I'm not a bot

A pathologist performs autopsies. Pathology is the branch of medicine that involves the examination of body tissues. You may also hear that a medical examiner performs autopsies. A medical examiner is usually a forensic pathologist who works for the government.What is done during an autopsy?The process of an autopsy can vary depending on the reason for it. Forensic autopsies are often very thorough, examining every part of the body. They also typically include crime scene investigation and toxicology detection of poisons, drugs and chemicals in the body.Medical autopsies may only investigate certain parts of the body. They typically dont do toxicology as part of the autopsies.In general, the steps of an autopsy may include:The pathologist lays the body out carefully on an examination table in a lab.They thoroughly look at the outside of the body. They take notes of anything that looks unusual or may be related to the death.They may take or request photographs and/orX-raysof the body.The pathologist uses a scalpel to cut the body from thecollarboneto the lower abdomen to examine the inside of the body. They may remove all or specific internal tissues and organs.They take small tissue samples from organs to look at under a microscope.The pathologist may cut through the scalp and skull to examine thebrain.They may request various tests on body fluid, tissue and organ samples. Theyll also collect and test any unnatural materials in or on the body (like debris or bullets) in forensic autopsies.After a forensic autopsy, the pathologist places the organs back inside the body, except for the brain, and stitches the skin closed again. After medical autopsies, the pathologist doesnt place the organs back in the body.Once theyve completed all their examinations and tests, they will provide an autopsy report, which will contain all the information they found.The goal of all autopsies is to find or confirm how someone died. But forensic autopsies have additional goals or objectives, including:Establishing the identity of the deceased person if its unknown. Fingerprints and/orDNA testingmay help with this.Assisting in confirming the manner of death (like homicide or accident) based on medical evidence.Estimating the time of death.How long does an autopsy take?It usually takes a pathologist two to four hours to examine a body during an autopsy. They may be able to release early preliminary results within two to three days of the autopsy. But the full results of a medical autopsy typically take six weeks to prepare. Forensic autopsies usually take longer to complete.What are the risks and benefits?Autopsies are important for determining the truth about someones death. Autopsy findings can provide closure to the families. Forensic autopsies are especially helpful when investigators are suspicious of a crime. They can also help improve healthcare and protect public health.Potential benefits of autopsies include:Preventing more deaths: In the past, forensic pathologists have identified public health emergencies, like theanthraxterrorist attacks. Forensic autopsies have led to the discovery of other public health hazards, like defective cribs or car seats that contributed to infant deaths.Improving medical care: Information from clinical autopsies can improve healthcare providers understanding of diseases and how they affect our bodies. It can improve future medical care and treatment for others with a similar cause of death.Discoveringgenetic conditions: In some cases, autopsies reveal that a deceased person died from an undiagnosed genetic condition. This can help biological family members learn more about their risk of having the condition.Providing legal evidence: Forensic autopsies often help with the prosecution of criminal cases like homicides. But there are other ways they can provide legal evidence, which may have grounds for a lawsuit.There are minimal risks to autopsies, but possible risks include:Emotional distress: Families and friends may feel upset about the process, especially if they have cultural or religious beliefs about autopsies. Some may feel uncomfortable with the thought of their loved one getting examined.Damage to the body: There could be minor damage to the body after an autopsy. This could have an impact on funeral arrangements.Delay in funeral or burial: An autopsy could delay services for the deceased person, which can prolong grieving and add additional distress to loved ones. An autopsy is a medical procedure involving the examination of a dead body. An autopsy is sometimes termed an obduction or a post-mortem examination. The word autopsy is derived from the Greek word autopsia, which means "to see with one's own eyes."Autopsies are performed by pathologists, medical doctors who have received specialty training in the diagnosis of diseases by the examination of body fluids and tissues.Autopsies are performed for a variety of reasons, including:to determine the cause of deathto ascertain whether clinical diagnoses are correctto evaluate the effectiveness of medical or surgical treatmentto gain information for the family about possible inherited or genetic conditionsfor teaching and/or research purposes in academic hospitalsto aid in criminal investigations of wrongful deathto provide closure and reassurance for family members who may have questions about diagnoses or treatmentForensic autopsies are a specialized form of autopsy with legal implications that are performed to determine if a given death was an accident, homicide, suicide, or a natural event. In the U.S., an autopsy can be ordered by a coroner or medical examiner if there are suspicious circumstances surrounding the death. Autopsies may also be ordered, depending upon the jurisdiction, in special circumstances, for example, if a death occurs in a person not under medical treatment for a known condition, if a death occurs within 24 hours of admission to the hospital, or if death occurs during a surgical procedure.If an autopsy is not ordered by the coroner or medical examiner, the relatives of the deceased must give consent for an autopsy to be performed. The relatives providing consent also have the right to limit the scope of the autopsy, which means that they specify the organs or areas of the body that may or may not be