Transfer Cases Payment Adjustment under Global Revenue and Total Patient Revenue Models

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Health Services Cost Review Commission
4160 Patterson Avenue
Baltimore, Maryland 21215
(410) 764-2605
FAX: (410) 358-6217

Introduction

Under the new All-Payer Model, inter-hospital transfers are an area of concern that must be addressed to ensure that revenue appropriately follows the patient when changes to transfer rates occur and that resources are readily available to care for complex cases. As academic medical centers (AMCs) providing quaternary services, Johns Hopkins Hospital and University of Maryland Medical Center play a distinct role in the health care system by handling a large proportion of highly acute cases, accepting regional referrals, and serving as centers for clinical and technological innovation in the State of Maryland. For global models to be successful in Maryland, different regulatory treatment must be given to specific areas of service at these AMCs that will allow them to function effectively within this new payment structure. Under global models, hospitals are incentivized to lower expenses and volume by taking measures to reduce avoidable utilization and promote care management and quality improvement. This may result in community hospitals transferring complex cases to AMCs in order to get patients the advanced care they need and reduce the high costs associated with those patients. Patients transferred to AMCs are often critically ill or need highly specialized care not available at the transferring hospitals. Utilizing AMCs as regional referral centers may improve outcomes for critically ill patients and thus benefit the entire Maryland health system. AMCs must have the capacity to take on a possible influx of complex cases without facing financial penalty under a global model.

Global budgets change financial incentives. Hospitals aren't motivated to keep highly complex cases that are beyond their capabilities just to garner revenue. There is also a risk that hospitals could take steps to avoid complex cases altogether. In global budget agreements, Health Service Cost Review Commission (HSCRC) has included a number of requirements to monitor and curb such outcomes including:

- Review of changes in severity levels or case mix of patients treated, with possible revenue reductions for declines
- Review of volume declines beyond a specified level
- Potential revenue adjustments for shifts of services between hospitals (referred to as the Market Share Adjustment)

While each of these measures will detect overall changes to utilization patterns, the relatively small number of complex cases makes transfers a special category of focus. HSCRC wants to ensure that financial policies are in place early in the global budget implementation process in order to respond to potential changing patterns, to support the transfer of patients based on their clinical needs, and

to ensure that the receiving entities have the capacity to take on the influx of complex cases without facing financial penalty.

Objectives/Guiding Principles

The HSCRC staff has collected data to aid in the development of a transfer policy. The following are some basic principles to guide the policy's development and implementation.

- The primary consideration is to support the well-being of the transferred patient and to support the provision of the most appropriate treatment. Transfers should occur expressly to serve the best interest of the patient.
- Transfer payment adjustments to the Global Budget Revenues (GBR) or Total Patient Revenues (TPR) should depend upon corridors to avoid minor adjustments.
- The current level and pattern of transfers should be used as a baseline, with subsequent revenue adjustments based on changes in transfer levels above determined thresholds.
- HSCRC should regularly monitor hospitals' changes in transfer patterns for both financial and quality implications.
- Increased transfer charges should be fixed at a predetermined level that is low enough not to pose a barrier to transfers, yet high enough to provide for the average incremental resource needs of the patient.
- Significant changes in the case mix of transfers should be addressed in the review of the AMC's annual budgets.
- Unique circumstances such as changing clinical protocols, different ambulance patterns, or other conditions should be evaluated on a hospital-specific basis.
- As transfers are a special subcategory of market share, HSCRC should take into account any market share adjustments made for them.

Data Collection

HSCRC staff proposes defining transfers as same or next day admissions. This means the admission date to the inpatient admission to AMCs must be on the same day as or the next day after discharge date of the initial admission or emergency visit. The subgroup recommended expanding the definition from same day to next day to include transfers that are admitted after midnight based on the validation results of same day transfers.

HSCRC staff has collected data to aid in the evaluation of transfer cases. Initially, staff focused on the transfer-in/transfer-out recorded in the HSCRC case mix data, representing inpatient-to-inpatient transfers. However, this data did not prove to be accurate for the following reasons:

- There was confusion regarding whether a patient was being transferred from the emergency room or from the inpatient setting. This may be attributable to the increasing numbers of observation cases.

- Referrals were recorded as transfers in this data. There were sometimes multi-day gaps between the transfer out and the transfer in.
- The record of transfers out did not align with the record of transfers in.

In order to overcome these problems, HSCRC staff has used the master patient index (MPI) provided by Chesapeake Regional Information System for Our Patients (CRISP) to track patient flow from one hospital to another so that patients were tracked with direct transfers from emergency room settings as well as inpatient settings. HSCRC staff will request that selected hospitals review this data to ensure that transfers are being properly identified.

DATA VALIDATION RESULTS

The table below provides results from the process of reconciling transfer-out records of transferring hospitals with transfer-in records of AMCs based on data provided to HSCRC as of October 1, 2014. In general, the information received from transferring hospitals validates the measurement counts (Table 1). On the other hand, AMCs indicated that they have found additional transfer cases that were not included in the HSCRC transfer case list (Table 2). Some of these additional transfer cases sent by the University of Maryland Medical Center (UMMC) do not have CRISP ID (3 percent of transfer cases identified by HSCRC), which was further analyzed in partnership with CRISP.

