

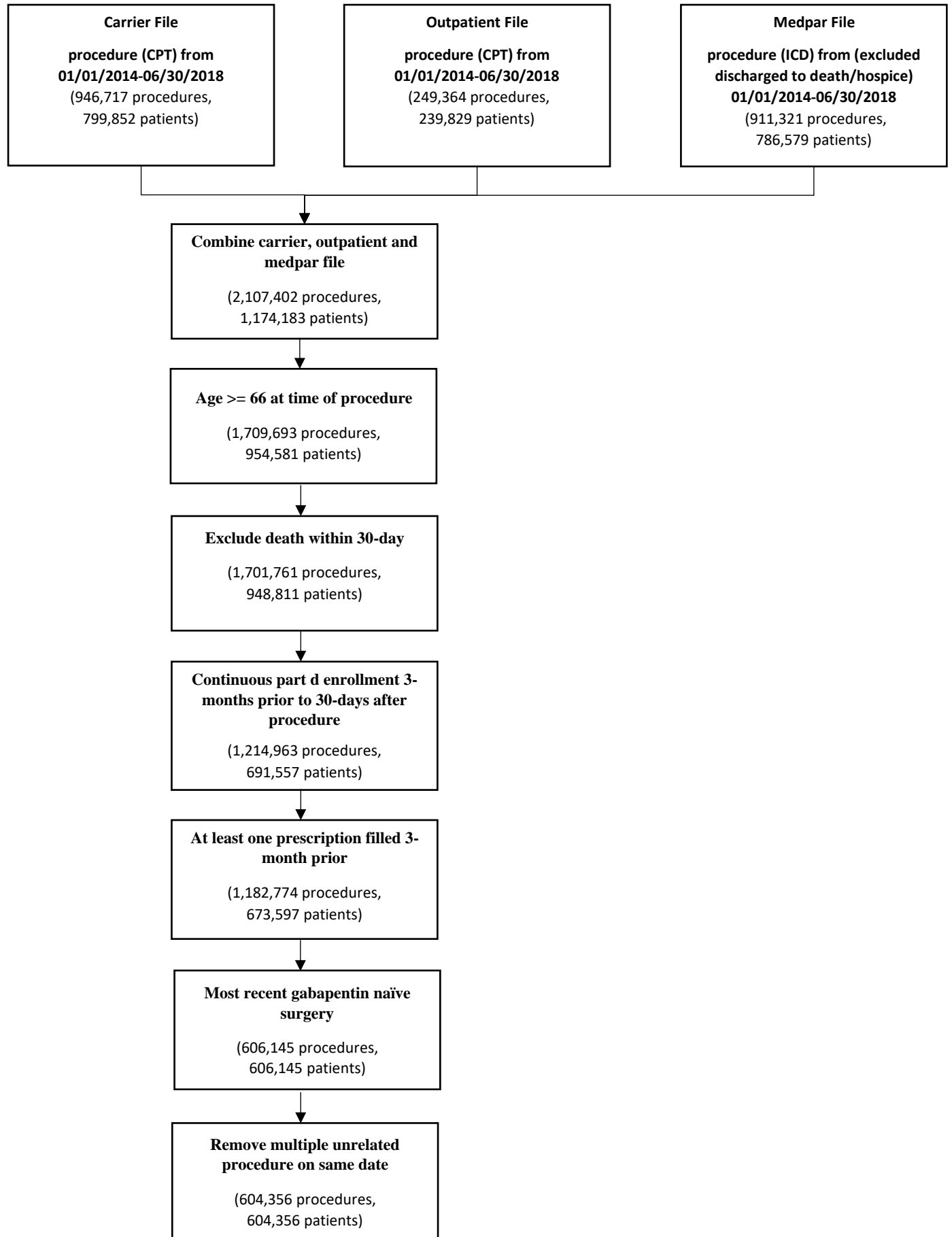
### Supplementary Appendix 1: Included Surgical Procedures

Total Shoulder Arthroplasty
Total Hip Arthroplasty
Prostatectomy, Laparoscopic
Hysterectomy, Laparoscopic
Cholecystectomy, Laparoscopic
Initial Inguinal Hernia Repair, Open
Initial Inguinal Hernia Repair, Laparoscopic
Lumbar Laminotomy
Lumbar Laminectomy
Hysterectomy, Vaginal
Carotid Endarterectomy
Total Knee Arthroplasty
Low Anterior Resection, Laparoscopic
Ventral Hernia Repair, Open

**Supplementary Appendix 2:** List of outpatient procedures using HCPCS/CPT codes, and inpatient procedures using ICD9-CM or ICD10-PCS codes

