The Hilltop Institute

analysis to advance the health of vulnerable populations

Subgroups of Medicaid Clients with Substance Use Disorders

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Principal Question:

What does Maryland Medicaid administrative data show us regarding latent subgroups of persons with substance use disorders?

Broader goal: to consider if such subgroups approximate "medical homes" or otherwise present such intervention opportunities.

Report Outline

- Data Isolation
- Population Description
- LCA Method
- Most Frequent Provider Identification
- Next Steps
- 3 Appendices
  - Table 1. Posterior response probabilities across LCA groups
  - Table 2. Most Frequent Provider Lists
  - Table 3. Expanded Disease Cluster Descriptions

Data Isolation

- Calendar Year (CY) 2010
- Maryland Medicaid Enrollee with…
  - Any evidence of substance use disorder (SUD)
  - Any evidence of narcotic prescription

Population Definition…

Complete Population		342,624
Exclusion Step	**Total in Complete Population**	**Removed from Sample at Each Step**
1. Remove opioid prescription recipients*	283,079	-283,079
2. Remove those with special service flags	17,785	-887
3. Remove out of state residents	823	-79
4. Remove persons >64 years old	30,902	-1,226
Main SUD Sample		**57,353**

*and no other evidence of SUD

Demographics (n=57,353)

- Age (yrs): Mean= 38; SD= 13.3; range= 0-64
- Females (%)= 48.5
- Pregnancy (% of females)= 14.7
- Race (%): Black= 49.5; White= 45.8; Hispanic= 1.4; Other= 3.3

Regional Distribution

Region	Frequency	Percent
Baltimore City	24,611	42.9
Baltimore Suburbs	14,893	26.0
Washington Suburbs	6,174	10.8
Western Maryland	3,469	6.1
Eastern Maryland	5,997	10.5
Southern Maryland	2,209	3.9
Total	**57,353**	**100.0**

Enrollment Category

Enrollment Group	Frequency	Percent
Full HealthChoice	36,071	62.9
Fee-for-service	1,971	3.4
PAC (Primary Adult Care)	13,499	23.5
Dual (Medicare-Medicaid)	5,812	10.1
Total	**57,353**	**100.0**

37% are categorically "Aged, Blind, or Disabled", by state or federal criteria

Medicaid Expenditures

Enrollment	Total Expenditure Quartile Ranges			
	Low	Moderate	Moderate-High	High
Full HealthChoice	≤ $3,929	$3,930-$8,361	$8,362-$18,471	> $18,471
Fee-for-service Only	≤ $3,424	$3,425-$11,481	$11,482-$36,312	> $36,312
PAC	≤ $1,140	$1,141-$1,771	$1,772-$2,652	> $2,652
Dual	≤ $1,549	$1,550-$3,599	$3,600-$10,097	> $10,097
Across Groups	**≤ $1,966**	**$1,967-$4,817**	**$4,818-$14,658**	**> $14,658**

Inpatient Utilization

Inpatient Admission Counts	Frequency	Percent
0	37,806	65.9
1	11,764	20.5
2	3,829	6.7
3 or more	3,954	6.9
Total	**57,353**	**100.0**

Emergency Department Use

Emergency Department Visit Counts	Frequency	Percent
0	18,612	32.5
1	12,527	21.8
2	7,828	13.7
3 or more	18,386	32.1
total	**57,353**	**100.0**

Other Select Service Utilization (n=57,353)

- Long-term Care 1.4%
- Methadone 21%
- Buprenorphine 13%

Substance Use Diagnoses

Substance Use Disorder Diagnostic Type*	Percent
Opioid Dependence	41%
Alcohol Abuse	23%
Alcohol Dependence	19%
Other Unspecified Abuse	18%
Cannabis Abuse	15%
Unspecified Dependence	10%
Cocaine Abuse	10%
Cocaine Dependence	9%
Cannabis Dependence	8%
Opioid Abuse	7%
Drug Induced Mental Disorders	6%
Other Combined Dependence	5%
Alcohol Induced Mental Disorders	4%
Drug Dependence in Surrounding Pregnancy	2%
Sedative, Hypnotic, Anxiolytic, Dependence	2%

*ICD-9 Codes, with 4 digit resolution

Morbidity in the MEDC for Psychological Problems:

Expanded Diagnosis Cluster*	Percent
Substance Use	83%
Tobacco Use	35%
Depression	33%
Anxiety, Neuroses	25%
Schizophrenia and Affective Psychosis	15%
Psychological Signs and Symptoms	6%
Attention Deficit Disorder	4%
Family and Social Problems	3%
Behavioral Problems	2%
Personality Disorders	1%
Psychosocial Disorders, Other	1%

- **Weiner et al., (1991). *Medical Care, 29*(5), 452-472.**
- **www.acg.jhsph.org**

Other MEDCs...

Major Expanded Diagnosis Cluster*	Percent
Musculoskeletal	53%
General Signs and Symptoms	47%
Cardiovascular	45%
General Surgery	39%
Gastrointestinal/Hepatic	39%
Neurologic	38%
Respiratory	37%
Skin	33%
Genito-urinary	22%
Female Reproductive	22%
Allergy	22%
Ears, Nose, Throat	20%

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Other MEDCs, Less Common

Major Expanded Diagnosis Cluster*	Percent
Infectious Disease	18%
Renal	17%
Hematologic	16%
Endocrine	16%
Nutritional	15%
Reconstructive	11%
Dental	11%
Eye	10%
Toxic Effects	9%
Rheumatologic	8%
Genetic	4%
Malignancies	3%

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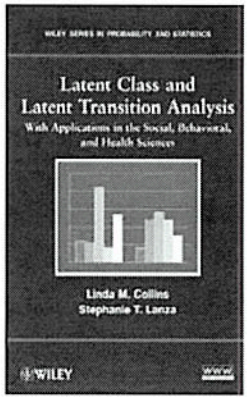
Latent Class Analysis

- Find "hidden" subgroups using…
- Moss et al. (2007): Subtypes of alcohol dependence in national representative sample, *Drug and Alcohol Dependence*, 91:149.
- Collins LM and Lanza ST, Latent Class and Latent Transition Analysis, Wiley, New York, NY, 2010.



http://methodology.psu.edu/latentclassbook/

An Example...

Table 4. Item-Response Probabilities for Five-Class Model: Probability of Endorsing Item Given Latent Class

	Latent Class				
Item	*Nondrinkers (17.9%)*	*Experimenters (21.9%)*	*Drinkers (9.3%)*	*Occasional Bingers (17.4%)*	*Heavy Drinkers (33.5%)*
Lifetime alcohol use	0.000	1.000	1.000	1.000	1.000
Past year use	0.000	0.607	1.000	1.000	1.000
Past month use	0.000	0.000	1.000	0.385	1.000
Lifetime drunkenness	0.000	0.241	0.293	1.000	1.000
Past year drunkenness	0.000	0.000	0.000	1.000	1.000
Past month drunkenness	0.000	0.000	0.000	0.000	0.924
5+ drinks in past 2 weeks	0.000	0.000	0.161	0.000	0.732

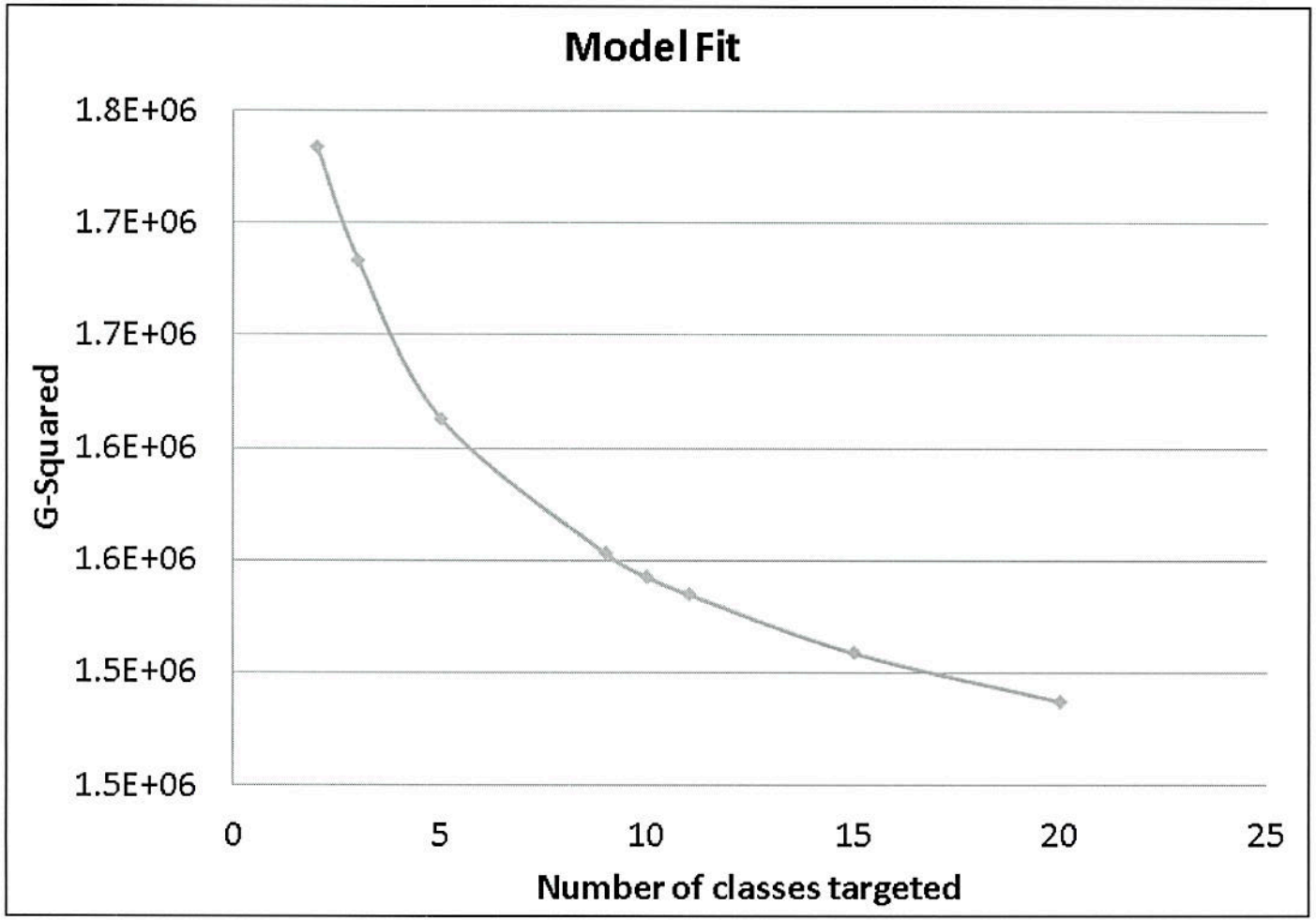
From Lanza et al. (2007), Structural Equation Modeling: A Multidisciplinary Journal, 14:4, 671.

Model Parameters (a.k.a., items), 70 Total...

