

# The PEAT Scale:

By Chris Hendricks, EMT-P



At left: This looks like the perfect home environment. But what if someone here is the victim of abuse? To find out, you'll have to ask them.

Below: A patient's home is wherever they are living at the time of your assessment, even if in this camper. Think about the health issues present for someone living here.

## An EMS Tool

EMS has a unique perspective on patient injury and illness: We get to see the environment in which the patient is found. Documenting the mechanism of injury on a trauma call is a very important part of our job. We are good at that. But when it comes to the patient's home environment, as a group, we aren't as focused or trained in relaying that information to the hospital.

Most EMTs and paramedics will report any home situation that is unacceptable, but until now there has been no standardized way to measure and record the quality of a patient's home environment. The PEAT scale (Physical Environment Assessment Tool) is designed for that purpose.

The PEAT scale uses four categories to measure the quality and safety of a patient's home environment and assigns a number score. Whether the patient lives in an apartment, condo or cardboard box, anyone familiar with the scale can interpret the patient's score and its significance at a glance.

For years, firefighters have extended the focus of their primary purpose to include fire prevention, public education and fire code laws. Perhaps EMS could do more for our patients and create awareness and prevention for a host of health issues. Once a



patient enters the hospital system, there are many services that can be activated, if needed. Who better than EMS to document their living conditions?

### Goals of the PEAT Scale

- To encourage EMS to more actively observe the patient's home environment and be aware of its impact on patient health.
- To make awareness and assessment of abuse a higher priority.
- To encourage providers to seek out hazards to the patient.
- To facilitate standardized communication about a patient's home environment between medical and social services professionals.
- To prompt EMS to contact social services directly, conduct follow-up home visits, or participate in proactive illness and injury prevention.

Photos by Chris Hendricks

## Physical Environment Assessment Tool (PEAT scale)

Total Score: \_\_\_\_\_ by observation:  by interview:  Score unable to obtain:   
 (Guidelines: 7–16 urgent intervention, 17–27 referral assistance, 28–31 less than optimal, 32–36 healthy)

Dwelling (select all that apply)		Cleanliness (select one)		Social Structure (select one)		Hazards (select one)	
a. enclosed shelter	2	e. immaculate	4	i. lives with other(s)	12	m. none	12
b. electricity	2	f. clutter	3	j. lives alone	9	n. possible	9
c. running water	2	g. small bio. waste	2	k. verbal abuse/neglect	6	o. probable	6
d. temperature safe	2	h. large bio. waste	1	l. phys. abuse/neglect	3	p. certain	3
Add up (0–8)		Score (1–4)		Score (3–12)		Score (3–12)	

Notes: \_\_\_\_\_ Follow up? Yes  No

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### The Categories

#### Dwelling

Dwelling assesses whether the patient is protected from the weather. This is defined as wherever the patient is living at the time of your assessment, even if it is not in a house. It could be a car, nursing home bed, homeless shelter, park bench or someplace else.

- Enclosed shelter: Any enclosed shelter that keeps the patient dry, such as a house, apartment, car, RV, tent, hut, wickiup, bunker, barn, igloo or other.

- Electricity: Does the patient have electricity? This is primarily important for the safe storage of food, but is also needed for cooking, cleaning and grooming.

- Running water means the patient has potable water in the home suitable for hydration, cleaning and bathing.

- Temperature-safe: The temperature in the patient's home is appropriately warm or cool. Most homes have heat and/or air conditioning, but that is not required. Some people live in climates that don't need heat

or AC. Any heat source is acceptable, as long as it provides sufficient heat for healthy temperatures.

#### Cleanliness

Cleanliness relates to how neat or clean the patient's living environment is.

- Immaculate is completely clean with no clutter. All objects are in their place.

- Clutter would be clothes, books, toys or other nonbiodegradable items scattered about.

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- Small biodegradable waste: Small amounts of biodegradable materials like dirty dishes, spoiled food or trash.

- Large biodegradable waste: Large or unacceptable amounts of biodegradable materials such as rotting food, vomit, garbage or feces.

### Social Structure

This assesses the patient's social environment. This is significant because emotional and social health are closely tied to physical health. Abuse is also part of this assessment. Abuse may sometimes be difficult to assess, but it is necessary to ask patients if they are safe. They are the best source of this information.

- Lives with other(s): The patient lives with one or more other people and there is no abuse or neglect.

- Lives alone: The patient lives alone and has no abuse or neglect.

- Verbal/emotional abuse and/or neglect: This is for the patient who suffers emotional or verbal abuse or is being emotionally neglected (regardless of whether or not they live alone). Emotional neglect is when a person's special emotional needs are not being met. Verbal/emotional abuse would be lan-

guage or behavior that demeans, belittles, undermines, intimidates, controls or in any other way hinders a person's positive emotional health.