Table 1: Validation Results from Referring Hospitals													
ID	Sending Hospital Name	Total Number of Included Cases	Total Number of Cases Disagreed	Percent Disagree	Total Number of Additional Transfers Sent	Total Number of Additional Transfers met the Inclusion Criteria	Percent Additional	Total Number of Additional Transfers Send - Inpatient	CRISP ID NOT FOUND- Inpatient	Additional Transfers that met the Inclusion Criteria from Inpatient	Total Number of Additional Transfers Send - Outpatient	CRISP ID NOT FOUND- Outpatient	Additional Transfers that met the Inclusion Criteria from Outpatient
210012	SINAI	237	55	23%	0	0	0%	0					
210033	CARROLL COUNTY	511	23	5%	0	0	0%	0					
210005	FREDERICK MEMORIAL	398	15	4%	0	0	0%	0					
210051	DOCTORS COMMUNITY	153	4	3%	0	0	0%	0					
210035	CHARLES REGIONAL	38	0	0%	1186	0	0%	13		0	1173	0	0
210043	BALTIMORE WASHINGTON MEDICAL CENTER	127	0	0%	776	0	0%	37	3	0	725	11	0
210049	UPPER CHESAPEAKE HEALTH	137	0	0%	659	0	0%	90		0	569	0	0
210006	HARFORD	44	0	0%	389	0	0%	37	0	0	352	0	0
210030	CHESTERTOWN	28	0	0%	252	2	0%	5		0	247	0	2
210010	DORCHESTER	20	0	0%	247	1	0%	5		0	242	0	1
210037	EASTON	82	0	0%	239	1	0%	26	1	0	213	1	1
210063	UM ST. JOSEPH	50	0	0%	111	0	0%	10	2	0	99	1	0
210038	UMMC MIDTOWN	42	0	0%	78	0	0%	19		0	59	0	0
210008	MERCY	283											
210015	FRANKLIN SQUARE	419											
210018	MONTGOMERY GENERAL	59											
210024	UNION MEMORIAL	215											
210028	ST. MARY	79											
210034	HARBOR	299											
210044	G.B.M.C.	224											
210056	GOOD SAMARITAN HOSPITAL	375											
210058	REHAB & ORTHO	10											
210062	SOUTHERN MARYLAND	95											
210088	QUEEN ANNE'S EMERGENCY CENTER	69											
218992	UNIVERSITY OF MD SHOCK TRAUMA												
Total		**3,994**	**97**	**2%**	**3937**	**4**	**0%**	**242**	**6**	**0**	**3679**	**13**	**4**

Table 2: Validation Results from Academic Medical Centers		
Receving Hospital Name	**University of Maryland and MIEMS**	**Johns Hopkins University**
Total Number of Included Cases	4,569	3,102
Total Number of Cases Disagreed	0	
Percent Disagree	0%	
Additional Cases Send	1,387	
Missing EID	126	
Previous Visit more than 1 day	1,222	
Same System	13	
Not From ED	2	
Total Number of Additional Transfers	0	
Percent Additional	0%	

Transfer Case Exclusions

Certain types of cases have been excluded from the transfer analysis. Each exclusion and its rationale are discussed below:

- Categorical cases were excluded because they are already handled under a different global budget review mechanism. See Appendix A for a detailed definition of categorical cases.
- Non-Maryland resident transfer cases have been excluded. This may require additional evaluation for hospitals located near the State's borders.
- MDC 5 (cardiology and cardiac surgery) cases have been excluded. There are alternative competitors for this care, and the HSCRC staff has focused on those categories where the special resources of an AMC resulted in the transfer.
- Psychiatric transfer cases (based on the receiving institution's recorded APR-DRG of 740,750-760) have been excluded as this is a category where there are a number of institutions providing the service.
- Rehab cases have been excluded (APR_DRG 860, 980-989) based on the planned nature of these transfers.

In addition, transfers within the same hospital or hospital system were excluded from the analysis. Transfers within the same hospital fall under the same global budget. Transfers within a hospital system may reflect resource planning approaches and specialization. While global budgets may be adjusted for these transfers, it should occur through a different process.

Transfer Monitoring Categories

To monitor out-of-state transfers, particularly for border hospitals, and to evaluate the possibility of unintended consequences of the transfer policy, the following additional categories will be closely monitored:

1. Transfers that are excluded from payment adjustments
2. Transfers to out-of-state providers
3. Levels of ED diversion
4. Case mix intensity of transfer cases
5. Length of stay of transfer cases in sending and receiving hospitals

Transfer Payment Measures

HSCRC staff proposes the following measurement for the payment adjustments.

AMC GBR Transfer Adjustments

On a quarterly basis, AMC GBR budgets are adjusted by the increase or decrease in transfer cases net of population adjustment weighted by the standard transfer cost. The standard cost is calculated as the base year AMC average charge*Price Update*Variable Cost Factor. The adjustments are done separately for patients transferred from inpatient setting and those from emergency departments based on the recommendations from the sub-workgroup. Table 3 below provides the calculation for FY 2015 GBR adjustments using FY2014 transfer rates.

