

S1: Medical Standards for Safety Critical Workers with Seizures of Unknown Cause



DEFINITIONS AND CLASSIFICATION

1. Seizure or Epilepsy of Unknown Cause are the classifications used in these medical standards for a probable seizure(s), when the cause of the seizure has not yet been determined based on available information. The definitions for Seizures of Unknown Cause used in these medical standards are:
 - **Single Seizure of Unknown Cause** – single seizure where the probable cause for the seizure has not yet been determined
 - **Epilepsy of Unknown Cause** – two or more seizures (at least 24 hours apart) where the probable cause for the seizures has not yet been determined
2. When a person is classified in these medical standards with a Seizure or Epilepsy of Unknown Cause, this is based on available information. If a probable cause for the seizure(s) is later determined, then the employee's seizure(s) should be re-classified based on the probable cause. These medical standards should then be used to assign updated medical work restrictions for those with revised classifications.
3. For these medical standards, which are intended to ensure the safety of the worker and others, UPRR Health and Medical Services (HMS) will make the final classification of an employee's health condition (based on available information) when making fitness-for-duty determinations for workers in safety critical positions.

REQUIREMENTS FOR A THOROUGH MEDICAL EVALUATION

1. If HMS determines that, based on available information, a worker in a safety critical position has probably had a Seizure of Unknown Cause, then HMS will apply ongoing work restrictions until a thorough medical evaluation for seizures is done that includes these components:
 - **Required:** comprehensive evaluation by a neurologist, MRI brain scan, and electroencephalogram (EEG)
 - **Required:** focused medical evaluations to assess other possible causes of seizures(s)
 - **Additional evaluations:** may be required by HMS (to be individually determined)
2. In stating these requirements for a thorough medical evaluation, HMS is not directing medical care, but is specifying information needed for HMS to make an informed fitness-for-duty determination in the interest of safety. It is the responsibility of the employee to obtain required medical evaluations.

WORK RESTRICTIONS FOR SUDDEN INCAPACITATION (SI) RISK

MEDICAL CONDITION / DIAGNOSIS	DURATION
Single Seizure of Unknown Cause	5-year minimum waiting period*
Epilepsy of Unknown Cause	10-year minimum waiting period*

*During the minimum waiting period the person must be seizure-free and off anti-epilepsy drugs

WORK RESTRICTIONS AND CRITERIA FOR RETURN TO WORK

UPRR work restrictions for sudden incapacitation risk:

1. UPRR considers health conditions with a risk for sudden incapacitation greater than a 1% per year occurrence rate to pose an unacceptable risk for safety critical work, requiring work restrictions.
2. Work restrictions for sudden incapacitation restrict functional work activities that may affect the health and safety of the worker or others (e.g., operating vehicles or equipment).
3. Work restrictions for an unacceptable risk for seizures may include a "minimum waiting period" before returning to work. This minimum waiting period is the length of time since the last seizure or health event of concern (e.g., stroke), or since the last use of anti-epilepsy drugs, whichever is longer.
4. For workers determined to have a current unacceptable risk for seizures, no medical or surgical treatments will reduce the risk for future seizures to an acceptable level for safety critical work (during the period of assigned work restrictions).

To remove work restrictions for sudden incapacitation risk, the following conditions must be met:

1. Employee must complete the minimum waiting period while seizure-free and off anti-epilepsy drugs.
2. Employee must have a recent evaluation by a neurologist (including any tests required by UPRR), with exam records sent to UPRR Health and Medical Services (HMS) for review.
3. If after reviewing all information, HMS determines the employee currently has a low and acceptable level risk for future seizures and other health-related safety risks, then HMS may remove the employee's work restrictions for sudden incapacitation risk.
4. If all the conditions above are not met, then HMS will continue the employee's existing work restrictions and an updated medical fitness for duty evaluation will be done.

If the employee returns to safety critical work:

1. Medical Monitoring by HMS is required after return to work. This requires the employee to obtain a thorough evaluation by a neurologist at least annually, with the records sent to HMS for review. The employee is responsible for this evaluation.
2. The employee must also inform HMS of any Reportable Health Event (i.e., a change in health status that may affect safety at work) as stated in the UPRR Medical Rules.

