discharge Dates

- Tend to be consistent
- LOS agrees with time between admission and discharge
  - Calculated as:
    - » discharge date-admission date

    Or
    - » date-admission date +1 if admitted and discharged on the same day
    - » There is no zero LOS! If you want to know who was admitted and discharged on the same day, use dates not LOS!
    - » Don't forget: LOS for SNF stays follows a different pattern!

Length of Stay



Diagnosis, Procedures and DRGs

- Clinical information available in four sources:
  - DRGs (1 per stay)
  - Diagnoses (up to 10–1 primary, 8 secondary, 1 injury code)
  - ICD-9 coded Procedures (up to 6 per bill)
  - Admission diagnosis code
- Diagnoses and procedures are consistent with DRG. However, not all DRGs require specific diagnoses. DRGs will be calculated even if the basis for payment is not a DRG

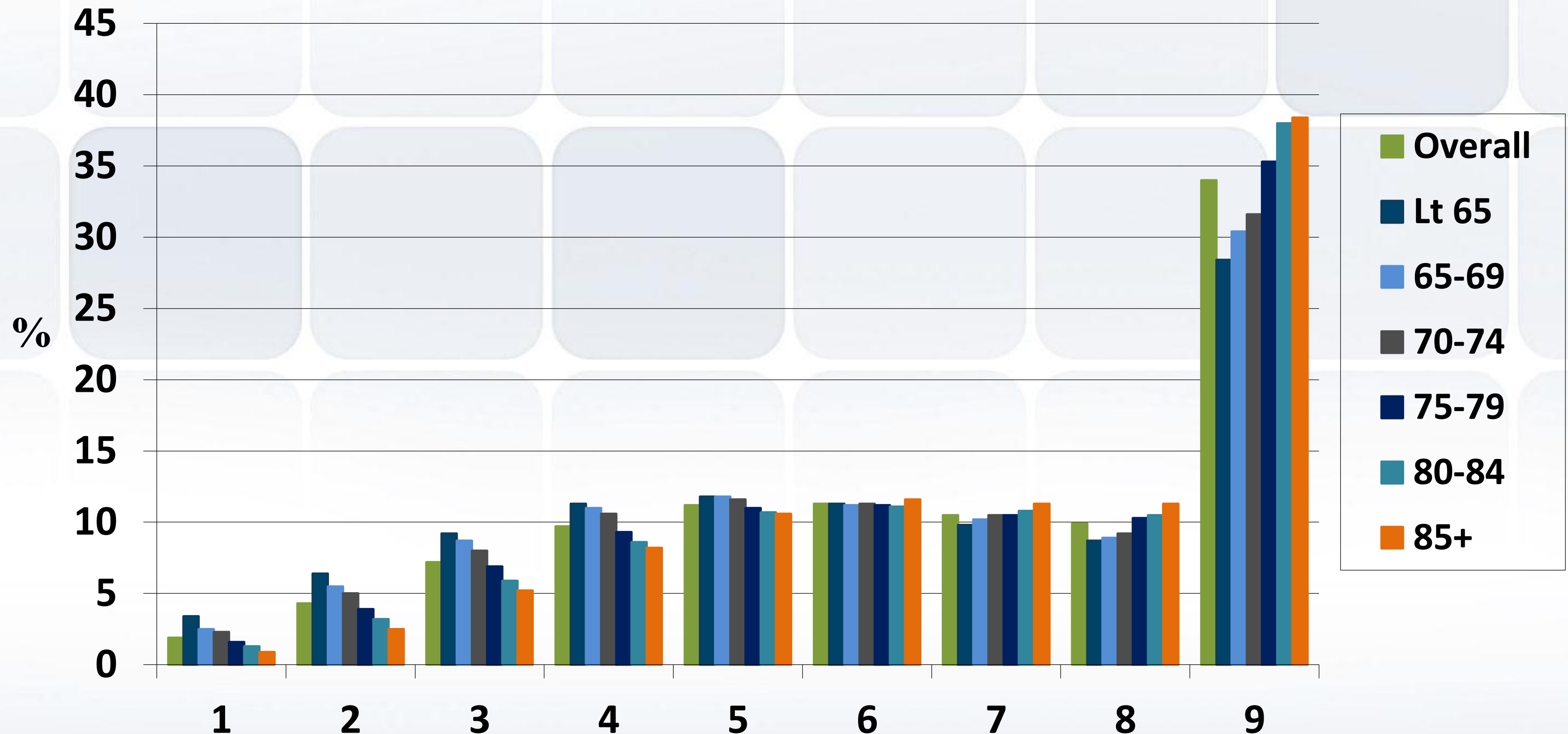
Example: Hip fractures

- DRG 236 is ‘Fractures of Hip and Pelvis’
- 6.3% of hip fractures have DRG 236
- 91.4% have DRGs 209, 210 and 211–surgical DRGs, Major joint, hip and femur procedures

Example: AMI

- 92% of persons with primary discharge diagnosis of 410 have 1 of 5 DRGs:
  - 106: CABG with PTCA
  - 110: Major Cardiovascular Procedure with CC
  - 121: Circulatory Disorder with AMI and major CC discharged alive
  - 122: Circulatory Disorder with AMI without major CC discharged alive
  - 123: Circulatory Disorder with AMI discharged dead