- Physical abuse and/or neglect: This is for the patient who suffers physical abuse or is being physically neglected (regardless of whether or not they live alone). Patients who suffer abuse or neglect should also receive an appropriate score in Hazards (see next category). Abuse commonly causes serious injury or death. An example of physical neglect would be a bedbound disabled person lying in feces, or a child who is not being provided with enough daily nutrition to grow and develop. Physical abuse includes any behaviors or actions that result in physical pain or injury. Also, a patient who has any serious untreated medical conditions should be considered neglected, even if they are responsible for their own care. This could be translated as "inability to care for self."

### Hazards

Hazards are any dangerous conditions that exist for the patient. This relates not only to the physical safety of their home, but their social structure as well. Many people are killed and injured by their partners in abusive

relationships. An active abuser is a hazard.

It's important to note that each hazard must be assessed in relation to the patient. A staircase without safety gates would not be a hazard for a normal adult, but would be a serious hazard for a toddler. It would depend on which of them was your patient. If you had multiple patients in the same home, it is possible for each of them to have a different PEAT score. Each factor in the home could have different significance for children, the elderly or the disabled.

Children need safety gates, outlet protectors and many other things that fall under the category of "childproofing." The elderly and disabled need safety access that fits their physical abilities, medication safety, climate control and adequate nutrition. You must make it part of your practice to be aware of these issues and how they affect patients throughout their lifespan.

- None: There are no unusual hazards in their home or from their relationships. Household items like knives, stairs, electricity and natural gas are safely used and properly stored.

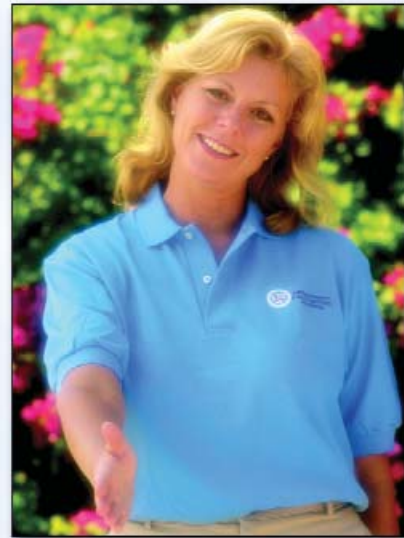
- Possible hazards: Anything that has the reasonable possibility to cause injury or illness. Household items are either unsafely

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used or improperly stored. Don't forget that meningitis, tuberculosis and other diseases like the flu are known to occur at a much higher rate among people who live in unusually close quarters. This is a "possible" hazard for those people. Trip hazards are a common factor among the elderly. Their level of mobility will determine which category of hazard this represents. Each patient must be assessed individually. Verbal abuse rates this category for the reasonable possibility to escalate to physical abuse.

- Probable hazards: Anything that will probably cause injury or illness over time, such as secondhand cigarette smoke, living under power lines, living next to a chemical factory, or rotting garbage or feces in the home. Verbal or physical abuse could fit here, depending on the level of threat. An elderly person with poor mobility and trip hazards in the home would fit this category. Sooner or later, he/she will probably trip and fall, perhaps with serious consequences.

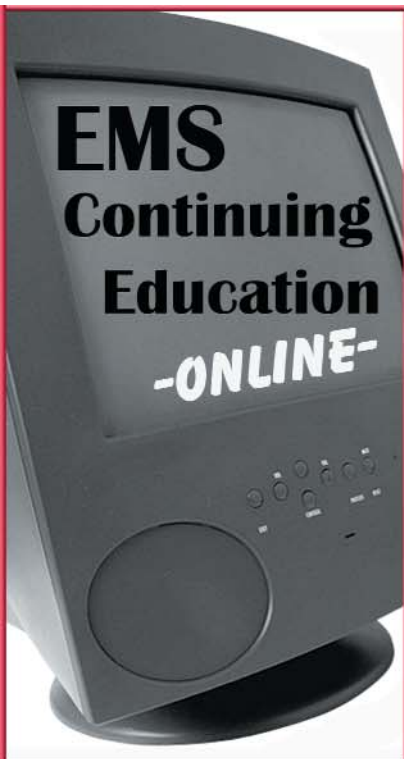
- Certain hazards: Anything that is certain to cause injury or illness. For example, toxic chemicals (meth lab), sharp objects, a family member with the plague or anything else that is blatantly dangerous and will definitely cause injury or illness.

### Environmental Issues vs. Patient Issues

The PEAT scale is not designed to be a "catch-all" tool for global patient assessment. It is to be used to measure the home environment, not cover all health issues. It is important that only factors in the patient's environment be included.