examined. The procedure for performing an autopsy varies according to the extent and purpose of the examination. If there are no restrictions imposed by the family, most standard autopsies consist of an examination of the chest cavity, abdominal cavity, and the brain. To examine the organs in the chest and abdomen, the pathologist usually performs a Y- or U-shaped incision beginning at the shoulders that meets at the sternum (breast bone) and continues vertically down to the pubic bone. Examination of the brain is carried out through an incision made in the back of the skull from one ear to the other.Before any incisions are made, the autopsy begins with a thorough physical examination of the outside of the body that includes determination of height and weight. Any scars, surgical incisions, wounds, or evidence of lesions on the skin are also described.For examination purposes, the organs are usually removed from the body. The pathologist may weigh the organs individually and further dissect (cut) the tissue to look for abnormalities inside the organs. After the organs are viewed with the naked eye, small pieces of tissue are taken from the organs for microscopic examination. The physical and microscopic characteristics of each tissue are carefully described in detail.At the end of an autopsy, the incisions made in the body are closed. The organs may be returned to the body or may be retained for teaching, research, or diagnostic purposes. Performance of an autopsy does not interfere with an open casket funeral service, as none of the incisions made are apparent after the body is prepared for burial. Pictures of findings at the autopsy may be taken for future reference. Photographic documentation is performed for many autopsies, particularly forensic autopsies for which the autopsy record may be important for a court case. In teaching hospitals, photographs of organs or tissues may be taken for research or instructional purposes. Organs may be preserved and stored in formalin for further examination, sampling for microscopy, presentation at conferences, or archiving for medical student training, depending on the particular situation and family consent.Sometimes, the pathologist will order special laboratory studies to be carried out on tissue samples taken during an autopsy. These may include:cultures or tests to identify infectious agents (bacteria, viruses, parasites, or fungi)chemical analysis for metabolic abnormalitiesgenetic studies to identify disease-associated mutations or heritable diseasestoxicology studies to identify drugs, poisons, or exposuresAdditionally, tissue may be frozen and stored for future diagnostic or research purposes. When the autopsy and all special studies including microbial cultures and toxicity tests are completed, the pathologist prepares a detailed report. This report describes the observations made during the autopsy procedure and explains the microscopic findings and the results of any special studies that were performed. The report gives a list of medical diagnoses and a summary of the case, emphasizing the correlation between clinical diagnoses and the autopsy findings. Beginning in the 1950s, hospital autopsy rates started falling from an average of around 50% of all deaths to 10% in the late 1990s. Currently, the rates are even lower at non-teaching hospitals. Many factors are likely responsible for the reduction in autopsy rates, including the belief that modern diagnostic technology renders a postmortem examination obsolete. However, multiple studies have shown that autopsies still reveal a number of significant conditions and findings that were previously unknown and can provide valuable information to physicians and relatives of the deceased. Author: Benjamin C. Wedro, MD, FACEP, FAAEM Editor: Melissa Conrad Stppler, MD The tragedy of losing a loved one can be compounded by not knowing why they died. The uncertainty leaves people wondering how the death might have been prevented and often prevents closure to allow the grieving to end. This is especially true when a young person dies unexpectedly. Luke Killian was only 16 years old when he collapsed and died at a football practice. Derek Boogaard was an NHL hockey player who was found dead at his home at age 28. When the cause of death is uncertain, the medical examiner or coroner may order an autopsy be performed to help with the investigation. While autopsies are glamorized by television detective dramas, they are perhaps more useful when performed on people who haven't died from a crime. The value of autopsies is well established. It helps the physician confirm diagnosis and can also help families understand how and why their relative died. The family can be reassured (or become upset) that the treatment provided was appropriate or not. It may also help predict whether any hereditary diseases might be present. For example, dementia is a common diagnosis but it is the result of an illness.... Read more about when to order and autopsy Medically reviewed by John A. Daller, MD; American Board of Surgery with subspecialty certification in surgical critical care REFERENCE: Fauci, Anthony S., et al. Harrison's Principles of Internal Medicine An autopsy is a detailed dissection of a deceased person, done to determine why they died.If you and your family are dealing with the sudden loss of a loved one, you may find comfort in getting answers at this difficult time. But you should also know that autopsies dont always have to be done. If you do need one, its usually both a medical and a legal process.Laws differ state by state.You can ask for an autopsy if you have questions about how a family member died. And sometimes doctors will ask your permission to do one if they have questions.Every local government has an official who records deaths. Theyre called either a coroner or a medical examiner.All but a handful of states require medical examiners to be doctors. Coroners may be doctors as well, but dont have to be.Coroners are usually elected officials. Many of them have no medical training. When an autopsy needs to be done, they rely on a medical examiner.A doctor examines the remains inside and out. They can remove internal organs for testing and collect samples of tissue or bodily fluids such as blood.The exam usually takes 1 to 2 