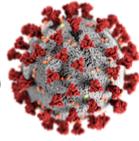


EVENT DEFINITION FORM

Event: Generalized convulsion
Outcome/covariate: OUTCOME
Version: 1
Status: final

Contributing authors

authors	Role	DATE
Philippine van Wijngaarden	Medical/drafting v0.1	24/6/2020
Miriam Sturkenboom	Review epi	04/07/2020
Philippine van Wijngaarden	Adding search string, background rates and codes proposed by codemapper	07/07/2020
Miriam Sturkenboom	Review of codemapper	5/8/2020
Caitlin Dodd	Algorithm proposal	27/8/2020
Miriam Sturkenboom	Final codes	14-02-2021
Carlos Durán	Rev. narrow/possible assignment	28-03-2021
Miriam Sturkenboom	Inclusion of final codes used in final report ACCESS	23-08-2021



1. Event definition^[1]

Obtained from the Brighton Collaboration

Seizures are episodes of neuronal hyperactivity most commonly resulting in sudden, involuntary muscular contractions. They may also manifest as sensory disturbances, autonomic dysfunction and behavioral abnormalities, and impairment or loss of consciousness. Descriptions and classifications of seizures are complex and subject to change, because the etiology and pathogenesis of most seizures remain to be elucidated.

Case definition of generalized convulsive seizure as an adverse event following immunization

Level 1 of diagnostic certainty

- Witnessed sudden loss of consciousness *AND*
- Generalized, tonic, clonic, tonic-clonic, or atonic motor manifestations

Level 2 of diagnostic certainty

- History of unconsciousness *AND*
- Generalized, tonic, clonic, tonic-clonic, or atonic motor manifestations

Level 3 of diagnostic certainty

- History of unconsciousness *AND*
- Other generalized motor manifestations

2. Synonyms / lay terms for the event

Generalized Seizures

Generalized convulsive seizure

Convulsive seizure

Generalized tonic-clonic seizure/grand mal seizure

Febrile seizure

Epilepsy

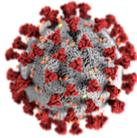
Epilepsies

3. Laboratory tests that are specific for event^[2]

1. Blood testing

Including:

- Electrolytes
- Glucose
- Complete blood count and differential
- Blood cultures
- Capillary or arterial gas
- Urea
- Calcium
- Creatinine



- ALT
- AST
- Creatine kinase/prolactin
- Toxicological tests
- Serology

2. Urine testing

Including:

- Toxicological tests
- Pregnancy test

4. Diagnostic tests that are specific for event^[3]

1. Temperature

Febrile seizures form a particular subgroup of generalized convulsive seizures. Although an interaction of genetics, brain maturity, and fever is hypothesized, the pathophysiology of febrile seizures is largely unknown. As elevated body temperature is frequently observed following immunization, and febrile seizures are the most common seizure disorder in infants and children, they are the most common type of non-epileptic seizure observed following immunization^[4]

2. Neuroimaging

CT scan is the most common brain imaging study performed on patients with first time seizures. Although neurologists tend to prefer MRI over CT, there is no published data that shows superiority of MRI over CT. The practice parameters published by the AAN also state that CT is an adequate first brain imaging study for a patient with first-time seizure and even in some cases of repeat seizures.¹

3. EEG

EEG should be part of the full neurodiagnostic workup, as it has substantial yield and ability to predict risk of seizure recurrence.

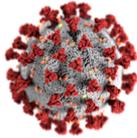
4. ECG

Seizure activity can be precipitated by cerebral hypoperfusion from an arrhythmia. ECG may identify: prolonged QTc, widened QRS, prominent R in aVR and heart block.

5. Lumbar puncture

should be considered for patients with immunocompromise, persistent fever, severe headache, or persistently altered mental status.

1



5. Drugs that are used to treat event

It depends on the cause but a seizure is mostly treated with Benzodiazepines (lorazepam, diazepam, midazolam).

6. Procedures used specific for event treatment

There are no specific procedures for a generalized convulsion except follow-up.