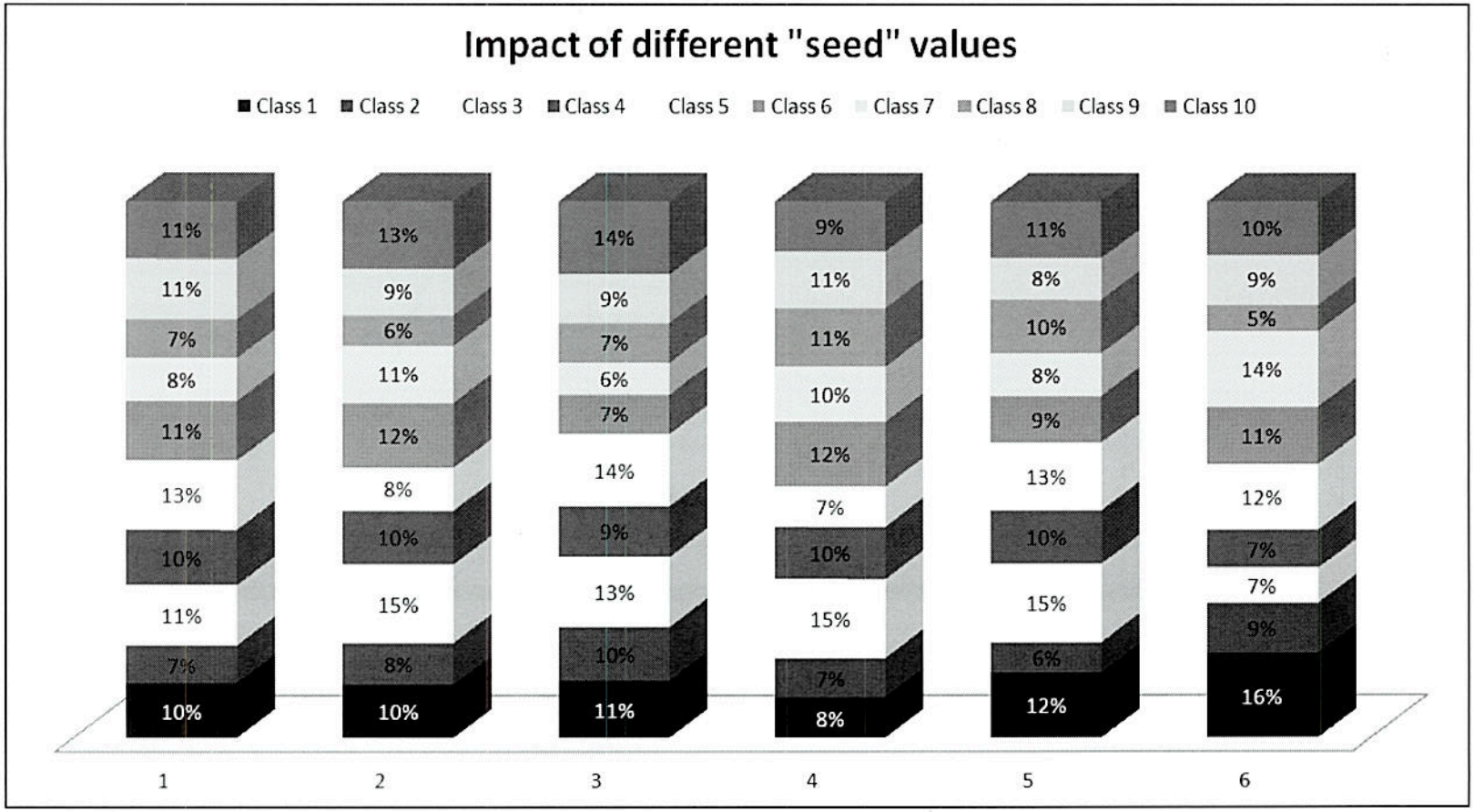
- 1. Age Group (0-11, 12-17, 18-21, 22-30, 31-54, 55-64)
- 2. Gender
- 3. Race (Black, White, Other)
- 4. Region (Baltimore City, Suburbs, East., West., South.)
- 5. Enrollment Category (HealthChoice, PAC, FFS, Dual)
- 6. Aged/Blind/Disabled Category
- 7. Pregnancy
- 8. Service Use: Inpatient, ED, LTC, ORT (Opioid Replacement Therapy)
- 9. Diagnostic Markers (23 SUDs, 23 MEDCs, 10 EDCs)
- 10. Expenditure Level (Quartiles by Enrollment Category)

Final inclusion: ≥10 Months of Medicaid
Population Change: 57,353 → 46,343

LCA Model Fit Statistics



Reproducibility of the Model Results...



Classification Distribution...

Class	1	2	3	4	5	6	7	8	9	10
Mean Poster. Prob. (stdev)	.90 (.15)	.94 (.13)	.85 (.17)	.86 (.17)	.83 (.17)	.85 (.16)	.94 (.12)	.89 (.16)	.89 (.15)	.94 (.13)
Percent	10.2%	7.1%	11.2%	10.2%	12.9%	11.1%	8.1%	7.1%	11.3%	10.8%
N	4,708	3,286	5,177	4,746	5,978	5,130	3,735	3,295	5,255	5,024

SAS Output....

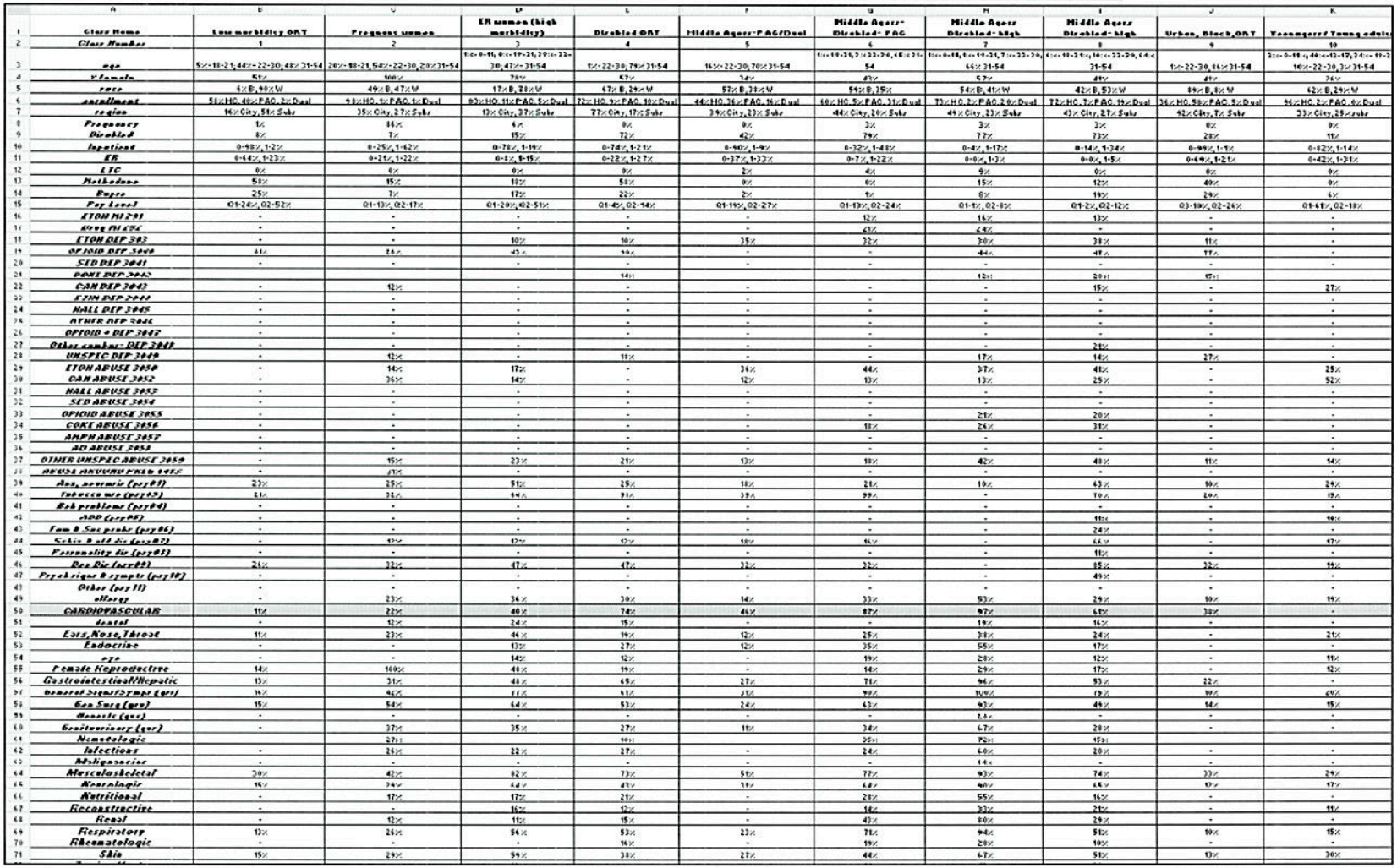
Response category 2:

Class:	1	2	3	4	5	6
agegroup_r :	0.0023	0.0457	0.0403	0.0000	0.0000	0.0025
gender_r :	0.4874	0.0000	0.2237	0.4347	0.6632	0.5724
race_r :	0.9049	0.4657	0.7850	0.2881	0.3827	0.3461
enrollment_r:	0.0037	0.0057	0.0027	0.0110	0.0311	0.0469
region_r :	0.5137	0.2721	0.3712	0.1713	0.2332	0.1965
pregnancy_r :	0.0145	0.8630	0.0604	0.0016	0.0000	0.0022
disabled_r :	0.0817	0.0663	0.1468	0.7194	0.4247	0.7902
inpt_admits_:	0.0158	0.6235	0.1886	0.2143	0.0915	0.4778
emerdep_r :	0.2307	0.2229	0.1531	0.2692	0.3280	0.2219
ltc_r :	0.0000	0.0000	0.0000	0.0045	0.0165	0.0362
methdon_r :	0.5780	0.1561	0.1835	0.5762	0.0000	0.0000
bupre_r :	0.2492	0.0699	0.1677	0.2204	0.0168	0.0059
pay_level_en:	0.5223	0.1676	0.5111	0.1403	0.2721	0.2361
sud_291_r :	0.0007	0.0042	0.0069	0.0108	0.0349	0.1176
sud 292 r :	0.0207	0.0424	0.0942	0.0395	0.0200	0.0603

Class Labels

1. Low Morbidity ORT (Opioid Replacement Therapy)
2. Women – Pregnant
3. Women – High ER Use
4. Disabled ORT
5. Adult – PAC/Dual
6. Adult – Dual
7. Adult – High Somatic Morbidity
8. Adult – High Psychological Morbidity
9. Urban ORT – PAC
10. Teenagers/Young Adults