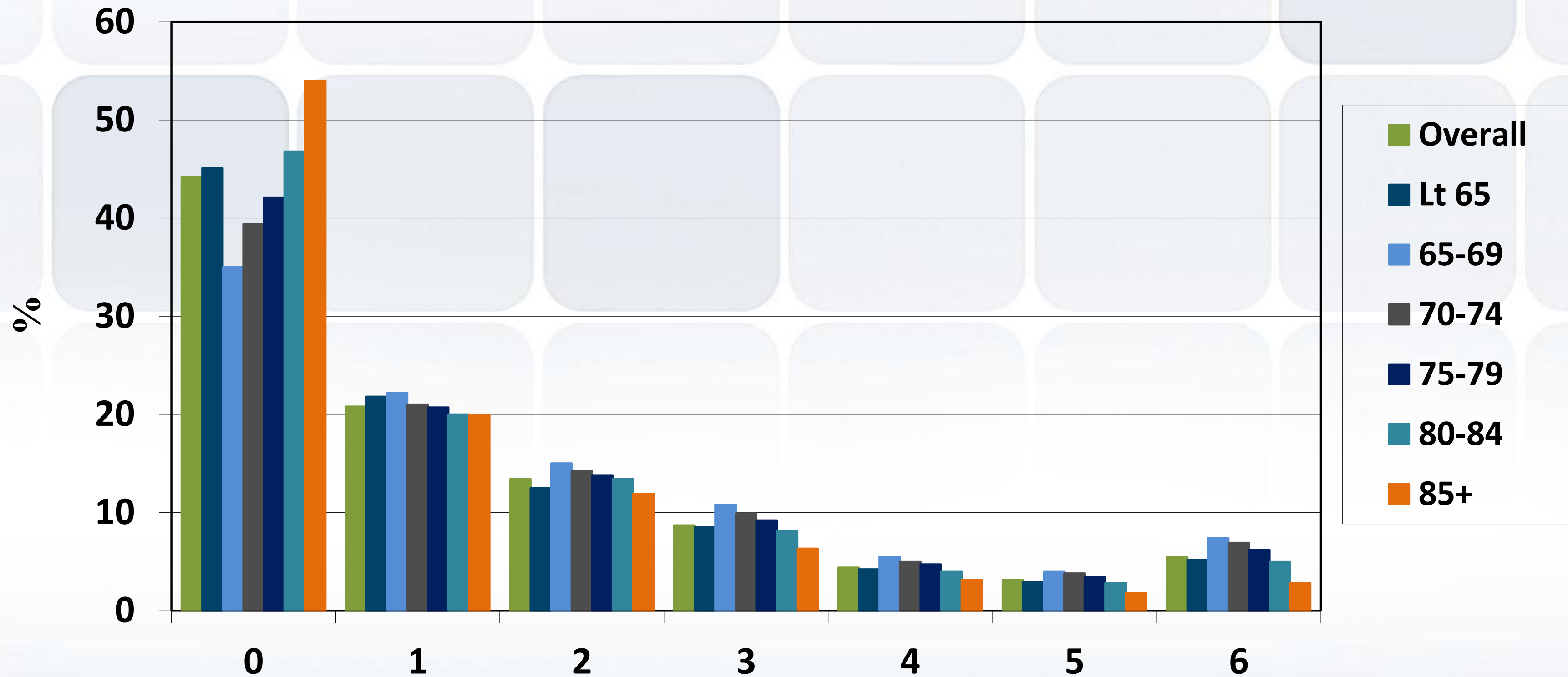
Number of Diagnosis Codes



Present on Admission

- New, must be reported after October 1, 2007
  - Hospitals are paid less for conditions not present at admission
- Some hospitals are exempt from reporting
- Required for every diagnosis on a claim
- Expect secular changes over the transition period, might be useful to look at impact of payment differences to help with interpretation of patterns

Number of Surgery Codes



Example of Consistency between Diagnosis and Procedure codes

- Radical prostatectomy is one treatment for prostate cancer that has no other clinical indications.
- In the 2001 5% MedPAR, 99.5% of the cases with radical prostatectomy had a diagnosis of prostate cancer (this finding has been stable across 6 years)

Combining Diagnosis and Procedure Codes to Define Distinct Populations

- The procedure code for hip replacement due to fracture and elective hip replacement (due to osteoarthritis) are the same.
- Combining diagnosis codes and procedure codes allows for two types of hip replacement to be distinguished

Combining Diagnosis and Procedure Codes to Define Clinically Different Groups

	Elective THR	THR after fracture
% of total THR	91	9
Median age	73 years	81 years
Median LOS	5 days	6 days
% discharged home	29.6%	12%
% discharged dead	0.2%	2%
% discharged to SNF	28.3%	50.4%

But, what if there are changes in the relative use of total and partial Hip?

V Codes

- "Supplementary Classification of Factors Influencing Health Status and Contact with Health Services"
- 23% of hospitalizations have some V code
- 2.8% have a V code as their primary reason for hospitalization

Examples of V Codes for Patients Discharged with AMI

- 22% of AMI discharges have V codes:
  - Personal history of cancer 18.6%
  - Tobacco use 8.5%
  - Pacemaker 6.3%
  - Aortocoronary bypass 24.2%
  - Others: long term use of anticoagulants, valve replacement, AKA, BKA, History of Gastric Ulcer