7. Setting (outpatient specialist, in-hospital, GP, emergency room) where condition will be most frequently /reliably diagnosed

Emergency room

8. Diagnosis codes or algorithms used in different papers to extract the events in Europe/USA: seek literature for papers that have studied this event, and see how they extracted/measured the event.

Manual search online

ICD-10-CM:

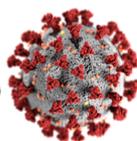
- R56.9 (unspecified convulsions)
- P90 (convulsions of newborn)
- R56.0 (convulsions, not elsewhere classified)
- R56.0 (febrile convulsions)
- G40.89 (other seizures)
- G40 (epilepsy and recurrent seizures)

ICD-9-CM:

- 780.3 (convulsions)
- 780.32 (complex febrile convulsions)
- 780.31 (febrile convulsions (simple), unspecified)
- 779.0 (convulsions in newborn)
- 780.39 (other convulsions)
- 345.1 (generalized convulsive epilepsy)

VAESCO studies (2009)

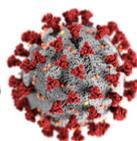
READ GPRD: F255400, F255300, F255500, F251011, F251500, 1JA0.00, F255200, F255600, F255100, 1B27.00, F132100, F255y00, F255z00, F255.00, F254z00, F251y00, F25yz00, F25y.00, 282Z.00, 282..00, 2827.00, 282..13, 282..11
 F132z12, F255012, F254300, F257.00, F25A.00, F255000, 1B64.00, F251600, F251000, F250.00, F251z00, F251.00, F255011, 1B6B.00, F251400, F251300, F251200, F250200, F250300, F25z.00, 1O30.00, F25..00, 1B64.11, F254500, Fyu5100, Ryu7100, R003z11, R003300, R003011, R003y00, R003100, R003000, R003.00, R003z00



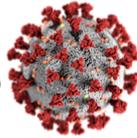
ICD-9: 780.3, 345, 779.0, 344.89
 ICD-10: R56, G40, P90, G41
 ICPC: N88, N07 (with additional algorithm)

9. Proposed codes by Codemapper

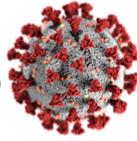
Coding system	Code	Code name	Concept	Concept name	Algorithm
ICD10/CM	G40	Epilepsy	C0014544	Epilepsy	Possible
ICD10/CM	G40	Epilepsy and recurrent seizures	C1719410	Epilepsy and recurrent seizures	Narrow
ICD10/CM	G40.4	Grand mal seizure NOS	C0494475	Tonic - clonic seizures	Narrow
ICD10/CM	G40.6	Grand mal seizures, unspecified (with or without petit mal)	C0494475	Tonic - clonic seizures	Narrow
ICD10/CM	G40.89	Other seizures	C2875137	Other seizures	Narrow
ICD10/CM	G40.9	Epilepsy, unspecified	C0014544	Epilepsy	Possible
ICD10/CM	G40.909	Epilepsy NOS	C0014544	Epilepsy	Possible
ICD10/CM	G41	Status epilepticus	C0038220	Status Epilepticus	Narrow
ICD10/CM	G41.0	Grand mal status epilepticus	C0311335	Grand Mal Status Epilepticus	Narrow
ICD10/CM	G41.1	Petit mal status epilepticus	C0270823	Petit mal status	Possible
ICD10/CM	G41.9	Status epilepticus, unspecified	C0038220	Status Epilepticus	Narrow
ICD10/CM	P90	Convulsions of newborn	C0159020	Convulsions in the newborn	Narrow
ICD10/CM	R56	Convulsions, not elsewhere classified	C0495698	Convulsions, not elsewhere classified	Narrow
ICD10/CM	R56.0	Febrile convulsions	C0009952	Febrile Convulsions	narrow
ICD10/CM	R56.00	Febrile convulsion NOS	C0009952	Febrile Convulsions	narrow
ICD10/CM	R56.01	Complex febrile convulsions	C0751057	Seizure, Febrile, Complex	Narrow
ICD10/CM	R56.8	Other and unspecified convulsions	C0478149	Other and unspecified convulsions	Narrow
ICD10/CM	R56.9	Seizure(s) (convulsive) NOS	C0751494	Convulsive Seizures	Possible
ICD9CM	345	Epilepsy and recurrent seizures	C1719410	Epilepsy and recurrent seizures	Narrow
ICD9CM	345.1	Generalized convulsive epilepsy	C0311334	Generalized convulsive epilepsy	Narrow
ICD9CM	345.10	Generalized convulsive epilepsy, without mention of intractable epilepsy	C0154709	Generalized convulsive epilepsy, without mention of intractable epilepsy	Narrow
ICD9CM	345.2	Petit mal status	C0270823	Petit mal status	Possible
ICD9CM	345.3	Grand mal status	C0311335	Grand Mal Status Epilepticus	Narrow
ICD9CM	345.80	Other forms of epilepsy and recurrent seizures, without	C0154719	Other forms of epilepsy and recurrent seizures,	Possible