Table 3: Average Adjusted Transfer Cost for FY2015 GBR Adjustments

Price Update (FY 2015)	A		2.41%
VCF	B		50%
Transfers From ED			
Average Charge of Transfer Cases in FY 2014	C		$25,092
Average Transfer Case Adjustment	D=	C*(1+A)*B	$12,848
Transfers From Inpatient			
Average Charge of Transfer Cases in CY2013	H		$50,303
Average Transfer Case Adjustment	I=	H*(1+A)*B	$25,758

Standard Transfer Cost for FY 2015

Sending Hospital GBR Transfer Adjustments

Sending hospital transfer rates will be monitored on a quarterly basis and the GBR revenues will be reduced on an annual basis by the increase in transfer cases weighted by the transfer standard cost. The standard transfer cost will be determined according to the formula stated in the AMC adjustment section above. If cumulative payment adjustments to the AMCs exceed 5 percent of the base year transfer charges, HSCRC staff may adjust the transferring hospital GBR budgets during the course of the fiscal year. Otherwise, transfer adjustments will be implemented on an annual basis. For hospitals with increases above a 10 percent threshold and with at least 10 additional transfers, those cases

above the 10 percent threshold will be charged to the budget of the sending GBR hospital, reducing the GBR revenue for the preceding year. If the net amount of transfers for the entire State does not exceed an increase of 5 percent of the base transfers, then no reductions will be made for transfers below a 10 percent threshold. If the net transfer amount exceeds an increase of 5percent, then the excess will be deducted on a per case basis for those hospitals with increases in transfer cases between 5 percent and 10 percent. Table 4 below illustrates the sample calculation for sending hospitals.

Table 4: Example GBR Transfer Payment Adjustment Calculation for Sending Hospitals

Average Cost of Transfers			
From ED	A	$	12,885
From Inpatient	B	$	25,806
Base Year Transfer Cases for Hospital A			
From ED	C		100
From Inpatient	D		100
Total	E= C+D		200
Current Year Transfer Cases for Hospital A			
From ED	F		120
From Inpatient	G		110
Total	H=F+G		230
Tranfer Case Growth	I=H-E		**30**
Base Year Total Transfer Cost			
From ED	J=A*C	$	1,288,523
From Inpatient	K=B*D	$	2,580,634
Total	L=J+K	$	3,869,156
Current Year Total Transfer Cost			
From ED	M=A*F	$	1,546,227
From Inpatient	N=B*G	$	2,838,697
Total	O=M+N	$	4,384,924
Transfer Cost Growth ($)	P=O-L	$	515,768
10% Transfer Cost Threshold	R=L*10%	$	386,916
GBR transfer Payment Adjustment	S=P-L	$	(128,852)
If State Transfer Cost Growth>5%			
5% Transfer Cost Threshold	T=L*5%	$	193,458
GBR Transfer Payment Adjustment	U=P-T	$	(322,310)

The trends in transfers will be monitored using monthly case mix data submissions and the CRISP MPI. The adjustments will start with the October-December 2014 period. Table 4 provides the schedule for adjustments for rate year 2016, 2017, and 2018.

Table 5: Transfer Adjustment Schedule

AMC Quarterly Adjustments				Sending Hospital Annual Adjustments			
Measurement Period	**Baseline Period**	**Transfer Analysis Complete**	**Budget Adjustment (+/-)**	**Measurement Period**	**Baseline Period**	**Transfer Analysis Complete**	**Budget Adjustment**
Oct-Dec 2014	Oct-Dec 2013	Mar-2015	FY 15 GBR	Oct-Dec 2014	Oct-Dec 2013		FY 16 GBR
Jan-Mar 2015	Jan-Mar 2013	Jun-2015	FY 16 GBR	CY 15	CY 14	Mar-2016	FY 17 GBR
Apr-Jun 2015	Apr-Jun 2014	Sep-2015	FY 16 GBR				
July-Sep 2015	July-Sep 2014	Dec-2015	FY 16 GBR				
Oct-Dec 2015	Oct-Dec 2014	Mar-2016	FY 16 GBR				
Jan-Mar 2016	Jan-Mar 2015	Jun-2016	FY 17 GBR	CY 16	CY 15	Mar-2017	FY 18 GBR
Apr-Jun 2016	Apr-Jun 2015	Sep-2016	FY 17 GBR				
July-Sep 2016	July-Sep 2015	Dec-2016	FY 17 GBR				
Oct-Dec 2016	Oct-Dec 2015	Mar-2017	FY 17 GBR				

Appendix: Data Analysis Results (Data updated on December 18th, 2014)

Table 6: Same Day Transfers Exclusions , FY 2014							
	Receiving Hospital				Total	Percent Total	AMC Percent
	UMMS	MIEMSS	JHH	Non-AMC			
Total Same Day Transfers	8,423	2,927	7,385	34,731	53,466	100%	35%
Transfer Exclusions							
1. Same Hospital	689	429	1414	12144	14,676	27%	-
2.Same System	2923	845	1514	6231	11,513	22%	-
3.Non-Resident	201	123	189	764	1,277	2%	-
4. MDC 5	714	23	649	2272	3,658	7%	**38%**
5.Rehab	0	0	7	1928	1,935	4%	**0%**
6.Pysch	638	1	229	4018	4,886	9%	**18%**
7.Categorical Exclusions	27	0	12	127	166	0%	**23%**
Sam DayTransfers Included in the Analysis	3,231	1,506	3,371	7,247	15,355	**29%**	**53%**

Counts are mutually exclusive in hierarchical order as displayed in the table. *Burn cases at Johns Hopkins Bayview Hospital.