hours. Many times, experts can figure out the cause of death in that time.But in other cases, you might have to wait until a lab can do more tests to look for signs of drugs, poisons, or disease. That can take several days or weeks.In 20 states and the District of Columbia, a pathologist -- a doctor who specializes in the study of disease and injury -- has to do the autopsy.Once it is finished, the doctor will report an exact cause of death and how they think it happened -- whether someone died from natural causes, an accident, homicide or suicide.Although laws vary, nearly all states call for an autopsy when someone dies in a suspicious, unusual, or unnatural way.Many states have one done when a person dies without a doctor present. Twenty-seven states require it if the cause of death is suspected to be from a public health threat, such as a fast-spreading disease or tainted food.A doctor might ask you to allow an autopsy if your loved one died of an unexpected illness.Theyre usually trying to learn more about what happened, either to ease your mind, to learn whether other family members might be in danger of the same thing, or to find out something that might help otherpatients.In some cases, a condition that a person had in life can only be diagnosed after they die. For instance, doctors can learn for certain that someone had Alzheimer's disease only after they examine the brain in an autopsy.Its up to the family to decide whether to allow it.The dead persons next-of-kin also can ask for an autopsy if there are some concerns about why someone died. In addition to public officials, some private firms do them for a fee.Some religious traditions discourage autopsies, believing a persons body should be kept whole or otherwise left alone after death. Or they say burial should not be delayed. Many states have laws that honor religious objections. Medical examiners sometimes change the way they do an autopsy out of respect for the familys beliefs. But states still require one when its needed to investigate a crime or head off a threat to public health.Most examinations shouldnt delay a funeral or prevent a viewing of the body during a service. Funeral directors are usually able to hide any signs of the autopsy with clothing. An autopsy, also called a post-mortem examination, is a detailed medical examination of a body after death. It is performed by a pathologist, a medical doctor who specializes in analyzing tissues and body fluids. The primary purpose of an autopsy is to determine the cause of death, but it can also be used to understand the effects of a disease or evaluate the success of medical treatments. The procedure provides a comprehensive look at the bodys internal state, offering insights that are not available through external observation alone. Purpose and Types of AutopsiesAn autopsy may be performed for two distinct reasons, categorized as either a clinical or a forensic examination. A clinical autopsy is conducted to answer medical questions and is often requested by the deceaseds family or physicians. Its purpose is to gain a deeper understanding of a known disease, determine the effectiveness of treatments, or identify a genetic condition that could affect other family members. Consent from the next of kin is required before a clinical autopsy can proceed.A forensic autopsy, or medico-legal autopsy, is performed for legal purposes when a death is sudden, violent, or otherwise suspicious. A forensic examination is ordered by a legal authority, such as a coroner or medical examiner, and does not typically require family consent. The main objective is to determine the cause and manner of deathwhether it was natural, accidental, a suicide, or a homicide. This type of autopsy is a component of a broader investigation that may involve law enforcement. The Autopsy ExaminationThe autopsy begins with a thorough external examination of the body. The pathologist records the individuals height, weight, age, and sex, and documents any identifying features such as scars or tattoos. Fingerprints may also be collected at this stage for identification purposes. The skin is carefully inspected for any signs of injury or discoloration, and the eyes are examined for hemorrhages.Following the external assessment, the internal examination commences with a Y-shaped incision from the shoulders to the pubic bone. This incision allows the pathologist to open the chest and abdominal cavities to access the internal organs. The ribcage is opened to expose the heart and lungs, and a blood sample is often taken directly from the heart. The pathologist then systematically removes the organs for detailed inspection.Each organ is weighed, measured, and dissected to identify any signs of disease or injury. The pathologist takes small tissue samples from each organ for microscopic analysis, a process known as histology. This allows for the detection of cellular-level abnormalities not visible to the naked eye. The contents of the stomach are also examined, which can help estimate the time of death.To examine the brain, an incision is made across the scalp, and a section of the skull is removed using a specialized saw. The brain is then carefully extracted for a detailed neuropathological assessment. Throughout the procedure, samples of bodily fluids like blood and urine are collected. These are used for toxicology tests to screen for the presence of drugs, alcohol, or other substances. After the AutopsyOnce the examination is complete, the body is respectfully prepared for release. The organs are typically returned to the body cavity, and all incisions are carefully sutured. The body is reconstructed to allow for a viewing or open-casket funeral, with the incisions hidden by clothing.The pathologist compiles all the findings into a comprehensive autopsy report. This document details the results of the external and internal examinations, microscopic analysis, and toxicology tests. The report concludes with the pathologists final determination of the cause and manner of death. The completion of this final report can take several weeks or even months, depending on the complexity of the tests required. Process Necessity Findings FAQTakeawayAn autopsy is a medical examination of a deceased persons body to determine the cause of death and assess