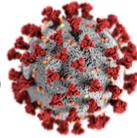
		mention of intractable epilepsy		without mention of intractable epilepsy	
ICD9CM	345.81	Other forms of epilepsy and recurrent seizures, with intractable epilepsy	C0154720	Other forms of epilepsy and recurrent seizures, with intractable epilepsy	Possible
ICD9CM	345.9	Epilepsy, unspecified	C0014544	Epilepsy	Possible
ICD9CM	779.0	Convulsions in newborn	C0159020	Convulsions in the newborn	Narrow
ICD9CM	780.3	Convulsions	C0036572	Seizures	Narrow
ICD9CM	780.31	Febrile convulsions (simple), unspecified	C0009952	Febrile Convulsions	narrow
ICD9CM	780.32	Complex febrile convulsions	C0751057	Seizure, Febrile, Complex	Narrow
ICD9CM	780.39	Other convulsions	C0490011	Other convulsions	Narrow
ICPC	N07	Convulsions/seizures	C0751494	Convulsive Seizures	narrow
ICPC	N88	Epilepsy all types	C0014544	Epilepsy	Possible
RCD2	1B63.	Had a fit	C0036572	Seizures	Narrow
RCD2	1B64.	Had a convulsion	C0036572	Seizures	Narrow
RCD2	1B6B.	Febrile convulsion	C0009952	Febrile Convulsions	narrow
RCD2	F25..	Epilepsy	C0014544	Epilepsy	Possible
RCD2	F251.	Generalised convulsive epilep.	C0311334	Generalized convulsive epilepsy	Narrow
RCD2	F2516	Grand mal seizure	C0494475	Tonic - clonic seizures	Narrow
RCD2	F251z	General.convuls.epilepsy NOS	C0311334	Generalized convulsive epilepsy	Narrow
RCD2	F252.	Petit mal status	C0270823	Petit mal status	narrow
RCD2	F253.	Grand mal status	C0311335	Grand Mal Status Epilepticus	Narrow
RCD2	F25H.	Generalised seizure	C0014544	Epilepsy	Possible
RCD2	F25H.	Generalised seizure	C0494475	Tonic - clonic seizures	Narrow
RCD2	F25z.	Epilepsy NOS	C0014544	Epilepsy	Possible
RCD2	Fyu52	[X]Other status epilepticus	C0477372	Other status epilepticus	narrow
RCD2	Fyu59	[X]Status epilepticus, unspec	C0038220	Status Epilepticus	Narrow
RCD2	Q480.	Convulsions in newborn	C0159020	Convulsions in the newborn	Narrow
RCD2	R003.	[D]Convulsions	C0036572	Seizures	Narrow
RCD2	R0030	[D]Convulsions, febrile	C0009952	Febrile Convulsions	narrow
RCD2	R0032	[D]Fit	C0036572	Seizures	Narrow
RCD2	R003z	[D]Convulsion NOS	C0014544	Epilepsy	Possible
RCD2	R003z	[D]Convulsion NOS	C0036572	Seizures	Narrow
RCD2	Ryu71	[X]Oth & unspecif convulsions	C0478149	Other and unspecified convulsions	Narrow
SCTSPA	4619009	convulsiones de inicio generalizado	C0311334	Generalized convulsive epilepsy	Narrow
SCTSPA	7033004	estado de petit mal	C0270823	Petit mal status	narrow
SCTSPA	13973009	estado de gran mal	C0311335	Grand Mal Status Epilepticus	Narrow



