

Colorado OBH C-Stat Engagement Measure Step by Step Methodology
Updated 5/16/13

1. Access Data – pull CCAR raw data from server.
2. Change Agency to a numeric variable.
3. Copy over data properties from another previously used file.
4. Clear blank leading spaces from Client ID (LTRIM in spss).
5. Select date frame of admit dates, each month we run 3 months of data.
6. Exclude 'med only' clients.
7. Exclude all 'actiontypes' except for 1 and 5 (Admit and Discharge).
8. Select only CMHCs (NOT Specialty clinics) in the 'Agency' field.

(select if agency eq 6 or agency eq 7 or agency eq 12 or agency eq 11 or agency eq 15 or agency eq 18 or agency eq 23 or agency eq 38 or agency eq 48 or agency eq 4 or agency eq 14 or agency eq 17 or agency eq 24 or agency eq 51 or agency eq 20 or agency eq 27 or agency eq 2)
9. Recode agency into a BHO region.

(38=1) (11=2) (48=2) (15=2) (23=3) (18=3) (6=4) (7=4) (12=4) (2=5) (27=5) (4=5)
(24=5) (17=5) (51=5) (20=5) (14=5)

1 'Central Metro' 2 'East Metro.' 3 'West Metro' 4 'Northeast' 5 'West/South'.
10. Exclude INPAT program code.
11. Calculate age
12. Calculate age categories, e.g.
 - 1 '0-17 years old'
 - 2 '18-20 years old'
 - 3 '21-64 years old'
 - 4 '65+years old'
 - 9 'Age Not Available'.
13. Calculate admit date plus 45 days to obtain the sample period for each admit.
14. Sort ascending on 'Date Effective'.
15. Aggregate to enable you to exclude certain types of discharges so that those who do not achieve the target due to 'successful discharge' will not be penalized (transferred, Tx completed, client died).
 - a. Aggregate cases to add discharge date and discharge reason.
 - b. Match on 'agency' 'client ID' and 'date of admission' and use 'add additional variables' option (discharge reason and discharge date) to populate any discharge reasons and dates to all CCAR records within an episode of care. Use the last event (most recent) of each variable.
16. Calculate if the discharge date falls in the 45 days after admit by:
 - a. Computing the number of days between admit and discharge
 - b. Recode as 'No Discharge Date' 'Discharged less than 45 days after admission' or 'Discharged later than 45 days after admission.'

17. Identify duplicate cases matching on 'agency' and 'client ID' to select only most recent episode of care (most recent admit). We realize that some clients may have multiple admits, however for ease of analysis we just examine the most recent admit for each client.
18. Select if (keep)
 - a. Discharged less than 45 days after admission **AND** Discharge Type was 'Administratively Terminated' **OR** 'Client Initiated Termination' **OR**
 - b. Client discharged later than 45 days after admission **OR**
 - c. There is no discharge date
19. Set up Encounters Database.
20. Select date frame of encounters. Earliest date range must be calculated to be 45 days prior to the first date of the month you are reporting on (the reported months are those people who completed their 45 days in that month).
 - a. E.g. If you are reporting from January 2012 onwards.
 - b. January reflects those clients who completed their first 45 days between 1/1/12-1/31/12, so encounters must be accessed for the 45 days prior to 1/1/12, which would be 10/16/13.
21. Change Client variable to 'ClientID' to match CCAR.
22. Change 'Agency' variable on Encounters to numeric.
23. Merge CPT code file to add service description field to the Encounter file.
 - a. SORT both encounters file and CPT code file by 'ServicesCode'.
 - b. Merge Encounters file with CPT codes, matching on 'ServicesCode' field, CPT code file is the keyed table.
24. Select service codes. See a list of all included and excluded CPT codes in Appendix 1. CPT codes are examined and those that meet a face to face criteria are selected. Each time the data is run we examine every new cpt code submitted (not seen in the data before) and determine whether to include it.
25. Remove any negative units and their corresponding partners.
26. Merge CCAR database with encounter database.
 - a. Use CCAR as the keyed table. Match on 'Agency' and 'ClientID'. This will merge the most recent admit for each individual (from the CCAR) into the encounter database and match it to any encounter for that individual.
27. Select only encounters that are in the 45 days following admission.
 - a. Select any encounter that is greater than the 'admit date' (from the CCAR) and less than the 'Admit plus 45 days' date.
28. Create a NonMedicaid indicator:
 - a. Use either the "Medicaid" field which is supposed to be a Medicaid indicator or
 - b. Create an indicator that identifies which file the encounter originated (NM1 = NonMedicaid, HIP or HOP = Medicaid, FFS = Fee for Service).
29. Aggregate Non Medicaid indicator, matching on Agency and ClientID so any individual (and *all* their encounters) who was NonMedicaid in the first 45 days is flagged as NonMedicaid (we do this so we maintain all services a client received during the first 45 days, rather than just NonMedicaid services).
30. Select only those individuals flagged as NonMedicaid (using the aggregated NonMedicaid indicator).