S2: Medical Standards for Safety Critical Workers with Seizures Related to Structural Brain Injury



WORK RESTRICTIONS FOR SUDDEN INCAPACITATION (SI) RISK

MEDICAL CONDITION / DIAGNOSIS	DURATION
Intracranial Tumors of the Brain or Meninges	
Malignant tumor (in any location) – with or without a related seizure	Permanent work restrictions
Nonmalignant tumor – supratentorial area (cortical or subcortical) <ul style="list-style-type: none"> with or without related seizure 	Permanent work restrictions
Nonmalignant tumor – infratentorial (cerebellum, brain stem, or pituitary) <ul style="list-style-type: none"> no related seizure – if the tumor has been removed or treated no related seizure – if the tumor has not been removed or treated with related seizure – whether or not tumor is removed or treated 	1-year waiting period after surgery Ongoing work restrictions Permanent work restrictions
Stroke, Intracerebral Hemorrhage (ICH), or Subarachnoid Hemorrhage (SAH)	
Stroke, ICH or SAH - supratentorial (cortical or subcortical) <ul style="list-style-type: none"> no related seizure with related seizure (either early or late seizure) 	5-year waiting period after event* Permanent work restrictions
Stroke, ICH or SAH – infratentorial (cerebellum, brain stem, or pituitary) <ul style="list-style-type: none"> no related seizure with related seizure (either early or late seizure) 	1-year waiting period after event* Permanent work restrictions
Transient Ischemic Attack (TIA) – affecting any area of the brain (a TIA poses risk for a future TIA or stroke, but not for future seizures)	1-year waiting period after TIA*
Cerebral Aneurysm or Vascular Malformation (Arteriovenous Malformation or Cavernous Angioma)	
Cerebral aneurysm or vascular malformation – in any location of brain <ul style="list-style-type: none"> no related seizure – with no hemorrhage affecting the brain no related seizure – with related hemorrhage affecting the brain with related seizure – whether or not this is treated or removed 	Individually evaluate seizure risk Apply restrictions for ICH or SAH Permanent work restrictions
Other Structural Brain Injury or Abnormality – and Surgery Penetrating the Dura of the Brain	
History of surgery penetrating the dura – supratentorial area (cortical or subcortical) – with or without related seizure	Permanent work restrictions
History of surgery penetrating the dura - infratentorial area (cerebellum, brain stem, or pituitary) <ul style="list-style-type: none"> no related seizure with related seizure 	1-year waiting period after surgery* Permanent work restrictions
Other structural brain abnormality – of known or unknown cause <ul style="list-style-type: none"> no related seizure with related seizure 	Individually evaluate seizure risk Permanent work restrictions

*During the minimum waiting period the person must be seizure-free and off anti-epilepsy drugs

WORK RESTRICTIONS AND CRITERIA FOR RETURN TO WORK

UPRR work restrictions for sudden incapacitation risk:

- UPRR considers health conditions with a risk for sudden incapacitation greater than a 1% per year occurrence rate to pose an unacceptable risk for safety critical work, requiring work restrictions.
- Work restrictions for sudden incapacitation restrict functional work activities that may affect the health and safety of the worker or others (e.g., operating vehicles or equipment).
- Work restrictions for an unacceptable risk for seizures may include a “minimum waiting period” before returning to work. This minimum waiting period is the length of time since the last seizure or health event of concern (e.g., stroke), or since the last use of anti-epilepsy drugs, whichever is longer.
- For workers determined to have a current unacceptable risk for seizures, no medical or surgical treatments will reduce the risk for future seizures to an acceptable level for safety critical work (during the period of assigned work restrictions).

To remove work restrictions for sudden incapacitation risk, the following conditions must be met:

- Employee must complete the minimum waiting period while seizure-free and off anti-epilepsy drugs.
- Employee must have a recent evaluation by a neurologist (including any tests required by UPRR), with exam records sent to UPRR Health and Medical Services (HMS) for review.
- If after reviewing all information, HMS determines the employee currently has a low and acceptable level risk for future seizures and other health-related safety risks, then HMS may remove the employee’s work restrictions for sudden incapacitation risk.
- If all the conditions above are not met, then HMS will continue the employee’s existing work restrictions and an updated medical fitness for duty evaluation will be done.

If the employee returns to safety critical work:

- Medical Monitoring by HMS is required after return to work. This requires the employee to obtain a thorough evaluation by a neurologist at least annually, with the records sent to HMS for review. The employee is responsible for this evaluation.
- The employee must also inform HMS of any Reportable Health Event (i.e., a change in health status that may affect safety at work) as stated in the UPRR Medical Rules.

