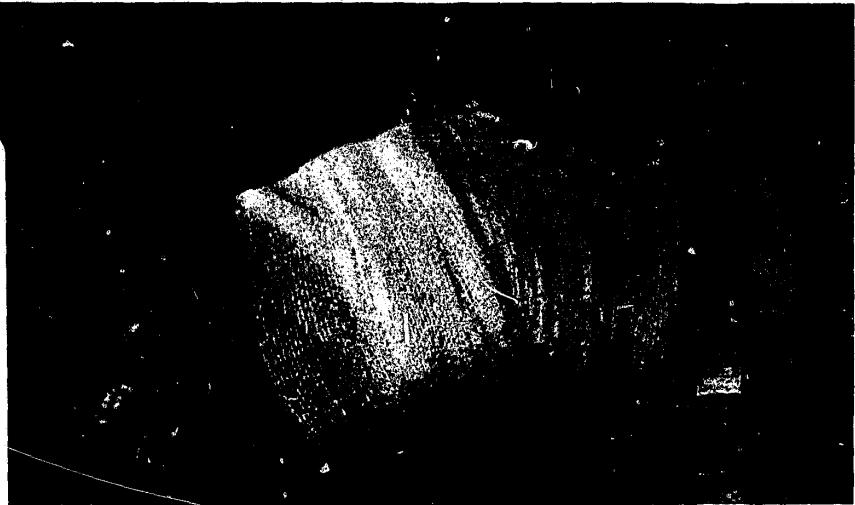


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ACQUISITIONS

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American Medical Association  
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and prisons than in the general population.<sup>1-5</sup> Between one and two percent of prisoners generally are prescribed anticonvulsant drugs, thus making epilepsy one of the more common chronic diseases treated by physicians working in correctional institutions. Editorializing recently on subject of epilepsy among prisoners, Dr. Maurice W. Van Allen wrote:

The epileptic's withdrawal and feelings of rejection, combined with the prejudice he experiences throughout his maturation, lead to inadequate educational, matrimonial, and employment opportunities....Is it any wonder that, having been pushed down into a group of low personal and social expectation, the epileptic may occasionally end up in prison?

Epileptics are more poorly served medically and socially than any other large category of patients. One may reasonably accept that about 2 million people in this country suffer from recurring disorders of the conscious state. A substantial proportion of those so afflicted are receiving less-than-adequate treatment, and many are being badly treated by their associates.<sup>6</sup>

Another possible explanation for the frequency of epilepsy among prisoners may be an increased prevalence of epilepsy among the populations of poor and inner-city communities from which prisoners are disproportionately drawn. Further epidemiologic studies are necessary to test this hypothesis.

Whatever factors may explain the prevalence of epilepsy among prisoners, the common occurrence and complexity of this disorder place serious responsibilities upon the agencies and professionals provid-

ing health services in jails and prisons. The Commission for the Control of Epilepsy and its Consequences (CCEC) has recently documented the need for improved medical services for prisoners with epilepsy and made a number of specific recommendations for change.<sup>7</sup> The minimal care standards of the CCEC are applicable to patients residing in correctional institutions for any significant length of time.

The purpose of this monograph is to outline the organization of a sound epilepsy treatment program in correctional institutions. It is not possible in a brief monograph to comprehensively discuss the classification, diagnosis, and treatment of the epilepsies. Instead we have placed emphasis upon the practical components of an epilepsy program, relying on the reader to use the resources we have suggested at the conclusion for continuing education on many of the more clinical aspects.

## **Classification of epileptic seizures**

In 1970, the International League Against Epilepsy adopted a new classification system for epileptic seizures. One of the major purposes of such a uniform classification system is to improve comparability of data so that progress can be made in drug and other forms of therapy to prevent seizures. Table 1 is an outline of the International Classification.

Generalized epilepsies are those which appear to affect the entire brain at once with simultaneous loss of

epilepsy program is continuing education for medical, nursing, paramedical, and correctional staff. The bibliography and resources section at the conclusion of this monograph details organizations that will provide up to date educational materials on all aspects of epilepsy for all types of institutional staff. Local volunteer epilepsy organizations may also be quite helpful.

Finally, it is essential that the epilepsy program be fully integrated with quality assurance and medical audit activities that are utilized to evaluate the overall institutional medical program.

## **Admission medical evaluations**

Table 2 summarizes the essential medical evaluation standards for epilepsy as determined by the CCEC. Emphasis is given to the adequacy of the initial medical evaluation for epilepsy. Within correctional institutions or systems, this emphasis is quite appropriate since an accurate diagnosis and classification of seizures is a prerequisite of effective treatment throughout the period of incarceration. Several hours of staff time will often be required to obtain a comprehensive seizure and medical history, schedule indicated diagnostic studies, and prepare signed consents for previous medical records from other facilities. Proper diagnosis and treatment of epilepsy is almost totally dependent upon an accurate history and a few hours devoted to this objective is highly cost effective. There is no place in the initial evaluation of epilepsy for a cursory history and physical exam.

An entering inmate may report a history of seizures, convulsions, fits, or "falling out spells". The patient must then be further questioned about the nature of these spells. When did they first begin? Did the patient have problems with seizures as a baby? Did he have seizures with fever as a child? Did he ever lose consciousness as a result of a fall or an injury? Are his seizures related to this event? Did he ever have meningitis or encephalitis?

What did his first seizure consist of? Does he have a warning or not? Does he suddenly lose consciousness or does this happen gradually? Does he remember what goes on during the spell? Has anybody seen him have a spell and have they told him what happens to him? Does he jerk his limbs? Does he stiffen? Does he bite his tongue? Does he lose urine? Does he rub his hands or walk about aimlessly or shuffle in his chair? How long does the spell last? Does he come back to normal at once or does it take a long time? Does he feel sleepy afterwards?