A Little More Data Reduction…



	A	B	C	D	E	F	G	H	I	J	K
1	Class Name	Low morbidity ORT	Frequent users	ER users (high morbidity)	Disabled ORT	Middle Ages-PAC/Dual	Middle Ages-Disabled-PAC	Middle Ages-Disabled-High	Middle Ages-Disabled-High	Urban, Black, ORT	Youngers/Young adults
2	Class Number	1	2	3	4	5	6	7	8	9	10
3	age	5%=18-21,44%=22-30,48%=31-54	20%=18-21,54%=22-30,26%=31-54	5%=0-11, 6%=19-21,79%=33-30,47%=31-54	5%=22-30,79%=31-54	16%=22-30,70%=31-54	5%=19-21,7%=22-30,68%=31-54	5%=0-18, 6%=19-21,7%=22-30, 66%=31-54	5%=18-21%, 6%=22-30, 68%=31-54	5%=22-30,86%=31-54	3%=0-18%,40%=18-17,3%=19-21 10%=22-30,3%=31-54
4	Female	51%	100%	78%	67%	74%	63%	57%	68%	61%	74%
5	race	6%B,48%W	49%B,47%W	17%B,78%W	67%B,29%W	57%B,38%W	59%B,35%	54%B,41%W	42%B,53%W	89%B,8%W	62%B,29%W
6	enrollment	5%HO,48%PAC,2%Dual	9%HO,1%PAC,1%Dual	83%HO,11%PAC,5%Dual	72%HO,9%PAC,19%Dual	44%HO,36%PAC,16%Dual	60%HO,5%PAC,31%Dual	73%HO,2%PAC,26%Dual	72%HO,7%PAC,19%Dual	36%HO,58%PAC,5%Dual	96%HO,2%PAC,0%Dual
7	region	14%City,51%Suby	35%City,27%Suby	13%City,37%Suby	27%City,17%Suby	34%City,23%Suby	44%City,20%Suby	49%City,23%Suby	43%City,27%Suby	92%City,7%Suby	33%City,25%suby
8	Pregnancy	1%	86%	6%	0%	0%	3%	3%	3%	0%	0%
9	Disabled	8%	7%	15%	72%	42%	79%	77%	73%	28%	11%
10	Inpatient	0-98%,1-2%	0-25%,1-42%	0-78%,1-19%	0-74%,1-21%	0-90%,1-9%	0-32%,1-48%	0-4%,1-17%	0-14%,1-34%	0-99%,1-1%	0-82%,1-14%
11	ER	0-44%,1-23%	0-21%,1-22%	0-8%,9-15%	0-22%,1-27%	0-37%,1-22%	0-7%,1-22%	0-0%,1-2%	0-0%,1-5%	0-69%,1-21%	0-42%,1-31%
12	LTC	0%	0%	0%	0%	2%	4%	9%	0%	0%	0%
13	Methadone	58%	15%	18%	58%	0%	0%	15%	12%	40%	0%
14	Bupe	25%	7%	17%	22%	2%	1%	8%	19%	29%	6%
15	Pay Level	01-24%,02-52%	01-13%,02-17%	01-20%,02-51%	01-4%,02-14%	01-19%,02-27%	01-13%,02-24%	01-1%,02-8%	01-2%,02-12%	03-10%,02-24%	01-6%,02-18%
16	ETOH MI 291	-	-	-	-	-	12%	14%	13%	-	-
17	Drug MI 292	-	-	-	-	-	6%	6%	-	-	-
18	ETOH DEP 303	-	-	10%	10%	3%	3%	3%	3%	1%	-
19	OPIOID DEP 304	4%	2%	4%	10%	-	-	4%	4%	1%	-
20	SED DEP 3041	-	-	-	-	-	-	-	-	-	-
21	COKE DEP 3042				1%			1%	2%	1%	
22	CAN DEP 3043	-	1%	-	-	-	-	-	1%	-	2%
23	ETOH DEP 3044	-	-	-	-	-	-	-	-	-	-
24	HALL DEP 3045	-	-	-	-	-	-	-	-	-	-
25	OTHER DEP 3046	-	-	-	-	-	-	-	-	-	-
26	OPIOID + DEP 3047	-	-	-	-	-	-	-	-	-	-
27	Other combos DEP 3048	-	-	-	-	-	-	-	2%	-	-
28	UNSPEC DEP 3049	-	1%	-	1%	-	-	1%	1%	2%	-
29	ETOH ABUSE 3050	-	1%	1%	-	3%	4%	3%	4%	-	2%
30	CAN ABUSE 3052	-	3%	1%	-	1%	1%	1%	2%	-	5%
31	HALL ABUSE 3052	-	-	-	-	-	-	-	-	-	-
32	SED ABUSE 3054	-	-	-	-	-	-	-	-	-	-
33	OPIOID ABUSE 3055	-	-	-	-	-	-	2%	2%	-	-
34	COKE ABUSE 3056	-	-	-	-	-	1%	2%	3%	-	-
35	AMPH ABUSE 3057	-	-	-	-	-	-	-	-	-	-
36	AD ABUSE 3058	-	-	-	-	-	-	-	-	-	-
37	OTHER UNSPEC ABUSE 3059	-	1%	2%	2%	1%	1%	4%	4%	1%	1%
38	ABUSE UNKNOWN PSYCHOS	-	1%	-	-	-	-	-	-	-	-
39	Anx, neurosis (psy01)	2%	3%	5%	2%	1%	2%	1%	4%	1%	2%
40	Insomnia (psy02)	1%	3%	1%	1%	3%	2%	-	1%	1%	1%
41	Sex problems (psy04)	-	-	-	-	-	-	-	-	-	-
42	ADD (psy05)	-	-	-	-	-	-	-	1%	-	1%
43	Fam & Soc probs (psy06)	-	-	-	-	-	-	-	2%	-	-
44	Schiz & oth dis (psy07)	-	1%	1%	1%	1%	1%	-	1%	-	1%
45	Personality dis (psy08)	-	-	-	-	-	-	-	1%	-	-
46	Dep Dis (psy09)	2%	3%	4%	4%	3%	3%	-	3%	3%	1%
47	Psychogen & sympts (psy10)	-	-	-	-	-	-	-	4%	-	-
48	Other (psy11)	-	-	-	-	-	-	-	-	-	-
49	allergy	-	2%	2%	3%	1%	3%	5%	2%	1%	1%
50	CARDIOPASCULAR	1%	2%	4%	7%	4%	8%	9%	6%	3%	-
51	dental	-	1%	2%	1%	-	-	1%	1%	-	-
52	Ears, Nose, Throat	1%	2%	4%	1%	1%	2%	3%	2%	-	2%
53	Endocrine	-	-	1%	2%	1%	3%	5%	1%	-	-
54	eye	-	-	1%	1%	-	1%	2%	1%	-	1%
55	Female Reproductive	1%	10%	4%	1%	-	1%	2%	1%	-	1%
56	Gastrointestinal/Hepatic	1%	3%	4%	6%	2%	7%	9%	5%	2%	-
57	General Signs/Symps (gen)	1%	4%	1%	1%	1%	9%	10%	1%	1%	0%
58	Gen Surg (gen)	1%	5%	4%	5%	2%	6%	9%	4%	1%	1%
59	Neurologic (gen)	-	-	-	-	-	-	2%	-	-	-
60	Genitourinary (gen)	-	3%	3%	2%	1%	3%	6%	2%	-	-
61	Hematologic		2%		1%		3%	2%	1%		
62	Infectious	-	2%	2%	2%	-	2%	6%	2%	-	-
63	Malignancies	-	-	-	-	-	-	1%	-	-	-
64	Musculoskeletal	3%	4%	8%	7%	5%	7%	9%	7%	3%	2%
65	Neurologic	1%	3%	6%	4%	1%	6%	4%	6%	1%	1%
66	Nutritional	-	1%	1%	2%	-	2%	5%	1%	-	-
67	Reconstructive	-	-	1%	1%	-	1%	3%	2%	-	1%
68	Renal	-	1%	1%	1%	-	4%	8%	2%	-	-
69	Respiratory	1%	2%	5%	5%	2%	7%	9%	5%	1%	1%
70	Rheumatologic	-	-	-	1%	-	1%	2%	1%	-	-
71	Skin	1%	2%	5%	3%	2%	4%	6%	5%	1%	3%

One Major Expanded Diagnostic Cluster...

Class	Low Morbid. ORT	Women-Pregnant	Women-High ER Use	Disabled, ORT	Adult-PAC/Dual	Adult-Dual	Adult-High Somatic Morbid.	Adult-High Psych. Morbid.	Urban ORT- PAC	Teenagers/ Young Adults
N	4,708	3,286	5,177	4,746	5,978	5,130	3,735	3,295	5,255	5,024
CARDIO-VASCULAR	11%	22%	40%	74%	46%	87%	97%	61%	38%	<10%

Class 1: "Low Morbidity ORT" (n= 4,708)

- Mean Age (sd): 32 (9)
- White (90%)
- PAC (40%)
- Baltimore City (16%)

- Utilization:
  - ER Visit (36%)
  - Inpatient Admit (2%)

- Methadone (58%), Buprenorphine (25%)

- Expenditures Above Median (24%)

- SUD Diagnoses:
  - Opioid Dependence (81%)

- Psychological Diseases:
  - Depressive Disorder (26%)
  - Anxiety, Neuroses (23%)
  - Tobacco (21%)

- Somatic Diseases:
  - Musculoskeletal (30%)

Class 2: "Women – Pregnant" (n= 3,286)

- Women (100%)
- Mean Age (SD): 26 (6)
- HealthChoice (98%)
- Baltimore City (34%)
- Pregnant (86%)
- Utilization:
  - ER Visit (79%)
  - Inpatient Admit (75%)
- Methadone (58%), Buprenorphine (25%)
- Expenditures Above Median (73%)
- Psychological Diseases:
  - Tobacco (32%)
  - Depressive Disorder (32%)
  - Anxiety, Neuroses (25%)

- SUD diagnoses:
  - Cannabis Abuse (36%)
  - Opioid Dependence (26%)
- Other Diseases:
  - Female Reproductive (100%)
  - General Surgery (54%)
  - Gastro./Hepatic (31%)
  - General Signs/Symptoms (42%)
  - Genitourinary (37%)
  - Hematologic (27%)
  - Musculoskeletal (42%)
  - Infections (26%)
  - Neurologic (29%)
  - Respiratory (26%)
  - Skin (29%)
  - Allergy (23%)
  - ENT (23%)

Class 3: "Women – High ER Use" (n=5,177)

- Mean Age (SD): 31 (10)
- Women (78%)
- White (79%)
- Baltimore City (13%)
- HealthChoice (84%)
- Utilization:
  - ER Visit (92%)
  - Inpatient Admit (22%)
- Methadone (18%), Buprenorphine (17%)
- Expenditures Above Median (29%)
- SUD Diagnoses:
  - Opioid Dependence (44%)
  - Unspecified Abuse (23%)

- Psychological Diseases:
  - Anxiety, Neuroses (51%)
  - Tobacco (64%)
  - Depressive Disorder (47%)
- Other Diseases:
  - Allergies (36%)
  - Cardiovascular (40%)
  - Dental (25%)
  - ENT (46%)
  - Female Reproductive (48%)
  - Gastro./Hepatic (48%)
  - General Signs/Symptoms (77%)
  - General Surgery (64%)
  - Genitourinary (35%)
  - Infections (22%)
  - Musculoskeletal (82%)
  - Neurologic (64%)
  - Respiratory (56%)
  - Skin (59%)

Class 4: "Disabled ORT" (n=4,746)

- Mean Age (SD): 48 (8)
- Baltimore City (77%)
- Disabled(72%)
- Utilization:
  - ER Visit (78%)
  - Inpatient Admit (26%)
- Methadone (58%), Buprenorphine (22%)
- Expenditures Above Median (82%)
- SUD Diagnoses:
  - Opioid Dependence (90%)
  - Unspecified Abuse (21%)

- Psychological Diseases:
  - Anxiety, Neuroses (26%)
  - Tobacco (51%)
  - Depressive Disorder (47%)
- Other Diseases:
  - Allergies (30%)
  - Cardiovascular (74%)
  - ENT (27%)
  - Gastro./Hepatic (65%)
  - General Signs/Symptoms (61%)
  - General Surgery (53%)
  - Genitourinary (27%)
  - Infections (27%)
  - Musculoskeletal (73%)
  - Neurologic (43%)
  - Nutritional (21%)
  - Respiratory (53%)
  - Skin (38%)

Class 5: "Adult – PAC/Dual" (n=5,978)

- Mean Age (SD): 43 (11)
- Males (66%)
- Baltimore City (39%)
- PAC 36%, Duals 16%
- Disabled(42%)
- Utilization:
  - ER Visit (63%)
  - Inpatient Admit (10%)
- Expenditures Above Median (53%)
- SUD Diagnoses:
  - Alcohol Dependence (36%)
  - Alcohol Abuse (36%)
- Psychological Diseases:
  - Tobacco (35%)
  - Depressive Disorder (32%)
- Other Diseases:
  - Cardiovascular (46%)
  - Gastro./Hepatic (27%)
  - General Signs/Symptoms (31%)
  - General Surgery (24%)
  - Musculoskeletal (51%)
  - Neurologic (31%)
  - Respiratory (23%)
  - Skin (27%)

Class 6: "Adult – Dual" (n= 5,130)

- Mean Age (SD): 49 (10)
- Dual (31%)
- Baltimore City (44%)
- Disabled(79%)

- Utilization:
  - ER Visit (92%)
  - Inpatient Admit (68%)
  - LTC (4%)

- Expenditures Above Median (64%)

- SUD diagnoses:
  - Drug Induced mental illness (21%)
  - Alcohol Dependence (32%)
  - Alcohol Abuse (44%)

- Psychological Diseases:
  - Anxiety, Neuroses (21%)
  - Tobacco (55%)
  - Depressive Disorder (32%)