S3: Medical Standards for Safety Critical Workers with Seizures Related to Traumatic Brain Injury (TBI)



DEFINITIONS AND CLASSIFICATION

The following operational definitions of Traumatic Brain Injury (TBI) apply to these medical standards:

- Mild TBI** is defined as head trauma where the person had loss of consciousness (LOC) or amnesia lasting less than 30 minutes after the TBI event, and there was no penetrating brain injury
- Moderate TBI** is defined as head trauma where the person had loss of consciousness (LOC) or amnesia lasting from 30 minutes to 24 hours after the TBI event, and there was no penetrating brain injury
- Severe TBI** is defined as head trauma where the person had loss of consciousness (LOC) or amnesia lasting for 24 hours or more after the TBI event, or there was penetrating brain injury

Note: For these medical standards, if an employee with TBI also had evidence of other health conditions that pose a risk for future seizures (e.g., intracerebral hemorrhage or surgery penetrating the dura of the brain), then the most stringent work restrictions (e.g., with the longest minimum waiting period) should be applied.

WORK RESTRICTIONS FOR SUDDEN INCAPACITATION (SI) RISK

MEDICAL CONDITION / DIAGNOSIS	DURATION
Mild Traumatic Brain Injury (TBI)	
Mild TBI – no related seizure (no early or late seizure)	1-year minimum waiting period*
Mild TBI – with early seizure (within 7 days of the TBI event) – but with no late seizure	2-year minimum waiting period*
Mild TBI – with late seizure (more than 7 days after the TBI event)	Permanent work restrictions
Moderate Traumatic Brain Injury (TBI)	
Moderate TBI – no related seizure (no early or late seizure)	2-year minimum waiting period*
Moderate TBI – with early seizure (within 7 days of the TBI event) – but with no late seizure	5-year minimum waiting period*
Moderate TBI – with late seizure (more than 7 days after the TBI event)	Permanent work restrictions
Severe Traumatic Brain Injury (TBI)	
Severe TBI – whether or not a related early or late seizure occurred	Permanent work restrictions

*During the minimum waiting period the person must be seizure-free and off anti-epilepsy drugs

WORK RESTRICTIONS AND CRITERIA FOR RETURN TO WORK

UPRR work restrictions for sudden incapacitation risk:

- UPRR considers health conditions with a risk for sudden incapacitation greater than a 1% per year occurrence rate to pose an unacceptable risk for safety critical work, requiring work restrictions.
- Work restrictions for sudden incapacitation restrict functional work activities that may affect the health and safety of the worker or others (e.g., operating vehicles or equipment).
- Work restrictions for an unacceptable risk for seizures may include a “minimum waiting period” before returning to work. This minimum waiting period is the length of time since the last seizure or health event of concern (e.g., stroke), or since the last use of anti-epilepsy drugs, whichever is longer.
- For workers determined to have a current unacceptable risk for seizures, no medical or surgical treatments will reduce the risk for future seizures to an acceptable level for safety critical work (during the period of assigned work restrictions).

To remove work restrictions for sudden incapacitation risk, the following conditions must be met:

- Employee must complete the minimum waiting period while seizure-free and off anti-epilepsy drugs.
- Employee must have a recent evaluation by a neurologist (including any tests required by UPRR), with exam records sent to UPRR Health and Medical Services (HMS) for review.
- If after reviewing all information, HMS determines the employee currently has a low and acceptable level risk for future seizures and other health-related safety risks, then HMS may remove the employee’s work restrictions for sudden incapacitation risk.
- If all the conditions above are not met, then HMS will continue the employee’s existing work restrictions and an updated medical fitness for duty evaluation will be done.

If the employee returns to safety critical work:

- Medical Monitoring by HMS is required after return to work. This requires the employee to obtain a thorough evaluation by a neurologist at least annually, with the records sent to HMS for review. The employee is responsible for this evaluation.
- The employee must also inform HMS of any Reportable Health Event (i.e., a change in health status that may affect safety at work) as stated in the UPRR Medical Rules.