How often does he have seizures? Does he have them at night? Does drinking increase his seizures? What medicines does he take for seizures? How does he check that he has taken his daily dose? Has anyone told him what causes his seizures? Has he had an electroencephalogram (EEG or "brain wave test") done? Does anyone in his family have seizures?

These questions are part of the comprehensive history that will help to assess what type of epilepsy the

lished by the American Electroencephalographic Society.

Prisoners with epilepsy may pose some special diagnostic problems at the time of initial evaluation. Particular attention must be devoted to differentiation between epilepsy and a history of seizures that may be associated with alcohol or drug withdrawal, hysterical seizures, or feigned seizures.

Alcohol withdrawal seizures are manifested by a short burst of generalized tonic-clonic seizures which usually occur within 48 hours of abstaining from alcohol. They can occur as long as 20 days later. The patient may be tremulous and may hallucinate. These seizures are not to be confused with actual epileptic seizures that may be made worse by drinking. In patients with alcoholic withdrawal seizures, the EEG is usually normal even if done soon after the seizures. Past history may be further confused by the fact that some patients with alcohol withdrawal seizures have been inappropriately placed on long term anticonvulsant medications. Such medications should be slowly tapered, however, rather than suddenly discontinued. Withdrawal from phenobarbital in particular may precipitate seizures, thereby causing possible injury or initiating status epilepticus.

"Hysterical seizures" represent a group of patients who have bizarre fits which do not match any known seizure type and who do not injure themselves during the seizure. They usually do not have these seizures at night or when alone. They also do not lose urine or

stool during them. Their EEG shows no difference from normal before, during or after a seizure. These patients may be under severe psychological stress and the seizures tend to subside when the stress is removed. Psychiatric care may be indicated. They do not respond well to anticonvulsant drugs. They are to be differentiated from patients who will feign fits in order to obtain anticonvulsant drugs. A word of caution must be added here. It is better not to dismiss a patient with hysterical seizures lightly since rarely the untrained eye may miss an uncommon type of genuine epileptic seizure (e.g. seizures from the supplementary motor area of the brain) where characteristically the patient may assume a "fencing posture".

Finally, the importance of the general medical examination must be emphasized. Since prisoners typically have had incomplete medical evaluations in the past, a complete medical history is essential to exclude vasovagal attacks, cardiac disease, or cerebrovascular diseases that may result in transient loss of consciousness or responsiveness.

## **Treatment and control of seizures**

Table 3 summarizes the CCEC minimal standards for the control and emergency treatment of seizures. Optimum control of seizures is important both to avoid injuries that may result and also to permit full participation in educational and employment training programs within the institution. Even with optimum treatment, however, some persons with epilepsy will

have occasional seizures. Both correctional and health care staff should be fully aware of appropriate first aid for an epileptic seizure. The following sample protocol is generally applicable.

### **First Aid for An Epileptic Seizure**

1. Keep calm. The epileptic seizure itself is not dangerous. However, injuries may result from the fall. Do not attempt to stop the attack or revive the patient. Let the seizure run its course, usually a few minutes.
2. Ease the person to the floor, loosen tight clothing but do not restrain his movements.
3. Turn the patient's face to the side to permit release of saliva and make certain that his breathing is not obstructed. A folded coat, blanket, or pillow may be placed under the head.
4. Do not force open the clenched jaws. Do not force anything between the patient's teeth. Never place a finger in the mouth. Do not give the person anything to drink.
5. When the person falls to, or is helped to the floor, the tonic phase has started and will be seen as a rigidity or stiffness of the muscles. After a few seconds the seizure passes into the clonic phase. Rigidity is replaced by jerking movements involving the whole body. The lips and face may turn bluish, excessive salivary flow may occur.
6. The seizure is followed by fatigue, possibly a state of reduced awareness, or deep sleep. Do not leave the patient unattended, provide supportive reassurance, and allow the patient to rest in an appropriate place until he feels better.

7. Carefully observe the duration and details of the seizure so that this can be reported accurately to the medical staff.
8. Immediate medical assistance is required if a physical injury is suffered, if the seizure is prolonged, or if more than one seizure occurs.

Status epilepticus is that condition in which one major seizure succeeds another with little or no intermission and without the patient regaining consciousness. This is a grave medical emergency requiring immediate physician supervision to maintain the airway and carefully administer intravenous anticonvulsants. Immediate transport to an outside hospital in an intensive care vehicle is indicated.

### **Drug Therapy and Distribution**

A large number of drugs are available for treating epilepsy. Excellent comprehensive discussions of anticonvulsant drug (ACD) therapy are available elsewhere and are beyond the scope of this monograph. We will highlight some of the most important principles concerning commonly employed ACD's.

1. Use one drug and increase gradually until seizures are controlled or mild toxic symptoms occur. Correlate with serum ACD levels done by a laboratory that is in conformity with the standards of the North American Antiepileptic Drugs Quality Control Program.
2. Add a second drug only after adequate trial with the first drug. Monitor serum ACD levels for

