PURPOSE

To assure that DOP inmates with Seizures are receiving high quality Primary Care for their condition.

POLICY

All DOP Primary Care Providers are to follow these guidelines when treating inmates with this chronic disease. Deviations from these guidelines are permissible only on a case by case basis. When deviations are made they must be clearly documented in the medical record along with a clear explanation of the rationale for the deviation.

PROCEDURE

1) Evaluation

a) First Seizure

i) Detailed history of the event

(1) Any aura (auras are partial seizures that affect enough of the brain to cause symptoms, but not enough to interfere with consciousness) Examples:

Chewing	Eyes rolling up	Making sounds	Sweating
Confusion	Falling down	Memory loss	Talking difficulty
Déjà vu	Hand waving	Out of body	Tingling
Dizziness	Incontinence	Staring	Tremors
Drooling	Lip smacking	Swallowing	Visual disturbance

(2) Whether a particular environmental or physiological precipitant or trigger immediately preceded the seizure

(3) Detailed description of the suspected seizure from the patient or witnesses

(4) Typical characteristics of a true seizure:

(a) Abrupt onset

(b) Lasts 90 to 120 seconds, except in status

(c) Altered level of consciousness

(d) Purposeless involuntary activity

(e) Accompanied by a postictal state and amnesia regarding the event. Symptoms of postictal state:

Confusion	Depression	Difficulty talking	Embarrassment
Exhaustion/sleep	Fear	Frustration	Headache
Loneliness	Memory Loss	Nausea	Pain
Perceptual alterations	Psychoses	Thirst	Weakness

(f) Are paroxysmal and stereotypic

(5) Differentiate from syncope, characteristics of syncope**:**

(a) May have repetitive clonic, myoclonic or dystonic movements but usually last only 5 – 10 seconds

(b) No progression from clonic to tonic activity

(c) No postictal phase, tongue biting, incontinence

ii) Past personal or family history of seizures/epilepsy

iii) Comprehensive neurologic examination

iv) Labs: CMP, TSH, magnesium, drug/alcohol screen (if indicated by history), CBC

v) Evaluate for possible provoking factors, examples:

Alcohol/drug withdrawal	Drug intoxication	Hypo/hypernatremia	Hypomagnesemia
Hypocalcemia	Hypoglycemia	Hyperglycemia	Uremia
Hypoxia	Hyperthyroidism	Dialysis	Porphyria

vi) If provoking factors present:

(1) Treat the underlying factors before evaluating for epilepsy.

(2) If seizures resolve with treatment of underlying factors and there are no other neurologic findings are present, then no further evaluation is needed

vii) Evaluate for seizure imitators – examples:

Vasovagal syncope	Narcolepsy	Restless leg synd.	Proximal dyskinesia
Tic disorders	Hemi-facial spasm	Stiff person synd.	Migraine
Hallucinations	Cardiogenic syncope	TIA	Drop attack
Tran. global amnesia	Delirium	Sleep disorder	

viii) Evaluate for depression and psychosocial issues

(1) As many as 55% of patients with uncontrolled seizures are **depressed**

(2) Patients with well-controlled seizures have rates of depression that are higher than rates among the general population,

(3) Suicide rates are tripled, with the highest rates in the 6 months after diagnosis

(4) Newly diagnosed patients with epilepsy may suffer a number of **losses**

(a) Examples of possible losses:

(i) Independence,
(ii) Employment,
(iii) Insurance,
(iv) Ability to drive,
(v) Self-esteem

(b) If the patient has significant concerns about the above "losses" or similar concerns these should be addressed

(5) If there is any concern about possible depression or suicidal ideation the patient should be referred to mental health for management

ix) Diagnostic studies if an unprovoked initial seizure is diagnosed and none of the above provoking factors are present:

(1) EEG

(a) May aid in confirming the diagnosis of epileptic seizures

(b) May indicate whether a patient has generalized or partial seizures

(c) A normal EEG does not rule out epilepsy

(d) Many EEG abnormalities are nonspecific

(2) MRI with epilepsy protocol (CT if MRI contraindicated) if seizure is **not** provoked