S4: Medical Standards for Safety Critical Workers with Seizures Related to Metabolic/Toxic Brain Insults or Brain Infections



DEFINITIONS AND CLASSIFICATION

1. A metabolic/toxic event may be considered a probable cause of seizures if adequate scientific evidence shows:
 - a. Such a metabolic/toxic event has been proven to cause seizures in persons without pre-existing epilepsy;
 - b. The metabolic/toxic event in this case was sufficient (in intensity, timing, etc.) to cause the seizure; and
 - c. There is no other more probable cause of the seizure in this case.
2. A seizure is not considered caused by alcohol, drugs or other factors if the only effect of these factors was to lower the seizure threshold. In this case, the person is presumed to have pre-existing epilepsy and the precedent factors are seen as precipitating the seizure, but are not considered to be the underlying cause of the seizure.
3. Differentiating Early versus Late Seizures (related to Metabolic / Toxic Brain Insults or Brain Infections)
 - a. **Early Seizure** – occurring within 7 days of the event (i.e., initial symptomatic phase of illness)
 - b. **Late Seizure** – occurring more than 7 days after the acute event (i.e., initial symptomatic phase of illness)

WORK RESTRICTIONS FOR SUDDEN INCAPACITATION (SI) RISK

MEDICAL CONDITION / DIAGNOSIS	DURATION
Seizures related to Metabolic/Toxic Brain Insults	
Early seizure(s) caused by alcohol or drug withdrawal syndrome – for drugs proven to cause withdrawal seizures	6-month minimum waiting period*
Early seizure(s) caused by use of a drug at non-toxic levels – for drugs proven to cause seizures at non-toxic levels	6-month minimum waiting period*
Early seizure(s) caused by drug overdose or acute severe toxicity – from drugs or other toxic substances (if causation is established)	1-year minimum waiting period*
Early Seizure(s) caused by hyponatremia (if causation is established)	1-year minimum waiting period*
Early seizure(s) caused by single episode of severe hypoglycemia within prior 2 years – (from use of insulin or oral hypoglycemic drugs)	2-year minimum waiting period*
Early seizures caused by 2 or more episodes of severe hypoglycemia within the past 5 years	5-year minimum waiting period*
Early seizure(s) caused by severe hyperosmolar hyperglycemic state (due to severe uncontrolled diabetes mellitus)	5-year minimum waiting period*
Early seizure(s) caused by other metabolic/toxic brain insults (if causation is established)	Individually evaluate seizure risk
Late seizure caused by (attributed to) prior metabolic/toxic brain insult (if causation is established)	Permanent work restrictions
Seizures related to Brain Infections	
Brain infections – with or without related early or late seizure (e.g., bacterial meningitis, viral encephalitis, or neurocysticercosis)	Individually evaluate seizure risk

*During the minimum waiting period the person must be seizure-free and off anti-epilepsy drugs

WORK RESTRICTIONS AND CRITERIA FOR RETURN TO WORK

UPRR work restrictions for sudden incapacitation risk:

1. UPRR considers health conditions with a risk for sudden incapacitation greater than a 1% per year occurrence rate to pose an unacceptable risk for safety critical work, requiring work restrictions.
2. Work restrictions for sudden incapacitation restrict functional work activities that may affect the health and safety of the worker or others (e.g., operating vehicles or equipment).
3. Work restrictions for an unacceptable risk for seizures may include a “minimum waiting period” before returning to work. This minimum waiting period is the length of time since the last seizure or health event of concern (e.g., stroke), or since the last use of anti-epilepsy drugs, whichever is longer.
4. For workers determined to have a current unacceptable risk for seizures, no medical or surgical treatments will reduce the risk for future seizures to an acceptable level for safety critical work (during the period of assigned work restrictions).

To remove work restrictions for sudden incapacitation risk, the following conditions must be met:

1. Employee must complete the minimum waiting period while seizure-free and off anti-epilepsy drugs.
2. Employee must have a recent evaluation by a neurologist (including any tests required by UPRR), with exam records sent to UPRR Health and Medical Services (HMS) for review.
3. If after reviewing all information, HMS determines the employee currently has a low and acceptable level risk for future seizures and other health-related safety risks, then HMS may remove the employee’s work restrictions for sudden incapacitation risk.
4. If all the conditions above are not met, then HMS will continue the employee’s existing work restrictions and an updated medical fitness for duty evaluation will be done.

If the employee returns to safety critical work:

1. Medical Monitoring by HMS is required after return to work. This requires the employee to obtain a thorough evaluation by a neurologist at least annually, with the records sent to HMS for review. The employee is responsible for this evaluation.
2. The employee must also inform HMS of any Reportable Health Event (i.e., a change in health status that may affect safety at work) as stated in the UPRR Medical Rules.

