

Supplementary Material for

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eTable 1. Opioid consumption, prescription, and refill amount by procedure type

Surgical Procedure Type	Opioid-naïve Patients			Opioid-exposed Patients		
	Median	IQR	10 th /90 th Percentile	Median	IQR	10 th /90 th Percentile
	Opioid Consumption					
Abdominal hernia	12.5	0/60	0/112.5	30	0/90	0/150
Laparoscopic appendectomy	5	0/45	0/75	15	0/50	0/90
Laparoscopic cholecystectomy	10	0/40	0/75	20	0/60	0/100
Laparoscopic colectomy	0	0/15	0/75	2.5	0/75	0/150
Laparoscopic hysterectomy	15	0/60	0/100	35	0/90	0/150
Minor hernia	15	0/50	0/96.75	25	0/75	0/150
Open colectomy	0	0/27.5	0/100	21.25	0/81.25	0/150
Total abdominal hysterectomy	30	0/82.5	0/150	60	0/125	0/180
Vaginal hysterectomy	7.5	0/50	0/100	30	0/90	0/150
	Opioid Prescription					
Abdominal hernia	60	0/100	0/150	120	60/300	0/900
Laparoscopic appendectomy	50	0/75	0/112.5	75	0/150	0/450
Laparoscopic cholecystectomy	50	0/80	0/150	75	50/164.4	0/750
Laparoscopic colectomy	0	0/85	0/150	87.5	0/150	0/450
Laparoscopic hysterectomy	75	0/120	0/150	120	75/180	0/450
Minor hernia	75	0/100	0/150	100	50/225	0/900
Open colectomy	0	0/100	0/150	100	0/217.5	0/840
Total abdominal hysterectomy	90	0/150	0/200	150	90/210	0/450
Vaginal hysterectomy	75	0/125	0/150	120	50/180	0/600
	Opioid Refills					
Abdominal hernia	142.5	75/225	50/675	475	150/1012.5	90/1800
Laparoscopic appendectomy	100	60/150	45/250	495	100/1125	60/3000
Laparoscopic cholecystectomy	75	60/135	50/255	300	100/900	60/1900
Laparoscopic colectomy	100	75/202.5	60/300	375	150/840	100/1140
Laparoscopic hysterectomy	120	90/200	60/350	300	120/637.5	75/1344
Minor hernia	100	75/200	50/370	450	150/975	75/1875
Open colectomy	137.5	75/225	60/420	483.75	155/1200	105/2100
Total abdominal hysterectomy	150	90/200	60/300	240	150/750	75/1200
Vaginal hysterectomy	112.5	75/200	54/300	300	112.5/900	81/2025

Opioid amounts are expressed in morphine milligram equivalents. Opioid refill data are calculated using only those patients with more than one opioid fill. To calculate number of pills of oxycodone 5 mg, divide oral morphine equivalents (OME) by 7.5. For example, 60 OME is 8 pills of oxycodone 5 mg while 150 OME is 20 pills. Interquartile range (IQR).

eTable 2. Adjusted Prescription Opioid Use at 30 Days After Surgery by Opioid Exposure in the Year Before Surgery

Outcome ^a	Amount of Opioids in Oral Morphine Equivalents	95% Confidence Interval	
Patient-reported Consumption of Opioids			
<i>Primary outcome</i>			
Opioid naïve	31.0	29.5	32.5
Any opioid exposure	42.9	40.4	45.4
<i>Secondary analysis</i>			
Opioid naïve	30.9	29.4	32.4
Minimal opioid exposure	35.7	33.5	38.0
Intermittent opioid exposure	47.9	44.4	51.4
Chronic opioid exposure	62.7	52.1	73.2
Average Amount of Opioids in Postoperative Refills			
Opioid naïve	27.3	21.2	33.4
Any opioid exposure	360.0	319.8	400.2

a. Consumption amount reflects adjustment in linear regression models for age, sex, race/ethnicity, insurance, American Society of Anesthesiologists physical classification, 13 other patient comorbidities, surgery type, and surgery priority. Opioid naïve indicates no opioid fills in year before surgery.

eTable 3. Opioid consumption after surgery by dose of opioid in the year before surgery

Dose of opioids in year before surgery	N	Opioid consumption after surgery ^a	95% Confidence Interval	
0 OME over past year	19201	30.9	29.4	32.4
>0 to ≤150 OME over past year	2792	34.5	32.2	36.9
151 to ≤375 OME over past year	1256	40.8	37.1	44.6
376 to ≤750 OME over past year	708	50.3	45.3	55.3
751 to ≤1500 OME over past year	503	50.4	43.9	57.0
1501 to ≤6000 OME over past year	824	52.1	46.4	57.7
≥6001 OME over past year	717	57.3	45.3	69.2

a. Opioid consumption after surgery is expressed in oral morphine equivalents (OME) and reflects adjustment in regression models for age, sex, race/ethnicity, insurance, American Society of Anesthesiologists physical classification, 13 other patient comorbidities, surgery type, and surgery priority.

eTable 4. Postoperative Opioid Consumption and Refill among Patients with Opioid Exposure in the Year Before Surgery Compared with Opioid-Naïve Patients

Outcome	Adjusted Odds Ratio ^a	95% Confidence Interval		P value
Any patient-reported opioid consumption	1.16	1.09	1.24	<0.001
Any opioid refill ^b	4.74	4.36	5.15	<0.001

a. Odds ratios reflect adjustment in logistic regression models for age, sex, race/ethnicity, insurance, American Society of Anesthesiologists physical classification, 13 other patient comorbidities, surgery type, and surgery priority.

b. Analyses for any refill was limited only to patients who filled a perioperative opioid prescription

eFigure 1. Flow diagram for cohort selection.