x) Diagnosis: often not certain after the first seizure
- **(1) Non-epileptic seizure:** if there is clear evidence of provoking etiology
- **(2) Epilepsy**
  - **(a)** Can be suspected but not diagnosed after a single seizure
  - **(b)** Requires at least two unprovoked seizures (more then 24 hours apart) to confirm diagnosis
  - **(c)** Type of seizure (see Table 1)
- **(3) Non-seizure imitator**
- **(4) Pseudoseizures**
  - **(a)** True pseudoseizures are a **psychiatric diagnosis** and are not malingering
  - **(b)** Between five and 20% of suspected epileptics may have pseudoseizures
  - **(c)** Demographics
    - **(i)** Onset usually before age of 40
    - **(ii)** Preponderance of females
    - **(iii)** 20 to 50% of patients with pseudoseizures also have epilepsy
    - **(iv)** History of sexual abuse and/or rape is very common
  - **(d)** Characteristics
    - **(i)** Stereotyped motor phenomena, such as jerking and shaking, but in patterns that differ from those seen with neurologic seizures
    - **(ii)** Goal-directed behaviors
    - **(iii)** Expressions of anger or violence
    - **(iv)** Uncoordinated flailing movements
    - **(v)** Babinski sign absent and no pupillary dilation
    - **(vi)** Physical injury or tongue biting usually do not occur
- **(5) Malingering**
  - **(a) There is no test(s) that will rule this in or out.**
  - **(b)** This is like every other diagnosis; it is made on the basis of the **preponderance of the evidence.**
  - **(c)** Normal MRI, EEG, and video monitoring do not confirm this diagnosis since they do not separate malingering from pseudoseizure.
  - **(d)** Differentiating pseudoseizure or malingering from epilepsy is usually clinically apparent and does not require EEG monitoring.
  - **(e)** However differentiating between pseudoseizure and malingering can be more difficult.
    - **(i) Malingering should be suspected if** the characteristics of pseudoseizure are present along with the following**:**
      - **1.** The demographics of the patient are atypical for pseudoseizure i.e. age of onset > 40, male sex, etc.
      - **2.** Where there are clear secondary gain issues present
      - **3.** Pseudoseizure patients truly believe they have epilepsy and are rarely trying to manipulate the system
    - **(ii) Mental health evaluation** will often be needed to help in making the diagnosis and in the management of true pseudoseizure

b) Subsequent seizures – occurring more then 24 hours after the first or previous seizure
- **i) Generally if there are no new neurologic focal signs repeat imaging and EEG are not necessary**
- **ii)** Reevaluate the seizure clinically as above.
- **iii)** If anti-epileptic drugs have been prescribed
  - **(1)** Evaluate for compliance – consider a 1 – 2 month trial of DOT
  - **(2)** Check blood levels if clinically indicated, however routine checking of drug levels **is not indicated**

2) Treatment

a) Pharmacologic treatment: Is usually not indicated
- **i)** After a **single seizure**, except may want to consider in
  - **(1)** Patients with a permanent brain injury such as a cortical stroke, abscess, or tumor
  - **(2)** Patients with strong psychosocial reasons to start treatment
- **ii) In Pseudoseizure** where a coexisting epilepsy or other organic seizure is not present
  - **(1)** These patients have a mental illness and should be referred to mental health
  - **(2)** However, unless malingering is seriously suspected these patients should be treated as legitimate patients with a medical condition
- **iii) In Malingering**
  - **(1) If the preponderance of evidence and the clinician's professional judgment indicate that this is the most likely diagnosis then it should be made and entered into the medical record.**
  - **(2) Avoid allowing the inmate to gain inappropriate drugs or other benefits**
  - **(3)** If the inmate is inappropriately using his "seizures" to manipulate the system or obtain secondary gain, this should be **reported to custody and appropriate disciplinary actions** taken

b) Educate on the risk of recurrence
- **i)** In the absence of any high risk factors, the risk of re-occurrence after a single seizure (or two seizures less then 24 hours apart) is **less than 20%** in the next two years
- **ii)** If one or more of the below high risk factors for recurrence are present, the risk is still no greater than 40% in the next two years. High risk factors:
  - **(1)** Epileptiform activity on EEG
  - **(2)** History of severe head trauma
  - **(3)** A brain lesion on imaging
  - **(4)** Focal abnormalities found on neurologic examination
  - **(5)** Mental retardation
  - **(6)** A partial seizure as the first seizure

c) Avoidance of high risk activities
- **i)** Inform patient that if he has a driver's license or applies for a drivers license after release, he must report his condition to the DMV
- **ii)** PULHEAT
  - **(1)** For first six months after a seizure should be P2/A2 and an Activity restriction sheet should reflect the following restrictions
    - **(a)** No driving or operation of dangerous machinery
    - **(b)** Exposure to heights
    - **(c)** A "Necessity" lower bunk for six months only, and then reassess