- changes due to drug interaction. Other drugs such as isoniazid, commonly used in tuberculosis prophylaxis, may raise serum phenytoin (Dilantin) levels. Disulfiram (Antabuse), used in alcohol treatment, may do likewise. Phenothiazines, generally prescribed for treatment of psychosis, may increase seizure frequency. These examples demonstrate that the physician prescribing ACD's must be aware of all drugs the patient may be receiving.
3. Do not withdraw an ACD suddenly. Sudden withdrawal of an effective drug may result in status epilepticus.
  4. Relatively well known and non-toxic drugs should be preferred to less known drugs. These should only be used if the former have failed to control seizures in spite of reliable drug intake, appropriate serum ACD levels, and maximum dosage without toxicity.
  5. Avoid intramuscular administration since IM absorption of a number of ACD's is highly variable.
  6. Improper seizure classification or failure to recognize underlying neurological disease may result in inappropriate therapy and poor seizure control.
  7. Toxic levels of ACD's can, in some patients, lead to increased seizure frequency. This is another example of the importance of proper use of serum ACD levels. Serum ACD levels will also help to identify the occasional patient with frequent seizures who is taking none of the prescribed medications.
  8. Health care staff must be trained in the appropriate administration of medications, and in the monitoring of possible ACD toxic effects to assure that the bone marrow has not been affected, and to detect such effects as gingival hyperplasia (phenytoin), drowsiness, ataxia, and personality changes.
  9. A sound dental treatment and oral hygiene program is essential in minimizing the effects of phenytoin induced gingival hyperplasia.
  10. Once a day dosages of certain ACD's (e.g. phenytoin and phenobarbitol, preferably at h.s.) are possible and practical. However, it should be remembered that an occasionally missed dose then results in loss of total daily intake. If ACD's are administered several times per day, procedures should be developed to minimize the disruptive effects that this may have upon the patient's daily activities, particularly if the patient must travel some distance to a central distribution point for each dose.
- The foregoing principles are useful in organizing the approach of the institutional health service to drug therapy for epilepsy. Any physician prescribing such medications, however, must be thoroughly familiar with the specific characteristics of the ACD's. Suggested references for this information are given in the resources section of this monograph.
- ## **Epilepsy and institutional policies**
- There are policy and procedure matters specifically concerning persons with epilepsy in correctional in-

## **Prisoner input**

As with any other health service system, patient participation and suggestions concerning service arrangements may be quite helpful. It is particularly difficult for health care staff who do not have epilepsy to fully understand some of the perceptions of insecurity and vulnerability of prisoners with epilepsy. In a few institutions, constructive self-help groups of prisoners with epilepsy have been formed. Such groups meet to discuss their shared experiences with epilepsy, provide mutual understanding and support, and to provide specific suggestions to the institutional staff concerning policies and services. Epilepsy self-help groups have been highly successful in community settings and may be feasible in correctional institutions.

## **Continuity of care**

Perhaps even more so than with other chronic diseases, there is a necessity for continuity of medication and treatment when a person with epilepsy is arrested, transferred from one correctional institution to another, or released to return to the community. The CCEC has noted:

It was also apparent that if a prisoner with epilepsy is identified, and appropriate treatment and medication are provided, some assurance should be made that medication will be available, and affordable, once a prisoner is released. To achieve this, medical plans developed in prison should be coordinated with community programs for persons with epilepsy.

Indeed, the importance of continuity of care for epilepsy provides an ideal model for developing those planning and service affiliations that are needed to bring correctional health services into the mainstream of the community health care system.

Rehabilitative staffs in prisons often are responsible for employment counseling and assistance prior to release. Former prisoners, as a group face significant problems obtaining employment. Add to this the stigma frequently attached to epilepsy, and employment becomes even more difficult. More cooperative attention to this double dilemma should be given by correctional rehabilitation staff, local epilepsy organizations, and those programs that specifically assist former prisoners in job placement.

## **Table 1**

### **International Classification of Epileptic Seizures**

- I. PARTIAL SEIZURES (seizures beginning locally)
  - A. Partial seizures with elementary symptomatology (generally without impairment of consciousness)
    1. With motor symptoms (includes Jacksonian seizures)
    2. With special sensory or somatosensory symptoms
    3. With autonomic symptoms
    4. Compound forms

- B. Partial seizures with complex symptomatology (generally with impairment of consciousness) (temporal lobe or psychomotor seizures)
  - 1. With impairment of consciousness only
  - 2. With cognitive symptomatology
  - 3. With affective symptomatology
  - 4. With "psychosensory" symptomatology
  - 5. With "psychomotor" symptomatology (automatisms)
  - 6. Compound forms
- C. Partial seizures secondarily generalized
- II. GENERALIZED SEIZURES (bilaterally symmetrical and without local onset)
  - 1. Absences (petit mal)
  - 2. Bilateral massive epileptic myoclonus
  - 3. Infantile spasms
  - 4. Clonic seizures
  - 5. Tonic seizures
  - 6. Tonic-clonic seizures (grand mal)
  - 7. Atonic seizures
  - 8. Akinetic seizures
- III. UNILATERAL SEIZURES (or predominantly)
- IV. UNCLASSIFIED EPILEPTIC SEIZURES (due to incomplete data)

Note: Adapted from Gastaut, H. Epilepsia 11: 102-113, 1970.

## **Table 2** **Medical Services—** **Minimum Standards of Care**

### Initial Medical Evaluation

- A. To determine the cause and nature of the epileptic process
  - 1. Medical history
  - 2. Accurate subjective and objective description of seizures
  - 3. Developmental history
  - 4. Family history
  - 5. Physical and neurological examination
  - 6. Diagnostic tests
    - a. Biochemical, hematologic, and serologic studies
      - (1) Complete blood count
      - (2) Urinalysis
      - (3) Serum calcium and phosphorus
      - (4) Studies to exclude tuberculosis and syphilis
      - (5) Fasting blood sugar
    - b. Electrophysiologic studies
      - (1) Electroencephalogram (EEG)
    - c. Radiologic Studies
      - (1) Computed tomogram of brain†
      - (2) Angiogram or pneumoencephalogram (if indicated)

## Preface

One of the objectives of the AMA Program to Improve Medical Care and Health Services in Correctional Institutions is to assist health care providers and criminal justice administrators in the implementation of standards for health care delivery. To help in this regard, two monographs, *Orienting Jailers to Health and Medical Care Delivery Systems* and *Orienting Health Providers to the Jail Culture*, were published. Stemming in part from these monographs, a number of recommendations were made by criminal justice health care providers for the program to address medical problems common to the jail and other correctional facilities. A commitment was therefore made to "develop a monograph on medical problems common to the jail, intended primarily to guide new health care providers, particularly contract physicians, dentists and allied health professionals who will devote only a minority of their time to practicing in detention and correctional facilities." Because of its unique nature the monograph on dental care was published separately.