any diseases or injuries.An autopsy is a crucial medical procedure that examines a deceased individuals body to uncover the cause of death and any underlying health issues. This exam serves important legal and medical functions and can offer families much-needed closure during difficult times.An autopsy involves a medical examiner or pathologist examining a deceased persons body to determine the cause of death and investigate any diseases or injuries that may have contributed.The process generally includes:External examination: The body is inspected for signs of trauma, unusual markings, or abnormalities. Details such as scars, tattoos, and the bodys overall condition are documented.Internal examination: Incisions are made to open the chest, abdomen, and sometimes the skull to inspect internal organs. Each organ is thoroughly examined for disease or damage, with tissue samples taken for further analysis.Laboratory tests: Blood or tissue samples may be sent for toxicology testing to detect drugs, chemicals, or infections that could have contributed to the death.Documentation: Detailed notes and photographs are taken throughout the process. A final report summarizes the findings, including the cause and manner of death.Autopsies are not performed on everyone. Theyre typically conducted when the cause of death is unclear, suspicious, or legally required, such as in cases of homicide, accidental death, or unexplained circumstances. They may be mandated by law or requested by family members, medical examiners, or coroners.Autopsy rates have been declining over the years and hit a low in 2020 at 7.4%. This reduction is largely due to advancements in medical technology and diagnostic methods that enable accurate cause-of-death determinations without invasive procedures. Changes in healthcare practices, reduced funding, and evolving public perceptions about the necessity of autopsies have also contributed to this decline.An autopsy provides a comprehensive view of the bodys condition at the time of death and helps clarify how the person passed away.Heres what typically shows up during an autopsy:Injuries or trauma: external and internal signs of physical damage, like cuts, bruises, or broken bonesOrgan condition: health of vital organs, showing disease, damage, or abnormalitiesChronic illnesses: long-term conditions such as heart disease, cancer, or liver diseaseAcute medical events: sudden issues like heart attacks, strokes, or infectionsFluid accumulation: excess fluids in areas like the lungs or abdomenToxicology results: the presence of drugs, alcohol, or toxinsSigns of malnutrition or dehydration: evidence of nutritional deficienciesMedical interventions: surgical scars or treatment marks from medical careAn autopsy doctor is called a forensic pathologist or simply a pathologist. They are medical doctors who specialize in determining the cause of death by examining the body and its organs.An autopsy technician, who assists the forensic pathologist, is known as a diener or simply the autopsy technician. They help with preparing the body, handling tools, and doing other supportive tasks during the autopsy.An autopsy can provide an estimate of the time of death. It can usually be narrowed down to a day or two, or in some cases, a range of hours, depending on how much time has passed since death and the environmental conditions.An autopsy can help estimate the time of death through several methods:Algor mortis: measures how the body cools after deathRigor mortis: looks at muscle stiffness that occurs after deathLivor mortis: observes blood pooling in certain areas of the bodyDecomposition: assesses the stages of decayYes, in most cases, a family can say no to an autopsy. However, there are exceptions depending on the circumstances.In nonsuspicious deaths: If the cause of death is natural and there is no legal requirement, families can usually refuse an autopsy. In suspicious or unexplained deaths: If a death is considered suspicious, sudden, or unexplained (such as in cases of homicide, suicide, accidents, or unknown causes), an autopsy may be required by law. In these instances, the medical examiner or coroner has the authority to order an autopsy, and family consent isnt needed.Religious objections: In some regions, if a family refuses an autopsy for religious reasons, they may request special consideration. In some cases, courts or medical examiners may grant exceptions, depending on the laws and the situation.Who pays for an autopsy depends on the circumstances of the death and who requests it:Ordered by a medical examiner or coroner: If the death is sudden, suspicious, or unexplained, an autopsy is usually required by law, and the cost is covered by the state, county, or local government as part of a legal investigation.Requested by the family: If the family requests a private autopsy (when one is not legally required), they are typically responsible for the cost, which can vary depending on complexity, provider, and location. It can sometimes cost several thousand dollars. Conducted in a hospital: Some hospitals may perform autopsies at no cost for educational purposes or to further investigate a patients medical condition.An autopsy is a medical examination performed after death to determine the cause of death and assess any underlying health conditions. It involves a detailed inspection of the bodys organs and tissues. Autopsies can provide important information for legal investigations, medical research, or helping families understand the circumstances of a loved ones death. While some autopsies are legally required, others may be requested by families to gain more insight into a persons health before death. health centersinfectious disease center An autopsy (post-mortem exam or necropsy) is the examination of the body of a dead person and is performed primarily to determine the cause of death. An autopsy (also known as a postmortem examination or necropsy) is the examination of the body of a dead person and is performed primarily to determine the cause of death, to identify or characterize the extent of disease states that the person may have had, or to determine whether a particular medical or surgical treatment has been effective. Autopsies are performed by pathologists (medical doctors who have received