

Supplementary Online Content

Liu H, Waxman DA, Main R, Mattke S. Utilization of anesthesia services during outpatient endoscopies and colonoscopies and associated spending in 2003-2009. *JAMA*. 2012;307(11):1178-1184.

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This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1. Patient Characteristics (Weighted)

Characteristics	Medicare Population		P Value	Commercial Population		P Value
	Patients with Anesthesia Service Use (n=6,045,260)	Patients without Anesthesia Service Use (n=16,720,540)		Patients with Anesthesia Service Use (n=8,246,097)	Patients without Anesthesia Service Use (n=21,922,414)	
Age group, (%)			<0.01			<0.01
Age≥18 & age≤35	0.55	0.51		8.92	8.09	
Age>35 & age≤45	1.62	1.55		14.22	13.42	
Age>45 & age≤55	4.52	4.56		38.63	39.3	
Age>55 & age≤65	14.52	14.96		38.24	39.2	
Age>65 & age≤75	47.65	48.09		-	-	-
Age>75 & age≤85	27.38	26.44		-	-	
Age>85	3.76	3.88		-	-	
Female, (%)	56.62	56.45	<0.01	53.42	52.84	<0.01
Number of chronic conditions, median (25 th , 75 th percentile)	3 (2, 5)	3 (1, 5)	<0.01	1 (0, 2)	1 (0, 2)	<0.01

eTable 2. Trends in Utilization of Anesthesia Services During GI Procedures (Weighted)

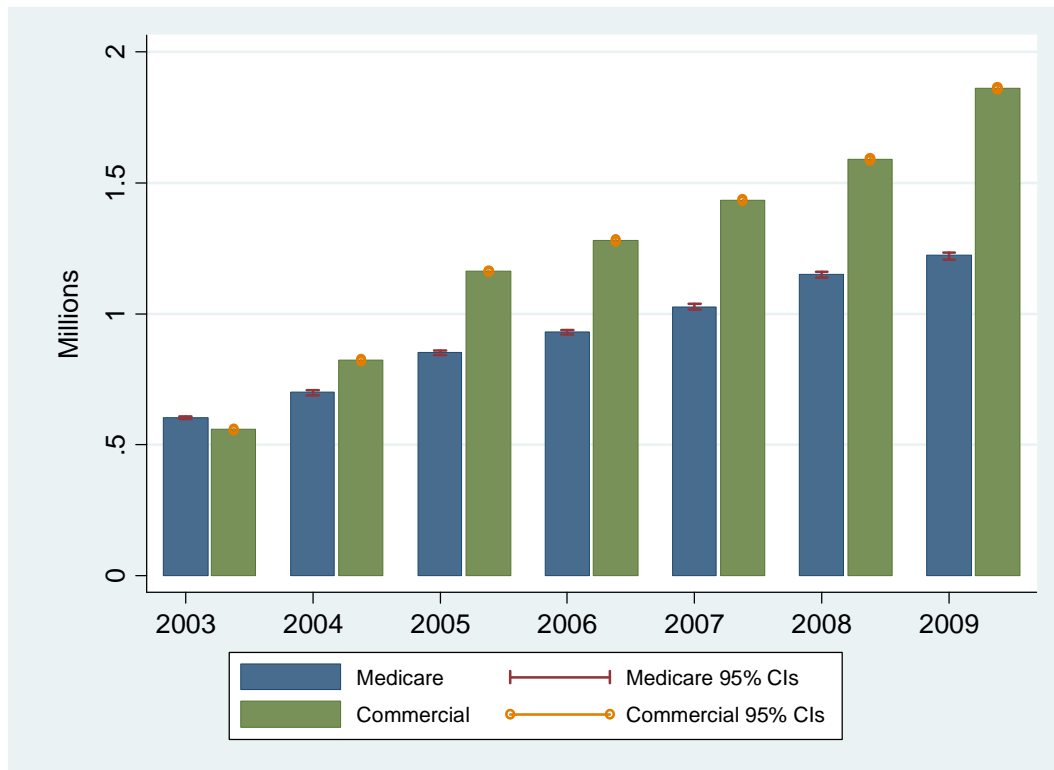
Utilization	2003	2004	2005	2006	2007	2008	2009
Total Procedure Volume (in millions)							
Medicare Patients	5.7	6.1	6.3	6.4	6.5	6.5	6.3
Upper GI	2.0	2.1	2.2	2.3	2.3	2.4	2.4
Colonoscopy	3.7	4.0	4.1	4.1	4.2	4.1	3.9
Commercially Insured Patients	4.2	4.7	5.4	5.7	5.9	5.9	6.2
Upper GI	1.3	1.5	1.6	1.8	1.8	1.8	2.0
Colonoscopy	2.9	3.2	3.8	4.0	4.1	4.0	4.2
Proportion of Procedures with Anesthesia Services (%)							
Medicare Patients	13.5	16.6	19.2	21.6	24.0	26.6	30.2
Northeast	22.0	28.0	32.0	36.0	39.0	44.0	48.0
Midwest	10.0	12.0	13.0	15.0	16.0	18.0	21.0
South	14.0	17.0	20.0	23.0	26.0	29.0	33.0
West	7.0	8.0	9.0	10.0	11.0	12.0	14.0
Commercially Insured Patients	15.2	20.5	25.0	26.1	28.9	32.2	35.9
Northeast	26.0	35.0	39.0	44.0	48.0	56.0	58.0
Midwest	13.0	17.0	19.0	20.0	22.0	23.0	26.0
South	11.0	16.0	25.0	27.0	30.0	34.0	38.0
West	11.0	12.0	11.0	11.0	11.0	11.0	12.0
Proportion Anesthesia Services Considered Potentially Discretionary (%; 95% Confidence Interval)							
Medicare Patients	78.6 (77.9, 79.2)	69.6 (68.5, 70.4)	70.5 (69.7, 71.0)	67.7 (67.0, 68.2)	65.9 (65.2, 66.7)	66.4 (65.7, 67.0)	64.1 (63.2, 64.6)
Commercially Insured Patients	87.1 (86.6, 87.5)	85.0 (84.6, 85.4)	85.5 (85.2, 85.7)	85.6 (85.3, 85.8)	84.4 (84.1, 84.6)	84.4 (84.2, 84.6)	84.1 (83.9, 84.3)