The monograph which follows is devoted exclusively to epilepsy and tuberculosis, considered by many health care providers and criminal justice officials to be two of the most common medical problems which need to be addressed in such a document. Dr. Lambert King, key author of this monograph, had extensive experience in criminal justice health care as former director of medical services for Cook County Jail.

# An epilepsy program for correctional institutions

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## Abbreviations

ACD—Anticonvulsant drug  
CCEC—Commission for the Control of Epilepsy and Its Consequences  
CT—Computerized Tomography  
EEG—Electroencephalogram

## Introduction

Recent studies have suggested that epilepsy may be two to three times more frequent among the residents of jails

consciousness. There are two major forms of generalized epilepsy.

One form is the absence (formerly petit mal) seizure. Without warning a person stops an activity and enters a momentary trance. Usually the attack ends abruptly within ten seconds and the person resumes activity as if nothing had happened. Sometimes fluttering of the eyelids or minimal jerking movements may occur. Occasionally more complex activity or movements may occur during the absence period.

The second form of generalized epilepsy is the tonic-clonic or grand mal seizure. While some persons may experience a vague warning, most lose consciousness without any premonition. A sudden, rigid, generalized muscular contraction occurs. The respiratory muscles may be involved, and involuntary muscle contractions may cause the person to turn blue or bite the tongue. Frothy salivary flow or urinary incontinence may be noted. The seizure is over within a few minutes, then there is a deep inspiration and muscular relaxation. Often a deep sleep follows.

Another important type of epilepsy are the partial epilepsies. These seizures apparently originate in a specific focal point in the brain. They may include partial convulsive movements, difficulty speaking, sensations or movement of some part of the body, visual sensations, or impairment of consciousness. Partial seizures with complex symptomatology (psychomotor seizures) may include formed visual hallucinations, a dream-like state, and automatic movements involving

performance of stereotyped movements. Restraining the person while such automations occur may elicit an unintentionally violent reaction.

Partial seizures may become generalized. Seizure frequency varies widely between individual patients. Some persons with partial seizures with complex symptomatology may have a warning or aura before the seizure. Other patients may have premonitory headaches, abdominal discomfort, or mood changes before a seizure occurs.

## **An organized treatment program for epilepsy**

As with other common chronic diseases, the institutional health staff should have an organized treatment program for epilepsy. Such a program should ensure that all persons with epilepsy have had appropriate diagnostic studies, that serum anticonvulsant drug (ACD) levels are periodically obtained, and that those persons with poorly controlled or atypical seizures have timely access to specialized epilepsy services, consultants, and diagnostic studies. Epilepsy specific record keeping systems should be designed and utilized. Included in such a record system will be a summary of diagnostic results, accurate descriptions of seizure episodes and frequency, ACD intake and serum levels, and periodic examinations to monitor for any side effects of the medications.

One of the most important aspects of an organized

patient may have. Epilepsy is a clinical diagnosis made on the basis of a good history and the description of a reliable observer. Therefore the history acquires a crucial importance. When it is decided that the patient indeed does have seizures, make a specific seizure type diagnosis. Probable etiology of the seizure disorder (e.g. head trauma, birth injury, meningitis in the past, etc.) may also be ascertainable from the history.

A thorough physical examination must then be done. Hirsutism, coarsened facial features, gingival hyperplasia, and lymphadenopathy are possible side effects of anticonvulsant therapy. Scars of trauma caused by falls secondary to seizures may be noted. Detailed neurologic testing must be done and special emphasis placed on mental status, cerebellar function and deep tendon reflexes. The neurologic examination may often be unrevealing; however, positive findings do occur and can be a clue to a potentially treatable lesion.

Once a diagnosis is made and the seizure type clear, several investigations are necessary adjuncts to good medical care. One is an EEG recording, preferably a 16 channel record and another is a computerized tomographic (CT) scan. EEG abnormalities will help to identify those patients with focal epileptiform discharge and in some cases clarify the seizure diagnosis. In patients with a questionable history of seizures an unequivocal EEG establishes the seizure diagnosis. In cases where the seizure history is not reliable and the EEG is doubtful, the problem should be reviewed from a

clinical standpoint. Special procedures including sleep deprivation prior to the EEG or sleep induction during the procedure may be indicated. It is important that there be active communication between the institutional medical staff and the neurologist directing the EEG facility.

A computerized tomographic scan will disclose major structural brain abnormalities such as tumors, arteriovenous malformations, prior infarcts and injuries, including chronic subdural hematomas. Finally, patients who are already on anticonvulsant drugs can have their serum levels measured for comparison with established optimum levels.