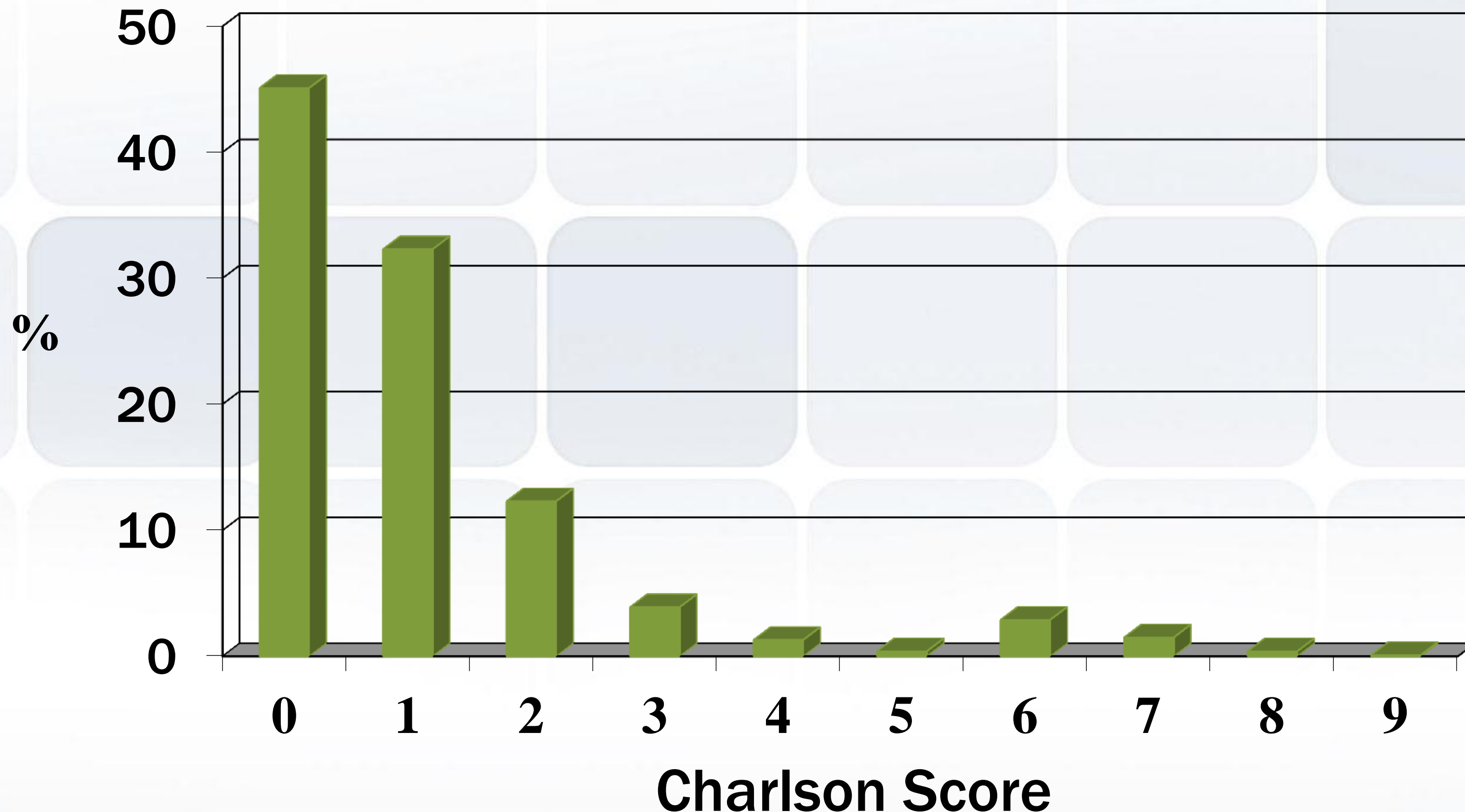
Some V Codes Describe the Receipt of Treatment

- V56.0 Renal dialysis
- V58.1 Chemotherapy
- V58.61 Long-term use of anticoagulants
- V59.4 Kidney donor
- V70.2 General psychiatric examination

Identifying Pre-existing Conditions and Comorbidities

- Charlson comorbidity index can be applied to claims data.
- Index counts number of comorbidities
- Proposes to only count conditions that can be either comorbidity or complication if it was noted in a previous hospitalization
- Is calibrated to predict 1 year mortality

Charlson Scores cross all discharges*



- The number of people with 0 comorbidities will be even higher
- If you are studying a population that isn't required to have a hospitalization

Limitations of Diagnoses

- It can be difficult to distinguish between pre-existing conditions and complications
- Example–AMI and cardiac procedures
- Example–AMI and heart failure

No Rule-out Diagnoses

- Sometimes show up as firm diagnosis
- Most often not noted at all
  - This is in contrast to the Carrier file where r/o diagnoses will often appear as firm diagnoses
- Admitting diagnosis field may provide some information

Charges

- MedPAR contains over 30 fields describing charges
  - Total charges
  - Total accommodation charges
  - Total departmental charges
  - Specific charges for accommodation sub-types and specific departments or groups of departments

