



华大医疗

脑死亡 定义

一些家庭对“脑死亡”的含义存在疑问。本讲义提供了其他人认为有用的信息。它解释了医生如何根据一个人的大脑功能确定一个人已经死亡。

什么是脑死亡？

脑死亡是死亡的法律定义。这是“包括脑干在内的整个大脑全部功能完全并无法逆转的停止。”

当一个人脑死时，他们的脑部创伤或疾病非常严重，以至他们无法康复。在这一点上，他们不能自己呼吸。呼吸必须由称为呼吸机的机器完成。这可能会令人困惑，因为他们的心脏一直在跳动，而且他们看起来可能只是睡着了。但他们的心跳是因机器让空气通过他们的肺。



我们希望此讲义在这困难期间可以帮助到您。

这对于在场的家人来说可能很难。他们可能想相信他们所爱的人只是在睡觉。但是当呼吸机关闭时，呼吸就会停止。不久之后，心脏也会停止。

医生如何判断一个人是否脑死亡？

医生评估大脑损伤程度的一种方法是测试大脑的工作情况。他们可能会看一个人是否可以通过移动他们的双臂或腿来遵循简单的命令或对物理刺激做出反应。他们还可能测试由脑干控制的任务，例如眨眼、作呕、咳嗽以及眼睛对光的反应。

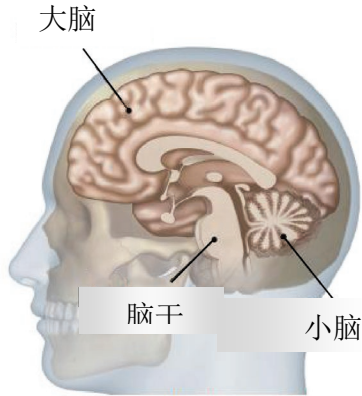
当所有这些都成立时，医生将评估一个人的脑死亡：

- 脑损伤的原因是永久性的。
- 没有大脑或脑干功能的证据。

排除其他因素，例如药物或体温过低。

预期

脑死亡的诊断基于医学和法律标准。诊断需要 2 位不同的医生在 2 个不同的时间评估患者的病情。这些医生都是诊断脑死亡的专家。



此图显示了大脑中称为脑干、小脑和大脑的部分。脑干控制基本任务，例如呼吸、吞咽、心率和血压。它还将大脑连接到脊髓。

医生将进行法律要求的医学检查。要宣布脑死亡，两位医生必须发现：

没有对疼痛作出反应的运动功能。医生会检查对可能引起不适的事物的运动反应（动作），例如耳垂或肩部的用力挤压。有时可能会出现脊髓反射，例如抽搐或肌肉收缩，但这些不是运动反应。

无脑干反射。医生会用光照射患者的眼睛以寻找反应。他们还会触摸患者的眼睛并留意眨眼。他们会触摸喉咙后部，看他们是否咳嗽或作呕。另一项测试涉及将冰水放入人的耳朵并观察他们的眼球运动。

- **没有呼吸机的帮助无法呼吸。**在短时间内，呼吸治疗师和医生会断开患者与呼吸机的连接，并检查血液中不断升高的二氧化碳水平是否会刺激患者呼吸。
- 有时还需要其他测试。请您的医生解释或向您展示他们如何评估您所爱的人是否患有脑死亡。