Smoking, for example, is one issue that has potential to cause confusion. As you will see later in the article, smoking qualifies as a factor that will "probably to certainly" negatively impact a patient's health. However, if your patient is a smoker, it's true that it is a health hazard, but not an environmental one. If we remove patients from their environment, they will still smoke. Paradoxically, a nonsmoker who lives with a smoker will lose points because that factor is included in their score. If you take the nonsmoker out of that environment, secondhand smoke will no longer be an issue.

Lifestyle issues like drug abuse, alcoholism and smoking are no doubt bad for people. They are part of the general patient assessment but not the PEAT score. When you have doubts about whether to include something, hypothetically remove the patient from his current environment. If the factor is still present, it is a patient issue, not an environmental one.



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### Scoring

The four categories should be scored individually, then added together. The total score ranges from 7 to 36. The first category, Dwelling, is scored by adding the number of items present where the patient lives. Each category is worth 2 points, so the score range is from 0–8. In all other categories, the score comes from the level chosen. Cleanliness has a range of 1–4, Social Structure a range of 3–12 and Hazards from 3–12.

### Guidelines

Four groups can be used as guidelines for patient follow-up:

- 32–36: This is a normal, healthy home environment.
- 28–31: This is still acceptable, but less than optimal. The patient may or may not benefit from referral assistance.
- 17–27: These patients need help that can probably be accomplished with referral assistance.
- 7–16: These patients are in danger and warrant immediate intervention.

It is important to note that the scoring guidelines given here are based on a typical Western lifestyle. Persons living in the developing world or in primitive societies should be scored the same, with the guidelines adjusted to what is considered normal in their environment.

Although living in a village without running water or electricity might be acceptable and normal in some patients' locations, it does have an impact on their health. Their guidelines should be adjusted to fit what is normal and acceptable in the context of their environment. In the bigger view, their village needs these things to improve the general standard of health, but efforts should be directed toward what is a practical achievement for individual patients.

### Follow-up

Any score that falls below 28 should be investigated. Naturally, not every patient will fit nicely into the guidelines given. A check box for follow-up is provided so, regardless of score, the provider may indicate that the patient needs some referral assistance. Check follow-up "Yes" when the patient needs some kind of follow-up but scores in the normal range. Check follow-up "No" when the patient's score is lower than normal but the home environment is acceptable.

Each line has a small letter before the category title. Use that letter as a reference to document on the "Notes" line any explanation or issue when needed. Let's say your

patient has a roommate who is definitely undesirable. Check "lives with others," then document on the Notes line "roommate is a drug dealer and steals from the patient," or whatever is appropriate. This particular situation would probably rate a "possible or probable" hazard, depending on the situation.

### What Will This Add to Patient Assessment?

Not too much, actually. When in the patient's home, look around. Take note of any gross safety issues and the general cleanliness and condition. A 55-gallon drum of Ethyl Methyl Death will surely catch your eye. A quick look in the kitchen will tell you their level of food safety.

It's a given there will be hazards that you don't see because they are hidden or in a different part of the home. It's not appropriate to search the house. You can only document what is reasonable to observe during an EMS call.

The presence of abuse will have to be ascertained by asking the patient, unless you witness it yourself. Ask the patient in private if he/she is safe.

The disabled, elderly and children have specific assessments. You need to be familiar with lifespan issues so you will know exactly what to look for in those situations.

If the patient is received outside their home, the scale can still be used by simply asking about their home; however, this would be inappropriate if the patient is in distress, in pain or critically ill. They must obviously be cognitively able to answer your questions appropriately.

### How Will the PEAT Scale Be Used?

Field crews will fill out the scale and record the patient's score on the patient care report. Anyone involved in the patient's care will then be able to see the score and act on it, if needed. Social services or any other appropriate service can be activated by the patient's ED nurse or doctor, consulting physician, discharge planner or primary care physician.

EMS can use the score to perform home visits, health screening or referrals. It is frustrating to pick up a "frequent flyer" who gets discharged to the same environment that got him sick in the first place. With early identification, maybe we can help them become healthier.

### Case Studies

You can practice by filling out the scale on

the information given below, then compare with the scores provided.

1. Your patient is a 37-year-old housewife who lives in a million-dollar home with frequent maid service. You are called to her house because she was injured in a domestic argument.

Dwelling=8  
Cleanliness=4  
Social structure=3  
Hazards=3  
Total=18

She has a “certain” risk of being injured from abuse as this has already occurred.

2. Your patient is a 56-year-old homeless alcoholic who is often too drunk to seek shelter, but is otherwise healthy. He has no close friends or companions and is free of any abuse. You find him lying in dew-soaked grass in cold temperatures.