Table 7: Same Day Transfers by Source FY 2014									
	Number of Transfers			Average Charge			Total Charge		
	Source		All	Source		All	Source		All
	From ED	From Inpatient		From ED	From Inpatient		From ED	From Inpatient	
Receiving Hospital **UMMS**	1,718	1,513	3,231	$26,473	$45,861	$35,552	$45,481,296	$69,387,963	$114,869,259
MIEMSS	1,216	290	1,506	$28,175	$73,843	$36,969	$34,260,354	$21,414,370	$55,674,723
JHH	2,272	1115	3,387	$22,563	$50,457	$31,745	$51,262,129	$56,259,273	$107,521,401
Total	5,206	2,918	8,124	$25,164	$50,398	$34,228	$131,003,778	$147,061,605	$278,065,383
Non-AMC	5,345	2,283	7,628	$11,024	$18,083	$13,137	$58,922,148	$41,283,694	$100,205,842

Table 8: AMC Transfers DRGS with 10 or More Cases, FY 2014					
APR DRG Code	APR DRG NAME	Total charges			Average Age
		N	Mean	Sum	
720	Septicemia & disseminated infections	242	$44,775	$10,835,475	51.14
53	Seizure	208	$13,206	$2,746,835	24.79
55	Head trauma w coma >1 hr or hemorrhage	176	$14,517	$2,554,978	56.11
21	Craniotomy except for trauma	170	$83,861	$14,256,431	51.99
141	Asthma	169	$8,595	$1,452,570	6.73
45	CVA & precerebral occlusion w infarct	166	$21,513	$3,571,178	59.37
254	Other digestive system diagnoses	156	$11,147	$1,738,913	35.46
44	Intracranial hemorrhage	135	$24,682	$3,332,061	61.01
315	Shoulder, upper arm, & forearm procedures	128	$19,585	$2,506,823	26.88
4	ECMO or tracheostomy w long term mechanical ventilation w extensive procedure	120	$262,106	$31,452,765	50.42
58	Other disorders of nervous system	119	$13,616	$1,620,281	49.63
710	Infectious & parasitic diseases including HIV w O.R. procedure	119	$119,116	$14,174,807	54.39
313	Knee & lower leg procedures except foot	116	$36,511	$4,235,256	44.29
279	Hepatic coma & other major acute liver disorders	114	$27,739	$3,162,203	51.29
139	Other pneumonia	108	$14,058	$1,518,261	26.55
383	Cellulitis & other bacterial skin infections	105	$11,047	$1,159,896	33.14
721	Post-operative, post-traumatic, other device infections	101	$17,301	$1,747,388	46.34
347	Other back & neck disorders, fractures & injuries	93	$12,485	$1,161,095	59.08
282	Disorders of pancreas except malignancy	90	$13,235	$1,191,168	44.82
308	Hip & femur procedures for trauma except joint replacement	88	$36,678	$3,227,659	56.28
221	Major small & large bowel procedures	86	$55,876	$4,805,329	49.06
466	Malfunction, reaction, complic of genitourinary device or proc	83	$21,342	$1,771,390	50.86
284	Disorders of gallbladder & biliary tract	78	$13,029	$1,016,225	54.9
92	Facial bone procedures except major cranial/facial bone procedures	76	$24,451	$1,858,278	35.82
690	Acute leukemia	74	$104,607	$7,740,882	52.72
861	Signs, symptoms & other factors influencing health status	73	$11,662	$851,354	34.6
420	Diabetes	72	$9,832	$707,886	22.11
130	Respiratory system diagnosis w ventilator support 96+ hours	68	$79,287	$5,391,528	45.49
5	Tracheostomy w long term mechanical ventilation w/o extensive procedure	66	$169,374	$11,178,706	55.62
247	Intestinal obstruction	66	$11,393	$751,921	53.27