- Other Diseases:
  - Allergies (33%)
  - Cardiovascular (88%)
  - ENT (25%)
  - Endocrine (35%)
  - Gastro./Hepatic (71%)
  - General Signs/Symptoms (90%)
  - General Surgery (63%)
  - Genitourinary (34%)
  - Hematologic (35%)
  - Infections (24%)
  - Musculoskeletal (77%)
  - Neurologic (64%)
  - Nutritional (28%)
  - Renal (43%)
  - Respiratory (71%)
  - Skin (44%)

Class 7: "Adult – High Somatic Morbidity" (n=3,735)

- Mean Age (SD): 46 (11)
- Dual (20%)
- Baltimore City (49%)
- Disabled(77%)
- Utilization:
  - ER Visit (100%)
  - Inpatient Admit (96%)
  - LTC (10%)
- Expenditures Above Median (91%)
- SUD diagnoses:
  - Drug Induced Mental Illness (21%)
  - Alcohol Dependence (30%)
  - Alcohol Abuse (37%)
  - Opioid Dependence (44%)
  - Opioid Abuse (21%)
  - Cocaine Abuse (26%)
  - Unspecified Abuse (42%)

- Other Diseases:
  - Allergies (53%)
  - Cardiovascular (97%)
  - ENT (38%)
  - Endocrine (55%)
  - Eye (28%)
  - Female Reproductive (29%)
  - Gastro./Hepatic (96%)
  - General Signs/Symptoms (100%)
  - General Surgery (93%)
  - Genetic (28%)
  - Genitourinary (67%)
  - Hematologic (72%)
  - Infections (60%)
  - Musculoskeletal (93%)
  - Neurologic (90%)
  - Nutritional (55%)
  - Reconstructive (33%)
  - Renal (80%)
  - Respiratory (94%)
  - Rheumatologic (28%)
  - Skin (67%)
  - Toxic effects (43%)

Class 8: "Adult – High Psychological Morbidity" (n= 3,295)

- Mean Age (SD): 38 (12)
- Dual (19%)
- Baltimore City (43%)
- Disabled(73%)

- Utilization:
  - ER Visit (99%)
  - Inpatient Admit (86%)
- Methadone (12%), Buprenorphine (19%)
- Expenditures Above Median (85%)
- SUD Diagnoses:
  - Drug Induced Mental Disorder (24%)
  - Alcohol Dependence (38%)
  - Opioid Dependence (47%)
  - Cocaine Dependence (28%)
  - Other Combo Dependence (21%)
  - Alcohol Abuse (41%)
  - Cannabis Abuse (25%)
  - Opioid Abuse (20%)
  - Cocaine Abuse (31%)
  - Other Unspecified Abuse (48%)

- Psychological Diseases:
  - Anxiety, Neuroses (63%)
  - Tobacco (71%)
  - Family & Social Probs. (25%)
  - Schizophrenia Spectrum (67%)
  - Depressive Disorder (85%)
  - Psychological Signs/Symptoms (50%)
- Other Diseases:
  - Allergies (29%)
  - Cardiovascular (61%)
  - ENT (24%)
  - Gastro./Hepatic (53%)
  - General Signs/Symptoms (75%)
  - General Surgery (49%)
  - Genitourinary (28%)
  - Infections (20%)
  - Musculoskeletal (74%)
  - Neurologic (65%)
  - Reconstructive (21%)
  - Renal (29%)
  - Respiratory (51%)
  - Skin (51%)
  - Toxic Effects (26%)

Class 9: "Urban ORT – PAC" (n=5,255)

- Mean Age (SD): 43 (7)
- Black (89%)
- PAC (58%)
- Baltimore City (92%)
- Utilization:
  - ER Visit (31%)
  - Inpatient Admit (1%)
- Methadone (40%), Buprenorphine (29%)
- Expenditures Above Median (64%)
- SUD Diagnoses:
  - Opioid Dependence (77%)
  - Unspecified Dependence(27%)
- Psychological Diseases:
  - Tobacco (20%)
  - Depressive Disorder (32%)
- Other Diseases:
  - Cardiovascular (39%)
  - Gastro./Hepatic (22%)
  - Musculoskeletal (33%)

Class 10: "Teenagers/Young Adults" (n= 5,024)

- Mean Age (SD): 18 (5)
- Male (64%)
- Full HealthChoice (96%)
- Baltimore City (33%)
- Utilization:
  - ER Visit (57%)
  - Inpatient Admit (18%)
- Expenditures Above Median (21%)
- SUD Diagnoses:
  - Cannabis Dependence (27%)
  - Alcohol Dependence (25%)
  - Cannabis Abuse (52%)
- Psychological Diseases:
  - Anxiety, Neurosis (29%)
  - ADD (20%)
- Other Diseases:
  - ENT (21%)
  - General Signs (20%)
  - Musculoskeletal (29%)
  - Skin (30%)

Most Frequent Providers

- Not Inpatient or ER
- >4,900 most frequent providers across the population.
- Mean (SD) Visits: 18 (27)

Most Frequent Provider Types...

Place	Place %	Type	Type %	Specialty	Specialty %	Category	Category %
Office	84	Physician	25	None	47	Medicine	41
		Methadone Clinic	14	Internal Medicine	8	Methadone Clinic	23
Home	4	MH Clinic	13	Diabetes Waiver Case Mgt	7		
		Hospital, Acute	11	Private Owner	7	E&M Office	20
Outpatient Hospital	4	FQHC	8	Family Practice	4	FQHC visit	4
		ADAA Certified Program	5	Psychiatry	3	Physician-Medicare Crossover	2
State or Local Public Health Clinic	3	ICF-Addictions	4	General Practice	3		
		Clinic- Local Health Department	3	MH	3	Radiology	2
Community MH Center	2	Comp. Outpatient Rehab	3	ICF-Addictions	2	Therapeutic Nursery	1
Sum(Places)	97	Sum(Types)	71	Sum (Specialties)	72	Sum(Category)	91

Most Frequent Provider "Case-Mix", Top 10 by Total Number of Unique Clients...

Most Frequent Provider Name	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level, per list from Dr. Olsen
JOHNS HOPKINS HOSPITAL	--	80	40	125	157	210	165	60	42	116	998	1 & 2.1 adult, 3.1women
TOTAL HEALTH CARE INC [A]	15	31	17	126	65	69	24	29	362	22	760	1adult, 2.1 adult
BALT. BEH. HEALTH INC [B]	37	--	14	117	57	16	54	202	191	--	698	n/a
GLASS SUBST. ABUSE PROGRAMS	149	24	53	151	--	--	32	23	182	--	614	OMT adult
Provider NAME A	101	24	26	243	--	--	42	20	138	--	594	n/a
TURNING POINT CLINIC	38	--	--	238	--	--	38	16	233	--	573	OMT adult
BALT. MEDICAL SYSTEMS [A]	25	17	84	37	125	88	39	29	55	15	514	n/a
No Most Frequent Provider	100	19	3	3	128	73	7	9	110	62	514	n/a
HEALTH CARE FOR HOMELESS [A]	--	--	--	63	158	57	29	51	116	--	493	1 adult
UMD MED SYS	--	97	14	48	54	50	57	36	50	22	428	1adol., 1 & 2.1adult

A= FQHC, B= MH clinic

Conclusions

- LCA reveals 10 SUD group with reasonable face validity
- Links to providers gives us existing populations and program pairings to focus upon
- High morbidity populations suggest targets for medical homes; low morbidity suggest possible medical homes in place

Next steps: follow-up with programs/stake-holders

- Using data presented…
  - Interview them about coordination of care strategies in place
  - Explore opportunities

- Program types
  - By LCA class
  - By size (patient counts, systems versus stand alone providers)
  - SUD providers vs. other providers (e.g., FQHCs) serving persons with SUD

Limitations...

- (M)EDC- not severity indicators
- Dependent on administrative coding
- Dollar calculations include prospective capitation payments
- Most frequent provider IDs (not standardized, frequency variable and skewed)
- LCA stability
- Population stability

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About The Hilltop Institute

The Hilltop Institute at the University of Maryland, Baltimore County (UMBC) is a nationally recognized research center dedicated to improving the health and wellbeing of vulnerable populations. Hilltop conducts research, analysis, and evaluations on behalf of government agencies, foundations, and nonprofit organizations at the national, state, and local levels.

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Table 1. Posterior Probabilties for a 10 Latent Class Analysis Model of Persons with Substance Use Disorders and 10-Month Maryland Medicaid Enrollment in CY 2010

	Low morbidity ORT	Women - Pregnant	Women- High ER Use	Disabled ORT	Adult-PAC/Dual	Adult-Dual	Adult-high somatic morbidity	Adult-high psychological morbidity	Urban ORT-PAC	Teenagers/ Young adults
Class Number	1	2	3	4	5	6	7	8	9	10
Class Size (N)	4,652	3,265	5,138	4,680	6,196	5,158	3,732	3,258	5,250	5,014
Demographic Information										
Mean Age (stdev)	32 (9)	26 (6)	31 (10)	48 (8)	43 (11)	49 (10)	46 (11)	38 (12)	43 (7)	18 (5)
% female	51%	100%	78%	57%	34%	43%	57%	41%	41%	26%
Race	7%-Black, 90%-White, 1%-Other, 1%-Unknown	49%-Black, 47%-White, 2%-Other, 2%-Unknown	17%-Black, 79%-White, 2%-Other, 2%-Unknown	67%-Black, 29%-White, 1%-Other, 3%-Unknown	57%-Black, 38%-White, 2%-Other, 3%-Unknown	60%-Black, 35%-White, 2%-Other, 4%-Unknown	54%-Black, 41%-White, 2%-Other, 3%-Unknown	42%-Black, 53%-White, 2%-Other, 3%-Unknown	89%-Black, 8%-White, 0%-Other, 2%-Unknown	62%-Black, 29%-White, 7%-Other, 2%-Unknown
Enrollment [a]	58%-HC, 0%-FFS, 40%-PAC, 2%-Dual	98%-HC, 1%-FFS, 0%-PAC, 1%-Dual	84%-HC, 0%-FFS, 11%-PAC, 5%-Dual	72%-HC, 1%-FFS, 17%-PAC, 10%-Dual	44%-HC, 3%-FFS, 37%-PAC, 16%-Dual	60%-HC, 5%-FFS, 5%-PAC, 31%-Dual	73%-HC, 5%-FFS, 2%-PAC, 20%-Dual	72%-HC, 2%-FFS, 7%-PAC, 19%-Dual	36%-HC, 1%-FFS, 58%-PAC, 5%-Dual	96%-HC, 2%-FFS, 2%-PAC, 0%-Dual
Region	16%-City, 51%-Balt. Subs, 6%-Washington Subs, 13%-Western, 11%-Eastern, 3%-Southern	34%-City, 27%-Balt. Subs, 12%-Washington Subs, 8%-Western, 13%-Eastern, 6%-Southern	13%-City, 37%-Balt. Subs, 7%-Washington Subs, 10%-Western, 25%-Eastern, 8%-Southern	77%-City, 17%-Balt. Subs, 3%-Washington Subs, 2%-Western, 1%-Eastern, 0%-Southern	39%-City, 23%-Balt. Subs, 15%-Washington Subs, 6%-Western, 12%-Eastern, 5%-Southern	44%-City, 20%-Balt. Subs, 16%-Washington Subs, 4%-Western, 11%-Eastern, 5%-Southern	49%-City, 23%-Balt. Subs, 12%-Washington Subs, 4%-Western, 9%-Eastern, 3%-Southern	43%-City, 27%-Balt. Subs, 14%-Washington Subs, 6%-Western, 8%-Eastern, 2%-Southern	92%-City, 7%-Balt. Subs, 1%-Washington Subs	33%-City, 25%-Balt. Subs, 20%-Washington Subs, 5%-Western, 12%-Eastern, 5%-Southern
Pregnancy	1%	86%	6%	0%	0%	0%	3%	3%	0%	0%
Disabled [b]	8%	7%	15%	72%	42%	79%	77%	73%	28%	11%
General Utilization and Expenditure										
Inpatient Admits [c]	0-98%, 1-2%, 2-0%, 3-0%	0-25%, 1-62%, 2-9%, 3-3%	0-78%, 1-19%, 2-3%, 3-0%	0-74%, 1-21%, 2-4%, 3-0%	0-90%, 1-9%, 2-1%, 3-0%	0-32%, 1-48%, 2-14%, 3-5%	0-4%, 1-17%, 2-22%, 3-56%	0-14%, 1-34%, 2-26%, 3-26%	0-99%, 1-1%, 2-0%, 3-0%	0-82%, 1-14%, 2-3%, 3-1%
ER Admits [d]	0-64%, 1-23%, 2-8%, 3-5%	0-21%, 1-22%, 2-17%, 3-40%	0-8%, 1-15%, 2-17%, 3-59%	0-22%, 1-27%, 2-19%, 3-31%	0-37%, 1-33%, 2-17%, 3-14%	0-8%, 1-22%, 2-21%, 3-49%	0-0%, 1-3%, 2-6%, 3-91%	0-1%, 1-5%, 2-11%, 3-83%	0-69%, 1-21%, 2-7%, 3-3%	0-43%, 1-31%, 2-15%, 3-10%
Long-Term Care Flag [e]	0%	0%	0%	0%	2%	4%	10%	0%	0%	0%
Methadone Flag	58%	16%	18%	58%	0%	0%	15%	12%	40%	0%
Buprenorphine Flag	25%	7%	17%	22%	2%	1%	8%	19%	29%	1%
Medicaid Expenditure Level [f]	Q1-24%, Q2-52%, Q3-17%, Q4-7%	Q1-13%, Q2-17%, Q3-54%, Q4-17%	Q1-20%, Q2-51%, Q3-21%, Q4-8%	Q1-4%, Q2-14%, Q3-34%, Q4-47%	Q1-19%, Q2-27%, Q3-30%, Q4-23%	Q1-13%, Q2-24%, Q3-26%, Q4-38%	Q1-1%, Q2-8%, Q3-21%, Q4-70%	Q1-2%, Q2-12%, Q3-25%, Q4-60%	Q1-10%, Q2-26%, Q3-35%, Q4-29%	Q1-61%, Q2-18%, Q3-13%, Q4-8%