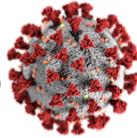
SCTSPA	13973009	estado epiléptico	C0038220	Status Epilepticus	Narrow
SCTSPA	32631004	convulsión	C0036572	Seizures	Narrow
SCTSPA	41497008	convulsión febril	C0009952	Febrile Convulsions	narrow
SCTSPA	54200006	convulsiones tónico - clónicas	C0494475	Tonic - clonic seizures	Narrow
SCTSPA	65120008	epilepsia convulsiva generalizada	C0311334	Generalized convulsive epilepsy	Narrow
SCTSPA	65155005	epilepsia generalizada tónico - clónica	C0494475	Tonic - clonic seizures	Narrow
SCTSPA	84757009	epilepsia	C0014544	Epilepsy	Possible
SCTSPA	87476004	convulsiones en el recién nacido	C0159020	Convulsions in the newborn	Narrow
SCTSPA	91175000	crisis epiléptica	C0014544	Epilepsy	Possible
SCTSPA	91175000	convulsión	C0036572	Seizures	Narrow
SCTSPA	128613002	trastorno convulsivo	C0014544	Epilepsy	Possible
SCTSPA	155045005	epilepsia, SAI	C0014544	Epilepsy	Possible
SCTSPA	192988000	epilepsia convulsiva generalizada [dup]	C0311334	Generalized convulsive epilepsy	Narrow
SCTSPA	192997001	epilepsia convulsiva generalizada, SAI	C0311334	Generalized convulsive epilepsy	Narrow
SCTSPA	194492004	[X]otros estados epilépticos	C0477372	Other status epilepticus	Possible
SCTSPA	194499008	[X]estado epiléptico, no especificado	C0038220	Status Epilepticus	Narrow
SCTSPA	206732001	[D]convulsiones	C0036572	Seizures	Narrow
SCTSPA	206733006	[D]convulsiones febriles	C0009952	Febrile Convulsions	Possible
SCTSPA	206735004	[D]acceso convulsivo	C0036572	Seizures	Narrow
SCTSPA	206738002	[D]convulsión SAI	C0036572	Seizures	Narrow
SCTSPA	206738002	[D]convulsión SAI	C0036572	Seizures	Narrow
SCTSPA	207622007	[X]convulsiones no especificadas y especificadas de otro modo	C0478149	Other and unspecified convulsions	Narrow
SCTSPA	230456007	estado epiléptico	C0038220	Status Epilepticus	Narrow
SCTSPA	267593008	epilepsia, SAI	C0014544	Epilepsy	Possible
SCTSPA	323091004	convulsiones febriles	C0009952	Febrile Convulsions	narrow
SCTSPA	433083002	convulsión febril compleja	C0751057	Seizure, Febrile, Complex	Narrow
SCTSPA	79631006	Absence seizure (disorder)			narrow
SNOMEDCT_US	4619009	Generalized-onset seizures	C0311334	Generalized convulsive epilepsy	Narrow
SNOMEDCT_US	7033004	Petit mal status	C0270823	Petit mal status	narrow
SNOMEDCT_US	13973009	Grand mal status	C0311335	Grand Mal Status Epilepticus	Narrow
SNOMEDCT_US	13973009	Status epilepticus	C0038220	Status Epilepticus	Narrow
SNOMEDCT_US	19598007	Grand mal (major) epilepsy			Narrow
SNOMEDCT_US	19598007	Grand mal (major) epilepsy			narrow
SNOMEDCT_US	28055006	Infantile spasms			POssible
SNOMEDCT_US	31758001	Post-seizure state			Possible