S5: Medical Standards for Safety Critical Workers with Loss of Consciousness of Unknown Cause



DEFINITIONS AND CLASSIFICATION

Loss of Consciousness (LOC) Unknown Cause is the classification used in these medical standards for a probable LOC event, when the specific type and cause of the LOC event has not yet been determined based on available information. The definitions for LOC of Unknown Cause used in these medical standards are:

- **Single Episode LOC of Unknown Cause** – with no prior LOC episode of unknown cause in past 5 years
- **Multiple Episodes LOC of Unknown Cause** – with one or more prior LOC episode of unknown cause in past 5 years

REQUIREMENTS FOR A THOROUGH MEDICAL EVALUATION

1. If based on available information, UPRR Health and Medical Services (HMS) determines an employee had a probable Loss of Consciousness (LOC) of Unknown Cause, then HMS will assign ongoing work restrictions for sudden incapacitation risk until a thorough medical evaluation for LOC is done with these components:
 - **Required:** comprehensive evaluation by a neurologist, MRI brain scan, and electroencephalogram (EEG)
 - **Required:** comprehensive evaluation by a cardiologist, echocardiogram, electrocardiogram, and maximal Exercise Tolerance Test (Bruce Protocol) to assess cardiac status and aerobic capacity
 - **Required:** focused medical evaluations to assess other possible causes of LOC
 - **Additional evaluations:** may be required by HMS (to be individually determined)
2. In stating requirements for a thorough medical evaluation, HMS is not directing medical care, but is specifying information needed for HMS to make an informed fitness-for-duty determination to in the interest of safety. It is the responsibility of the employee to obtain required medical evaluations.

WORK RESTRICTIONS FOR SUDDEN INCAPACITATION (SI) RISK

MEDICAL CONDITION / DIAGNOSIS	DURATION
Single episode of Loss of Consciousness (LOC) of Unknown Cause If HMS concludes a thorough medical evaluation for LOC was done, but a probable cause for LOC could not be determined, and: <ul style="list-style-type: none"> • No significant risk factors for future LOC events were found • Factors were found that pose an unacceptable risk for future LOC 	1-year minimum waiting period* 5-year minimum waiting period*
Multiple episodes of Loss of Consciousness (LOC) of Unknown Cause If HMS concludes a thorough medical evaluation for LOC was done, but a probable cause for LOC could not be determined, and: <ul style="list-style-type: none"> • No significant risk factors for future LOC events were found • Factors were found that pose an unacceptable risk for future LOC 	5-year minimum waiting period* Ongoing work restrictions – until a probable cause for LOC is identified
Any episode(s) of Loss of Consciousness (LOC) of Unknown Cause If HMS concludes a thorough medical evaluation has not been done	Ongoing work restrictions - until thorough medical evaluation is done

*During the minimum waiting period the person must be seizure-free and off anti-epilepsy drugs

WORK RESTRICTIONS AND CRITERIA FOR RETURN TO WORK

UPRR work restrictions for sudden incapacitation risk:

1. UPRR considers health conditions with a risk for sudden incapacitation greater than a 1% per year occurrence rate to pose an unacceptable risk for safety critical work, requiring work restrictions.
2. Work restrictions for sudden incapacitation restrict functional work activities that may affect the health and safety of the worker or others (e.g., operating vehicles or equipment).
3. Work restrictions for an unacceptable risk for seizures may include a “minimum waiting period” before returning to work. This minimum waiting period is the length of time since the last seizure or health event of concern (e.g., stroke), or since the last use of anti-epilepsy drugs, whichever is longer.
4. For workers determined to have a current unacceptable risk for seizures, no medical or surgical treatments will reduce the risk for future seizures to an acceptable level for safety critical work (during the period of assigned work restrictions).

To remove work restrictions for sudden incapacitation risk, the following conditions must be met:

1. Employee must complete the minimum waiting period while seizure-free and off anti-epilepsy drugs.
2. Employee must have a recent evaluation by a neurologist (including any tests required by UPRR), with exam records sent to UPRR Health and Medical Services (HMS) for review.
3. If after reviewing all information, HMS determines the employee currently has a low and acceptable level risk for future seizures and other health-related safety risks, then HMS may remove the employee’s work restrictions for sudden incapacitation risk.
4. If all the conditions above are not met, then HMS will continue the employee’s existing work restrictions and an updated medical fitness for duty evaluation will be done.

If the employee returns to safety critical work:

1. Medical Monitoring by HMS is required after return to work. This requires the employee to obtain a thorough evaluation by a neurologist at least annually, with the records sent to HMS for review. The employee is responsible for this evaluation.
2. The employee must also inform HMS of any Reportable Health Event (i.e., a change in health status that may affect safety at work) as stated in the UPRR Medical Rules.