Table 1. Posterior Probabilties for a 10 Latent Class Analysis Model of Persons with Substance Use Disorders and 10-Month Maryland Medicaid Enrollment in CY 2010

	Low morbidity ORT	Women - Pregnant	Women- High ER Use	Disabled ORT	Adult-PAC/Dual	Adult-Dual	Adult-high somatic morbidity	Adult-high psychological morbidity	Urban ORT-PAC	Teenagers/ Young adults
Substance Use Disorder (ICD-9 Diagnostic Code)										
Alcohol Induced Mental Discorders (291)	0%	0%	1%	1%	3%	12%	16%	13%	0%	0%
Drug Induced Mental Disorders (292)	2%	4%	9%	4%	2%	6%	21%	24%	1%	3%
Alcohol Dependence (303)	8%	7%	10%	10%	36%	32%	30%	38%	11%	6%
Opioid Dependence (304.0)	81%	26%	44%	90%	3%	6%	44%	47%	77%	3%
Sedative Dependence (304.1)	2%	1%	3%	1%	0%	0%	4%	8%	1%	0%
Cocaine Dependence (304.2)	5%	6%	7%	14%	9%	5%	12%	28%	15%	1%
Cannabis Dependence (304.3)	5%	12%	7%	2%	7%	1%	3%	15%	3%	27%
Amphetamine Dependence (304.4)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Hallucinogen Dependence (304.5)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Other Drug Dependence (304.6)	0%	1%	1%	0%	1%	0%	2%	3%	0%	0%
Opioid Combos Dependence (304.7)	1%	1%	1%	1%	0%	0%	6%	8%	0%	0%
Other combos Dependence (304.8)	5%	2%	4%	6%	5%	2%	7%	21%	7%	3%
Unspecified Dependence (304.9)	4%	12%	7%	19%	6%	5%	17%	14%	27%	3%
Alcohol Abuse (305.0)	6%	15%	17%	8%	36%	44%	37%	41%	6%	25%
Cannabis Abuse (305.2)	2%	36%	14%	2%	12%	13%	13%	25%	2%	52%
Hallucinogen Abuse (305.3)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%
Sedative Abuse (305.4)	1%	1%	2%	1%	0%	0%	3%	5%	0%	1%
Opioid Abuse (305.5)	4%	8%	8%	9%	3%	7%	21%	20%	2%	2%
Cocaine Abuse (305.6)	2%	7%	6%	9%	9%	18%	26%	31%	3%	1%
Amphetamine Abuse (305.7)	0%	1%	1%	0%	0%	0%	0%	1%	0%	0%
Antidepressant Abuse (305.8)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Unspecified Abuse (305.9)	7%	15%	23%	21%	13%	18%	42%	48%	11%	14%

Table 1. Posterior Probabilties for a 10 Latent Class Analysis Model of Persons with Substance Use Disorders and 10-Month Maryland Medicaid Enrollment in CY 2010

	Low morbidity ORT	Women - Pregnant	Women- High ER Use	Disabled ORT	Adult-PAC/Dual	Adult-Dual	Adult-high somatic morbidity	Adult-high psychological morbidity	Urban ORT-PAC	Teenagers/ Young adults
Pregnancy-related Dependence (648.3)	0%	31%	0%	0%	0%	0%	1%	1%	0%	0%
Psychologic Expanded Diagnosis Clusters (EDCs)										
Anxiety, neurosis (psy01)	23%	25%	51%	26%	18%	21%	10%	63%	10%	29%
Tobacco use (psy03)	21%	33%	64%	51%	35%	55%	9%	71%	20%	15%
Behavior problems (psy04)	1%	1%	5%	1%	1%	2%	0%	7%	0%	1%
ADD (psy05)	3%	4%	9%	1%	1%	1%	0%	11%	0%	20%
Family & Social probs (psy06)	0%	5%	2%	2%	2%	4%	1%	25%	0%	3%
Schizophrenia & affective psychosis (psy07)	6%	12%	12%	12%	18%	16%	1%	67%	8%	18%
Personality dis (psy08)	0%	1%	1%	0%	1%	1%	0%	12%	0%	1%
Depression (psy09)	26%	32%	47%	47%	32%	32%	3%	85%	32%	19%
Psych signs & sympts (psy10)	1%	5%	6%	1%	4%	3%	0%	50%	0%	7%
Other (psy11)	0%	0%	1%	1%	2%	1%	0%	1%	1%	0%
Major Expanded Diagnosis Clusters (MEDCs)										
Allergy	6%	23%	36%	30%	14%	33%	53%	29%	10%	19%
Cardiovascular	11%	22%	40%	74%	46%	88%	97%	61%	39%	7%
Dental	10%	12%	25%	15%	8%	9%	19%	16%	9%	4%
Ears,Nose,Throat	11%	23%	46%	19%	12%	25%	38%	24%	5%	21%
Endocrine	3%	6%	14%	27%	12%	35%	55%	17%	7%	1%
Eye	2%	7%	14%	12%	9%	19%	28%	12%	4%	11%
Female Reproductive	14%	100%	48%	19%	8%	14%	29%	18%	7%	12%
Gastrointestinal/Hepatic	13%	31%	48%	65%	27%	71%	96%	53%	22%	8%
General Signs/Symps	16%	42%	77%	61%	31%	85%	100%	75%	11%	20%
General Surgery	15%	54%	64%	53%	24%	63%	93%	49%	14%	15%
Genetic	0%	1%	1%	2%	0%	9%	28%	5%	0%	0%

Table 1. Posterior Probabilties for a 10 Latent Class Analysis Model of Persons with Substance Use Disorders and 10-Month Maryland Medicaid Enrollment in CY 2010

	Low morbidity ORT	Women - Pregnant	Women- High ER Use	Disabled ORT	Adult-PAC/Dual	Adult-Dual	Adult-high somatic morbidity	Adult-high psychological morbidity	Urban ORT-PAC	Teenagers/ Young adults
Genitourinary	7%	37%	35%	27%	11%	34%	67%	28%	8%	8%
Hematologic	1%	27%	8%	18%	5%	35%	72%	15%	4%	1%
Infections	3%	26%	22%	27%	8%	24%	60%	20%	8%	10%
Malignancies	1%	1%	2%	5%	1%	8%	15%	2%	1%	0%
Musculoskeletal	30%	42%	82%	73%	51%	77%	93%	74%	33%	29%
Neurologic	15%	29%	64%	43%	31%	64%	90%	65%	12%	17%
Nutritional	4%	17%	17%	21%	9%	28%	55%	16%	6%	4%
Reconstructive	4%	6%	16%	12%	8%	14%	33%	21%	2%	11%
Renal	1%	12%	11%	15%	5%	43%	80%	29%	2%	3%
Respiratory	13%	26%	56%	53%	23%	71%	94%	51%	10%	15%
Rheumatologic	1%	1%	8%	16%	7%	19%	28%	10%	6%	1%
Skin	15%	29%	59%	38%	27%	44%	67%	51%	13%	30%
Toxic effects	1%	5%	10%	5%	3%	14%	43%	26%	0%	3%

Notes:

a. Dual=Medicare-Medicaid Eligible, HC=Full HealthChoice Benefit, PAC=Primary Adult Care Program, FFS=Medicaid Fee-For-Service Only

b. Disabled if recipients are covered through "Aged, Blind, or Disabled (ABD), Medicare Savings Program" (PAC recipients are exclued)

c. 0 if number of admissions=0, 1 if number of admissions=1, 2 if number of admissions=2, 3 if number of admissions=3 or higher

d. 0 if number of ER visits=0, 1 if number of ER visits=1, 2 if number of ER visits=2, 3 if number of ER visits=3 or higher

e. LTC is present if such services (e.g., nursing home days) appear in the medical record.

f. Q1 is the lowest spending quartile while Q4 is the highest. Expenditure quartiles were calculated within enrollment group.

Table 2. Most fequent provider client counts by Latent Cluster Analysis* class using 10-class model with a seed = 100,000. (Sorted by Total (column L) clients from high to low.)

Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
JOHNS HOPKINS HOSPITAL	000065566	1578597993	--	80	40	125	157	210	165	60	42	116	998	1adult, 2.1 adult, 3.1women
TOTAL HEALTH CARE INC [A]	905611400	1972597425	15	31	17	126	65	69	24	29	362	22	760	1adult, 2.1 adult
BALT. BEH. HEALTH INC [B]	200803300	1285816140	37	--	14	117	57	16	54	202	191	--	698	n/a
GLASS SUBST. ABUSE PROGRAMS	039191360	1902876345	149	24	53	151	--	--	32	23	182	--	614	OMT adult
Provider NAME A	960901660	1891762183	101	24	26	243	--	--	42	20	138	--	594	n/a
TURNING POINT CLINIC	001184360	1942292487	38	--	--	238	--	--	38	16	233	--	573	OMT adult
BALT. MEDICAL SYSTEMS [A]	376751500	1548266547	25	17	84	37	125	88	39	29	55	15	514	n/a
No Most Frequent Provider			100	19	3	3	128	73	7	9	110	62	514	n/a
HEALTH CARE FOR HOMELESS [A]	383841200	1003819665	--	--	--	63	158	57	29	51	116	--	493	1 adult

Table 2. Most fequent provider client counts by Latent Cluster Analysis* class using 10-class model with a seed = 100,000. (Sorted by Total (column L) clients from high to low.)

Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
UMD MED SYS	004087860	1174660120	--	97	14	48	54	50	57	36	50	22	428	1adolescent, 1adult, 2.1adult
JOHNS HOPKINS HOSPITAL	000065500	1578597993	--	--	--	28	77	134	79	50	14	26	427	1adult, 2.1 adult, 3.1women
MD DHS	600308700	5600308700	--	41	26	--	--	--	--	46	--	285	411	n/a
BD HEALTH SERVICES	017922160	1144419201	215	25	69	51	--	--	--	14	--	--	391	n/a
BAYVIEW	341475200	1790700904	--	36	31	40	47	59	44	50	15	24	352	OMT adult
HARBOR HOSP	000145777	1720175623	--	65	78	--	53	27	22	--	--	39	311	n/a
FAMILY HEALTH CENTERS OF BALT. ^	960711100	1346286713	30	22	23	55	28	29	12	--	87	11	305	1adult, 2.1adult
EASTERN AVENUE HEALTH SOLUTION	031785360	1598099061	99	--	29	84	--	--	--	15	58	--	298	n/a
JOHNS HOPKINS BAYVIEW OBGYN	013775860	1790700904	30	65	28	59	11	26	31	16	15	16	297	OMT adult

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
A HELPING HAND	004570560	1568506004	48	--	11	95	--	--	15	12	109	--	295	n/a
WARWICK MANOR BEH. HLTH. INC [B]	408231100	1487691721	20	--	40	12	22	19	32	97	--	22	277	n/a
POWELL RECOVERY CENTER	130305160	1952382665	18	--	--	72	--	--	--	19	131	--	264	3.1women
MARYLAND GENERAL HOSPITAL	000085060	1669565180	--	34	--	24	51	59	30	11	21	14	253	n/a
WE CARE ARUNDEL HEALTH SERVICE	130307260	1982753794	119	13	42	47	--	--	--	--	11	--	248	n/a
REFLECTIVE TREATMENT CENTER	130305660	1194796615	11	--	--	89	--	--	--	--	131	--	242	OMT adult
CHASE BREXTON HEALTH SERVICES INC [A]	132190100	1588606305	16	--	14	37	71	32	22	17	20	--	238	n/a
Provider NAME U	079121160	1437188174	21	--	--	76	--	--	14	--	91	--	232	n/a
SINAI HOSPITAL OF BALTO	000135064	1285672204	--	20	--	41	24	38	29	--	32	26	231	1adult, 2.1adult, OMT adult

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
ELKTON TREATMENT CENTER	016011360	1356540546	80	22	33	57	--	--	--	--	23	--	231	n/a
GLENWOOD LIFE COUNSEL CTR	750251660	1104802420	14	--	--	89	--	--	18	--	89	--	228	OMT adult
UNIVERSITY OF MD MED SYS	122177260	1174660120	--	69	--	27	16	27	35	15	13	--	225	1adolescent, 1adult, 2.1adult
PENINSULA REGIONAL MEDICAL CEN	001120760	1780689463	--	26	77	--	36	26	22	--	--	24	221	n/a
Provider NAME A	960901661	1891762183	49	13	20	69	--	--	17	--	45	--	218	n/a
MARYLAND DEPT OF JUVENILE SERVICES	203322400	5203322400	--	--	--	--	--	--	--	14	--	190	216	n/a
UNION MEMORIAL HOSPITAL	000155462	1487741427	--	15	16	14	43	46	33	--	--	31	215	n/a
WASHINGTON COHEALTH DEPT	008578260	1235117714	54	11	36	--	43	--	--	--	--	53	215	n/a
HAGERSTOWN TREATMENT CENTER	013684160	1821203555	119	23	47	13	--	--	--	--	--	--	209	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
FRANKLIN SQUARE HOSPITAL	000045171	1184712085	--	80	42	--	19	--	23	--	--	17	205	n/a
UNIVERSITY OF MD MEDICAL SYSTEM	419016500	1174660120	--	--	--	23	35	49	37	29	--	--	204	1adolescent, 1adult, 2.1adult
Provider NAME B	033199660	1578599130	35	--	--	75	--	--	17	--	65	--	200	n/a
CENTER FOR ADDICTION MEDICINE	284402861	1689677783	24	--	--	82	--	--	19	11	46	--	200	n/a
PEOPLES COMMUNITY HEALTH CENTER [A]	910561100	1548240302	24	--	22	26	46	23	13	--	23	--	200	1adult, 2.1adult
MARYLAND GENERAL HOSPITAL	000085000	1669565180	--	--	--	18	36	63	47	18	--	--	195	n/a
MERCY HOSPITAL	000095761	1144282583	--	21	--	11	55	35	20	14	15	--	195	n/a
UNION HOSPITAL OF CECIL COUNTY	000385960	1376523357	--	--	89	--	15	17	35	--	--	--	189	n/a
STAGNES HOSPITAL	000115560	1245274901	--	22	--	11	38	27	16	14	--	27	177	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
FRANKLIN SQUARE HOSPITAL	000045100	1184712085	--	17	24	--	29	34	17	27	--	18	176	n/a
WICOMICO COUNTY HEALTH DEPT	004077160	1598982423	34	11	41	--	29	--	--	--	--	37	170	n/a
WESTERN MARYLAND RECOVERY SERV	008818860	1225182215	105	13	28	15	--	--	--	--	--	--	170	n/a
HAMPDEN HEALTH SOLUTIONS ATTH	032092760	1679807150	30	--	--	62	--	--	--	--	63	--	169	n/a
BPH,INC.	021437060	1760657076	88	11	20	29	--	--	--	--	--	--	167	n/a
GLASS SUBSABUSE PROGRAM	039191300	1902876345	19	--	--	73	--	--	19	--	35	--	164	OMT adult
UNION MEMORIAL HOSPITAL	000155400	1487741427	--	--	--	12	23	53	29	28	--	--	161	n/a
THREE LOWER COCOMMSERV [A]	119591300	1154354744	--	31	35	--	39	23	--	--	--	14	160	n/a
GOOD SAMARITAN HOSPITAL	000715360	1811084718	--	--	11	15	37	38	13	--	--	20	158	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
SINAI HOSPITAL OF BALTO	000135000	1285672204	--	--	--	12	31	41	19	23	--	12	157	1adult, 2.1adult, OMT adult
ELKTON TREATMENT CENTER	012620960	1598892754	77	--	55	--	--	--	--	--	--	--	157	n/a
ECHO HOUSE MULTI-PURPOSE CTR	130500760	1942444260	--	--	--	--	17	--	--	--	21	87	148	n/a
Provider NAME C	144933660	1609849306	--	--	--	39	--	--	--	--	85	--	148	n/a
KEY POINT HEALTH SERVICES [B]	298521700	1235140708	11	--	26	--	42	25	--	17	--	--	148	n/a
BON SECOURS HOSPITAL	000175900	1962480772	--	--	--	11	27	33	28	30	--	--	146	n/a
Provider NAME V	018655460	1548259203	24	--	15	--	32	11	--	--	--	40	146	n/a
WESTERN MD REGIONAL MED CTR	000355761	1609831247	15	26	51	--	15	11	--	--	--	--	145	n/a
ALLEGANY CO HEALTH DEPT	130300561	1265556815	48	15	23	--	22	--	--	--	--	25	145	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
MEDICATION ASSISTED TREATMENT	000372760	1295724656	80	12	23	15	--	--	--	--	--	--	144	n/a
ATS OF CECIL COUNTY INC	013356660	1154338861	97	--	28	--	--	--	--	--	--	--	144	n/a
UPPER BAYCSS-MHC [B]	922801200	1316912652	--	--	36	--	19	20	18	19	--	20	144	n/a
CONTEMPORARY THERAPEUTIC SRVCE INC [B]	690504800	1104090158	--	--	17	--	15	16	--	22	--	53	140	n/a
DORCHESTER GENERAL HOSP	000225960	1669431219	--	15	51	--	27	16	13	--	--	--	139	n/a
HARBEL PREVENTION & RECOVERY	116701460	1366429052	--	--	--	--	51	--	--	--	25	41	137	0.5adolescent, 1adolescent, 1adult, 2.1adult
BALTIMORE WASHINGTON MEDICAL	000445663	1124016696	--	16	46	--	--	--	21	--	--	24	134	n/a
BALTIMORE COMMUNITY RESOURCE	027936660	1447231576	--	--	--	21	27	--	--	--	48	16	133	1adult, 2.1adult, 3.1adult
BALTIMORE BEHAVIORAL HEALTH	309900860	1285816140	--	--	--	31	--	--	22	47	19	--	133	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
JOPPA HEALTH SERVICES INC	026500460	1619026432	82	--	20	19	--	--	--	--	--	--	132	n/a
CHARLES COUNTY HEALTH DEPARTME	734083460	1841377728	12	--	26	--	37	--	--	--	--	44	132	n/a
PHOENIX THERAPEUTIC FOUNDATION [B]	403344200	1033247945	23	--	17	23	--	--	--	11	41	--	129	n/a
Provider NAME D	790871760	1619054046	--	--	11	24	--	--	--	11	53	--	126	n/a
TUERK HOUSE,INC	027954460	1497730204	--	--	--	18	18	--	--	--	66	--	124	1adult, 2.1adult, 3.3adult, 3.7adult
POWELL RECOVERY CENTER [B]	415782600	1699928994	--	--	--	28	--	--	--	20	45	--	123	n/a
DELMARVA FAMILY RESOURCES [B]	774800102	1619171535	36	--	30	--	12	--	--	--	--	13	123	n/a
PARK WEST HLTH CTR INC [A]	912391100	1205896719	--	36	--	13	15	--	--	--	25	--	123	n/a
BALTIMORE RECOVERY CENTER	122180860	1285816140	--	--	--	29	--	--	--	29	50	--	122	n/a

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Provider NAME E	145412460	1679556559	18	--	--	43	--	--	--	--	46	--	120	n/a
MOSAIC COMMUNITY SERVICES [B]	159380304	1669632147	--	--	22	--	22	--	11	29	--	--	120	n/a
PR GEORGES HOSP CTR ACUTE	000345065	1720099286	--	19	--	--	26	27	--	--	--	21	117	n/a
MAN ALIVE RESEARCH	147803260	1255312203	--	--	--	44	--	--	--	--	48	--	114	2.1adult, OMT adult
SERENITY HEALTH	032104460	1750534194	58	--	24	14	--	--	--	--	--	--	112	n/a
MARYLAND TREATMENT CENTERS INC [B]	090501100	1871534438	--	--	12	--	--	--	--	14	--	57	110	1adolescent, 3.7women/ children, 3.7Dwomen /children
APM&ADEPT	122018561	1194905760	32	--	18	--	20	--	--	--	--	22	110	n/a
WASHINGTON COUNTY HOSPITAL ASS	000395661	1942281266	--	16	30	--	12	13	--	11	--	11	107	n/a
BY GRACE COUNSELING SERVICE	023539360	1194990770	38	--	11	30	--	--	--	--	--	--	107	1adult, 2.1adult

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PRINCE GEORGE'S COUNTY HEALTH	004247160	1932254299	13	--	--	24	27	--	--	--	19	--	105	n/a
Provider NAME F	758731760	1932134798	--	--	--	13	36	12	--	--	39	--	105	n/a
FREDERICK MEMORIAL HOSPITAL	000235660	1538165527	--	11	19	--	20	12	13	12	--	14	104	n/a
GENESIS TREATMENT SERVICES	032076560	1003071226	52	--	17	13	--	--	--	--	--	--	104	n/a
MOUNTAIN MANOR TREATMENT CENTE	122183060	1477593010	--	--	--	--	--	--	--	--	--	90	104	n/a
GAUDENZIA AT LANDOVER	144917160	1366656175	--	--	--	17	13	--	--	--	53	--	104	n/a
TREATMENT RESOURCES FOR YOUTH	027952860	1447231592	--	--	--	--	--	--	--	--	--	98	100	1adolescent
BON SECOURS NEW HOPE	138200360	1376526996	--	--	--	30	--	--	--	--	59	--	100	OMT adult
GOOD SAMARITAN HOSP ACUTE	000715300	1811084718	--	--	--	--	--	39	27	--	--	--	99	n/a