specialty training in the diagnosis of diseases by the examination of body fluids and tissues). In academic institutions, autopsies sometimes are also requested for teaching and research purposes. Forensic autopsies have legal implications and are performed to determine if death was an accident, homicide, suicide, or a natural event. The word autopsy is derived from the Greek word autopsia: "to see with one's own eyes." The earliest anatomists and pathologists could be considered ancient hunters, butchers, and cooks who had to recognize organs and determine if they were suitably edible. In ancient Babylon, perhaps as early as 3500 BC, autopsies on animals were performed not for the study of disease, but rather for the practice of predicting the future by communicating with divine forces. The intestines and liver were believed to contain messages from divine spirits. Galen (131-200 A.D.), a disciple of Hippocrates practicing in ancient Greece, performed surgical dismantling (dissection) of animals and humans. He determined that Hippocrates' theory that disease was due to four circulating senses of humor(phlegm, blood, yellow bile, and black bile) was correct. Galen was a highly respected, powerful, and dogmatic individual who dominated the medical thinking of his time and for hundreds of years to follow. It is said that the four-humor doctrine paralyzed medical science for about 1400 years. In general, before 1700 there was a negative attitude regarding the dissection of the human body. Egyptians, Greeks, Romans, and medieval Europeans performed dissections for religious reasons or to learn anatomy, but this was not done in any systematic fashion. There were, however, some notable exceptions. In the late 1200s, the law faculty dominated the University of Bologna and would order autopsies to be performed to help solve legal problems. Thus, some of the earliest autopsies were medicolegal cases. In the late 1400s in Padua and Bologna, Italy, the sites of the world's first medical schools, Pope Sixtus the IV issued an edict permitting dissection of the human body by medical students. Before such edicts from religious leaders, it was considered a crime to dissect the human body, and criminal prosecutions for "body snatching" by students of anatomy date back to the early 1300s. By the 1500s, the autopsy was generally accepted by the Catholic Church, marking the way for an accepted systematic approach to the study of human pathology in Europe. While several "giants" of medicine and science around this time, such as Vesalius (1514-1564), Pare (1510-1590), Lancisi (1654- 1720), and Boerhaave (1668-1738) advanced the autopsy, it is Giovanni Battista Morgagni (1682-1771) who was an anatomist and is considered the father of anatomical pathology.. During his 60 years of observations, Morgagni insisted upon the correlation of pathological findings with clinical symptoms, marking the first time that autopsies made major contributions to the understanding of diseases in medical science. Some historians say that the power of the autopsy in medical education peaked during the 1800s. At the beginning of that century, the Allgemeine Krankenhaus in Vienna was considered the premier medical center of the Western World, in large part because of the stature of its Pathology Institute which was headed by Karl Rokitansky (1804-1878). Almost every patient who died was taken to the Rokitansky Institute, which still exists in Vienna, for autopsy. Rokitansky is said to have supervised 70,000 autopsies and personally performed over 30,000, averaging two a day, seven days a week, for 45 years. Rokitansky stressed a systematic, almost ritualistic, approach to the autopsy with every patient receiving the same detailed examination. For the sake of objectivity, Rokitansky, unlike Morgagni, did not care to know the clinical history of the patients. Because of this style and his disinclination to apply microscopy routinely, many of Rokitansky's theories about diseases proved to be incorrect. Rudolph Virchow (1821-1902), an eminent German statesman and pathologist, was a younger contemporary and competitor of Rokitansky. Unlike Rokitansky, he grew up with the microscope and was most influential in the systematic application of microscopy to study disease. Virchow advanced the doctrine which held that cellular pathology was the basis of disease, finally laying to rest the humoral theory of Hippocrates and Galen. In many ways, Virchow could be considered the first molecular biologist. Under Virchow, Berlin replaced Vienna as the premier center of medical education. Many clinicians, upon returning from study in Berlin, became leaders in North American medicine. The most notable of these physicians was the legendary Sir William Osler, who worked in Canada and the U.S. Osler was arguably the most respected and revered North American physician of his time. He studied with Rokitansky and Virchow and relied heavily on autopsy studies for his education. Osler not only performed autopsies himself and taught others about autopsies but also left detailed instructions for his autopsy. In speaking of himself, Osler told a friend: "I've been watching this case for 2 months and I'm sorry I shall not see the postmortem." As expected, the autopsy showed that all of Osler's diagnoses were correct. In 1910, Abraham Flexner reported the sorry state of medical education in the U. S. at that time. The Cabot report issued from the Massachusetts General Hospital in 1920, based on approximately 3,000 autopsies performed, revealed astonishing diagnostic inaccuracies on the part of clinicians. The resulting medical reforms included the placement of autopsy pathology as a central, integral component of medical education. Physical Exam: Why Does Your Doctor Do That? See Slideshow A medical examiner can order an autopsy without the consent of the next of kin. Deaths that are investigated by the medical examiner or coroner include all suspicious deaths, and depending upon the jurisdiction, may include deaths of persons not being treated by a physician for a known medical condition, deaths of those who have been under medical care for less than 24 hours, or deaths that occurred during operations or other medical procedures. In all other cases, consent must be obtained from the next of kin