31. Run a frequency of the types of services provided in the 45 days to obtain a list and frequency of all services. Check that there are not any new codes that need to be included or not.
32. Obtain a count of the number of days where a client received an eligible service (see CPT list in appendix 1) in the 45 days following admit.
 - a. First use the 'identify duplicates' tool (in spss) and match on Agency, ClientID, and date of service (FromDate).
 - b. Create a new dataset with only the primary cases (one case per client per day)
 - c. Now use the 'identify duplicates' tool but here select the "MatchSequence" option. Match on 'Agency' and 'ClientID'. This will give you a count of the number of matched cases found for each client (here that means the number of days).
 - d. Then recode the 'MatchSequence' field to make 0 = 1 and all else remain the same. Zero reflects no matches, so a single event, means 1 day, 2 matches = 2 days etc.)
 - e. Select one case for each client, ensuring that you select the maximum value of the match sequence to reflect the maximum number of days with a service for each client. This will give you the highest number of days with a service that each client receives.
33. Calculate engagement cut-off of 4 or more days with service in the 45 days following admit. (0 thru 3=0) (4 thru Highest=1), where 1 = met engagement criteria and 0 = did not meet criteria.
34. Create a month and year field based on the date that the client completed their 45 days (recode of the 'admit plus 45 days' variable).
35. Run crosstabs on the engagement cut off and Month/Year at the state level, region and provider level.
36. When running crosstabs, include only those with a T₁ symptom severity of 5 or above.

Appendix 1. Included and Excluded CPT codes

HCPF provided an up-to-date list of all 25,000 CPT codes and their descriptors. OBH matched these descriptors to our encounters database. Each CPT code and descriptor that appeared in the encounters database was reviewed and a decision was made to include or exclude that CPT code. The following is a list of the included and excluded CPT codes and their descriptors.

Included Codes (both 2012 and 2013 cpt codes)	Description
H2036	Alcohol and/or Other Drug Treatment Program, Per Diem
H2032	Activity Therapy. Per 15 min
H0001	Alcohol and/or drug assess
H0023	Alcohol and/or drug outreach
H0025	Alcohol and/or drug prevention
H0017	Alcohol and/or drug services
H0005	Alcohol and/or drug services
H0006	Alcohol and/or drug services
H0039	Assertive com tx face-face, per 15min
H0004	Behavioral health counseling/therapy 15 min
H0002	Behavioral health screening for elig
M0064	Brief office visit for monitor/change drug prescrip
T1016	Case Management
H2021	Community-based wrap-around services, per 15 minutes
H0036	Community psychiatric supportive treatment, face-face, per 15 minutes
H0037	Community psychiatric supportive treatment, face-face, per diem
97537	Community/work reintegration
H2015	Comprehensive community support services, per 15 minutes
H2016	Comprehensive community support services, per diem
H2000	Comp multidisipln evaluation
H2011	Crisis intervention services, per 15 mins
S9485	Crisis intervention services, per diem
H1011	Family assessment
90847	Family Psychotherapy (conjoint)
90846	Family Psychotherapy (w/o PT)
90853	Group psychotherapy (not multi-family)
99347	Home visit established patient
90802 / 90791 / 90792	Interactive medical psychiatric diagnostic interview examination
90811 / 90833	Interactive psytx 20-30 w/ eval and mgmt services
90813 / 90836	Interactive psytx 45-50 min w/ eval and mgmt services
90815 / 90838	Interactive psytx 75-80 w/ eval and mgmt services
90810 / 90832	Interactive psytx off 20-30 min
90812 / 90834	Interactive psytx off 45-50 min
90814 / 90837	Interactive psytx off 75-80 min
S9480	Intensive outpatient psychiatric services, per diem
90857	Interactive group therapy
90887	Consultation with family: Interpretation or explanation of results
H0034	Medication training and support, per 15 minutes
H2030	Mental health clubhouse services, per 15 minutes