With the exception of the EEG and CT scan, the initial medical evaluation of an inmate with a definite or possible seizure disorder can usually be accomplished within the correctional facility. The health care staffs of major jails or prisons should implement a standard format and procedure for this initial evaluation so that no essential elements are overlooked. For patients that will be remaining for a significant time within the correctional institution, arrangements must also be made for outside services including EEG, CT scan and neurological consults as indicated. Though expensive and time consuming for the security staff, these specialized services are now an accepted part of modern medical evaluation of epilepsy. Some institutions for systems may find that internal establishment of an EEG facility is cost effective. If this is done, the EEG facility and procedures should conform to the guidelines estab-

stitutions. Important examples of such policy matters include the following:

1. Persons with epilepsy may be inappropriately excluded from productive education and employment opportunities even though their seizures are fully controlled or rarely occur. Such exclusion is rarely justified and institutional policies should instead provide equal opportunity. Full consultation of knowledgeable medical staff should be sought in developing policies for safe work assignments in those prison industries where an epileptic seizure may place the person in jeopardy. The capabilities of each individual must be assessed and placement based upon an individual's ability rather than disability.
2. Persons with epilepsy who manifest toxic ACD symptoms such as ataxia or post-seizure confusion may sometimes be incorrectly accused of illicit drug ingestion by institutional staff. In a person with documented epilepsy, policy should promote a supportive rather than accusatory attitude by staff.
3. Persons with documented epilepsy should never be placed in segregated or isolation areas in which immediate assistance by trained staff is not readily available if a seizure occurs. Most disciplinary segregated areas do not meet this standard and should not be used for housing epileptic residents. The fact that anticonvulsant medications are still administered in these areas does not mean that a seizure will not occur.
4. Correctional officers and staff are likely to share in the residue of public misinformation and prejudice concerning epilepsy. Therefore, policy should require that staff be properly trained and informed concerning epilepsy. The resource materials detailed at the end of this monograph include excellent training materials.
5. Most institutions have regulations whereby persons with epilepsy are housed in ground level facilities. Such regulations are an appropriate safeguard and should continue to be utilized.

## **Environmental conditions, stress, and epilepsy**

Many physicians with experience treating epilepsy have been impressed with the relationships between stressful experiences and increased frequency of seizures (despite appropriate ACD therapy). Similarly, stable emotional status and environment are an important adjunct to optimum seizure control. Institutional conditions such as overcrowding, frequent interpersonal violence, excessive noise, and lack of appropriate exercise and activities are undoubtedly deleterious to epileptic prisoners. While such conditions have negative effects on all prisoners, the effect upon epileptic prisoners is additive and provides a specific medical justification for the early elimination of such conditions.

- B. The following additional studies may be required in selected cases
  - 1. Five-hour glucose tolerance test for atypical seizures
  - 2. Chromosome studies for congenital malformations
  - 3. Amino acid screen for metabolic disorders
  - 4. Spinal fluid examination for infection of nervous system
  - 5. Special EEG activation procedures
    - a. Sleep deprived
    - b. Telemetered
    - c. Chemical activation
- C. Application of International Seizure Classification
- D. Data base entry of medical problems not directly related to epileptic process

Adapted from report of Commission for Control of Epilepsy and Its Consequences, Volume 1, Page 70.

<sup>†</sup>The CT scan is most important in the evaluation of patients with recent onset of seizures, focal seizures, focal abnormalities, or increasing frequency of seizures despite appropriate anticonvulsant therapy.

### **Table 3**

### **Medical Services— Minimum Standards of Care**

#### To Achieve Control of Seizures

- A. Reliable and accurate record of seizure frequency
- B. Charting of anticonvulsant drug consumption
- C. Periodic anticonvulsant drug levels
- D. Case review
  - 1. For incompletely controlled patients
    - a. Weekly by technical specialist
    - b. Monthly by medical specialist
  - 2. For patients having less than one seizure per month (for patients in community-based living arrangements, periodic review by a physician no fewer than two times per year)
    - a. Monthly by technical specialist
    - b. Quarterly by medical specialist

#### To Protect Against Medical Emergency

- A. Appropriate observation by trained attendant or companion
- B. Institution of ongoing and detailed training for families, associates, attendants, or health professionals responsible for the care of patients with epilepsy
- C. Health professional availability on an emergency 24-hour basis
- D. Access to emergency hospital-type care within a

time considered reasonable by the standards of care of the community. For persons in institutions, or subject to severe, prolonged, or recurrent seizures, such care should be accessible within 20 minutes.

### Referral for Special Study

Persons with atypical or "focal onset" seizures, or having evidence of underlying neurological disease, or with uncontrolled seizures (more than one per month) should be referred for special evaluation, preferably to a center specializing in epilepsy for special services as follows.

- A. Twenty-four hour video and EEG monitoring
- B. Angiography
- C. Supervised inpatient drug control
- D. Special consideration for surgical intervention

Adapted from report of Commission for Control of Epilepsy and Its Consequences, Volume 1, Page 70.

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### Footnotes

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### Resource Materials on Epilepsy

#### Continuing Education, Patient Education, and Training Materials

Epilepsy Foundation of America  
1828 L Street, N.W. Suite 406  
Washington, D.C. 20036  
(202) 293-2930

(EFA also will provide addresses and phone numbers of its local and state affiliates. Consult telephone directory for local chapters.)

Minnesota Comprehensive Epilepsy Program  
2829 University Avenue, S.E., Suite/608  
Minneapolis, Minnesota 55414

Office of Scientific and Health Reports  
Room 8A08, Building 31  
NINCOS—NIH  
Bethesda, Maryland 20014  
(301) 496-5751

## **Recommended Reading Materials for Health Care Staff**

A Textbook of Epilepsy  
edited by John Laidlaw and Alan Richens  
Churchill Livingstone  
Edinburgh, 1976, 389 pages

Drugs For Epilepsy  
The Medical Letter  
Vol. 21, No. 6 (Issue 527)  
March 23, 1979  
Address: 56 Harrison Street, New Rochelle, N.Y. 10801

Epilepsy by Edward Healton,  
Chapter 11 in *Health Problems in the Prison Setting*  
Novick, L., and Al-Ibrahim, M.,  
Charles C. Thomas Publishers  
Springfield, Illinois, 1977

The Use of Antiepileptic Drugs  
J. Kiffin Penry and Michael Newmark  
*Annals of Internal Medicine* 90: 207-218, 1979.