before an autopsy is performed, even at academic institutions or hospitals. The next of kin also has the right to limit the scope of the autopsy (for example, excluding the brain from evaluation or limiting the procedure to the examination of the abdomen). Autopsies, also known as postmortem examinations, are conducted by highly trained medical professionals, such as: Pathologists: Pathologists are medical professionals who specialize in diagnosing diseases by examining organs and tissues from deceased patients. They perform autopsies to determine the cause of death or to confirm diagnoses made by other doctors. Pathologists work primarily in hospitals and conduct autopsies on patients who have died while under medical care. Forensic pathologists: Forensic pathologists are a specific type of pathologists who specialize in examining deceased individuals in cases of unexpected, suspicious, or violent deaths. They are trained to perform autopsies and investigate the circumstances surrounding the death. Forensic pathologists work closely with law enforcement agencies and other officials to gather evidence and determine the cause and manner of death. Medical Examiners: Medical examiners are also qualified to perform autopsies. They work in a forensic context, often in conjunction with law enforcement. Their autopsies aim to determine the cause of death, estimate the time since death, and provide identification information to the police. Medical examiners play a crucial role in criminal investigations and legal proceedings. Coroners: Coroners are elected or appointed officials responsible for investigating deaths that occur within their jurisdiction. Coroners are also qualified to perform autopsies. While coroners do not need a medical degree to perform autopsies, they are typically trained pathologists who have received specialized training in forensic pathology. Coroners determine the manner of death (natural, accidental, suicide, or homicide) and may order autopsies when necessary. Autopsies are collaborative efforts that involve multiple professionals with diverse expertise, all working together to understand the cause of death. Each role is critical in ensuring a thorough and accurate examination and analysis of the deceased individual. What is done during an autopsy? The extent of an autopsy can vary from the examination of a single organ such as the heart or brain to a very extensive examination. Examination of the chest, abdomen, and brain is probably considered by most pathologists as the standard scope of the autopsy. What are the three types of autopsy? There are three levels of an autopsy including: Complete: The whole body cavities are examined. Limited: A single organ, such as the heart or brain, is examined. Selective: The chest, abdomen, and brain are examined. Autopsy procedure The autopsy begins with a complete external examination. The weight and height of the body are recorded, and identifying marks such as scars and tattoos also are recorded. The internal examination begins with the creation of a Y- or U-shaped incision from both shoulders joining over the sternum and continuing down to the pubic bone. The skin and underlying tissues are then separated to expose the rib cage and abdominal cavity. The front of the rib cage is removed to expose the neck and chest organs. This opening allows the trachea (windpipe), thyroid gland, parathyroid glands, esophagus, heart, thoracic aorta, and lungs to be removed. Following the removal of the neck and chest organs, the abdominal organs are cut (dissected) free. These include the intestines, liver, gallbladder and bile duct system, pancreas, spleen, adrenal glands, kidneys, ureters, urinary bladder, abdominal aorta, and reproductive organs. To remove the brain, an incision is made in the back of the skull from one ear to the other. The scalp is cut and separated from the underlying skull and pulled forward. The top of the skull is removed using a vibrating saw. The entire brain is then gently lifted out of the cranial vault. The spinal cord may also be taken by removing the anterior or posterior portion of the spinal column. The organs are first examined by the pathologist to note any changes visible with the naked eye. Examples of diseases that may produce changes readily recognizable in the organs include atherosclerosis, cirrhosis of the liver, and coronary artery disease in the heart. After the organs are removed from the body, they usually are separated from each other and further dissected to reveal any abnormalities, such as tumors, on the inside. Small samples are typically taken from all organs to be made into slide preparations for examination under a microscope. At the end of an autopsy, the incisions made in the body are sewn closed with autopsy stitches. The organs may be returned to the body or may be retained for teaching, research, and diagnostic purposes. The performance of an autopsy does not interfere with an open casket funeral service, as none of the incisions made in order to accomplish the autopsy are apparent after embalming and dressing of the body by the mortician. An autopsy typically takes about two to four hours, but it can vary based on factors such as the complexity of the case, the thoroughness of the examination, and the number of samples taken for analysis. There are two main types of autopsies: forensic and clinical. Forensic autopsy: Forensic pathologists conduct forensic autopsies as part of legal investigations. A forensic autopsy typically takes two to four hours. Preliminary results may be available within two to three days. However, acquiring comprehensive results, including detailed reports and laboratory analyses, can take much longer, often around six weeks or more. Clinical autopsy: Hospital pathologists perform clinical autopsies in cases of natural death. A clinical autopsy usually lasts one to two hours. Autopsy involves external and internal examinations of the body to determine the cause of death. This process includes examining organs, tissues, and fluids for signs of disease, injury, or poisoning. Following the examination, a detailed report is usually generated to document the findings. Pictures of findings may be taken for future reference. Special studies may include cultures to identify infectious agents, chemical