

## Appendix 1: Anesthesiologist Patient Satisfaction Questionnaire (APSQ)



**SurveyVitals**

### Anesthesiologist Patient Satisfaction Questionnaire (APSQ)

#	Question Text	Area	Answer Type
1	Do you remember enough about your recent surgery or procedure to answer questions about your experience?		Yes/No
2	Were you able to spend time with your anesthesiologist before surgery?		Likert Scale 1-5 with N/A
3	Your anesthesiologist did his or her best to respect your privacy.	Privacy Respected, Composite	Likert Scale 1-5 with N/A
4	Your options for anesthesia were explained before your surgery.	Communication, Composite	Likert Scale 1-5 with N/A
5	Your questions about anesthesia, the process, risks, and possible after effects were answered.	Communication, Composite	Likert Scale 1-5 with N/A
6	You were well prepared to make informed decisions.	Decision Prep, Composite	Likert Scale 1-5 with N/A
7	Your anesthesiologist helped ease any anxiety you were feeling.	Ease Anxiety, Composite	Likert Scale 1-5 with N/A
8	Your anesthesiologist ensured your comfort during the surgical experience.	Ensure Comfort, Composite	Likert Scale 1-5 with N/A
9	Please share any thoughts or concerns from your visit to the operating suite.		Text Box
10	Using a number from 5 to 1, where 5 is the best anesthesiologist possible and 1 is the worst, please rate your anesthesiologist.	Overall	Likert Scale 1-5
11	You have selected a low anesthesiologist rating, please provide details to help us improve. *		Text
12	Was your anesthesiologist available to answer questions after surgery?		Yes/No
13	Did you experience nausea or vomiting after your surgery?		Yes/No

14	Were you slow to awaken after your surgery?		Yes/No
15	Did you experience more pain than expected after your surgery?		Yes/No
16	Did you experience bothersome numbness after your surgery?		Yes/No
17	Did you experience unpleasant memories after your surgery?		Yes/No
18	Were the anesthesia drugs used during surgery effective?		Yes/No
19	Please add any comments you would like to make about your experience immediately after surgery.		Text Box
20	Please share additional comments for your anesthesiologist.		Text Box
<b>If Care Team, additional questions are included.</b>			
21	Do you remember enough about your nurse anesthetist to answer questions about your experience?		Yes/No
22	Your nurse anesthetist did his or her best to respect your privacy.	Privacy Respected, Composite	Likert Scale 1-5 with N/A
23	Your nurse anesthetist helped ease any anxiety you were feeling?	Ease Anxiety, Composite	Likert Scale 1-5 with N/A
24	Using a number from 5 to 1, where 5 is the best nurse anesthetist possible and 1 is the worst, please rate your nurse anesthetist.	Overall	Likert Scale 1-5
25	Please share additional comments regarding your nurse anesthetist.		Text
<b>Contact Me Addendum</b>			
26	Do you need to be contacted by a representative of your provider to discuss your experience?	Addendum	Yes/No
27	Confirm contact request.		Yes/No

\* This question appears only when a patient selects a 1 or a 2 for the previous question.

**Appendix 2.** Demographic Characteristics of Patients Who Filled Out the APSQ Survey between May and November 2016 stratified by anesthesia type (N=51,676). Values presented as Mean (Standard Deviation) or Number of responses (Percent of total number of responses for a given anesthesia type), when applicable. Percentages may not add up to 100% due to missing data.