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APR DRG Code	APR DRG NAME	Total charges			Average Age
		N	Mean	Sum	
720	Septicemia & disseminated infections	242	$44,775	$10,835,475	51.14
660	Major hematologic/immunologic diag exc sickle cell crisis & coagul	65	$49,892	$3,242,972	46.31
133	Pulmonary edema & respiratory failure	64	$36,562	$2,339,988	42.39
143	Other respiratory diagnoses except signs, symptoms, & minor diagnoses	63	$23,723	$1,494,562	43.87
813	Other complications of treatment	63	$12,508	$787,999	50.14
252	Malfunction, reaction, & complication of GI device or procedure	62	$17,874	$1,108,169	50.4
283	Other disorders of the liver	61	$17,719	$1,080,840	48.66
351	Other musculoskeletal system & connective tissue diagnoses	61	$10,780	$657,550	40.87
281	Malignancy of hepatobiliary system & pancreas	59	$21,494	$1,268,162	61.19
138	Bronchiolitis & RSV pneumonia	58	$11,589	$672,182	1.79
662	Sickle cell anemia crisis	58	$16,084	$932,888	25.76
812	Poisoning of medicinal agents	58	$10,875	$630,729	22.19
711	Post-op, post-trauma, other device infections w O.R. procedure	56	$56,729	$3,176,822	53.61
248	Major gastrointestinal & peritoneal infections	53	$19,831	$1,051,050	44.06
463	Kidney & urinary tract infections	53	$10,466	$554,712	42.53
41	Nervous system malignancy	52	$20,199	$1,050,363	57.83
566	Other antepartum diagnoses	52	$12,014	$624,738	26.81
460	Renal failure	51	$34,194	$1,743,876	55.57
280	Alcoholic liver disease	50	$24,102	$1,205,082	53.16
791	O.R. procedure for other complications of treatment	49	$41,892	$2,052,688	56
342	Fractures & dislocations except femur, pelvis, & back	48	$9,017	$432,798	43.31
225	Appendectomy	47	$16,686	$784,233	13.47
930	Multiple significant trauma w/o O.R. procedure	47	$18,527	$870,780	53.89
317	Tendon, muscle, & other soft tissue procedures	46	$60,051	$2,762,347	44.65
54	Migraine & other headaches	45	$7,305	$328,717	35.71
115	Other ear, nose, mouth, throat, & cranial/facial diagnoses	45	$11,811	$531,510	33.49
121	Other respiratory & chest procedures	45	$55,303	$2,488,656	50.67
253	Other & unspecified gastrointestinal hemorrhage	45	$13,929	$626,820	58.47
844	Partial thickness burns w or w/o skin graft	45	$4,532	$203,922	3.47
241	Peptic ulcer & gastritis	44	$18,624	$819,449	49.11
384	Contusion, open wound, & other trauma to skin & subcutaneous tissue	44	$8,204	$360,984	35.36
113	Infections of upper respiratory tract	43	$6,495	$279,297	18.35
22	Ventricular shunt procedures	42	$52,554	$2,207,265	33.79
82	Eye disorders except major infections	42	$10,181	$427,598	41.48

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		N	Mean	Sum	
720	Septicemia & disseminated infections	242	$44,775	$10,835,475	51.14
346	Connective tissue disorders	42	$31,436	$1,320,314	49.55
691	Lymphoma, myeloma & non-acute leukemia	41	$44,529	$1,825,676	56.41
57	Concussion, closed skull Fx nos, uncomplicated intracranial injury, coma < 1 hr or no coma	40	$8,633	$345,306	28.45
663	Other anemia & disorders of blood & blood-forming organs	40	$9,822	$392,883	27.9
301	Hip joint replacement	39	$55,642	$2,170,047	67.95
135	Major chest & respiratory trauma	38	$14,077	$534,944	65.45
245	Inflammatory bowel disease	38	$19,777	$751,513	29.47
249	Non-bacterial gastroenteritis, nausea, & vomiting	38	$10,128	$384,858	34.37
344	Osteomyelitis, septic arthritis, & other musculoskeletal infections	38	$28,683	$1,089,950	47.13
912	Musculoskeletal & other procedures for multiple significant trauma	38	$59,225	$2,250,559	46.87
20	Craniotomy for trauma	37	$49,633	$1,836,428	56.86
23	Spinal procedures	37	$72,891	$2,696,980	59
48	Peripheral, cranial, & autonomic nerve disorders	37	$17,722	$655,728	45.32
951	Moderately extensive procedure unrelated to principal diagnosis	37	$66,105	$2,445,891	50.32
137	Major respiratory infections & inflammations	37	$29,814	$1,103,126	40.22
724	Other infectious & parasitic diseases	37	$23,307	$862,342	43.35
42	Degenerative nervous system disorders exc mult sclerosis	36	$37,565	$1,352,347	54.5
134	Pulmonary embolism	36	$23,795	$856,624	49.06
240	Digestive malignancy	36	$17,968	$646,844	60.97
561	Postpartum & post abortion diagnoses w/o procedure	36	$3,332	$119,947	27.97
98	Other ear, nose, mouth, & throat procedures	34	$16,642	$565,843	40.97
114	Dental & oral diseases & injuries	34	$9,195	$312,636	40.5
136	Respiratory malignancy	34	$29,671	$1,008,822	64.21
321	Cervical spinal fusion & other back/neck proc exc disc excis/decomp	34	$62,146	$2,112,950	60.59
723	Viral illness	34	$15,565	$529,193	25.38
52	Nontraumatic stupor & coma	33	$49,099	$1,620,273	52.61
24	Extracranial vascular procedures	32	$60,245	$1,927,833	55.91
950	Extensive procedure unrelated to principal diagnosis	32	$84,876	$2,716,044	50.41
220	Major stomach, esophageal, & duodenal procedures	32	$56,937	$1,821,982	56.28
251	Abdominal pain	31	$7,419	$229,980	38.68
144	Respiratory signs, symptoms, & minor diagnoses	30	$16,279	$488,361	36.5
243	Other esophageal disorders	30	$10,179	$305,357	38.1