eTable 3. Trends in Payments for Anesthesia Services During GI Procedures (Weighted)

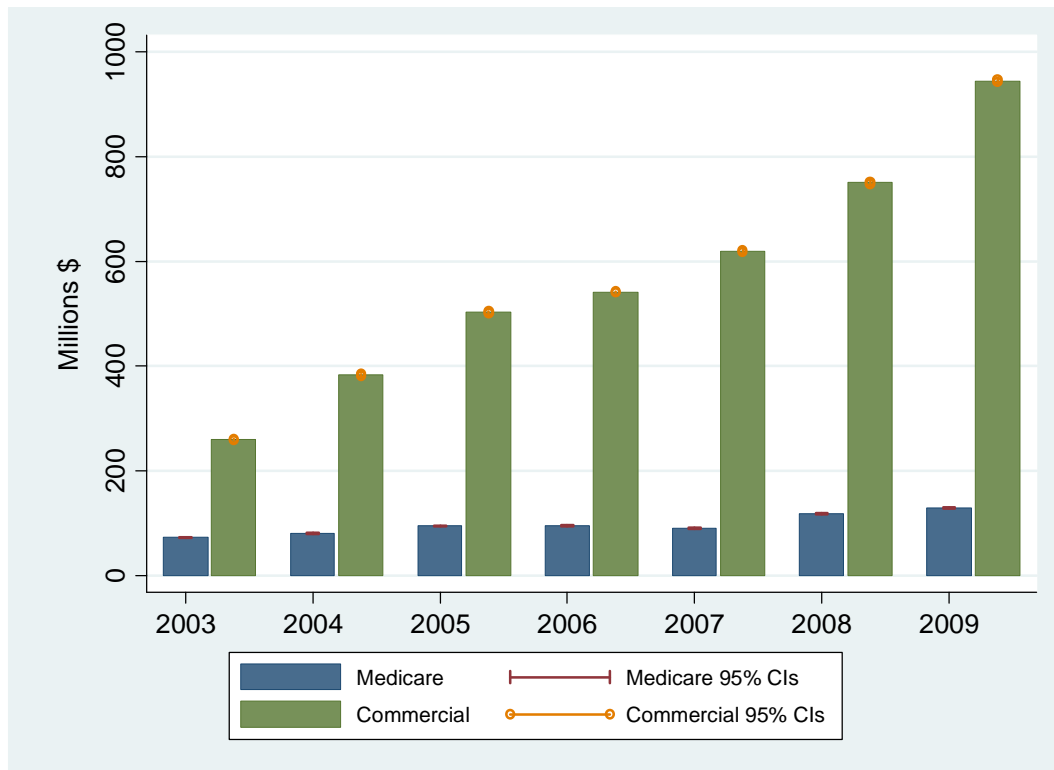
Payments	2003	2004	2005	2006	2007	2008	2009
Total Payments for Anesthesia Services (in millions)							
Medicare Patients	93.6	117.5	136.1	143.1	138.0	180.2	204.4
Commercially Insured Patients	295.9	446.6	583.3	626.4	726.2	879.9	1,118.3
Proportion of Payments Associated with Potentially Discretionary Anesthesia Services (%) (95% Confidence Interval)							
Medicare Patients	77.9 (77.1, 78.6)	68.6 (67.4, 69.4)	69.8 (68.8, 70.3)	66.8 (66.0, 67.6)	65.1 (64.3, 65.9)	65.6 (64.9, 66.3)	63.3 (62.7, 64.0)
Commercially Insured Patients	87.9 (87.4, 88.2)	85.8 (85.4, 86.3)	86.3 (85.9, 86.5)	86.4 (86.2, 86.7)	85.3 (85.0, 85.6)	85.3 (85.1, 85.5)	84.5 (84.3, 84.7)
Average Payments for Anesthesia Service Per GI Procedure (95% Confidence Interval, in 2009 dollars)							
Medicare Patients	147.2 (146.5,147.9)	148.0 (147.5,148.7)	145.9 (145.2,146.5)	138.6 (138.1,139.1)	121.2 (120.8,121.6)	144.2 (143.8,144.7)	150.2 (149.8,150.6)
Commercially Insured Patients	483.3 (481.0,485.4)	484.1 (482.3,485.9)	455.2 (454.0,456.5)	450.8 (449.7,451.8)	461.4 (460.3,462.4)	507.6 (506.4,508.7)	554.2 (552.9,555.4)