	<b>General (N=38,738)</b>	<b>Sedation (N=6,473)</b>	<b>Regional (N=6,465)</b>	<b>Total (N=51,676)</b>	<b>p-value<sup>1</sup></b>
<b>Age (mean, SD)</b>	54.9 (15.0)	59.3 (14.1)	33.4 (11.2)	52.8 (16.3)	<0.001
<b>Sex</b>					<0.001
Male	15194 (39.2%)	2494 (38.5%)	259 (4.0%)	17947 (34.7%)	
Female	23539 (60.8%)	3979 (61.5%)	6206 (96.0%)	33724 (65.3%)	
<b>Place of Service</b>					<0.001
Inpatient	10880 (28.1%)	835 (12.9%)	5978 (92.5%)	17693 (34.2%)	
Outpatient or office	27856 (71.9%)	5638 (87.1%)	487 (7.5%)	33981 (65.8%)	
<b>ASA Physical Status</b>					<0.001
I	4208 (10.9%)	702 (10.8%)	272 (4.2%)	5182 (10.0%)	
II	19623 (50.7%)	3256 (50.3%)	5134 (79.4%)	28013 (54.2%)	
III	11238 (29.0%)	2129 (32.9%)	762 (11.8%)	14129 (27.3%)	
IV or V	3490 (9.0%)	353 (5.5%)	231 (3.6%)	4074 (7.9%)	
Missing	179 (0.5%)	33 (0.5%)	66 (1.0%)	278 (0.5%)	
<b>Procedure Type by Organ System</b>					<0.001
Musculoskeletal, integumentary, heme, and lymphatic	12909 (33.3%)	711 (11.0%)	550 (8.5%)	14170 (27.4%)	
Respiratory, cardiovascular, mediastinum, and diaphragm	2632 (6.8%)	472 (7.3%)	14 (0.2%)	3118 (6.0%)	
Digestive	11698 (30.2%)	2979 (46.0%)	13 (0.2%)	14690 (28.4%)	
Urinary and male GU	2951 (7.6%)	58 (0.9%)	6 (0.1%)	3015 (5.8%)	
Maternity and delivery, female GU, reproductive	4147 (10.7%)	200 (3.1%)	5350 (82.8%)	9697 (18.8%)	
Endocrine, nervous, eye and adnexa, auditory system	3800 (9.8%)	1783 (27.5%)	127 (2.0%)	5710 (11.0%)	
Others/missing	601 (1.6%)	270 (4.2%)	405 (6.3%)	1276 (2.5%)	
<b>Median income (\$)</b>					<0.001
<50,000	26669 (68.8%)	5137 (79.4%)	4391 (67.9%)	4391 (70.0%)	
≥50,000	11407 (29.4%)	1226 (18.9%)	2012 (31.1%)	2012 (28.3%)	
<b>Start of procedure</b>					<0.001
6am-12pm	25964 (67.0%)	4573 (70.6%)	3062 (47.4%)	33599 (65.0%)	
12pm-6pm	11879 (30.7%)	1860 (28.7%)	1802 (27.9%)	15541 (30.1%)	
6pm-6am	895 (2.3%)	40 (0.6%)	1601 (24.8%)	2536 (4.9%)	

<sup>1</sup> Represents differences among anesthesia types. Chi-squared test for categorical variables, ANOVA for continuous variables.

**Appendix 3: Spearman Correlation Coefficients for APSQ Patient Satisfaction Questions (Questions 3-8)**

	Questions were answered	Options were explained	Anesthesiol ogist helped ease anxiety	Anesthesiol ogist ensured comfort	Anesthesiol ogist respected privacy	Prepared to make informed decisions
Questions were answered	1					
Options were explained	0.6724	1				
Anesthesiologist helped ease anxiety	0.6224	0.5625	1			
Anesthesiologist ensured comfort	0.5894	0.5261	0.6925	1		
Anesthesiologist respected privacy	0.477	0.4813	0.4867	0.4899	1	
Prepared to make informed decisions	0.7073	0.6206	0.6105	0.5893	0.4948	1

**Appendix 4.** Sensitivity Analysis for Likert APSQ Survey Questions (Strongly Agree vs. All Other Responses). Multivariable Logistic Regression Results for Patient Satisfaction Questions Contained in the APSQ Survey. Comparisons within categories are presented as Odds Ratios (OR) (95% confidence intervals (CI)). ORs (95% CI) associated with Holm-Bonferroni adjusted p-values <0.001 are in bold.

	Your questions about anesthesia, the process, risks, and possible after effects were answered	Your options for anesthesia were explained before your surgery	Your anesthesiologist helped ease any anxiety you were feeling	Your anesthesiologist ensured your comfort during the surgical experience	Your anesthesiologist did his or her best to respect your privacy	You were well prepared to make informed decisions	Were you able to spend time with your anesthesiologist before surgery?	Using a number from 5 to 1, where 5 is the best anesthesiologist possible and 1 is the worst, please rate your anesthesiologist
<b>Anesthesia type</b>								
General	reference	reference	reference	reference	reference	reference	reference	reference
Sedation	1.11 (1.04-1.19)	1.11 (1.04-1.18)	1.11 (1.04-1.19)	<b>1.22 (1.12-1.33)</b>	<b>1.20 (1.12-1.28)</b>	<b>1.17 (1.09-1.26)</b>	<b>0.63 (0.58-0.68)</b>	1.13 (1.03-1.24)
Regional	<b>1.29 (1.17-1.41)</b>	<b>1.42 (1.30-1.56)</b>	1.18 (1.07-1.30)	1.07 (0.94-1.21)	<b>1.34 (1.22-1.47)</b>	1.17 (1.06-1.29)	<b>1.23 (1.12-1.35)</b>	1.02 (0.89-1.17)
<b>Age</b>								
18-54	reference	reference	reference	reference	reference	reference	reference	reference
over 55	<b>0.63 (0.60-0.66)</b>	<b>0.66 (0.63-0.69)</b>	<b>0.70 (0.66-0.73)</b>	<b>0.75 (0.70-0.80)</b>	<b>0.75 (0.72-0.79)</b>	<b>0.73 (0.69-0.77)</b>	<b>0.67 (0.63-0.70)</b>	0.89 (0.83-0.96)
<b>Sex</b>								
Male	reference	reference	reference	reference	reference	reference	reference	reference
Female	1.04 (1.00-1.09)	1.04 (1.00-1.09)	<b>1.11 (1.06-1.16)</b>	1.09 (1.02-1.16)	1.04 (0.99-1.09)	1.09 (1.04-1.15)	1.06 (1.01-1.12)	1.05 (0.98-1.13)
<b>Place of service</b>								
Inpatient	reference	reference	reference	reference	reference	reference	reference	reference
Outpatient or office	<b>1.19 (1.13-1.25)</b>	<b>1.12 (1.07-1.18)</b>	<b>1.17 (1.11-1.24)</b>	1.15 (1.07-1.23)	1.08 (1.02-1.14)	<b>1.17 (1.11-1.23)</b>	<b>1.38 (1.30-1.46)</b>	1.12 (1.04-1.21)
<b>ASA Physical status</b>								
I	reference	reference	reference	reference	reference	reference	reference	reference
II	1.02 (0.95-1.10)	1.04 (0.96-1.11)	0.99 (0.91-1.07)	1.02 (0.92-1.13)	1.04 (0.97-1.12)	1.07 (0.99-1.16)	0.95 (0.88-1.02)	1.03 (0.92-1.16)
III	1.00 (0.92-1.08)	1.07 (0.99-1.16)	0.89 (0.81-0.97)	0.94 (0.84-1.05)	1.01 (0.93-1.09)	1.05 (0.96-1.15)	<b>0.66 (0.61-0.72)</b>	1.00 (0.88-1.13)
IV or V	1.15 (1.04-1.28)	1.15 (1.04-1.28)	1.03 (0.92-1.15)	0.94 (0.79-1.13)	0.86 (0.78-0.96)	1.10 (0.98-1.23)	<b>3.41 (3.07-3.78)</b>	0.93 (0.77-1.14)
<b>Procedure Type by Organ System</b>								