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APR DRG Code	APR DRG NAME	Total charges			Average Age
		N	Mean	Sum	
720	Septicemia & disseminated infections	242	$44,775	$10,835,475	51.14
263	Laparoscopic cholecystectomy	30	$21,101	$633,037	43.07
309	Hip & femur procedures for non-trauma except joint replacement	30	$69,911	$2,097,340	40.97
364	Other skin, subcutaneous tissue, & related procedures	30	$20,356	$610,687	39.73
468	Other kidney & urinary tract diagnoses, signs, & symptoms	29	$15,700	$455,296	49.31
229	Other digestive system & abdominal procedures	28	$43,209	$1,209,854	47.79
244	Diverticulitis & diverticulosis	27	$15,112	$408,024	68.74
304	Dorsal & lumbar fusion proc except for curvature of back	27	$109,778	$2,964,002	56.44
314	Foot & toe procedures	26	$36,545	$950,166	43.62
890	HIV w multiple major HIV related conditions	26	$49,270	$1,281,032	46.62
260	Major pancreas, liver, & shunt procedures	25	$75,308	$1,882,691	47.84
424	Other endocrine disorders	25	$17,592	$439,812	51.24
425	Electrolyte disorders except hypovolemia related	25	$20,505	$512,619	46.32
722	Fever	25	$9,298	$232,455	38.96
305	Amputation of lower limb except toes	23	$53,569	$1,232,098	51.83
385	Other skin, subcutaneous tissue, & breast disorders	23	$7,479	$172,024	33.96
43	Multiple sclerosis & other demyelinating diseases	22	$27,760	$610,730	45.36
56	Brain contusion/laceration & complicated skull Fx, coma < 1 hr or no coma	22	$9,746	$214,420	40.55
816	Toxic effects of non-medicinal substances	22	$18,386	$404,483	33.41
343	Musculoskeletal malignancy & pathol fracture d/t muscskel malig	21	$34,393	$722,251	42.57
633	Neonate birthwt >2499g w major anomaly	21	$51,696	$1,085,612	0
661	Coagulation & platelet disorders	21	$31,537	$662,284	41
815	Other injury, poisoning, & toxic effect diagnoses	21	$25,420	$533,819	18.43
634	Neonate, birthwt >2499g w resp dist synd/oth maj resp cond	21	$54,095	$1,136,005	0
26	Other nervous system & related procedures	20	$37,781	$755,610	47.75
50	Non-bacterial infections of nervous system exc viral meningitis	20	$36,460	$729,195	49.95
775	Alcohol abuse & dependence	19	$11,216	$213,105	43.63
49	Bacterial & tuberculous infections of nervous system	18	$29,768	$535,828	48.33
422	Hypovolemia & related electrolyte disorders	18	$11,777	$211,981	51.44
443	Kidney & urinary tract procedures for nonmalignancy	18	$32,797	$590,349	51.39
631	Neonate birthwt >2499g w other major procedure	18	$85,544	$1,539,793	0
120	Major respiratory & chest procedures	17	$89,852	$1,527,488	45.24
224	Peritoneal adhesiolysis	17	$32,881	$558,972	41.12

Table 8: AMC Transfers DRGS with 10 or More Cases, FY 2014					
APR DRG Code	APR DRG NAME	Total charges			Average Age
		N	Mean	Sum	
720	Septicemia & disseminated infections	242	$44,775	$10,835,475	51.14
560	Vaginal delivery	17	$23,410	$397,962	24.47
640	Neonate birthwt >2499g, normal newborn or neonate w other problem	17	$4,148	$70,508	0
228	Inguinal, femoral, & umbilical hernia procedures	16	$22,794	$364,710	27.31
312	Skin graft, except hand, for musculoskeletal & connective tissue diagnoses	16	$91,708	$1,467,326	45
320	Other musculoskeletal system & connective tissue procedures	16	$49,655	$794,482	50.19
349	Malfunction, reaction, complic of orthopedic device or procedure	16	$26,234	$419,745	58.19
140	Chronic obstructive pulmonary disease	15	$10,785	$161,780	66.53
142	Interstitial lung disease	15	$23,020	$345,294	57.87
223	Other small & large bowel procedures	15	$46,177	$692,660	29.33
341	Fracture of pelvis or dislocation of hip	15	$10,430	$156,452	58.4
540	Cesarean delivery	15	$27,199	$407,991	28.53
911	Extensive abdominal/thoracic procedures for mult significant trauma	15	$100,263	$1,503,940	33
70	Orbital procedures	14	$20,028	$280,394	44.5
262	Cholecystectomy except laparoscopic	14	$45,902	$642,627	66
340	Fracture of femur	14	$8,823	$123,525	31.79
380	Skin ulcers	14	$23,798	$333,167	58.14
423	Inborn errors of metabolism	14	$23,125	$323,751	20
681	Other O.R. procedures for lymphatic/hematopoietic/other neoplasms	14	$67,501	$945,010	58.57
694	Lymphatic & other malignancies & neoplasms of uncertain behavior	14	$27,793	$389,095	55.43
40	Spinal disorders & injuries	13	$18,247	$237,212	60
47	Transient ischemia	13	$9,162	$119,112	54.23
952	Nonextensive procedure unrelated to principal diagnosis	13	$32,407	$421,289	58.08
222	Other stomach, esophageal, & duodenal procedures	12	$30,657	$367,882	4.42
401	Pituitary & adrenal procedures	12	$54,971	$659,657	48.92
461	Kidney & urinary tract malignancy	12	$12,078	$144,936	67.75
892	HIV w major HIV related condition	12	$15,473	$185,676	41.5
80	Acute major eye infections	11	$16,008	$176,086	46.36
242	Major esophageal disorders	11	$18,475	$203,230	51.91
316	Hand & wrist procedures	11	$23,597	$259,572	23.73
381	Major skin disorders	11	$5,999	$65,993	34.45
421	Malnutrition, failure to thrive, & other nutritional disorders	11	$13,870	$152,573	16.18