(d) Inmates after having a seizure **should not be unduly restricted** and should be allowed to participate in most occupational, educational, and recreational activities

(2) After seizure free for six months
- **(a)** PULHEAT should be upgraded to P2/A1
- **(b)** **All** lower bunk restrictions should be removed

d) When to start antiepileptic drugs (AED)

i) Usually indicated in patients with 2 or more seizure episodes, when the second seizure occurs more then 24 hours after the first

ii) Also indicate if high risk factors for recurrence are present:
- **(1)** History of serious brain injury
- **(2)** Brain lesion on neuroimaging
- **(3)** Focal abnormalities on neurologic exam
- **(4)** Mental retardation
- **(5)** A partial seizure as the first seizure
- **(6)** An abnormal EEG especially if epileptiform discharges present

iii) Patients who have potential occupation or psychological consequences from a recurrent seizure
- **(1)** Inmates who are returning to society in the near future and would be very adversely affected by losing their drivers license, may want to consider therapy after a first seizure

e) General principles of AED therapy:

i) Treatment should be initiated with a single agent

ii) Start low and slowly titrate initial choice to maximum tolerated dose and/or dose that produces optimal control

iii) If good control is not achieved on an adequate dose of an initial agent, switch to an alternative single agent. The second drug should be titrated to a therapeutic level before tapering and discontinuing the original medication

iv) Combination therapy should only be tried if adequate control is not achieved on at least two adequate sequential trials of monotherapy

v) Carefully and fully inform the patient about the importance of compliance with AED therapy, failure to comply is associated with higher risk of
- **(1)** Death
- **(2)** Injury
- **(3)** Hospitalization

f) Which AED to start?

i) Valproic acid or Divalproex Sodium are good first choices in most new seizures
- **(1)** Studies have shown them to be more effective then other broad spectrum AED
- **(2)** They are effective in all types of seizures

ii) Second choices:
- **(1)** Lamotrigine
- **(2)** Levetiracetam

iii) Alternatives especially in partial seizures
- **(1)** Carbamazepine
- **(2)** Phenytoin

g) When to consider tapering and **stopping AED therapy**?

i) Discontinuing therapy should be discussed with any patient who has gone 2 to 4 years without a seizure

ii) Benefits of stopping therapy

(1) It offers patients a sense of being "cured," whereas the need for chronic medication confers a perception of continuing disability.

(2) No drug is entirely benign, and adverse effects associated with chronic therapy may take years to become evident**.**

(3) Cognitive and behavioral side effects of AEDs may be subtle and not fully recognized until drugs are discontinued

(4) The newer AEDs are expensive and pose a significant financial burden for many patients**.**

(5) There may be special circumstances, such as pregnancy or serious coexisting medical conditions, in which outcomes may be improved and management simplified in the absence of unnecessary AED therapy**.**

iii) Risk of stopping

(1) See table 2 for risk of reoccurrence of seizures

(2) High risk factors for having a recurrent seizure

(a) Difficult to obtain control

(b) Taking multiple AEDs

(c) Associated neurological abnormalities

(d) History of abnormalities on EEG (however repeating the EEG before making this decision is rarely necessary)

(e) Multiple seizure types

(f) Family history of epilepsy

(g) Seizure onset after the first decade

(h) Identifiable brain disease (e.g., brain tumor, congenital malformation, encephalomalacia)

(3) Patient should stop driving or operating dangerous machinery while tapering AED and for 6 months thereafter

(4) Psychosocial consequences of having a recurrent seizure, this may be much less for an inmate while he is incarcerated than after he is released

(5) Discontinuing therapy: If patient requests a trial off medications**:**

(a) Taper medication slowly over 2 - 6 months

(b) 50% of relapses occur during withdrawal of medications and 80% within first year after discounting medication**.**

(c) If relapse occurs restart medication at the original dosage

3) When to consult

a) The basic workup of a new seizure, initiation, monitoring, and the collaborative decision (with the patient) to stop AED therapy are all well within the capabilities of primary care providers

b) Since decisions concerning AED therapy often involve having a good working knowledge of the patient's psychosocial issues, PCPs are often in a better position then specialists to help the patient make these complex decisions

c) Neurologic consultation should be considered when:

i) The diagnosis is uncertain

ii) Control is difficult to obtain particularly if combination therapy is being considered