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APEX COUNSELING CENTER LLC[B]	405159900	1851336937	--	--	--	--	27	13	--	14	17	--	97	n/a
QUEEN ANNES CTY HLTH	004199860	1104815026	12	15	19	--	18	--	--	--	--	27	96	n/a
POWELL RECOVERY	218121560	1053459487	14	--	--	20	--	--	--	--	34	--	94	n/a
FIRST STEP RECOVERY CTR INC	138100560	1710037759	19	--	--	--	33	--	--	--	--	14	92	n/a
Provider NAME G	015868260	1346337060	--	--	--	24	20	14	--	--	24	--	91	n/a
SINAI HOSPITAL OF BALTO	000135061	1285672204	--	--	--	13	23	--	--	--	22	--	90	1adult, 2.1adult, OMT adult
MERCY HOSPITAL	000095700	1144282583	--	--	--	--	--	36	29	--	--	--	88	n/a
CALVERT MEMORIAL HOSPITAL	000215163	1457389298	--	12	31	--	18	11	--	--	--	--	88	n/a
JOHNS HOPKINS BAYVIEW MED CNTR	122220860	1790700904	--	37	--	--	--	--	11	--	--	--	88	OMT adult

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Provider NAME H	015129762	1366556292	--	--	--	--	21	13	--	--	39	--	87	n/a
CARROLL COUNTY HEALTH DEPT	017425460	1861596199	35	--	--	--	20	--	--	--	--	--	86	n/a
CHOPTANK COMMUNITY HLTH SYSTEM INC [A]	784381000	1356388599	--	--	28	--	20	17	--	--	--	--	86	n/a
ALLEGANY COUNTY HEALTH DEPARTMENT [B]	418764400	1154463495	--	--	12	--	30	--	--	12	--	--	85	n/a
DORCHESTER COUNTY HEALTH DEPT-	703191260	1205894458	--	--	11	--	23	--	--	--	--	30	85	n/a
Provider NAME I	021344660	1518960558	15	--	--	--	14	--	--	--	--	35	84	n/a
BEHAVIORAL HEALTH PARTNERS [B]	211702900	1538223045	--	--	20	--	--	--	--	--	--	30	83	n/a
BALTIMORE WASHINGTON MEDICAL CENTER	000445600	1124016696	--	--	13	--	--	12	19	17	--	--	80	n/a
RECOVERY NETWORK	031357260	1114250503	--	--	--	12	--	--	--	--	49	--	80	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
HARFORD-BELAIR CMHCGENOP [B]	266641300	1801832852	--	--	--	--	25	17	--	11	11	--	80	n/a
ALL WALKS OF LIFE LLC [B]	411131100	1497977169	--	--	--	17	--	--	--	--	28	--	79	n/a
UNIV OF MD MEDICAL SYSTEM	340925200	1174660120	--	--	--	--	12	23	--	11	--	--	78	1adolescent, 1adult, 2.1adult
Provider NAME J	081221861	1598795213	--	--	--	--	30	11	--	--	25	--	77	n/a
MENTAL HLTH CTR OF WESTERN MD INC	281171500	1992924567	--	--	18	--	--	--	--	17	--	--	76	n/a
Provider NAME K	358531060	1538199245	--	--	--	--	18	23	--	--	22	--	76	n/a
ANNE ARUNDEL GENERAL HOSP	000205461	1477517225	--	--	18	--	14	--	--	--	--	--	74	n/a
CECIL COUNTY HEALTH DEPT	009005160	1326254475	12	--	19	--	23	--	--	--	--	14	74	n/a
FRANKLIN SQUARE HOSPITAL	000045160	1184712085	--	--	22	--	15	--	--	--	--	--	72	n/a

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MOUNTAIN MANOR TREATMENT CTR	117091163	1144334178	--	--	--	--	23	--	--	--	--	14	72	n/a
OMNI HOUSE MENTAL HLTH CL [B]	265071100	1104983568	--	--	--	--	21	--	11	12	--	--	72	n/a
HARFORD MEMORIAL HOSPITAL	000255161	1770589533	--	--	28	--	--	--	12	--	--	--	71	n/a
JOHNS HOPKINS PHARMAQUIP INC	017026760	1376622001	--	--	--	15	--	14	31	--	--	--	69	n/a
Provider NAME L	064911260	1609941129	44	--	--	--	--	--	--	--	--	--	69	n/a
CIVISTA MEDICAL CENTER INC	000335260	1992701825	--	--	22	--	24	--	--	--	--	--	68	n/a
MERCY MEDICAL CTR	008332160	1144282583	--	--	--	--	--	17	22	--	--	--	68	n/a
GERMAN TOWN EMERG CENTER	008574060	1568468221	--	--	--	--	--	--	--	--	--	19	68	n/a
JOHNSHOPKINSBAY VIEWSPEICALT	096721160	1790700904	--	18	--	--	--	--	--	--	--	--	68	OMT adult

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
WALNUT STREET COMMUNITY HEALTH CTR [A]	401662900	1366425266	--	--	15	--	20	16	--	--	--	--	67	n/a
BALTIMORE CITY SCHOOLS	541568300	1689748030	--	--	--	--	--	--	--	--	--	62	67	n/a
LOWER SHORE CLINIC INC [B]	298470900	1154320646	--	--	--	--	21	12	--	14	--	--	66	n/a
Provider NAME M	467341766	1013932441	--	--	--	--	18	14	--	--	24	--	66	n/a
ATSOF CECIL COUNTY D.B.ACUMB	012620961	1598892754	29	11	21	--	--	--	--	--	--	--	65	n/a
FREDERICK INSTITUTE	130302860	1528012754	40	--	--	--	--	--	--	--	--	--	65	n/a
HOWARD COHEALTH DEPT CHEMI	004409160	1972681088	--	--	--	--	16	--	--	--	--	19	64	n/a
WORCESTER COUNTY HEALTH DE	017297961	1407075575	--	18	12	--	18	--	--	--	--	--	64	n/a
MEMORIAL HOSP AT EASTON	000305100	1669431219	--	--	--	--	--	15	11	13	--	--	63	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
ST MARYS HOSPITAL	000365466	1780650473	--	--	20	--	12	--	--	--	--	--	63	n/a
Provider NAME N	031111160	1346262185	--	--	27	--	--	--	--	--	--	--	63	n/a
Provider NAME W	051821263	1871566125	--	--	--	32	--	--	--	--	12	--	63	n/a
ALLIANCE OMHC-HARFORD COUNTY B	255481000	1184759730	--	--	13	--	--	--	--	16	--	--	63	n/a
STAGNES HOSPITAL	000115500	1245274901	--	--	--	--	--	16	--	--	--	--	62	n/a
ANNAPOLIS HEALTH CENTER	004556063	1619080546	46	--	--	--	--	--	--	--	--	--	62	n/a
CENTER FOR ADDICTION INPREGNA	123203160	1790700904	--	29	--	--	--	--	--	--	--	--	62	OMT adult
BON SECOURS NEXT PASSAGE	138200560	1922081231	--	--	--	14	--	--	--	--	43	--	62	1adult, 2.1adult
ADVANCED TREATMENT SYSTEMS	146900160	1598892754	29	--	18	--	--	--	--	--	--	--	62	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
WORCESTER COMHCSNOWHILL [B]	265081902	1003035858	--	--	12	--	12	--	--	--	--	22	62	n/a
Provider NAME O	529210760	1184659088	--	--	--	--	14	--	--	--	29	--	62	n/a
BALTIMORE CARES, INC	027935860	1063692655	--	--	--	11	--	--	--	--	29	--	61	n/a
Provider NAME P	145203960	1932177904	--	--	--	15	--	--	--	--	33	--	61	n/a
WESTERNMDHLTHSYSTEMCORP	000355700	1609831247	--	--	--	--	--	15	--	13	--	--	60	n/a
WASHINGTON COUNTY HOSP	000395600	1942281266	--	--	--	--	--	16	18	--	--	--	60	n/a
WASHINGTON ADVENTIST HOSPITAL	000405760	1487650024	--	--	--	--	12	--	15	--	--	--	60	n/a
THE COORDINATING CENTER	541576400	1144268848	--	--	--	--	20	22	13	--	--	--	60	n/a
FREDERICK COUNTY HEALTH DEPART	003094560	1083603914	23	--	--	--	17	--	--	--	--	--	59	n/a

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Provider NAME Q	007979160	1881683522	--	--	--	14	--	--	--	--	42	--	59	n/a
Provider NAME R	051191962	1295789311	--	--	19	--	--	--	--	--	--	--	59	n/a
RESIDENTIAL CARE INCORPORATED [B]	167750100	1477561801	--	--	--	--	24	--	--	--	13	--	59	n/a
CALVERT COUNTY MENTAL HEALTH [B]	280381000	1316927601	--	--	17	--	17	--	--	--	--	--	59	n/a
TURNING POINT CLINIC	147804760	1942292487	--	--	--	27	--	--	--	--	19	--	58	OMT adult
CARROLL HOSPITAL CENTER	404990000	1912904210	--	--	--	--	--	--	--	14	--	--	58	n/a
ATLANTIC GENERAL HOSPITAL UB	013772360	1053309120	--	--	21	--	--	--	--	--	--	11	57	n/a
MARSHY HOPE FAMILY SERVICES LLC [B]	479302100	1093897803	--	--	11	--	12	11	--	--	--	--	56	n/a
CTR FOR ADDICTION&PREGNANCY [B]	588361000	1932254299	--	18	13	--	--	--	--	--	--	--	56	n/a

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BON SECOURS HOSPITAL INC	000175962	1962480772	--	--	--	--	11	--	14	--	--	--	54	n/a
Provider NAME S	034051160	1134447303	--	--	--	--	--	--	--	--	--	19	54	n/a
CHARLES COUNTY MHC CHARLES STREET [B]	265581100	1790985695	--	--	--	--	19	--	--	--	--	--	54	n/a
KEY POINT HEALTH SERVICES [B]	298521702	1497760847	--	--	--	--	11	17	--	--	--	--	54	n/a
REGMID-SHORE MH SRVCS-CAROLINE CO [B]	403958100	1396745634	--	--	14	--	--	11	--	--	--	--	54	n/a
UNION MEMORIAL HOSPITAL	000155461	1487741427	--	--	--	--	25	--	--	--	12	--	53	n/a
FREDERICK MEMORIAL HOSP	000235600	1538165527	--	--	--	--	--	13	--	11	--	11	53	n/a
MOSAIC COMMUNITY SERVICES INC [B]	159380306	1598084626	--	--	--	--	16	--	--	--	--	--	53	n/a
STLUKE'S HOUSE MHC [B]	252502000	1194725739	--	--	--	--	25	12	--	--	--	--	52	n/a

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Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
INSTITUTES FOR BEHAVIOR RESOUR	792420860	1679556559	--	--	--	19	--	--	--	--	19	--	52	OMT adult
UPPER CHESAPEAKE MEDICAL CENTE	141301760	1598761355	--	--	13	--	--	--	--	--	--	--	51	n/a
THRESHOLD SERVICES INC [B]	169823100	1255379947	--	--	--	--	21	11	--	12	--	--	51	n/a
EPOCH COUNSELING CENTER	312191760	1083772743	--	--	--	--	--	--	--	--	--	28	51	n/a
CHANGE HEALTH SYSTEMS INC [B]	404096100	1750428470	--	--	--	14	13	--	--	--	13	--	51	n/a
OPTIMUM HEALTH SYSTEMS INC [B]	404169100	1598094997	--	--	--	--	--	--	--	--	--	12	51	n/a
HARBOR HOSPITAL CENTER	000145700	1720175623	--	--	--	--	--	--	12	--	--	--	50	n/a
BON SECOURS HOSPITAL	000175964	1750365607	--	--	--	--	--	--	--	--	37	--	50	OMT adult
PENINSULA REGIONAL MED CT	000325500	1780689463	--	--	--	--	11	23	--	--	--	--	50	n/a

Table 2. Most fequent provider client counts by Latent Cluster Analysis* class using 10-class model with a seed = 100,000. (Sorted by Total (column L) clients from high to low.)