*All payments are adjusted to 2009 US Dollars using Consumer Price Index.

eFigure 1. Volume of Potentially Discretionary Anesthesia Service Use in 2003-2009 (Weighted)



eFigure 2. Payments Associated With Potentially Discretionary Anesthesia Service Use in 2003-2009 (Weighted)



eTable 4. Characteristics of Commercially Insured Patients Who Had a Recorded ASA Level (Unweighted)*

Characteristics	Patients with Any Anesthesia Service Use (n=241,329)
Age group, (%)	
Age>=18 & age<=35	8.34
Age>35 & age<=45	12.83
Age>45 & age<=55	37.38
Age>55 & age<=65	41.45
Female, (%)	57.44
Number of chronic conditions, median (25 th , 75 th percentile)	1 (1, 3)

*Unweighted statistics on the commercial sample with anesthesia service use and recorded ASA level.

eTable 5. Trends in Payments and Utilization of Anesthesia Services During GI Procedures in Commercially Insured Patients Who Had a Recorded ASA Level (Unweighted)*

Payments and Utilization**	2003	2004	2005	2006	2007	2008	2009
Total Procedure Volume (in thousands)	0.7	4.1	23.3	38.6	48.1	71.3	91.0
Upper GI	0.3	1.2	6.5	11.8	14.3	21.9	28.9
Colonoscopy	0.5	2.9	16.8	26.8	33.9	49.4	62.1
Proportion of Anesthesia Services Considered	71.5	75.5	88.6	89.9	87.4	86.1	83.4
Potentially Discretionary (% , 95% Confidence Interval)	(68.0, 75.9)	(73.8, 76.9)	(88.1, 89.2)	(89.6, 90.4)	(87.0, 87.7)	(85.7, 86.5)	(83.1, 83.8)
Total Payments for AN Services (in millions)	0.4	1.9	11.4	19.5	25.0	38.5	45.8
Proportion of Payments Associated with Potentially Discretionary Anesthesia Services (% , 95% Confidence Interval)	70.2	71.8	88.5	90.6	88.7	87.3	83.0
	(65.5, 75.4)	(69.7, 73.4)	(87.9, 89.1)	(90.3, 91.1)	(88.3, 89.1)	(87.0, 87.6)	(82.5, 83.4)
Average Payments for Anesthesia Service Per GI Procedure (95% Confidence Interval, in 2009 dollars)	582.8	470.4	514.7	541.0	559.5	588.7	556.3
	(561.9, 603.7)	(463.9, 476.9)	(510.6, 518.9)	(537.4, 544.7)	(555.8, 563.2)	(585.2, 592.2)	(553.6, 559.0)

*Unweighted statistics on the commercial sample with anesthesia service use and recorded ASA level.

**All payments are adjusted to 2009 US Dollars using Consumer Price Index.