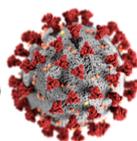
SNOMEDCT_US	32631004	Convulsion	C0036572	Seizures	Narrow
SNOMEDCT_US	41497008	Febrile convulsion	C0009952	Febrile Convulsions	narrow
SNOMEDCT_US	44145005	Benign Rolandic epilepsy			possible
SNOMEDCT_US	50866000	Petit-mal epilepsy			narrow
SNOMEDCT_US	54200006	Tonic-clonic seizure	C0494475	Tonic - clonic seizures	Narrow
SNOMEDCT_US	65120008	Generalized convulsive epilepsy	C0311334	Generalized convulsive epilepsy	Narrow
SNOMEDCT_US	65155005	Grand mal	C0494475	Tonic - clonic seizures	Narrow
SNOMEDCT_US	79745005	Sensory induced epilepsy			narrow
SNOMEDCT_US	79745005	Reflex epilepsy			narrow
SNOMEDCT_US	79745005	Epilepsy associated with specific stimuli			narrow
SNOMEDCT_US	79745005	Sensory induced epilepsy			narrow
SNOMEDCT_US	84757009	Epilepsy	C0014544	Epilepsy	Possible
SNOMEDCT_US	84757009	Epilepsy			possible
SNOMEDCT_US	84757009	Epileptic disorder			possible
SNOMEDCT_US	84757009	EP - Epilepsy			possible
SNOMEDCT_US	84757009	Epilepsy			possible
SNOMEDCT_US	84757009	Other forms of epilepsy			possible
SNOMEDCT_US	84757009	Other forms of epilepsy NOS			possible
SNOMEDCT_US	84757009	Epilepsy NOS			possible
SNOMEDCT_US	84757009	[X]Other generalized epilepsy and epileptic syndromes			possible
SNOMEDCT_US	84757009	[X]Other epilepsy			possible
SNOMEDCT_US	87476004	Convulsions in the newborn	C0159020	Convulsions in the newborn	Narrow
SNOMEDCT_US	89525009	Gelastic epilepsy			POssible
SNOMEDCT_US	89525009	Gelastic epilepsy			POssible
SNOMEDCT_US	91175000	Seizure	C0036572	Seizures	Narrow
SNOMEDCT_US	91175000	Convulsion - symptom			Possible
SNOMEDCT_US	95208000	Photosensitive epilepsy			POssible
SNOMEDCT_US	128613002	Seizure disorder	C0014544	Epilepsy	Possible
SNOMEDCT_US	140804007	Febrile convulsion	C0009952	Febrile Convulsions	narrow
SNOMEDCT_US	155036009	(Epilepsy) or (epileptic attack)	C0014544	Epilepsy	narrow
SNOMEDCT_US	155039002	Status epilepticus	C0038220	Status Epilepticus	Narrow
SNOMEDCT_US	155045005	Epilepsy NOS	C0014544	Epilepsy	Possible
SNOMEDCT_US	157162003	Convulsions in newborn	C0159020	Convulsions in the newborn	Narrow
SNOMEDCT_US	158138006	[D]Convulsions	C0036572	Seizures	Narrow
SNOMEDCT_US	158139003	[D]Convulsions, febrile	C0009952	Febrile Convulsions	narrow
SNOMEDCT_US	158141002	[D]Fit	C0036572	Seizures	Narrow