## **Self-Help Groups**

Epilepsy Self-Help Group Workshop  
c/o Self-Help Institute  
Center for Urban Affairs, Northwestern University  
2040 Sheridan Road  
Evanston, Illinois 60201

## **Electroencephalography Standards**

EEG Handbook, 2nd Ed., Craib, A.  
and Perry, M.  
Beckman Instruments, 1975  
Chapter 4 contains American Electroencephalographic  
Society Guidelines for EEG Facilities.

## **Screening**

All institutions should have an adequate tuberculosis screening program as part of the general admission medical evaluation. The great majority of new tuberculosis cases arises from the already infected minority of the population. It is estimated that about 7 percent of the total U.S. population are infected with the tubercle bacillus. In contrast, reported percentages of tuberculin skin test positive individuals in correctional institutions include 15 percent in Cook County Jail, 16 percent in New Orleans Parrish prison, and 26 percent in one Arkansas prison<sup>2,3,4</sup>. Thus the epidemiologic situation varies from place to place and screening programs should be based upon carefully collected local data. The data should be periodically reassessed in order to detect changes in rates of incidence and prevalence. It is essential that screening and data collection include both institutional staff and prisoners.

Table 1 summarizes the recommendations of the American Thoracic Society for screening of persons remaining in correctional facilities for one week or longer. Several points should be emphasized with respect to these recommendations contained in Table 1.

- The tuberculin test of choice is the Mantoux test (needle and syringe), using a 5 Tuberculin Unit dose of purified protein derivative (PPD), stabilized with Tween-80.
- The tuberculin test should be read by trained health personnel between 48 and 72 hours after application

and the results recorded in millimeters of induration (Table 2). Some institutions rely on the inmate to report a reaction or return for a reading on his own initiative. This is an unacceptable practice, both clinically and epidemiologically. All tuberculin tests must be applied, read, and recorded by appropriately trained civilian staff.

- Personnel should be provided with a record of the skin test, chest roentgenogram, and any therapy to avoid unnecessary repetitive screening when they change employment. Similarly, persons transferred to another institution or released should be provided with this information along with a referral to an appropriate public health agency if therapy has not been completed.
- The use of the chest roentgenogram in initial screening should be based upon criteria specific to the institution. Generally, it is acceptable to proceed to a chest roentgenogram only with those persons with a positive tuberculin test. However, an initial chest roentgenogram would be merited in patients with significant respiratory symptoms, including cough and sputum production, or other history of physical signs of cardiovascular or pulmonary disease.
- In correctional systems with a high turnover and recidivism rate, the medical records system should provide for timely access to previous skin test and chest roentgenogram results. Such access will promote the more rapid identification of recent skin test converters, who are at high risk of developing infectious tuberculosis.

—Even the most effective screening program cannot completely eliminate intramural spread of infection associated with overcrowded living conditions and inadequate ventilation.

With reference to inmates in short term detention (less than one week), current American Thoracic Society recommendations include immediate evaluation of patients presenting respiratory symptoms such as cough and sputum production. Routine tuberculin skin testing is generally not practical in less than a three day period, particularly with reference to arranging follow-up procedures.

## **Isoniazid (INH) prophylaxis**

Correctional institutions, in cooperation with public health agencies, can play an important role in the prevention of tuberculosis, thereby benefitting both the individual patient and the larger community. The indications, contraindications, and relative contraindications concerning preventive therapy with isoniazid are summarized in Table 3. Several suggestions concerning the application of these recommendations to the jail or prison setting are appropriate:

—Abnormalities in liver function tests may be present in up to 30 percent of jail inmates (5). These abnormalities probably reflect sequelae of alcohol and drug abuse. In order to exclude acute or chronic liver disease, baseline liver functions tests may be indicated in some patients prior to initiation of isoniazid

prophylaxis. Those persons with abnormal liver functions must then be individually assessed for any absolute or relative clinical contraindications to isoniazid therapy.