Payments

- MedPAR contains several fields describing payments for care
- Patient's payments
  - Inpatient deductible
  - coinsurance amount
- CMS
  - total reimbursements
  - bill total per diem
- Primary Payer (other than CMS) amount

Estimating Payments from the MedPAR

- **Total paid by CMS:**
  - total reimbursements + bill total per diem
- **Total paid by the beneficiary:**
  - inpatient deductible + coinsurance amount+blood deductible
- **Total paid by all sources:**
  - total reimbursement+ bill total per diem + inpatient deductible + coinsurance amount +blood deductible + primary payer amount

Revenue Centers

- Are institutional cost centers for which separate charges are billed
- Examples:
  - 0141 Private room, medical/surgical
  - 0258 Pharmacy, IV solution
  - 0305 Laboratory, hematology
  - 0350 CT scan, general classification
  - 0382 Whole blood
  - 0961 Professional fees, psychiatric

Revenue Centers

- Facilities are not required to have every revenue center.
  - Example: some facilities may use the general intensive care revenue center rather than specifying surgical, medical, trauma etc.
- The MedPAR rolls up many revenue centers into general categories–laboratory, pharmacy, etc.

Examples of Indicator Variables Created from Revenue Centers

- Intensive care unit indicator
- Coronary care unit indicator
- Diagnostic Radiology
- CT scan
- MRI

Charges attributed to particular revenue centers indicate whether certain types of services were used

- Pharmacy
- Physical therapy
- Laboratory
- Emergency room

Admission Type

- Provided by hospital
- Not related to reimbursement
  - Emergent
  - Urgent
  - Elective
  - Newborn
  - Other

Admission Type

	Overall	Hip Fracture	Elective THR
Emergent	48.4%	66.5%	2.8%
Urgent	29.4%	26.5%	11.6%
Elective	21.7%	6.6%	85.3%
Other	0.4%	0.4%	0.2%

Discharge Status

- Codes:
  - Alive
  - Dead
- Frequencies
  - 95.2% Alive
  - 4.8% Dead
- Consistent with death information in denominator and other MedPAR fields

Discharged Destination:

- Information provided by hospital
- Home/self care
- Other short-term general hospital
- Skilled nursing facility (SNF)
- Intermediate care facility
- Other institution
- Home health service care
- Left AMA
- Home IV drug therapy
- Died

Discharge Destination

	Total	Hip Fracture
Home	59.9%	13.1%
Short-stay	3.3%	2.3%
SNF	13.8%	52.7%
HHC	10.8%	4.8%
AMA	0.6%	0.2%
Died	4.8%	3.0%

Transitioning from Hospital Outpatient to Inpatient Settings

- **Care that begins in a hospital outpatient setting but results in an admission (planned or unplanned) is grouped with the inpatient care and is found in the MedPAR/Inpatient SAF**
  - Emergency room care that results in a hospitalization
  - A procedure that was intended to be outpatient, but the beneficiary is admitted over night

Inpatient Rehabilitation

- Rehabilitation provided in skilled nursing facilities is found in the SNF file or the SNF MedPAR
- Rehabilitation provided in acute inpatient settings can be found in Rehabilitation hospitals
  - Provider numbers ranging from xx3025 to xx3099.
- Rehabilitation can be provided in short stay hospitals.
  - This will be a separate admission
  - The special unit code variable will have the value T
  - Make sure you check in with ResDAC if you are tracking rehabilitation over time

When calculating readmission rates:

- May want to differentiate between readmissions and transfers (same facility vs. different facility)
- Will need to remove rehabilitation stays

Summary

- Weaknesses of MedPAR/Inpatient SAF:
  - Medications, while provided, are not recorded
  - Precise timing not noted
  - Recording of comorbidities and complications may be uneven

Summary

- Strengths of MedPAR/Inpatient SAF data:
  - MedPAR structure is easy to work with
  - Admission and discharge dates
  - Diagnoses
  - Procedures
  - Source of care
  - Can be combined with other Medicare sources to examine longer-term outcomes
    - Mortality
    - outpatient treatments
    - Rehabilitation
    - transfer