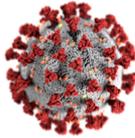
SNOMEDCT_US	158142009	[D]Convulsion NOS	C0036572	Seizures	Narrow
SNOMEDCT_US	192979009	Generalised nonconvulsive epilepsy			Possible
SNOMEDCT_US	192981006	Epileptic seizures - atonic			narrow
SNOMEDCT_US	192982004	Epileptic seizures - akinetic			narrow
SNOMEDCT_US	192988000	Generalised convulsive epilepsy	C0311334	Generalized convulsive epilepsy	Narrow
SNOMEDCT_US	192990004	Neonatal myoclonic epilepsy			narrow
SNOMEDCT_US	192991000	Epileptic seizures - clonic			narrow
SNOMEDCT_US	192992007	Epileptic seizures - myoclonic			narrow
SNOMEDCT_US	192993002	Epileptic seizures - tonic			narrow
SNOMEDCT_US	192995009	Grand mal seizure	C0494475	Tonic - clonic seizures	Narrow
SNOMEDCT_US	192997001	Generalised convulsive epilepsy NOS	C0311334	Generalized convulsive epilepsy	Narrow
SNOMEDCT_US	192998006	Grand mal status	C0311335	Grand Mal Status Epilepticus	Narrow
SNOMEDCT_US	192999003	Partial epilepsy with impairment of consciousness			possible
SNOMEDCT_US	192999003	Partial epilepsy with impairment of consciousness NOS			possible
SNOMEDCT_US	193000002	Temporal lobe epilepsy			possible
SNOMEDCT_US	193000002	TLE - Temporal lobe epilepsy			possible
SNOMEDCT_US	193000002	Temporal lobe epilepsy			possible
SNOMEDCT_US	193002005	Psychosensory epilepsy			possible
SNOMEDCT_US	193003000	Limbic system epilepsy			possible
SNOMEDCT_US	193003000	Limbic system epilepsy			possible
SNOMEDCT_US	193004006	Epileptic automatism			possible
SNOMEDCT_US	193004006	Complex partial seizures with automatisms			narrow
SNOMEDCT_US	193004006	Complex partial seizure with automatisms			narrow
SNOMEDCT_US	193004006	Automatism absence			possible
SNOMEDCT_US	193004006	Automatism petit mal			possible
SNOMEDCT_US	193004006	Epileptic automatism			possible
SNOMEDCT_US	193008009	Somatosensory epilepsy			possible
SNOMEDCT_US	193009001	Visceral reflex epilepsy			possible
SNOMEDCT_US	193009001	Partial epilepsy with autonomic symptoms			pOssible
SNOMEDCT_US	193010006	Visual reflex epilepsy			pOssible
SNOMEDCT_US	193011005	Unilateral epilepsy			pOssible
SNOMEDCT_US	193019007	[X]Status epilepticus, unspecified	C0038220	Status Epilepticus	Narrow
SNOMEDCT_US	193021002	Cursive (running) epilepsy			possible



