

Impact of Selumetinib on Long-Term Pain Medication Utilization in Pediatric Patients: A Retrospective US Claims Database Study

Authors: Genevieve Lyons,¹ Theresa Dettling,¹ Alyssa Bowling,² Ashwin Anand,³ Michael Sicilia,³ Wouter van der Pluijm,³ Benjamin Guikema,^{*4} & Julia Meade^{5,6}

Affiliations: ¹US Health Economics and Outcomes Research, Alexion, AstraZeneca Rare Disease, Boston, MA, USA; ²Global Medical Affairs, Alexion, AstraZeneca Rare Disease, Boston, MA, USA; ³Real World Evidence, Forian Inc., Newton, PA, USA; ⁴US Medical Affairs, Alexion, AstraZeneca Rare Disease, Boston, MA, USA; ⁵Department of Pediatrics, UPMC Children's Hospital of Pittsburgh, Pittsburgh, PA, USA; ⁶Department of Pediatrics, University of Pittsburgh School of Medicine, Pittsburgh, PA, USA

Corresponding author: Genevieve Lyons; genevieve.lyons@alexion.com; US Health Economics and Outcomes Research, AstraZeneca Rare Disease, Alexion Pharmaceuticals, Inc. 121 Seaport Blvd, Boston, MA 02210, USA

*Affiliation at the time of the study.

Target journal: [Pain and Therapy](#)

Supplementary Material

Supplementary Table 1 Disease and treatment definitions

Code	Code type	Code description	Category
00310062528	NDC	Selumetinib	Selumetinib
00310062560	NDC	Selumetinib	Selumetinib
00310061028	NDC	Selumetinib	Selumetinib
00310061060	NDC	Selumetinib	Selumetinib
All	NDC	Various pain treatment class codes Prescription pain medications include gabapentin, opioids, benzodiazepines, NSAIDs, acetaminophen, and duloxetine	Pain treatment
R52%	ICD-10	Pain, unspecified	Pain diagnosis
R10%	ICD-10	Abdominal and pelvic pain	Pain diagnosis
R07%	ICD-10	Pain in the throat and chest	Pain diagnosis
G89%	ICD-10	Pain, not elsewhere classified	Pain diagnosis
M79.6	ICD-10	Pain in the limb, hand, foot, fingers, and toes	Pain diagnosis
M25.5	ICD-10	Pain in joint	Pain diagnosis
R51%	ICD-10	Headache	Pain diagnosis
M54%	ICD-10	Dorsalgia	Pain diagnosis

ICD-10 International Classification of Diseases (10th revision), *NDC* national drug code, *NSAID* nonsteroidal anti-inflammatory drug.

Supplementary Table 2 Relationship between duration of selumetinib treatment and reduction of pain medication utilization in the Continuous Cohort

Unadjusted model				
Variable	Odds ratio	Odds ratio CI lower	Odds ratio CI upper	<i>p</i> value
Intercept	0.280	0.189	0.426	0.000
Quarters from selumetinib initiation	0.944	0.889	1.002	0.057
Adjusted model				
Intercept	0.305	0.099	0.942	0.039
Sex*	0.652	0.314	1.356	0.252
Age	1.014	0.938	1.096	0.726
Quarters from selumetinib initiation	0.937	0.879	0.998	0.044

The adjusted GEE model has been modified for age and sex. *Data adjusted for sex with female patients as the referent group relative to male patients.

CI confidence interval, *GEE* generalized estimating equation.

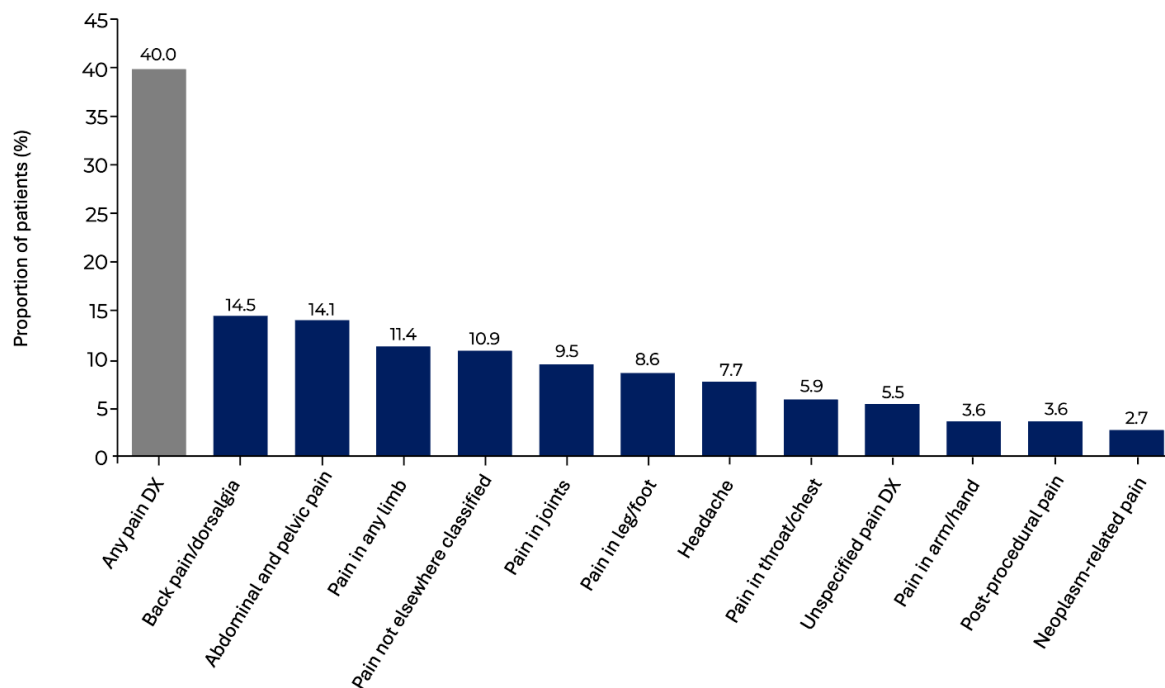
Supplementary Table 3 Relationship between duration of selumetinib treatment and reduction of pain medication utilization in the Discontinuous Cohort

Unadjusted model				
Variable	Odds ratio	Odds ratio CI lower	Odds ratio CI upper	<i>p</i> value
Intercept	0.247	0.138	0.442	0.000
Quarters from selumetinib initiation	0.999	0.923	1.081	0.978
Adjusted model				
Variable	Odds ratio	Odds ratio CI lower	Odds ratio CI upper	<i>p</i> value
Intercept	0.061	0.009	0.405	0.004
Sex*	1.114	0.436	2.846	0.821
Age	1.100	0.982	1.233	0.101
Quarters from selumetinib initiation	0.979	0.913	1.050	0.558

The adjusted GEE model has been adjusted for age and sex. *Data adjusted for sex with female patients as the referent group relative to male patients.

CI confidence interval, *GEE* generalized estimating equation.

Supplementary Figure 1 Pain diagnosis codes at baseline (N = 220) within 1 year pre-selumetinib initiation



Baseline pain diagnosis codes are defined as any diagnosis of pain within 12 months pre-selumetinib initiation.

Dx diagnosis.