analysis for the measurement of drug levels or metabolic abnormalities, or genetic studies. Tissue may be frozen for future diagnostic or research purposes. Organs may be preserved and stored in formalin for later examination, sampling for microscopy, presentation at conferences, or archiving for the training of medical students. After allstudies are completed, a detailed report is prepared that describes the autopsy procedure and microscopic findings, giving a list of medical diagnoses and a summary of the case. The report emphasizes the relationship or correlation between clinical findings (the doctor's examination, laboratory tests, radiology findings, etc.) and pathologic findings (those made from the autopsy). Benefits for families: For families, the autopsy has both tangible and psychological benefits. Uncertainty regarding the cause of an individual's death can delay payment of insurance benefits. The autopsy can also uncover genetic or environmental (for example, a bacterium or fungus) causes of disease that could affect other family members. Psychologically, the autopsy provides closure by identifying or confirming the cause of death. The autopsy can demonstrate to the family that the care provided was appropriate, thereby alleviating guilt among family members and offering reassurance regarding the quality of medical care. Lastly, the autopsy is a mechanism that enables the family to participate in medical education and research. Benefits for the clinician and hospital: The procedure can confirm the accuracy of the clinical diagnoses and the appropriateness of medical care. The autopsy findings can be utilized to educate physicians, nurses, residents, and students, thereby contributing to an improved quality of care. Benefits to society: Many of the benefits of the autopsy are experienced by society as a whole. The autopsy aids in the evaluation of new diagnostic tests, the assessment of new therapeutic interventions (drugs, devices, surgical techniques), and the investigation of environmental and occupational diseases. Autopsy data are useful in establishing valid mortality statistics. Data derived from death certificates in the absence of autopsy data have repeatedly been shown to be inaccurate. New medical knowledge on existing diseases that is derived from autopsy-based research is clearly important for everyone. Remarkably, new diseases continue to emerge which can only be fully investigated by autopsy. Presently, there is no direct funding to hospitals or doctors for autopsies. As part of the federal government's Medicare funding to hospitals, reimbursement for autopsies is theoretically included in fixed payments that hospitals receive. Thus, the federal government contends that it is paying for autopsies. Since these funds are not specifically earmarked for autopsies, they may not reach the pathology department or pathologist. Managed care organizations consider the autopsy to be built into their hospital contracts. However, these organizations have stated that they are willing to reimburse for autopsies if and when they are convinced of their value. Sometimes, autopsies are performed in the hospital at the request of physicians; the autopsy is not billed to the patient's family, but they should check with the hospital performing the service. This is different from autopsies the family requests from private pathologists, which may lead to charges billed to the deceased's next of kin. By clicking "Submit," I agree to the MedicineNet Terms and Conditions and Privacy Policy. I also agree to receive emails from MedicineNet and I understand that I may opt out of MedicineNet subscriptions at any time. Beginning in the 1950s, hospital autopsy rates started falling from an average of around 50% of all deaths to 10% in the late 1990s. Currently, the rates are even lower at non-academic hospitals. In 1970, the Joint Commission for Accreditation of Hospitals dropped the requirement that a hospital needed an autopsy rate of 20% to be accredited. Family factors: Certainly the relationship between patients and their doctors has changed dramatically over the past 50 years due to factors such as specialization, managed care, and the disappearance of the "house call." Physicians no longer are "family doctors" and do not have the same rapport with patients and their families as in past years. This change in the basic doctor-patient relationship may make it increasingly difficult to obtain consent for an autopsy. Concerns over disfigurement of the remains or delays in funeral arrangements may prevent a vast majority of families from consenting to an autopsy. In reality, however, the visual examination of the body and the removal of tissues and organs for the microscopic examination can be completed in a few hours. Furthermore, there are no visible external changes that would preclude an open-casket funeral service. In the majority of cases and certainly at academic medical centers, there is currently no charge to the family and frequently, no compensation for its performance. More recently, though, some institutions have started to charge, and private autopsies at the request of family members that are performed outside of the hospital may cost several thousand dollars. Clinician factors: Most physicians are generally uncomfortable requesting an autopsy because it is not an easy or pleasant task. If, in addition, a physician feels that a family questions the care that their relative was given, the physician may be reluctant to request an autopsy that might prove that the care was indeed incorrect. Many individuals in medicine feel that modern technology has made the autopsy outdated. With modern imaging studies and laboratory tests, it is thought that the autopsy is unlikely to reveal any conditions that were not detected clinically. The accuracy of the clinical diagnosis has been the subject of numerous research studies. These studies have consistently shown that in 20% to 40% of autopsied patients, there were important, treatable conditions that were detected at autopsy that were not diagnosed clinically. This consistent and significant discrepancy between clinical and pathologic diagnoses is probably the most compelling argument for continued efforts to revive the autopsy as the "gold standard" in evaluating