Table 8: AMC Transfers DRGS with 10 or More Cases, FY 2014					
APR DRG Code	APR DRG NAME	Total charges			Average Age
		N	Mean	Sum	
720	Septicemia & disseminated infections	242	$44,775	$10,835,475	51.14
447	Other kidney, urinary tract, & related procedures	11	$60,732	$668,052	47.18
465	Urinary stones & acquired upper urinary tract obstruction	11	$8,440	$92,837	42.45
513	Uterine & adnexa procedures for non-malignancy except leiomyoma	11	$21,029	$231,319	37.18
773	Opioid abuse & dependence	11	$5,288	$58,173	41.91
46	Nonspecific CVA & precerebral occlusion w/o infarct	10	$7,424	$74,240	47.8
51	Viral meningitis	10	$13,044	$130,442	20.9
131	Cystic fibrosis - pulmonary disease	10	$12,182	$121,824	20.9

Table 9: Transfers to AMCs by Sending Hospital, FY2014								
Sending Hospital		Receiving Hospital						All
		UMMS		MIEMSS		JHH		
		Source		Source		Source		
		ED	INPT	ED	INPT	ED	INPT	
Prov ID	HOSPITALNAME							
210033	CARROLL COUNTY	110	76	170	13	136	43	548
210011	ST. AGNES	114	82	126	19	121	41	503
210005	FREDERICK MEMORIAL	69	110	53	12	99	91	434
210019	PENINSULA REGIONAL	53	58	73	10	163	62	419
210015	FRANKLIN SQUARE	125	75	44	24	101	47	416
210023	ANNE ARUNDEL	42	73	57	18	132	74	396
210001	MERITUS	118	75	69	19	67	36	384
210056	GOOD SAMARITAN	105	56	72	17	79	37	366
210034	HARBOR	76	65	63	<10	65	23	298
210008	MERCY	82	51	21	<10	92	24	279
210013	BON SECOURS	97	44	72	<10	36	20	274
210040	NORTHWEST	70	52	29	<10	69	31	257
210048	HOWARD COUNTY	92	54	88	12	.	.	246
210012	SINAI	41	55	13	14	76	43	242
210044	G.B.M.C.	27	37	26	<10	70	67	235
210039	CALVERT	69	44	18	10	61	22	224
210024	UNION MEMORIAL	56	27	27	<10	59	19	196
210055	LAUREL REGIONAL	47	47	34	<10	20	12	169
210049	UPPER CHESAPEAKE	.	.	.	.	130	32	162
210043	BALTIMORE WASHINGTON MEDICAL CENTER	.	.	.	.	107	53	160
210051	DOCTORS COMMUNITY	23	66	23	<10	13	22	156
210057	SHADY GROVE	11	53	15	<10	29	37	153
210027	WESTERN MARYLAND HEALTH SYSTEM	15	27	11	<10	52	23	134
210062	SOUTHERN MARYLAND	23	36	15	<10	30	17	128
210061	ATLANTIC GENERAL	24	41	16	<10	29	<10	125
210003	PRINCE GEORGE	37	45	10	<10	10	16	124
210028	ST. MARY	33	20	<10	<10	32	12	109
210032	UNION HOSPITAL OF CECIL COUNT	22	30	<10	<10	27	14	107
210004	HOLY CROSS	10	27	<10	<10	19	24	90
210002	UNIVERSITY OF MARYLAND	.	.	.	.	52	38	90
210037	EASTON	.	.	.	.	68	22	90
210016	WASHINGTON ADVENTIST	24	34	<10	<10	<10	12	86
210088	QUEEN ANNES	24	.	24	.	20	.	68
210009	JOHNS HOPKINS	38	11	<10	<10	.	.	59
210018	MONTGOMERY GENERAL	<10	10	<10	.	30	<10	57
210063	UM ST. JOSEPH	.	.	.	.	26	24	50
210006	HARFORD	.	.	.	.	34	16	50
210035	CHARLES REGIONAL	.	.	.	.	27	17	44
210038	UMMC MIDTOWN	.	.	.	.	27	12	39
210029	HOPKINS BAYVIEW MED.	17	10	<10	<10	.	.	32