Musculoskeletal, integumentary, heme, lymphatic Respiratory, cardiovascular, mediastinum, diaphragm Digestive Urinary and male GU Maternity and delivery, female GU, reproductive Endocrine, nervous, eye and adnexa, auditory system Others /missing	reference	Reference	reference	reference	reference	reference	reference	reference
	0.87 (0.80-0.96)	0.86 (0.78-0.94)	0.86 (0.78-0.95)	0.82 (0.72-0.93)	0.93 (0.84-1.02)	0.84 (0.76-0.93)	<b>0.64 (0.58-0.72)</b>	0.95 (0.82-1.09)
	0.92 (0.87-0.98)	0.92 (0.87-0.97)	0.96 (0.90-1.01)	0.88 (0.81-0.95)	0.92 (0.86-0.97)	0.95 (0.90-1.01)	0.98 (0.92-1.04)	0.90 (0.82-0.98)
	0.91 (0.83-1.00)	0.96 (0.87-1.05)	0.98 (0.89-1.08)	1.04 (0.91-1.18)	0.90 (0.82-0.99)	0.98 (0.89-1.09)	0.99 (0.89-1.09)	1.06 (0.92-1.23)
	0.95 (0.88-1.03)	0.93 (0.86-1.00)	0.93 (0.86-1.01)	0.83 (0.76-0.93)	1.00 (0.92-1.08)	1.00 (0.91-1.09)	0.93 (0.85-1.00)	0.91 (0.80-1.02)
	0.89 (0.83-0.96)	0.91 (0.85-0.98)	0.89 (0.82-0.96)	0.84 (0.76-0.92)	0.87 (0.80-0.94)	0.91 (0.84-0.99)	0.96 (0.89-1.04)	0.89 (0.79-0.99)
	0.81 (0.71-0.93)	0.87 (0.76-1.00)	0.87 (0.75-1.01)	0.91 (0.76-1.10)	0.91 (0.79-1.05)	0.91 (0.78-1.05)	0.97 (0.83-1.12)	0.89 (0.73-1.09)
<b>Median income (\$)</b>								
<50,000	reference	reference	reference	reference	reference	reference	reference	reference
≥50,000	0.96 (0.92-1.01)	0.92 (0.88-0.96)	1.04 (0.99-1.09)	0.97 (0.91-1.03)	0.97 (0.92-1.02)	0.99 (0.94-1.03)	<b>1.14 (1.09-1.20)</b>	0.90 (0.84-0.96)
<b>Start of procedure</b>								
6am-12pm	reference	reference	reference	reference	reference	reference	reference	reference
12pm-6pm	0.94 (0.90-0.99)	0.96 (0.92-1.01)	0.93 (0.89-0.98)	0.93 (0.87-0.99)	0.95 (0.91-0.99)	0.98 (0.94-1.03)	0.91 (0.86-0.95)	<b>0.87 (0.81-0.93)</b>
6pm-6am	0.85 (0.76-0.94)	0.86 (0.77-0.95)	0.81 (0.73-0.91)	0.81 (0.70-0.92)	0.95 (0.85-1.06)	0.80 (0.72-0.90)	0.80 (0.72-0.90)	0.75 (0.65-0.87)