Dwelling=0  
Cleanliness=1  
Social structure=9  
Hazards=6  
Total=16

His Hazard score is low because his environment, over time, will “probably” cause him illness or injury. If he will accept it, he needs active help.

3. Your patient is a 26-year-old Latina female who lives in a mildly cluttered mobile home with eight other family members. She is free of abuse.

Dwelling=8  
Cleanliness=3  
Social structure=12  
Hazards=9  
Total=32

The relatively crowded home represents a “possible” hazard from infectious disease but is otherwise acceptable.

4. Your patient is a four-year-old male who lives with his mother and her boyfriend in public housing. Though the apartment is clean (mild clutter), there are dirty needles and broken crack vials throughout the stairwells. The patient appears to be well cared for by his mother, but the boyfriend makes several derogatory comments to the patient. The patient visibly wilts when this occurs.

Dwelling=8  
Cleanliness=3  
Social structure=6  
Hazards=6  
Total=23

This child needs help. The boyfriend’s relationship appears to be harmful, and sooner or later the child is “probably” going to get stuck by a dirty needle. Counseling the mother on relationships and educating her to

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the dangers of needlesticks may make a significant difference for the patient.

5. Your patient is a 19-year-old female college student who lives off campus with her best friend. She is free of abuse. Their place is cluttered with dirty dishes in the sink.

Dwelling=8  
Cleanliness=2  
Social structure=12  
Hazards=12  
Total=34

Her home environment is acceptable.

6. Your patient is a 48-year-old disabled male who lives in a cabin in the woods with his supportive wife. The cabin is weather-proofed and has a wood stove, but no water or electricity. They live with several animals that defecate indoors, and both he and his wife smoke.

Dwelling=4  
Cleanliness=1  
Social structure=12  
Hazards=6  
Total=23

Although this couple can probably get by as they have been, they have several issues that will someday adversely affect their health. Counseling or referral action might help them stay healthier, longer.

### Trending

Eighty-seven-year-old Herb Sanders recently moved to town with his wife of 50 years. He is an insulin-dependent diabetic, has COPD and uses a walker. His wife calls 9-1-1 one evening because Herb's glucose has plummeted. He is transported to the ED, and the EMS crew documents the following PEAT score: 8-3-12-9. They note that, due to clutter and Herb's poor ability to ambulate, there are numerous trip hazards present. His total score is 32.

Several months later, Mrs. Sanders dies. A few days after this traumatic event, Herb trips in his home and injures his arm. Although he ends up signing a refusal, the crew documents his PEAT score as: 8-2-9-9. His total is now 28.

Over the next few months, Mr. Sanders tries to adjust, somewhat unsuccessfully, to life alone. He has an exacerbation of his COPD and calls 9-1-1; this time, his PEAT scale is: 8-1-9-6. The crew documents that there is dog feces all over the house and the patient has been walking through it in his slippers. They feel this represents a "probable" health hazard. His score now totals 24.

The local EMS agency uses the PEAT scale on all patients and enters it into a database. They have designated a PEAT score below 28 as their "alert" number. The follow-up coordinator, Theresa Graff, reviews



This stairwell is properly protected by a gate. Make it your business to recognize common hazards to children and the elderly.

the "alert" list on a daily basis, and, when she sees his score of 24, she pulls up his history and recognizes the downward trend. On Mr. Sanders' discharge from the hospital, she schedules a home visit.

Fortunately, Mr. Sanders has good health coverage and considerable savings. Together, they work out a plan that includes a house-cleaning service, biweekly home health care, Life Alert help button, Meals on Wheels, and a weekly visit to an elder center. Theresa also cues her database to notify her of any further PEAT scores entered on this patient. She will also check on him and document his PEAT scores monthly for six months.

Six weeks later, she is gratified to see that his PEAT score has risen to 8-4-9-12, for a total of 33. Mr. Sanders is making friends, his health has been good, and his attitude is distinctly more upbeat.

Although his medical conditions will probably some day lead to a higher level of care, for now he is stable and able to enjoy independent living.

### Future of the PEAT Scale

The PEAT scale is currently the focus of a study to:

- Measure interrater accuracy.
- Determine if the PEAT scale is a viable, useful tool.
- Determine if data gathered can be used for expanded EMS services like follow-up home checks.
- See if the PEAT score has any impact on patient treatment pathways or referrals.

It is hoped that the PEAT scale will increase awareness and communication between hospital and prehospital providers. ■

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*Chris Hendricks is an author and paramedic field instructor in Boulder, CO. He welcomes your comments at medic2033@hotmail.com.*