Most Frequent Provider Name	Provider MA Number	Provider NPI Number	Low Morbid ORT	Women-Preg.	Women-High ER Use	Disabled ORT	Adult-PAC/ Dual	Adult Dual	Adult-High Som.	Adult-High Psych.	Urban ORT-PAC	Teens/ Young Adults	Total	ASAM Level for Select Programs*
HOLY CROSS HOSPITAL	000435962	1669417838	--	--	--	--	--	--	11	--	--	--	50	n/a
WAY STATION MENTAL HLTH CLINIC [B]	264161501	1104914464	--	--	--	--	--	--	--	--	--	12	50	n/a
KEY POINT HEALTH SERVICES [B]	298521701	1275544025	--	--	--	--	15	--	--	--	--	--	50	n/a
Provider NAME T	527911900	1477676807	--	--	--	--	--	--	--	--	36	--	50	n/a
All Others			1,454	1,367	2,393	954	2,785	2,625	1,652	1,214	1,061	2,434	17,939	
TOTAL			**4,652**	**3,265**	**5,138**	**4,680**	**6,196**	**5,158**	**3,732**	**3,258**	**5,250**	**5,014**	**46,343**	

Note:

A: Federally Qualitified Health Centers

B: Mental Health Clinic

--: censored cell, less than 11 persons

* Per personal communication with Dr. Yngvild Olsen, January 2012.

Table 3. Expanded Diagnosis Clusters.

EDC	Description
Administrative	
ADM01	No longer in use
ADM02	Surgical aftercare
ADM03	Transplant status
ADM04	No longer in use
ADM05	Administrative concerns and nonspecific laboratory abnormalities
ADM06	Preventive care
Allergy	
ALL01	Allergic reactions
ALL03	Allergic rhinitis
ALL04	Asthma, w/o status asthmaticus
ALL05	Asthma, with status asthmaticus
ALL06	Disorders of the immune system
Cardiovascular	
CAR01	Cardiovascular signs and symptoms
CAR03	Ischemic heart disease (excluding acute myocardial infarction)
CAR04	Congenital heart disease
CAR05	Congestive heart failure
CAR06	Cardiac valve disorders
CAR07	Cardiomyopathy
CAR08	Heart murmur
CAR09	Cardiac arrhythmia
CAR10	Generalized atherosclerosis
CAR11	Disorders of lipoid metabolism
CAR12	Acute myocardial infarction
CAR13	Cardiac arrest, shock
CAR14	Hypertension, w/o major complications
CAR15	Hypertension, with major complications
CAR16	Cardiovascular disorders, other
Dental	
DEN01	Disorders of mouth
DEN02	Disorders of teeth
DEN03	Gingivitis
DEN04	Stomatitis
Ear, Nose, Throat	
EAR01	Otitis media
EAR02	Tinnitus
EAR03	Temporomandibular joint disease
EAR04	Foreign body in ears, nose, or throat
EAR05	Deviated nasal septum
EAR06	Otitis externa
EAR07	Wax in ear
EAR08	Deafness, hearing loss
EAR09	Chronic pharyngitis and tonsillitis
EAR10	Epistaxis

EAR11	Acute upper respiratory tract infection
EAR12	ENT disorders, other
Endocrine	
END02	Osteoporosis
END03	Short stature
END04	Thyroid disease
END05	Other endocrine disorders
END06	Type 2 diabetes, w/o complication
END07	Type 2 diabetes, w/ complication
END08	Type 1 diabetes, w/o complication
END09	Type 1 diabetes, w/ complication
Eye	
EYE01	Ophthalmic signs and symptoms
EYE02	Blindness
EYE03	Retinal disorders (excluding diabetic retinopathy)
EYE04	Disorders of the eyelid and lacrimal duct
EYE05	Refractive errors
EYE06	Cataract, aphakia
EYE07	Conjunctivitis, keratitis
EYE08	Glaucoma
EYE09	Infections of eyelid
EYE10	Foreign body in eye
EYE11	Strabismus, amblyopia
EYE12	Traumatic injuries of eye
EYE13	Diabetic retinopathy
EYE14	Eye, other disorders
Female Reproductive	
FRE01	Pregnancy and delivery, uncomplicated
FRE02	Female genital symptoms
FRE03	Endometriosis
FRE04	Pregnancy and delivery with complications
FRE05	Female infertility
FRE06	Abnormal pap smear
FRE07	Ovarian cyst
FRE08	Vaginitis, vulvitis, cervicitis
FRE09	Menstrual disorders
FRE10	Contraception
FRE11	Menopausal symptoms
FRE12	Utero-vaginal prolapse
FRE13	Female gynecologic conditions, other
Gastrointestinal/Hepatic	
GAS01	Gastrointestinal signs and symptoms
GAS02	Inflammatory bowel disease
GAS03	Constipation
GAS04	Acute hepatitis
GAS05	Chronic liver disease
GAS06	Peptic ulcer disease

GAS07	Gastroenteritis
GAS08	Gastroesophageal reflux
GAS09	Irritable bowel syndrome
GAS10	Diverticular disease of colon
GAS11	Acute pancreatitis
GAS12	Chronic pancreatitis
GAS13	Lactose intolerance
GAS14	Gastrointestinal/Hepatic disorders, other
General signs and Symptoms	
GSI01	Nonspecific signs and symptoms
GSI02	Chest pain
GSI03	Fever
GSI04	Syncope
GSI05	Nausea, vomiting
GSI06	Debility and undue fatigue
GSI07	Lymphadenopathy
GSI08	Edema
General Surgery	
GSU01	Anorectal conditions
GSU02	Appendicitis
GSU03	Benign and unspecified neoplasm
GSU04	Cholelithiasis, cholecystitis
GSU05	External abdominal hernias, hydroceles
GSU06	Chronic cystic disease of the breast
GSU07	Other breast disorders
GSU08	Varicose veins of lower extremities
GSU09	Nonfungal infections of skin and subcutaneous tissue
GSU10	Abdominal pain
GSU11	Peripheral vascular disease
GSU12	Burns--1st degree
GSU13	Aortic aneurysm
GSU14	Gastrointestinal obstruction/perforation
Genetic	
GTC01	Chromosomal anomalies
GTC02	Inherited metabolic disorders
Genito-urinary	
GUR01	Vesicoureteral reflux
GUR02	Undescended testes
GUR03	Hypospadias, other penile anomalies
GUR04	Prostatic hypertrophy
GUR05	Stricture of urethra
GUR06	Urinary symptoms
GUR07	Other male genital disease
GUR08	Urinary tract infections
GUR09	Renal calculi
GUR10	Prostatitis
GUR11	Incontinence

GUR12	Genito-urinary disorders, other
Hematologic	
HEM01	Hemolytic anemia
HEM02	Iron deficiency, other deficiency anemias
HEM03	Thrombophlebitis
HEM04	Neonatal jaundice
HEM05	Aplastic anemia
HEM06	Deep vein thrombosis
HEM07	Hemophilia, coagulation disorder
HEM08	Hematologic disorders, other
Infections	
INF01	Tuberculosis infection
INF02	Fungal infections
INF03	Infectious mononucleosis
INF04	HIV, AIDS
INF05	Sexually transmitted diseases
INF06	Viral syndromes
INF07	Lyme disease
INF08	Septicemia
INF09	Infections, other
Malignancies	
MAL01	Malignant neoplasms of the skin
MAL02	Low impact malignant neoplasms
MAL03	High impact malignant neoplasms
MAL04	Malignant neoplasms, breast
MAL05	Malignant neoplasms, cervix, uterus
MAL06	Malignant neoplasms, ovary
MAL07	Malignant neoplasms, esophagus
MAL08	Malignant neoplasms, kidney
MAL09	Malignant neoplasms, liver and biliary tract
MAL10	Malignant neoplasms, lung
MAL11	Malignant neoplasms, lymphomas
MAL12	Malignant neoplasms, colorectal
MAL13	Malignant neoplasms, pancreas
MAL14	Malignant neoplasms, prostate
MAL15	Malignant neoplasms, stomach
MAL16	Acute leukemia
MAL18	Malignant neoplasms, bladder
Musculoskeletal	
MUS01	Musculoskeletal signs and symptoms
MUS02	Acute sprains and strains
MUS03	Degenerative joint disease
MUS04	Fractures (excluding digits)
MUS05	Torticollis
MUS06	Kyphoscoliosis
MUS07	Congenital hip dislocation
MUS08	Fractures and dislocations/digits only

MUS09	Joint disorders, trauma related
MUS10	Fracture of neck of femur (hip)
MUS11	Congenital anomalies of limbs, hands, and feet
MUS12	Acquired foot deformities
MUS13	Cervical pain syndromes
MUS14	Low back pain
MUS15	Bursitis, synovitis, tenosynovitis
MUS16	Amputation status
MUS17	Musculoskeletal disorders, other
Neonatal	
NEW01	Newborn Status, Uncomplicated
NEW02	Newborn Status, Complicated
NEW03	Low Birth Weight
NEW04	Prematurity
NEW05	Disorders of Newborn Period
NEW06	Neonatal jaundice
Neurologic	
NUR01	Neurologic signs and symptoms
NUR02	Headaches
NUR03	Peripheral neuropathy, neuritis
NUR04	Vertiginous syndromes
NUR05	Cerebrovascular disease
NUR06	Parkinson's disease
NUR07	Seizure disorder
NUR08	Multiple sclerosis
NUR09	Muscular dystrophy
NUR10	Sleep problems
NUR11	Dementia and delirium
NUR12	Quadriplegia and paraplegia
NUR15	Head injury
NUR16	Spinal cord injury/disorders
NUR17	Paralytic syndromes, other
NUR18	Cerebral palsy
NUR19	Developmental disorder
NUR20	Central nervous system infections
NUR21	Neurologic disorders, other
Nutrition	
NUT01	Failure to thrive
NUT02	Nutritional deficiencies
NUT03	Obesity
NUT04	Nutritional disorders, other
Psychosocial	
PSY01	Anxiety, neuroses
PSY02	Substance use
PSY03	Tobacco use
PSY04	Behavior problems
PSY05	Attention deficit disorder

PSY06	Family and social problems
PSY07	Schizophrenia and affective psychosis
PSY08	Personality disorders
PSY09	Depression
PSY10	Psychologic signs and symptoms
PSY11	Psychosocial disorders, other
Reconstructive	
REC01	Cleft lip and palate
REC02	Lacerations
REC03	Chronic ulcer of the skin
REC04	Burns--2nd and 3rd degree
Renal	
REN01	Chronic renal failure
REN02	Fluid/electrolyte disturbances
REN03	Acute renal failure
REN04	Nephritis, nephrosis
REN05	Renal disorders, other
Respiratory	
RES01	Respiratory signs and symptoms
RES02	Acute lower respiratory tract infection
RES03	Cystic fibrosis
RES04	Emphysema, chronic bronchitis, COPD
RES05	Cough
RES06	Sleep apnea
RES07	Sinusitis
RES08	Pulmonary embolism
RES09	Tracheostomy
RES10	Respiratory failure
RES11	Respiratory disorders, other
Rheumatologic	
RHU01	Autoimmune and connective tissue disease
RHU02	Gout
RHU03	Arthropathy
RHU04	Raynaud's syndrome
Skin	
SKN01	Contusions and abrasions
SKN02	Dermatitis and eczema
SKN03	Keloid
SKN04	Acne
SKN05	Disorders of sebaceous glands
SKN06	Sebaceous cyst
SKN07	Viral warts and molluscum contagiosum
SKN08	Other inflammatory conditions of skin
SKN09	Exanthems
SKN10	Skin keratoses
SKN11	Dermatophytoses
SKN12	Psoriasis

SKN13	Disease of hair and hair follicles
SKN14	Pigmented nevus
SKN15	Scabies and pediculosis
SKN16	Diseases of nail
SKN17	Other skin disorders
SKN18	Benign neoplasm of skin and subcutaneous tissues
SKN19	Impetigo
SKN20	Dermatologic signs and symptoms
Toxic Effects and Adverse Events	
TOX01	Toxic effects of nonmedicinal agents
TOX02	Adverse effects of medicinal agents
TOX03	Adverse events from medical/surgical procedures
TOX04	Complications of mechanical devices

Sources: Weiner et al., (1991). Medical Care, 29(5), 452-472.
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