SNOMEDCT_US	193021002	Running epilepsy			possible
SNOMEDCT_US	193021002	Cursive (running) epilepsy			possible
SNOMEDCT_US	193022009	Locl-rlt(foc)(part)idiop epilep&epilptic syn seiz locl onset			possible
SNOMEDCT_US	193022009	Locl-rlt(foc)(part)idiop epilep&epilptic syn seiz locl onset			possible
SNOMEDCT_US	193026007	Epilepsy NOS	C0014544	Epilepsy	Possible
SNOMEDCT_US	194492004	[X]Other status epilepticus	C0477372	Other status epilepticus	Possible
SNOMEDCT_US	194499008	[X]Status epilepticus, unspecified	C0038220	Status Epilepticus	Narrow
SNOMEDCT_US	206732001	[D]Convulsions	C0036572	Seizures	Narrow
SNOMEDCT_US	206733006	[D]Convulsions, febrile	C0009952	Febrile Convulsions	Possible
SNOMEDCT_US	206735004	[D]Fit	C0036572	Seizures	Narrow
SNOMEDCT_US	206738002	[D]Convulsion NOS	C0036572	Seizures	Narrow
SNOMEDCT_US	207622007	[X]Other and unspecified convulsions	C0478149	Other and unspecified convulsions	Narrow
SNOMEDCT_US	230381009	Partial epilepsy without impairment of consciousness			possible
SNOMEDCT_US	230387008	Panayiotopoulos syndrome			possible
SNOMEDCT_US	230387008	Panayiotopoulos syndrome			possible
SNOMEDCT_US	230413002	Juvenile absence epilepsy			possible
SNOMEDCT_US	230418006	Lennox-Gastaut syndrome			possible
SNOMEDCT_US	230429005	Early infant epileptic encephalopathy wth suppression bursts			possible
SNOMEDCT_US	230429005	Ohtahara syndrome			possible
SNOMEDCT_US	230436006	Convulsions in newborn	C0159020	Convulsions in the newborn	Narrow
SNOMEDCT_US	230437002	Severe myoclonic epilepsy in infancy			possible
SNOMEDCT_US	230437002	Severe myoclonic epilepsy in infancy			possible
SNOMEDCT_US	230437002	Dravet syndrome			possible
SNOMEDCT_US	230441003	Drug-induced epilepsy			possible
SNOMEDCT_US	230444006	Menstrual epilepsy			possible
SNOMEDCT_US	230444006	Menstrual epilepsy			possible
SNOMEDCT_US	230445007	[D]Nocturnal seizure			possible
SNOMEDCT_US	230445007	Sleep-related epilepsy			possible
SNOMEDCT_US	230445007	Sleep seizure			possible
SNOMEDCT_US	230445007	Nocturnal epilepsy			possible
SNOMEDCT_US	230445007	[D]Nocturnal seizure			narrow
SNOMEDCT_US	230456007	Status epilepticus	C0038220	Status Epilepticus	Narrow
SNOMEDCT_US	230456007	Status epilepticus, unspecified			narrow



SNOMEDCT_US	230456007	[X]Other status epilepticus			narrow
SNOMEDCT_US	230456007	[X]Status epilepticus, unspecified			narrow
SNOMEDCT_US	230460005	Complex partial status epilepticus			narrow
SNOMEDCT_US	230460005	Complex partial status epilepticus			narrow
SNOMEDCT_US	246545002	EF - Epileptic fit	C0014544	Epilepsy	Possible
SNOMEDCT_US	246545002	Generalised seizure			narrow
SNOMEDCT_US	267593008	Epilepsy NOS	C0014544	Epilepsy	Possible
SNOMEDCT_US	267698007	Attack - epileptic	C0014544	Epilepsy	Possible
SNOMEDCT_US	269033007	Febrile convulsion	C0009952	Febrile Convulsions	Possible
SNOMEDCT_US	271788002	Epileptic attack	C0014544	Epilepsy	narrow
SNOMEDCT_US	271788002	Convulsion	C0036572	Seizures	Narrow
SNOMEDCT_US	274828008	[X]Other and unspecified convulsions	C0478149	Other and unspecified convulsions	Narrow
SNOMEDCT_US	307356008	Motor epilepsy			possible
SNOMEDCT_US	307357004	Jacksonian, focal or motor epilepsy			possible
SNOMEDCT_US	312078006	Fit - convulsion	C0036572	Seizures	Narrow
SNOMEDCT_US	312078006	Fit - convulsion	C0036572	Seizures	Narrow
SNOMEDCT_US	313290005	Fits - convulsions	C0036572	Seizures	Narrow
SNOMEDCT_US	313307000	Fit (in known epileptic) NOS			narrow
SNOMEDCT_US	313307000	Epileptic convulsion			narrow
SNOMEDCT_US	313307000	Epileptic attack			narrow
SNOMEDCT_US	313307000	Fit (in known epileptic) NOS			narrow
SNOMEDCT_US	323091004	Febrile convulsion	C0009952	Febrile Convulsions	narrow
SNOMEDCT_US	352818000	Tonic-clonic epilepsy			possible
SNOMEDCT_US	352818000	Grand mal epilepsy			narrow
SNOMEDCT_US	352818000	Tonic-clonic epilepsy			possible
SNOMEDCT_US	361123003	Psychomotor epilepsy			possible
SNOMEDCT_US	407675009	Complex partial epileptic seizure			narrow
SNOMEDCT_US	407675009	Partial complex seizure			narrow
SNOMEDCT_US	413101007	Stress-induced epilepsy			possible
SNOMEDCT_US	433083002	Complex febrile seizure	C0751057	Seizure, Febrile, Complex	Narrow
SNOMEDCT_US	440443001	[D]Reflex anoxic seizure			narrow
SNOMEDCT_US	440443001	[D]Reflex anoxic seizure			narrow
SNOMEDCT_US	703151001	Had a fit			narrow
SNOMEDCT_US	703151001	Fit - had one, symptom			narrow
SNOMEDCT_US	703151001	Had a convulsion			narrow
SNOMEDCT_US	19945100000000	Simple partial epileptic seizure			narrow