Procedure	CPT code	ICD9/10
Total Shoulder Arthroplasty	23472	81.51, 81.54, 81.88, 81.80, 81.81, 81.83, 81.23
Total Hip Arthroplasty	27130 , 27134	81.21, 81.4, 81.51
Prostatectomy, Laparoscopic	55866	60.2*, 60.3*, 60.4*, 60.5* 60.6*
Hysterectomy, Laparoscopic	58571	68.3*, 68.4*, 68.5*, 68.6*, 68.7*, 68.9*
Cholecystectomy, Laparoscopic	47562	51.23, 51.24
Initial Inguinal Hernia Repair, Open	49505	550*, 53.0*, 53.1*
Lumbar Laminotomy/Laminectomy	63030, 63047	03.0*, 03.4*, 03.5*, 03.6*
Hysterectomy, Vaginal	58262	
Carotid Endarterectomy	35301	38.02, 38.12, 38.32, 38.42, 38.62
Total Knee Arthroplasty	27447 , 27487	81.22, 81.43, 81.47, 81.54, 81.55
Low Anterior Resection, Laparoscopic	44207	48.0*, 48.1*, 48.4*, 48.5*, 48.6*
Initial Inguinal Hernia Repair, Laparoscopic	49650	17.1*, 17.2*
Ventral Hernia Repair, Open	49560	53.41, 53.49, 53.5*, 53.61, 53.69

### Supplementary Appendix 3: Flow Chart Inclusion Criteria



#### **Supplementary Appendix 4: List of opioids used in analysis**

*Butorphanol*  
*Codeine*  
*Dihydrocodeine*  
*Fentanyl*  
*Hydrocodone*  
*Hydromorphone*  
*Meperidine*  
*Morphine*  
*Oxycodone*  
*Oxymorphone*  
*Pentazocine*  
*Tapentadol*  
*Tramadol*

**Supplementary Appendix 5: Univariate analysis for prolonged use of gabapentin**

	Unadjusted	
	OR (95% CI)	p-value
<b>Age</b>	1.00 (1.00, 1.01)	0.5865
<b>Gender</b>		<0.0001
Male	ref.	
Female	1.19 (1.10, 1.28)	
<b>Race</b>		0.2634
White	ref.	
Non-white	1.06 (0.96, 1.17)	
<b>Charlson Comorbidity Score</b>		<0.0001
0	ref.	
1-2	1.10 (1.01, 1.20)	
3-4	1.59 (1.43, 1.77)	
5+	2.55 (2.29, 2.84)	
<b>Concurrent medication use (opioid use)</b>		<0.0001
<b>+/- 7 days around discharge</b>		
No	ref.	
Yes	0.50 (0.46, 0.54)	
<b>90-180 days after discharge</b>		<0.0001
No	ref.	
Yes	3.37 (3.12, 3.63)	
<b>Facility type</b>		<0.0001
Inpatient	ref.	
Outpatient	2.00 (1.84, 2.17)	
<b>Disposition location</b>		<0.0001
Home	ref.	
Home under care of organized home health service organization	0.61 (0.57, 0.66)	
Transfer to acute care	2.28 (1.13, 4.60)	
Skilled nursing Facility	1.84 (1.64, 2.07)	
Other	0.26 (0.06, 1.08)	
<b>Surgery planned</b>		<0.0001
Yes	ref.	
No	2.20 (1.93, 2.50)	
<b>Care complexity (number of physicians seen in prior 6 months)</b>		<0.0001
q1 (1-2)	ref.	
q2 (3-11)	0.82 (0.73, 0.91)	
q3 (12-17)	0.94 (0.86, 1.03)	
q4 (18-161)	1.51 (1.37, 1.66)	
<b>Type of procedure</b>		<0.0001

Total Knee Arthroplasty	ref.
Total Hip Arthroplasty	0.88 (0.79, 0.99)
Lumbar Laminotomy/Lumbar Laminectomy	3.25 (2.93, 3.61)
Total Shoulder Arthroplasty /Total Knee Arthroplasty	1.28 (1.12, 1.46)
Total Shoulder Arthroplasty /Total Hip Arthroplasty	0.91 (0.75, 1.11)
Total Shoulder Arthroplasty	1.96 (1.62, 2.37)
Cholecystectomy, Laparoscopic	5.19 (4.16, 6.47)
Ventral Hernia Repair, Open	3.39 (2.68, 4.30)
Carotid Endarterectomy	8.43 (6.31, 11.28)
Initial Inguinal Hernia Repair, Open	4.01 (2.94, 5.48)
Low Anterior Resection, Laparoscopic	1.27 (0.85, 1.89)
Hysterectomy	3.18 (2.12, 4.78)
Initial Inguinal Hernia Repair, Laparoscopic	2.90 (1.82, 4.62)
Prostatectomy, Laparoscopic	3.49 (2.09, 5.81)