Utilization Data Structures

This set of four tables incorporates data for all medical encounters. The data are organized to facilitate research. The four files are:
Events: Characterizes outpatient encounters and hospital stays (one record per encounter). A single outpatient encounter or a single hospital stay will have a single record in the EVENT file.

DIAG: List of diagnosis codes associated with each of the encounters in the Event table. Each DX code recorded during an encounter or a hospital stay will have a separate record in the DIAG table.

PROC: List of procedure codes associated with each of the encounters in the Events table. Each procedure code recorded during an encounter or hospital stay will have a unique record in the PROC table.

SPEC: Lookup table for provider specialty.

The index variables for EVENTS, DIAG, and PROC tables are: MRN, ENCTYPE, PROVIDER, ADATE. **A unique combination of these 4 variables represents a unique outpatient visit or inpatient stay.** Site data managers are strongly advised to also include a 'source' variable in the main EVENT file that signifies the indigenous data system from which the record comes (e.g., 3rd-party claims).
The PROVIDER variable is most useful for outpatient encounters. Inpatient stays should have a single PROVIDER for the entire stay, even if multiple providers performed procedures during the stay. If possible, use the admitting physician as the provider for all care during the stay..

There are two alternatives for implementing the EVENTS, DIAG, and PROC files described below:
Implement directly as above. Has the great advantage of simplicity, but uses a lot of disk space on the Procedure and Diagnosis datasets because of the 4 ‘foreign key’ variables (MRN, Adate , Provider, & EncType) needed to link these records back to the corresponding record in Utilization.

Implement the data structure above with SAS data views. Underlying the views could be a more space efficient data structure. For example, an arbitrary sequence number could be used to link across the 3 tables Utilization, Diagnosis and Procedure, and the underlying DX and PROC tables would not need space for the variables MRN, ENCTYPE, PROVIDER, ADATE on each record. This normalizes the data and is more space efficient, at the expense of an increase in complexity.

SAS Macros for use with the utilization tables.

GetDxForPeople (People, StartDt , EndDt , Outset)
GetPxForPeople (People, StartDt , EndDt , Outset)
GetPxForPeople (People, StartDt , EndDt , Outset)
GetPxForPX (PxLst , StartDt , EndDt , Outset)
Charleson_Deyo (Inset, Outset, IndexDt)

Standard Name: EVENTS

Variable name	Variable Type and Length	Values	Definition and Comments
MRN	Character. Unique to each health plan	Unique to each health plan	Identifier unique to an individual. Used to link across files
ADATE	Numeric (4)	SAS date	Encounter or admit date
DDATE*	Numeric (4)	SAS date.	Discharge date. Use for hospital and overnight encounters.
PROVIDER	Character. Length Unique to each health plan	Unique to each health plan	Provider code for the provider who is most responsible for this encounter. Usually physician, nurse practitioner, physician assistant, optometrist, etc. For encounters with multiple providers, choose a single provider so the encounter can be linked to the diagnosis and procedure files.
EncType	Char (2)	See comments	Encounter Type. Valid Encounter Subtype values are in brackets "[]" **IP** = Acute Inpatient Hospital Stay: Inpatient stays, same-day hospital discharges, hospital transfers, observation bed, and acute hospital care where the discharge is after the admission date. [Encounter_subtype=AI, OB] **ED**=Emergency Department Encounter: Includes encounters that result in an inpatient admission; that stay would be a new record. Excludes urgent care visits. [Encounter_subtype=HA,OC] **AV**= Ambulatory Visit: Outpatient clinics, same day surgeries, urgent care visits, and other same-day ambulatory hospital encounters. Excludes emergency department encounters and observation beds). [Encounter_subtype= OC, SD,HA,UC, RH, DI, OT] **TE** = Telephone Encounters: [Encounter_subtype=OT, HH] **EM** = E-mail Encounters: [Encounter_subtype=OT, HH] **IS**=Non-Acute Institutional Stays: Hospice, SNF, rehab, nursing home, residential, overnight non-hospital dialysis and other non-hospital stays. [Encounter_subtype=HS, SN, NH, RH,DI, OT] **OE**=Other Encounters (not overnight): Hospice visits, home health visits, SNF visits, other non-hospital visits. [Encounter_subtype=HS, HH, SN, RH, DI, OT] **LO**=Lab Only Encounter: Lab encounters that cannot be matched to another encounter. Include to link variables from utilization file to procedure file. [Encounter_subtype=LO, OT] **RO**=Radiology Only Encounter: Radiology encounter that cannot be matched to another encounter. Include to link variables from utilization file to procedure file. [Encounter_subtype=RO, OT]