H2031	Mental health clubhouse services, per diem
H0031	MH health assess by non-md
H0032	MH svc plan dev by non-md
90849	Multiple-family group therapy
99213	Office/outpatient visit established
99214	Office/outpatient visit established
99212	Office/outpatient visit established
99215	Office/outpatient visit established
99203	Office/outpatient visit new
99202	Office/outpatient visit new
99204	Office/outpatient visit new
99205	Office/outpatient visit new
T2011	Preadmission Screening and Resident Review (PASRR) Level II
90862	Pharmacologic management, including prescription
99442	Phone eval and mgmt by phys/qhp 11-20 min
99443	Phone eval and mgmt by phys/qhp 21-30 min
99441	Phone eval and mgmt by phys/qhp 5-10 min
90801 / 90791 / 90792	Psychiatric diagnostic interview examination
90791	PSYCH DX INTERVIEW (new)
90792	PSYCH DX INTERVIEW (new)
90802	Psychiatric diagnostic examination
96101	Psychological testing by psych/phys
96102	Psychological testing by technician
H2027	Psychoeducational service, per 15 minutes
H2017	Psychosocial rehabilitation services, per 15 minutes
H2018	Psychosocial rehabilitation services, per diem
90785	Psytx complex interactive
90839	Psytx crisis initial 60 min
90805 / 90833	Psytx off 20-30 min w/e&m
90806 / 90834	Psytx off 45-50 min
90807 / 90836	Psytx off 45-50 min w/e&m
90809 / 90838	Psytx off 75-80 w/e&m
90804 / 90832	Psytx office 20-30 min
90808 / 90837	Psytx office 75-80 min
90832	Psytx pt&/family 30 minutes
90834	Psytx pt&/family 45 minutes
90837	Psytx pt&/family 60 minutes
H2001	Rehabilitation program 1/2 d
97535	Self care mngment training
H0038	Self-help/peer svc per 15min
H2014	Skills training and development, per 15 minutes
S9453	Smoking cessation classes
S9454	Stress Management Class
H2025	Ongoing support to maintain employment, per 15 minutes
H2023	Supported employment, per 15 minutes
H2024	Supported employment, per diem
H0043	Supported housing, per diem
H0044	Supported housing, per month
T1017	Targeted Case Management

96372	Therapeutic, prophylactic, or diagnostic injection
S5150	Unskilled respite per 15 min
S5151	Unskilled respite per diem

Excluded codes	Description
G0176	Activity Therapy partial hospitalization
82075	Alcohol (ethanol); breath
H0003	Alcohol and/or drug screening
H0049	Alcohol/drug screening
H0024	Behavioral Health Prevention Information Dissemination Service
H0019	Behavioral health; long-term residential
H0018	Behavioral health; short-term residential
99334	Domiciliary, rest home - home visit est pat
G0434	Drug screen multi drug class
G0431	Drug screen multiple class
80100	Drug screen qualitative/multi
90870	Electroconvulsive therapy
90882	Environmental intervention for medical management purposes on a psychiatric patient's behalf with agencies, employers, or institutions
99000	Handling and/or conveyance of specimen for transfer from the physician's office to a laboratory
99238	Hospital Discharge Day Management Service
99239	Hospital Discharge Day Management Service
99221	Initial hospital care, per day
99222	Initial hospital care, per day
99223	Initial hospital care, per day
99251	Initial Inpatient Consultation
99252	Initial Inpatient Consultation
99253	Initial Inpatient Consultation
99254	Initial Inpatient Consultation
90823	Intac psytx hosp 20-30 min
90826	Intac psytx hosp 45-50 min
90828	Intac psytx hosp 75-80 min
90824	Intac psytx hsp 20-30 w/e&m
90827	Intac psytx hsp 45-50 w/e&m
90829	Intac psytx hsp 75-80 w/e&m
H0035	Mental health partial hospitalization, treatment, less than 24 hours
H0046	Mental health services, NOS
E or S	None
124	None
8888	None
99307	Nursing facility care subseq
99234	Observ/hosp same date
99235	Observ/hosp same date
99236	Observ/hosp same date
H0033	Oral medication administration, direct observation
90889	Preparation of report of patient's psychiatric status, history, treatment, or progress

90825	Psychiatric evaluation of hospital records, other psychiatric reports
H2013	Psychiatric Health Facility Service, Per Diem
90816	Psytx hosp 20-30 min
90817	Psytx hosp 20-30 min w/e&m
90819	Psytx hosp 45-50 min
90819	Psytx hosp 45-50 min w/e&m
90821	Psytx hosp 75-80 min
90822	Psytx hosp 75-80 min w/e&m
99001	Specimen handling pt-lab
99231	Subsequent hospital care, per day
99232	Subsequent hospital care, per day
99233	Subsequent hospital care, per day
99368	Team conference w/o pat by hc pro
99367	Team conference w/o pat by phys
99499	Unlisted evaluation and management service
90899	Unlisted psychiatric service or procedure
80101	Urine Drug Screen