Table 9: Transfers to AMCs by Sending Hospital, FY2014								
Sending Hospital		Receiving Hospital						All
		UMMS		MIEMSS		JHH		
		Source		Source		Source		
		ED	INPT	ED	INPT	ED	INPT	
Prov ID	HOSPITALNAME							
210030	CHESTERTOWN	.	.	.	.	30	<10	32
210060	FT. WASHINGTON	<10	<10	<10	<10	<10	<10	31
210022	SUBURBAN	<10	<10	<10	.	.	.	19
210010	DORCHESTER	.	.	.	.	12	<10	15
210017	GARRETT COUNTY	.	<10	.	<10	<10	<10	<10
210058	REHAB & ORTHO	.	.	.	.	.	<10	<10
210045	MCCREADY	<10	.	<10	.	<10	.	<10
210333	BOWIE HEALTH	<10	.	<10	.	<10	.	<10
Total		1,718	1,513	1,216	290	2,271	1,115	8,123

Table 10: Transfer Charges by Category of Service, FY2014				
Service Line	Total charges			Age in years
	N	Mean	Sum	Average Age
Neurology	1,076	$18,711	$20,133,118	47.3
Gastroenterology	1,004	$16,354	$16,419,602	46.5
General Surgery	772	$55,002	$42,461,331	46.26
Pulmonary	680	$24,111	$16,395,406	28.21
Orthopedic Surgery	576	$44,423	$25,587,924	44.54
Infectious Disease	535	$30,741	$16,446,553	43.87
Oncology	382	$41,859	$15,990,043	56.75
Neurological Surgery	299	$70,918	$21,204,475	50.66
General Medicine	238	$12,312	$2,930,290	22.62
Nephrology	220	$21,689	$4,771,669	49.44
Orthopedics	187	$12,316	$2,303,065	52.65
Hematology	184	$28,429	$5,231,027	35.22
Ventilator Support	174	$230,999	$40,193,908	52.84
Trauma	141	$37,214	$5,247,143	52.35
ENT Surgery	128	$23,318	$2,984,743	36.07
Injuries/complic. of prior care	112	$25,363	$2,840,687	52.71
Neonatology	110	$95,536	$10,508,940	0
Rheumatology	103	$19,203	$1,977,864	44.41
Other Obstetrics	99	$8,545	$845,983	26.95
Otolaryngology	93	$8,898	$827,481	28.8
Endocrinology	93	$17,642	$1,640,736	41.11
Dermatology	92	$10,132	$932,168	38.37
Diabetes	73	$9,702	$708,253	22.1
Spinal Surgery	70	$65,933	$4,615,297	59.06
Thoracic Surgery	62	$64,461	$3,996,569	48.98
Urological Surgery	61	$42,634	$2,600,701	48.08
Ophthalmology	54	$11,881	$641,595	41.96
HIV	49	$33,265	$1,629,974	43.2
Substance Abuse	46	$8,550	$393,304	43.91
Obstetrics/Delivery	34	$25,359	$862,206	26.79
Dental	33	$9,376	$309,396	40.3
Gynecological Surg	23	$18,534	$426,280	36.78
Ophthalmologic Surg	20	$22,992	$459,836	36.8
Endocrinology Surgery	18	$50,998	$917,957	54.72
Gynecology	18	$13,752	$247,531	41.83
Urology	17	$11,143	$189,437	42.53
Newborn	10	$5,804	$58,038	0

Ungroupable	<10	$1,739	$5,218	43.67
Invasive Cardiology	<10	$22,308	$22,308	73
Cardiology	<10	$185,498	$185,498	40

Appendix A. Categorical Cases Definitions

1. Categorical Case Exclusions
    1.1. Solid Organ Transplants APR DRGS = 001, 002, 003, 006 or 440
    (any procedure = 5280, 5282 or 5283 or any procedure = 5280, 5282, 5283, 4100, 4101, 4102, 4103, 4104, 4105, 4106, 4107, 4108 or 3751 Heart Transplantation 4109 or 336 or 3350 , 3351, 3352, 5569, 5561, 5281, 5051, or 5059)
    1.2. Melodysplastic - Any Diagnosis = 2387 for Johns Hopkins Oncology Center
    1.3. JHU Pediatric Burn Cases (Age < 18) - 3rd Degree Burns
    1.4. Johns Hopkins and University Oncology Center
        1.4.1. Transplant Cases (Reserve Flag = 1)
        1.4.2. Research Cases (Reserve Flag = 2)
        1.4.3. Hematological Cases (Reserve Flag = 3)
        1.4.4. Transfer in Cases (Reserve Flag = 4)