Appendix Table 1. ICD-9-CM Diagnosis Codes to Exclude Potential Chronic Corticosteroid Users

- Malignant Related: 140.XX-209.3X, 209.7X, 230.X-234.X, 258.02, 258.03, 511.81, 789.51, 795.01-795.06, 795.10-795.14, 795.16, 796.70-796.74, 796.76, V10.XX, V58.0, V58.1X, V66.1, V66.2, V67.1, V67.2, V71.1
- Transplant Related: v42.XX

Appendix Table 2. Equivalent Doses of Oral Corticosteroids

Equivalent Dose	Corticosteroid
0.6 mg	Betamethasone
0.75 mg	Dexamethasone
4 mg	Methylprednisolone
4 mg	Triamcinolone
5 mg	Prednisone
5 mg	Prednisolone
20 mg	Hydrocortisone
25 mg	Cortisone

Appendix Table 3. ICD-9-CM Diagnosis Codes to Identify Potential Adverse Events Associated with Oral Corticosteroid Use

- Fracture: 733.1X, 805.XX, 806.XX, 807.XX, 808.XX, 809.X, 810.XX, 811.XX, 812.XX, 813.XX, 814.XX, 815.XX, 816.XX, 817.X, 818.X, 819.X, 820.XX, 821.XX, 822.X, 823.XX, 824.X, 825.XX, 826.X, 827.X, 828.X, 829.X

- Venous thromboembolism (VTE) : 415.1X, 451.1X, 451.2, 451.81, 451.83, 451.84, 451.89, 451.9, 453.2, 453.4X, 453.8X (Except 453.81), 453.9

- Sepsis: 785.52, 995.91, 995.92

Appendix Table 4. Diagnoses and Prescribing Physicians Associated with Short-Term Corticosteroid Use, 2012-2014

	Ranking	Frequency	Percentage
Diagnosis Group			
Upper Respiratory Infection	1	43911	15·8%
Spine Conditions	2	31054	11·2%
Allergy	3	29160	10·5%
Bronchitis	4	18740	6·7%
Lower Respiratory Disorders (non-bronchitis)	5	13478	4·8%
Connective Tissue Disorders	6	13243	4·8%
Upper Respiratory Disorders	7	11603	4·2%
Joint Disorders	8	9415	3·4%
Asthma	9	8028	2·9%
Skin Disorders	10	7036	2·5%
Physician Specialty			
Family Practice	1	97680	45·3%
Internal Medicine	2	37856	17·6%
Emergency Medicine	3	14903	6·9%
Otolaryngology	4	10426	4·8%
Orthopedics	5	9638	4·5%

Appendix Table 5. Adverse Events within 30 days after a Clinic Visit, by Reason for Visit. Between-Person Comparison (Corticosteroid Users versus Non-Users)

		Users	Non-Users			
Reason for Visit	**n**	**% Sepsis**	**% Sepsis**	**p value**	**Adjusted OR***	**95% CI**
Upper Respiratory Infection	253628	0.02%	0.00%	<0.001	6.9	2.4, 19.4
Back problem	151144	0.05%	0.01%	<0.001	5.8	2.7, 12.4
Allergy	61363	0.03%	0.01%	0.040	4.8	1.0, 22.6
Bronchitis	51722	0.04%	0.01%	0.059	2.9	0.9, 10.1

** Adjusted for age, gender, race.*

		Users	Non-Users			
Reason for Visit	**n**	**% VTE**	**% VTE**	**p value**	**Adjusted OR***	**95% CI**
Upper Respiratory Infection	253628	0.04%	0.01%	0.002	2.4	1.3, 4.4
Back problem	151144	0.09%	0.02%	<0.001	4.2	2.5, 7.2
Allergy	61363	0.02%	0.01%	0.120	3.4	0.7, 17.0
Bronchitis	51722	0.06%	0.02%	0.015	3.1	1.2, 7.9

** Adjusted for age, gender, race.*

		Users	Non-Users			
Reason for Visit	**n**	**%Fracture**	**% Fracture**	**p value**	**Adjusted OR***	**95% CI**
Upper Respiratory Infection	253628	0.16%	0.06%	<0.001	2.6	2.0, 3.5
Back problem	151144	0.31%	0.13%	<0.001	2.4	1.9, 3.1
Allergy	61363	0.15%	0.08%	0.007	1.9	1.1, 3.1
Bronchitis	51722	0.19%	0.05%	<0.001	3.4	1.9, 6.0

** Adjusted for age, gender, race.*

Appendix Table 6. Incidence Rate Ratios for Adverse Events after Removal of Non-Oral Corticosteroid Users

	5-30 days*			31-90 days*		
	IRR†	95% CI	P value	IRR†	95% CI	P value
Sepsis	4.84	3.37, 6.96	<0.001	2.61	1.78, 3.83	<0.001
Venous thromboembolism	3.29	2.72, 3.99	<0.001	1.37	1.12, 1.68	0.002
Fracture	1.92	1.73, 2.14	<0.001	1.40	1.27, 1.53	<0.001

* Number of days from date when corticosteroid prescription was filled.