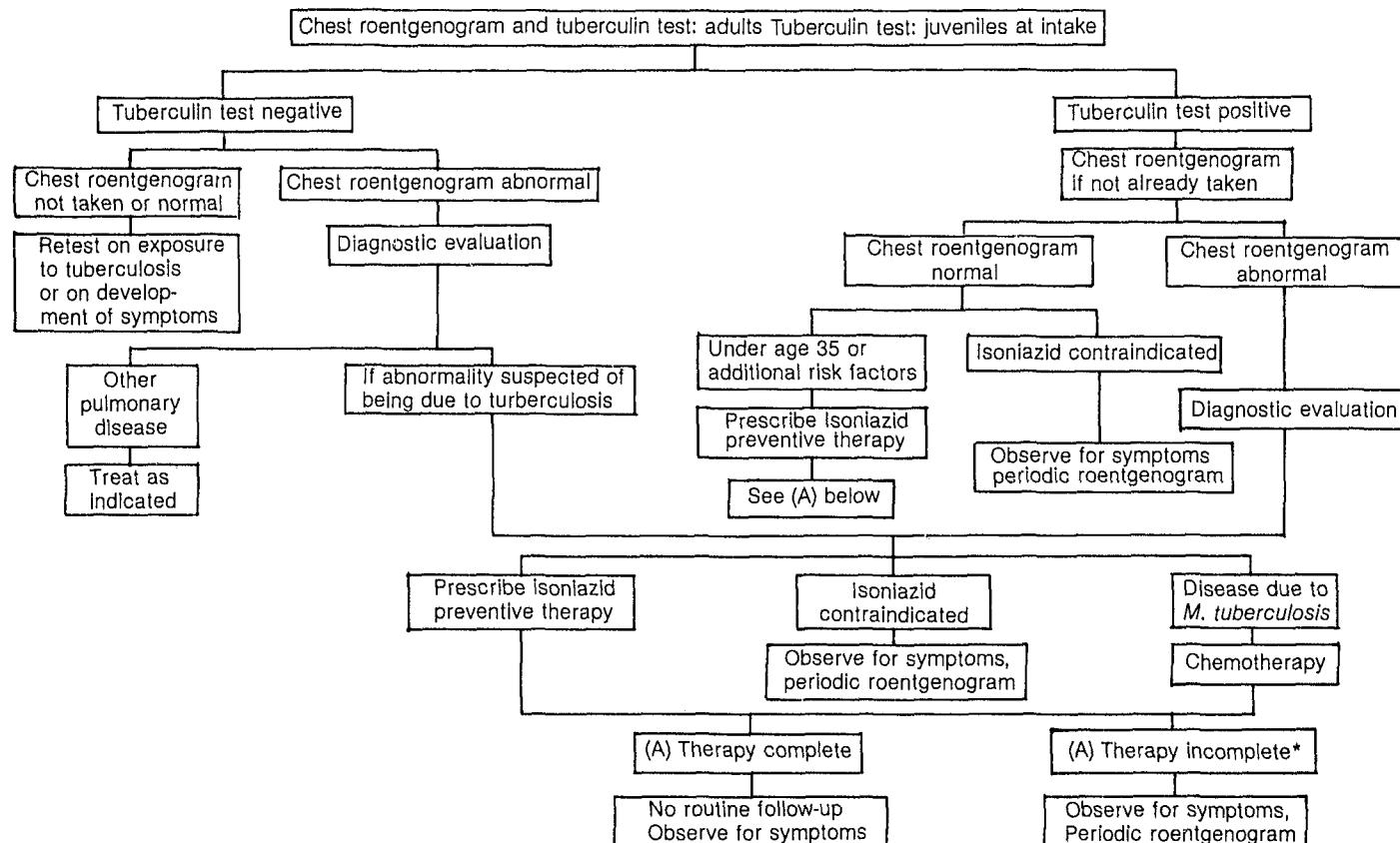
—Clinical monitoring for symptoms (malaise, anorexia, nausea, vomiting of more than 3 days duration) or signs (jaundice, rash, elevated temperature, persistent dark urine) of possible isoniazid toxicity should be done at monthly intervals. Results of the monthly monitoring should be properly recorded in the medical record.

—Patients who take isoniazid for less than a full year are less likely to develop active tuberculosis than those who take no INH. Nevertheless, every effort should be made to ensure completion of the full year of therapy. These efforts include continuing patient education concerning the reasons for therapy and clear instruction for referral to an appropriate public health agency if release occurs prior to twelve months.

## **Treatment of tuberculosis**

An adequate screening program will occasionally identify new patients with positive bacteriologic status termed "Tuberculosis: infected, with disease" according to the most recent classification of the American Lung Association. The first line drugs for treatment are summarized in Table 4. A combination of at least two drugs is given for at least 18 months. The combination of isoniazid and rifampin may permit shortening of the

**Table 1**  
**Inmates in Institutions for Medium or Long-Term Detentions  
 (One Week or Longer)**



\*Efforts should be made to complete therapy.

Adapted from Screening for Pulmonary Tuberculosis in Institutions, American Thoracic Society, Official Statement, February 1977.

treatment period, although complete data on this question is not yet available. Close patient supervision and patient education are essential in order to ensure regular treatment compliance. Retreatment of patients who have had interrupted past therapy poses particular problems in that second line regimens are more complicated, more toxic, and also more expensive. Pulmonary medicine consultation should be obtained in any complicated or retreatment situations. Patients with significant concurrent illnesses, miliary or meningeal spread, or complicated extrapulmonary tuberculosis will require a period of outside hospitalization.

Initial treatment of any patients with bacteriologically positive sputum should be given in a facility which is properly ventilated and permits safe respiratory isolation. Once a patient is receiving adequate chemotherapy, the risk of infectivity rapidly decreases.

## **Interagency cooperation**

All states by law require reporting of tuberculosis infection to public health agencies. The improvement of tuberculosis programs within correctional institutions provides genuine opportunities for better interagency communication and cooperation. Public health agencies should be strongly encouraged to assist the health care staffs of correctional institutions in program design, collection and analysis of epidemiologic data, and in the provision of proficient mycobacteriological laboratory services. Some agencies may also be able to provide expert pulmonary consultation and other

additional services. Development of an adequate institutional tuberculosis program can serve as a model for future cooperation between the institution and public health agencies with respect to numerous other problems.

## **Table 2\***

### **Interpretation of Skin Test Reactors**

10 mm or more of induration = POSITIVE REACTION

- indicates past or present infection with *M. tuberculosis*

5 mm through 9 mm of induration = DOUBTFUL REACTION

- can result from infection with atypical mycobacteria or *M. tuberculosis*, particularly if there is a history of close contact with a sputum positive person or radiographic or clinical evidence of disease compatible with tuberculosis.  
The test should be repeated.

0 mm through 4 mm of induration = NEGATIVE REACTION

- no repeat test is necessary unless there is clinical evidence of tuberculosis or history of recent contact requiring periodic follow up.

\*Adapted from The Tuberculin Skin Test, American Lung Association, 1974.

## **Table 3**

### **Preventive (Isoniazid) Therapy\*** **Indications**

1. Household members or other close\*\* associates of newly diagnosed infectious patients.
2. Recent skin test converters without additional tuberculous disease.
3. Positive skin test reactors with abnormal chest roentgenogram.
4. Positive tuberculin skin test reactors with special clinical situation (systemic steroids, diabetes, silicosis, post gastrectomy).
5. Other positive tuberculin skin test reactors up to age 35.
6. Other positive skin test reactors over age 35 only in special epidemiologic situation.