一个人被宣布脑死亡后会发生什么？

如果有人脑死亡，他们已经死了。脑死亡是永久性的，无法逆转，无法恢复。

在呼吸机工作时，被宣布死亡的人可能仍然有心脏跳动。但是他们的大脑不再发送告诉身体呼吸的信号。没有呼吸机，身体无法呼吸，心脏很快就会停止。

法定死亡时间是医生宣布脑死亡的时间。这不是移除呼吸机时的时间。当医生宣布脑死亡时，我们将开始停止所有维持身体肺、心脏和其他器官工作的医疗护理。

如果死者希望成为器官捐赠者，我们可能会在他们被宣布脑死亡后让呼吸机继续工作。器官捐献机构的工作人员会讲解捐献流程。这些工作人员不是医院工作人员。

评估患者脑死亡的医生不是器官捐赠组织的工作人员。这些医生也不能让患者在器官移植等候名单上。

我们随时为您提供帮助

与脑死亡的亲人告别可能非常困难。当呼吸机用氧气填充他们的肺部时，您所爱的人可能摸起来有温度和脸上有血色。

一些家庭希望在移除呼吸机时留在房间里。有些家庭决定在宣布脑死亡后立即回家。

您和您家人将决定您想怎么做。请告诉护士您和您家人需求。我们在这里为您提供支持。

如果您和您的家人想留下来，您可能会遵循大多数家庭传统、仪式和典礼。如果您希望医院的精神服务人员在场，请告诉您的护士。

其他家庭的问题

我们所爱的人有没有可能只是处于昏迷或植物人状态？

不。脑死亡不是昏迷或植物人状态。昏迷的人有大脑活动。处于植物人状态的人的脑中通常具有允许他们呼吸的功能。一旦发生脑死亡，所有大脑功能都会停止。

有没有人从脑死亡中恢复过来？

不，死亡是永久性的。如果有人声称已经从脑死亡中恢复过来，那么诊断是错误的。

还有什么可以做的吗？

在宣布脑死亡之前，我们将根据他们的预先医疗指示中显示的愿望，尽一切可能挽救您所爱的人的生命。脑死亡后，就没有恢复的机会。

健康保险是否会影响脑死亡的诊断？

不可以。脑死亡的诊断与财务问题完全分开。医生有责任在死亡发生时宣布死亡。

如果医生说的话与我们的文化或宗教不符，我们该怎么办？

与您的医生、护士、社会工作者或牧师交谈。您可以带您的宗教领袖或可信赖的朋友到医院与医院团队交谈，或者您可以要求与医院的精神护理服务人员交谈。

请向我们提出您的任何问题。

疑虑？

您的问题很重要。如果您有任何疑虑，请告诉我们。

Brain Death

What it means

Some families have questions about what “brain death” means. This handout offers information that others have found helpful. It explains how doctors decide that a person is dead based on their brain function.

What is brain death?

Brain death is the legal definition of death. It is “the complete and irreversible cessation (stopping) of all functions of the entire brain, including the brainstem.”

When a person is brain dead, their brain injury or illness is so severe that they cannot possibly recover. At this point, they cannot breathe on their own. Breathing must be done by a machine called a *ventilator*. It can be confusing, because their heart keeps beating, and they may look like they are just asleep. But their heart is beating only because the machine is moving air through their lungs.

This can be hard for families who are present. They may want to believe that their loved one is just sleeping. But when the ventilator is turned off, breathing will stop. Soon after that, the heart will also stop.

How do doctors decide if a person is brain dead?

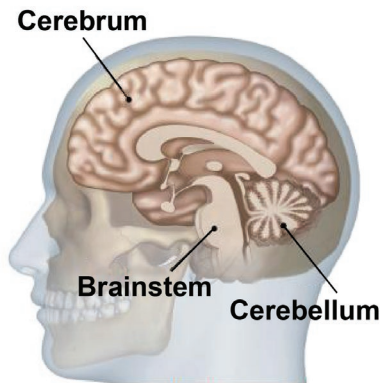
One way doctors assess how badly the brain has been injured is by testing how well it is working. They may see if a person can follow simple commands or respond to physical stimulation by moving their arms or legs. They may also test tasks that the brainstem controls, such as blinking, gagging, coughing, and how the eyes respond to light.

Doctors will assess a person for brain death when all of these are true:

- The cause of the brain injury is permanent.
- There is no evidence of brain or brainstem function.
- Other factors are ruled out, such as drugs or low body temperature.