SNOMEDCT_US	50934100000000	Petit mal (minor) epilepsy		narrow
SNOMEDCT_US	50934100000000	Petit mal (minor) epilepsy		narrow
SNOMEDCT_US	50934100000000	Epileptic absences		narrow
SNOMEDCT_US	50934100000000	Petit mal epilepsy		narrow

10. Algorithm proposal

Broad Algorithm

- All concept sets (Epilepsy, Tonic_clonic, Febrile_seizure, Seizure, Infantile_spasm, Other_convulsion, Petit_mal).
- Index date = first occurrence of any code within these concept sets.

Narrow Algorithm

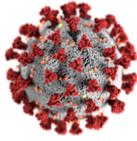
- Concept sets = Tonic_clonic, Seizure, Infantile_spasm, Other_convulsion.
- Index date = first occurrence of any code within these concept sets.

12. Background rates

Search string: (((((((((((("seizures"[MeSH Terms] OR "epilepsy"[MeSH Terms]) OR "seizures"[Text Word]) OR "seizure"[Text Word]) OR "epilepsy"[Text Word]) OR "convulsive"[Text Word]) OR "epilepsies"[Text Word]) AND "incidence"[Text Word]) OR "incidence"[MeSH Terms]) AND "english"[Language]) AND (("meta-analysis"[Publication Type] OR "systematic"[Filter]) AND 2015/6/22:3000/1/1[Date - Publication])) AND "seizure"[Title/Abstract]) OR "epilepsy"[Title/Abstract]) OR "convulsion"[Title/Abstract]) AND (("meta-analysis"[Publication Type] OR "systematic"[Filter])

13. Characteristics of relevance for design choice

- Estimated Lag time from onset to diagnosis
- Is condition a contraindication to any vaccination
- Is this a chronic or potentially recurrent condition?
- Does this condition lead to increased mortality?
- Time to onset (from vaccination and/or infection)



13. References

1. Bonhoeffer J, Menkes J, Gold MS, et al. Generalized convulsive seizure as an adverse event following immunization: case definition and guidelines for data collection, analysis, and presentation. *Vaccine*. 2004;22(5-6):557-562. doi:10.1016/j.vaccine.2003.09.008
2. Beghi E, De Maria G, Gobbi G, Veneselli E. Diagnosis and treatment of the first epileptic seizure: guidelines of the Italian League against Epilepsy. *Epilepsia*. 2006;47 Suppl 5:2-8. doi:10.1111/j.1528-1167.2006.00869.x
3. Seizure Assessment in the Emergency Department' [internet]. [Accessed 15th june.] Available from: <https://emedicine.medscape.com/article/1609294-overview#a8>
4. Bonhoeffer J, Menkes J, Gold MS, et al. Generalized convulsive seizure as an adverse event following immunization: case definition and guidelines for data collection, analysis, and presentation. *Vaccine*. 2004;22(5-6):557-562. doi:10.1016/j.vaccine.2003.09.008
5. Treatment of Seizures in the Emergency Department: Pearls and Pitfalls [internet]. [Accessed 16th june.] Available from: <http://www.emdocs.net/treatment-of-seizures-in-the-emergency-department-pearls-and-pitfalls/>