### **Contraindications**

1. Progressive tuberculosis disease (more than one drug needed).
2. Adequate course of INH previously completed.
3. Significant adverse reaction to isoniazid previously.
4. Previous INH associated hepatic injury.
5. Acute liver disease of any etiology.

### **Relative Contraindications**

1. Current Chronic Liver Disease.
2. Daily use of alcohol (possible higher incidence of INH-associated liver injury).

3. Pregnancy (defer until post-partum unless household contact, recent converter, or other urgent indication).

### **Special Attention**

1. Drug interactions
  - INH can raise phenytoin (Dilantin) levels and precipitate toxicity.
  - INH may precipitate reaction in patients receiving disulfiram (Antabuse).

\*Adapted from Farer, L.S. Clinical Notes on Respiratory Disease 16: No. 4, 1978, published by the American Thoracic Society.

\*\*In housing units of correctional institutions, all persons in prolonged close contact must be considered "household members or close associates".

**Table 4**  
**TREATMENT OF MYCOBACTERIAL DISEASE**

FIRST-LINE DRUGS	Dosage*	Most Common Side Effects*	Tests for Side Effects*	Remarks
Isoniazid	5-10 mg/kg up to 300 mg PO or IM	Peripheral neuritis, hepatitis, hypersensitivity	SGOT/SGPT (not as a routine)	Bactericidal. Pyridoxine 10 mg as a prophylaxis for neuritis; 50-100 mg as treatment
Ethambutol	15-25 mg/kg PO	Optic neuritis (reversible with discontinuation of drug; very rare at 15 mg/kg), skin rash	Red-green color** discrimination and visual acuity	Use with caution with renal disease or when eye testing is not feasible
Rifampin	10-20 mg/kg up to 600 mg PO	Hepatitis, febrile reaction, purpura (rare)	SGOT/SGPT (not as a routine)	Bactericidal. Orange urine color. Negates effect of birth control pills
Streptomycin	15-20 mg/kg up to 1 g IM	8th nerve damage, nephrotoxicity	Vestibular function, audiograms; BUN and creatinine**	Use with caution in older patients or those with renal disease

Adapted from Farer, L.S. Clinical Notes on Respiratory Disease 16: No. 4, 1978, published by the American Thoracic Society.

\*Check product labelling for detailed information on dose, contraindications, drug interaction, adverse reactions, and monitoring.

\*\*Initial levels should be determined on start of treatment.

## **References**

1. Gray F: *Prison Discipline in America*, Freeman and Bolles, Boston, 1847.
2. King L, Geis G: Tuberculosis transmission in a large urban jail. *JAMA* 237:791-792, 1977.
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5. Discharge of Tuberculosis Patients from Medical Surveillance. Reprinted from *American Review of Respiratory Disease*, Vol. 113, No. 5, May 1976. American Thoracic Society Official Statement, October 1975.
6. All About TB—What the Practicing Physician Must Know and Can Do About Tuberculosis. Farer, L.S. *Clinical Notes on Respiratory Diseases*, Vol. 16, No. 4, Spring 1978. Published by American Thoracic Society.
7. Treatment of Tuberculosis in Alcoholic Patients. Reprinted from *American Review of Respiratory Disease*, Vol. 116, No. 3, September 1977. American Thoracic Society Official Statement, May 1977.

Resource materials may be obtained by written request to the American Lung Association, 1740 Broadway, New York, N.Y. 10019 (212) 245-8000.

## **Resources**

1. Screening for Pulmonary Tuberculosis in Institutions. Reprinted from *American Review of Respiratory Disease*, Vol. 115, No. 5, May 1977. American Thoracic Society (medical section of American Lung Association) Official Statement, February, 1977.
2. The Tuberculin Skin Test: Supplement to Diagnostic Standards and Classification of Tuberculosis and other Mycobacterial Diseases. American Lung Association, 1974.
3. Preventive Therapy of Tuberculosis Infection. American Thoracic Society Official Statement, May 12, 1974.
4. Guidelines for the Investigation and Management of Tuberculosis Contacts. Reprinted from *American Review of Respiratory Disease*, Vol. 114, No. 2, August 1976. American Thoracic Society Official Statement, May 1976.

**END**

# **Tuberculosis screening in correctional institutions**

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## **Introduction**

In 1840, the Report of the Physician for the New Jersey Penitentiary included the following observation:

The tendency to glandular obstruction is seen in almost every prisoner who has been confined in the cells for more than a year...The complexion is pale, of dropsical hue, such as continuous shade almost always produces, and the symptoms of disease of the internal organs are of the character that mark the languid action which prevails under the circumstances. Some post mortem examinations have been made, and in all of them the lym-

phatic glands were enlarged to an enormous degree, indurated and obstructed<sup>1</sup>.

This was a graphic description of lymphatic tuberculosis, a disease that was to remain common in prisons for another century.

Fortunately, recent decades have witnessed marked reductions in the incidence of tuberculosis. In many communities, the low risk of tuberculosis infection has made routine screening of the general population unwarranted. The use of epidemiologic data, however, permits definition of groups in which there is a higher risk of tuberculosis or identification of institutions in which even a sporadic case would present a significant hazard. Recent published reports have documented a continued high rate of tuberculin skin test positivity among persons in jails and prisons; as a result, there can be an alarming rate of intramural spread of infection<sup>2,3</sup>. Dr. William W. Stead has recently noted:

Tuberculosis control within prisons appears to be lax nationwide and should be given greater emphasis by the public health establishment, not only for the protection of the prisoners but for the health of the community at large.

The purpose of this monograph is to outline the essential elements of an adequate tuberculosis screening and prophylaxis program for correctional institutions. For comprehensive information on the clinical and therapeutic aspects of tuberculosis, readers should consult the reference list given at the conclusion of this monograph.