We hope that this handout is helpful at this difficult time.



This drawing shows the parts of the brain called the brainstem, cerebellum, and cerebrum. The brainstem controls basic tasks such as breathing, swallowing, heart rate, and blood pressure. It also connects the brain to the spinal cord.

What to Expect

A diagnosis of brain death is based on medical and legal standards. The diagnosis requires 2 different doctors to assess a patient's condition at 2 different times. These doctors are experts in diagnosing brain death.

The doctors will do medical tests that are required by law. To declare brain death, both doctors must find that there is:

- **No motor function in response to pain.** The doctors will check for a *motor response* (movement) to something that can cause discomfort, like a hard squeeze of the earlobe or shoulder. Sometimes spinal cord reflexes, such as twitching or muscle contractions, may occur, but these are not motor responses.
- **No brainstem reflexes.** The doctors will shine a light at the person's eyes to look for a reaction. They will also touch their eyes and watch for a blink. They will touch the back of their throat to see if they cough or gag. Another test involves putting ice water in the person's ears and watching their eye movement.
- **Cannot breathe without the help of the ventilator.** For a short time, the respiratory therapist and doctor will disconnect the person from the ventilator and check to see if the rising carbon dioxide levels in the blood stimulate the person to take a breath.

Sometimes other testing is needed. Ask your doctor to explain or show you how they assessed your loved one for brain death.

What happens after someone is declared brain dead?

If someone is brain dead, they have died. Brain death is permanent and cannot be reversed. There is no recovery.

A person who has been declared dead may still have a beating heart while the ventilator is working. But their brain is no longer sending the signals that tell the body to breathe. Without the ventilator, the body cannot breathe and the heart will soon stop.

The legal time of death is when the doctor declares brain death.

This is **not** when the ventilator is removed. When the doctor declares brain death, we will begin the process of stopping all medical care that keeps the body's lungs, heart, and other organs working.

If the deceased wished to be an organ donor, we may keep the ventilator working after they are declared brain dead. Staff from the organ donation organization will explain the donation process. These staff are **not** hospital staff.

Doctors who assess patients for brain death are **not** staff from the organ donation organization. These doctors also cannot have patients on the organ transplant waiting list.

We Are Here to Help

Saying goodbye to a loved one who is brain dead can be very hard. Your loved one may be warm to the touch and have color in their face while the ventilator fills their lungs with oxygen.

Some families want to stay in the room while the ventilator is removed. Other families decide to go home right after brain death is declared.

You and your family will decide what you want to do. Please tell the nurse what you and your family need. We are here to support you.

If you and your family want to stay, you may practice most family traditions, rites, and rituals. Tell your nurse if you would like someone from the hospital's spiritual services to be present.

Questions Other Families Have Had

Is it possible that our loved one is just in a coma or a vegetative state?

No. Brain death is not a coma or vegetative state. A person in a coma has brain activity. Someone in a vegetative state often has function in the brainstem that allows them to breathe. Once brain death occurs, all brain function stops.

Has anyone ever recovered from brain death?

No. Death is permanent. If anyone claims to have recovered from brain death, then the diagnosis was wrong.

Is there anything else that can be done?

Before brain death is declared, we will do everything possible to save your loved one's life, based on their desires as shown in their advance healthcare directive. After brain death, there is no chance of recovery.

Does health insurance coverage influence a diagnosis of brain death?

No. A diagnosis of brain death is completely separate from financial issues. It is the doctor's duty to pronounce a death when it occurs.

What should we do if the doctors are saying things that do not fit with our culture or religion?

Talk with your doctor, your nurse, your social worker, or a chaplain. You can bring your religious leader or trusted friend to the hospital to talk with the hospital team, or you may ask to talk with the hospital's spiritual care services staff.

Please ask us any questions that you have.

Questions?

Your questions are important. Please talk with us if you have any questions or concerns.