Table 1: International classification of seizures

Partial (focal, local) seizures
- **Simple partial seizures (consciousness not impaired)**
  - With motor symptoms
    - Focal motor without march
    - Focal motor with march (Jacksonian)
    - Versive
    - Postural
    - Phonatory (vocalization or arrest of speech)
  - With somatosensory or special sensory symptoms
    - Somatosensory
    - Visual
    - Auditory
    - Olfactory
    - Gustatory
    - Vertiginous
  - With autonomic symptoms or signs (including epigastric, pallor, sweating, etc)
  - With psychic symptoms (disturbance of higher cerebral function). Usually occur with impairment of consciousness and classified as complex partial.
    - Dysphasic
    - Cognitive (e.g., distortions of time sense)
    - Dysmnesic (e.g., déjà-vu)
    - Affective (e.g., fear)
    - Illusions
    - Hallucinations
- **Complex partial (with impairment of consciousness)**
  - Simple partial onset followed by impairment of consciousness
  - Impairment of consciousness at onset
    - With impairment of consciousness only
    - With automatisms
- **Partial seizures (simple or complex) evolving to secondarily generalized seizures**

Generalized seizures
- **Nonconvulsive (absence)**
  - Typical (3/sec spike and slow wave complexes on EEG)
  - Atypical (<3/sec spike and slow wave complexes on EEG)
- **Convulsive**
  - Myclonic seizures
  - Clonic seizures
  - Tonic seizures
  - Tonic-clonic seizures
  - Atonic ("drop attacks")

Unclassified seizure

Table 2: Risk for reoccurrence of seizures within 2 years (%)

Period free of seizures	4 years			8 years			15 years		
Seizure type*	TC	MY	OT	TC	MY	OT	TC	MY	OT
Taking one AED									
History of seizures occurring after AED Therapy									
Continues AED	20-25	30-35	15	15-20	25-30	10-15	15	20-25	10
Tapers off AED	35-45	55-60	30-35	30-35	45-50	20-25	25-30	40-45	20-25
No seizures after starting AED Therapy									
Continues AED	15	20-25	10	10-15	20	10	10	15-20	10
Tapers off AED	30-35	40-50	20-25	20-25	35-40	20-25	20-25	30-35	15-20
Taking more then one AED									
History of seizures occurring after AED Therapy									
Continues AED	30-35	45-50	20-25	25-30	35-40	20	20-25	35-40	15-20
Tapers off AED	55-60	70-80	40-50	45-50	60-70	25-30	40-45	60-65	30-35
No seizures after starting AED Therapy									
Continues AED	20-25	35-40	15-20	20	25-30	10-15	15-20	25-30	10-15
Tapers off AED	40-50	60-65	30-35	35-40	50-55	25-30	30-35	45-55	25

* TC: history of idiopathic or secondary generalized tonic-clonic seizures
MY: history of myoclonic seizures
OT: history of seizures other than above

Paula Y. Smith, M.D.

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Paula Y. Smith, MD, Chief of Health Services Date

SOR: Deputy Medical Director

References

Ettinger AB, Psychogenic nonepileptic seizures. UpToDate 16.2, June 11, 2008

French JA, Pedley TA. Initial management of epilepsy. N Engl J Med 2008; 359: 166-76.

Hirsch, LJ, Hiba, A. Neuroimaging in the evaluation of seizures and epilepsy. UpToDate 17.1, Jan. 14, 2009

Krumholz A, Hopp J. Driving restrictions for patients with seizures and epilepsy. UpToDate 16.2, August 23, 2007

Krumholz A, Wiebe S, Gronseth G, et al. Evaluating an apparent unprovoked first seizure in adults (an evidence-based review): report of the Quality Standards Subcommittee of the American Academy of Neurology and the American Epilepsy Society. Neurology 2007;69:1996-2007.

Kopes-Kerr CP. INITIAL MANAGEMENT OF EPILEPSY--WHICH DRUG? FP Revolution Volume 2 Number 21 September 30, 2008

Marson, AG, et.al. The SANAD study of effectiveness of valproate, lamotrigine, or topiramate for generalised and unclassifiable epilepsy: an unblinded randomised controlled trial. Lancet 2007 Mar 24;369(9566):1016-26.

National Institute for Clinical Excellence (UK). The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care. NICE Clinical Guideline 20, Oct. 2004.

Schachter SC. Evaluation of the first seizure in adults. UpToDate 17.1, Jan. 14, 2009

Schachter SC. Overview of the management of epilepsy in adults. UpToDate 17.1, Jan. 30, 2009

Schachter SC. Pharmacology of antiepileptic drugs. UpToDate 17.1, Feb. 11, 2009

Scottish Intercollegiate Guideline Network. Diagnosis and Management of Epilepsy in Adults. 2003.