Reference period was 5 to 180 days prior to prescription date.

† Sepsis was adjusted for antibiotics, 5-HT3 receptor antagonists, antidepressants, anti-inflammatory agents, antimuscarinics, opiate agonists, and phenothiazine. Venous thromboembolism was adjusted for antibiotics, androgens, anxiolytics, anti-inflammatory agents, azoles, calcium channel blockers, coumarin, diuretics, opiate agonists, and platelet-aggregation inhibitors. Fractures were adjusted for anti-inflammatory agents, COX-2 inhibitors, and opiate agonists.

Appendix Table 7. Incidence Rate Ratios for Adverse Events using a 7-day Window

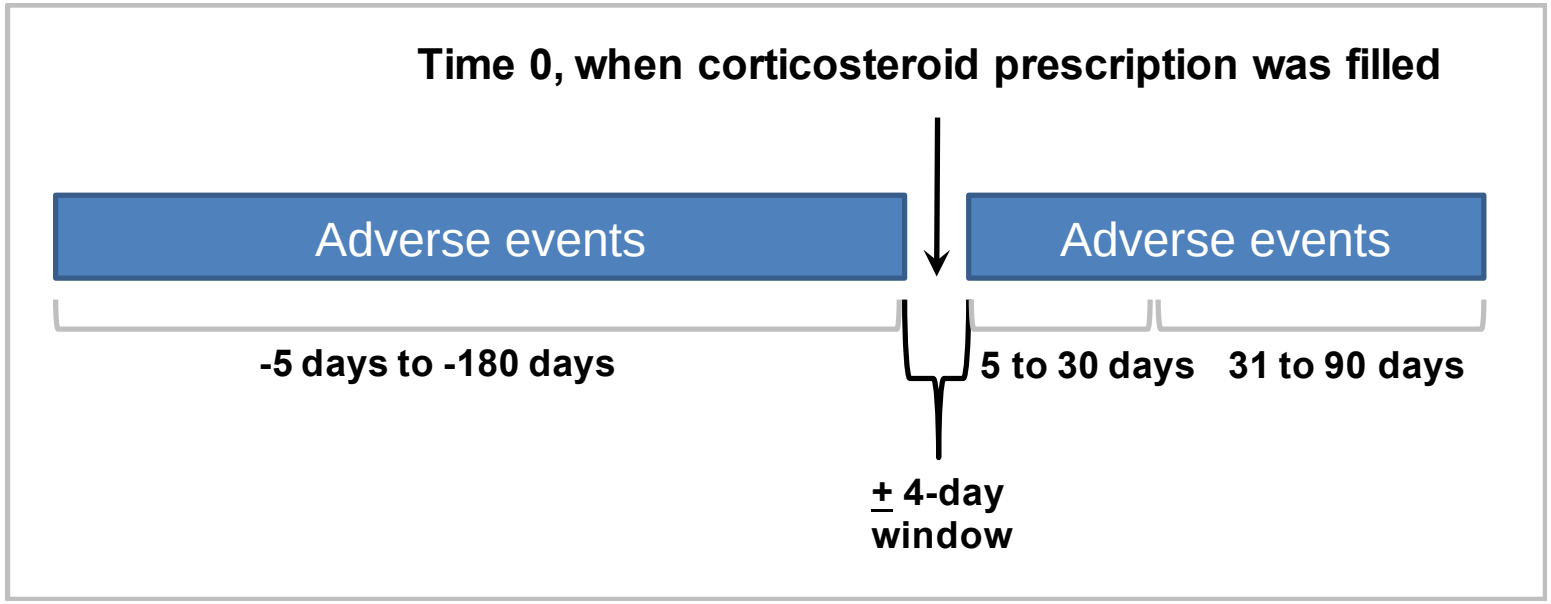
	8-30 days*			31-90 days*		
	IRR†	95% CI	P value	IRR†	95% CI	P value
Sepsis	4.33	3.04, 6.17	<0.001	2.92	2.05, 4.14	<0.001
Venous thromboembolism	2.94	2.42, 3.56	<0.001	1.51	1.25, 1.83	<0.001
Fracture	1.65	1.49, 1.84	<0.001	1.44	1.32, 1.58	<0.001

* Number of days from date when corticosteroid prescription was filled.

Reference period was 5 to 180 days prior to prescription date.

† Sepsis was adjusted for antibiotics, 5-HT3 receptor antagonists, antidepressants, anti-inflammatory agents, antimuscarinics, opiate agonists, and phenothiazine. Venous thromboembolism was adjusted for antibiotics, androgens, anxiolytics, anti-inflammatory agents, azoles, calcium channel blockers, coumarin, diuretics, opiate agonists, and platelet-aggregation inhibitors. Fractures were adjusted for anti-inflammatory agents, COX-2 inhibitors, and opiate agonists.

Appendix Figure 1. Structure of Study Design for Self-Controlled Case Series



Appendix Figure 2. Regional Variation in Utilization of Short-Term Oral Corticosteroids in the United States