Encounter_SubType	Char (2)	See comments	Encounter Subtype. Valid Encounter type values are in brackets "[]" **AI**=Acute Inpatient Stay. Excludes observation bed. [Enctype=IP] **OB**=Observation Bed. [Enctype=IP] **OC**=Outpatient Clinic Visit. [Enctype=AV] **SD**=Same Day Surgery. [Enctype=AV] **UC**=Urgent Care. [Enctype=AV] **HA**=Hospital Ambulatory. Outpatient care at a hospital excluding same day surgery and observation beds. [Enctype=AV, ED] **HS**=Hospice. [Enctype=IS, OE] **HH**=Home Health. [Enctype=OE, TE, EM] **SN**=SNF. [Enctype=IS, OE] **NH**=Nursing Home (Includes ICF). [Enctype=IS] **RH**=Rehab. [Enctype=IS, AV, OE] **DI**=Dialysis. [Enctype=IS, AV, OE] **OT**=Other non-hospital. [Enctype=IS, OE, TE, EM, AV, LO, RO]
Facility_Code	Char (12)	Unique to each health plan	Facility code that identifies hospital or clinic.
Discharge_Disposition*	Char (1)	A = Discharged alive E = Expired U = Unknown	Discharge status. Use for hospital and overnight encounters
Discharge_Status*	Char (2)	See comments	Hospital Discharge Status*. Optional Variable*. AF=Adult Foster Home AL =Assisted Living Facility AM=Against Medical Advice AW=Absent without leave EX=Expired HH=Home Health HS=Hospice HO=Home / Self Care IP=Other Acute Inpatient Hospital NH=Nursing Home (Includes ICF) OT=Other RS=Residential Facility RH=Rehabilitation Facility SH=Still In Hospital SN=Skilled Nursing Facility
DRG*	Char (3)	Standard DRGs	Diagnostic Related Group (DRG). *Optional Variable.* .Use for hospital and overnight encounters. Use leading zeros for codes less than 100.

Admitting_Source*	Char (2)	See comments	Admitting Source*. Optional Variable.* AV=Ambulatory Visit ED=Emergency Department AF=Adult Foster Home AL =Assisted Living Facility HH=Home Health HS=Hospice HO=Home / Self Care IP=Other Acute Inpatient Hospital NH=Nursing Home (Includes ICF) OT=Other RS=Residential Facility RH=Rehabilitation Facility SN=Skilled Nursing Facility UNK=Unknown Use for hospital and overnight encounters
Department	Char (4)	See department codes table.	Department Code (specialty providing service). *Optional Variable*. Code when available. See table below.

*Inpatient Stay only. Possible methods of implementing the above data structure

Department Codes

Below is a lookup table that can be used to classify departments where the outpatient care was given:

Department Code	Department Description
ACUP	Acupuncture
ALGY	Allergy
AMBU	Ambulance Services
ANES	Anesthesiology
AUD	Audiology
CARD	Cardiology
CASR	Cast Room
CHEM	Chemical and Alcohol Dependency
CHIR	Chiropractic
CMHL	Community Health
CRIT	Critical Care Medicine
CRMG	Care Management
DENT	Dental
DERM	Dermatology
EDUC	Education
ENDO	Endocrinology
ENT	Otolaryngology
ER	Emergency Room
FP	Family Practice
GEN	Genetics
GER	Gerontology/Geriatrics
GI	Gastro-Intestinal Medicine
HAP	Health Appraisals
HEP	Hepatology
HOSP	Hospital Care
IM	Internal Medicine
IMUN	Immunology
IND	Industrial Medicine
INF	Infectious Disease
IR	Injection Room
LAB	Laboratory
MH	Mental Health
NATU	Naturopathy

Department Code	Department Description
NEUR	Neurology
NEWB	Newborn
NRSG	Neurosurgery
NUCL	Nuclear Medicine
NUT	Nutrition
OBGN	Obstetrics/Gynecology
OCTH	Occupational Therapy
ONC	Oncology
OPTH	Opthalmology
OPTO	Optometry
ORTH	Orthopedics
OST	Osteopathy
PATH	Pathology
PEDS	Pediatrics
PERI	Perinatology
PHYS	Physiatry
POD	Podiatry
PSRG	Plastic Surgery
PT	Physical Therapy
PULM	Pulmonary Medicine
RAD	Radiology
RECT	Recreational Therapy
REHB	Rehabilitation
RESP	Respiratory Therapy
RHEU	Rheumatology
RN	Registered Nurse
SPOR	Sports Medicine
SPTH	Speech Therapy
SURG	General Surgery
URG	Urgent Care
URO	Urology
OTH	Other
UNK	Unknown

Provider Specialty Data Structure

Variable name	Variable Definition	Values	Comments
PROVIDER	Identifier unique to an individual	Character. Unique to each HMO	
Specialty	Specialty code	Char (3)	Using specialty coding developed for the IMPACT project. See attachment. Use column A “Impact code”
Provider_Type	Provider Type Code	Char (3)	Values are Listed Below

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Provider Type Values

 Code          Description
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 ACUPU         ACUPUNCTURIST
 ADMIN         ADMINISTRATIVE
 OTHER         OTHER
 CHIRO         CHIROPRACTOR
 COUNS         BEHAVIORAL COUNSELOR
 CRNA          NURSE ANESTHETIST
 DENTH         DENTAL HYGIENIST
 DENTI         DENTIST
 EDUC          HEALTH EDUCATION
 EQPT          EQUIPMENT/ROOM
 LAB           LABORATORY TECH
 LPN           LICENSED PRACTICAL NURSE
 MD            PHYSICIAN
 MISC          MISCELLANEOUS
 NMW           NURSE MIDWIFE
 NP            NURSE PRACTITIONER
 PA            PHYSICIAN ASSISTANT
 PHARM         PHARMACIST
 RES           RESIDENT
 RN            REGISTERED NURSE
 SW            SOCIAL WORKER
 X-RAY         X-RAY TECH
 UNK            UNKNOWN
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