the quality of medical care. Pathologist factors: Some doctors express dissatisfaction with the quality of an autopsy if the pathologist does not provide answers regarding the case. Unfortunately, an autopsy does not guarantee that the cause of death, for example, a heart arrhythmia, will be identified. Autopsy pathology is a vanishing subspecialty, which, for the most part, has been relegated to a secondary position. At the turn of the century, most of the pathologist's activities revolved around the autopsy. Since that time, laboratory medicine and surgical pathology (examining tissue biopsies from living patients) have become the major activities of practicing pathologists. In addition, the autopsy is not one of the favorite activities among the majority of pathologists. For many pathologists, an autopsy is an extra burden with no compensation during a busy day. Government agencies that regulate the accreditation of hospitals and nursing homes are deeply concerned about the decline in autopsy rates. For example, surveys have indicated that less than 1% of nursing home patients who die are autopsied. The U.S. general accounting office, which pays for some nursing home services, recently attempted to prove that particular nursing homes were substandard. Such efforts were thwarted by the lack of hard evidence. The allegations could not be proven because the patients in question were not autopsied and the actual causes of death could not, therefore, be confirmed. Some information can only be acquired during an autopsy. The information autopsies can provide benefits to society, the medical profession, and families. Many physicians believe that autopsy should be revived. Whether or not it will be revived remains to be seen. Are autopsy and postmortem the same? "Autopsy" and "postmortem" generally refer to the same procedure. "Autopsy" is the more commonly used term in medical contexts, while "postmortem" is often used in legal or investigative settings. Both terms essentially mean "examination after death." Why is the tongue removed during autopsy? The tongue is removed during autopsy to thoroughly examine the oral cavity, access other throat structures, document any abnormalities, take tissue samples for further examination, and eliminate obstruction. This step is crucial in forensic medicine and pathology because it allows for a detailed examination of the neck organs, which is essential for excluding other possible causes of death. While the tongue may be removed in certain cases, it is not a standard procedure during autopsies. The primary goal remains to determine the cause of death through a thorough examination of relevant organs and tissues. Is the brain removed during autopsy? During an autopsy, the brain is typically removed and examined as part of the procedure. If necessary, the brain can be preserved in a formalin solution for future analysis. This allows pathologists to thoroughly inspect the brain for any abnormalities, such as signs of injury, disease, or other conditions that may have contributed to the individual's death. The brain can provide valuable insights into the cause of death and any underlying health issues the deceased may have had. Medically Reviewed on 5/20/2024 Autopsy 101. Medscape. Philadelphia College of Osteopathic Medicine. "What is an autopsy? A forensic pathologist explains." Published March 16, 2023. Accessed May 7, 2024. . Stoppler MC. "Autopsy." eMedicineHealth. 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An autopsy may be performed to determine the cause of death, to observe the effects of disease, and to establish the evolution and mechanisms of disease processes. The word autopsy is derived from the Greek autopsia, meaning the act of seeing for oneself. The early Egyptians did not study the dead human body for an explanation of disease and death, though some organs were removed for preservation. The Greeks and the Indians cremated their dead without examination; the Romans, Chinese, and Muslims all had taboos about opening the body; and human dissections were not permitted during the Middle Ages.The first real dissections for the study of disease were carried out about 300 bce by the Alexandrian physicians Herophilus and Erasistratus, but it was the Greek physician Galen of Pergamum in the late 2nd century ce who was the first to correlate the patients symptoms (complaints) and signs (what can be seen and felt) with what was found upon examining the affected part of the deceased. This was a significant advance that eventually led to the autopsy and broke an ancient barrier to progress in medicine.Andreas VesaliusIn the 16th century Flemish physician Andreas Vesalius revolutionized the practice of medicine by providing accurate and detailed descriptions of the anatomy of the human body, which were based on his dissections of cadavers.It was the rebirth of anatomy during the Renaissance, as exemplified by the work of Andreas Vesalius (De humani corporis fabrica, 1543) that made it possible to distinguish the abnormal, as such (e.g., an aneurysm), from the normal anatomy. Leonardo da Vinci dissected 30 corpses and noted abnormal anatomy; Michelangelo, too, performed a number of dissections. Earlier, in the 13th century, Frederick II ordered that the bodies of two executed criminals be delivered every two years to the medical schools, one of which was at Salerno, for an Anatomica Publica, which every physician was obliged to attend. The first forensic or legal autopsy, wherein the death was investigated to determine presence of fault, is said to have been one requested by a magistrate in Bologna in 1302. Antonio Benivieni, a 15th-century Florentine physician, carried out 15 autopsies explicitly to determine the cause of death and significantly correlated some of his findings with prior symptoms in the deceased. Thophile Bonet of Geneva (162089) collated from the literature the observations made in 3,000 autopsies. Many specific clinical and pathologic entities were then defined by various observers, thus opening the door to modern practice.The autopsy came of age with Giovanni Morgagni, the father of modern pathology, who in

request second autopsies. This can happen when a first autopsy yields inconclusive findings. However, if the findings seem conclusive, the relevant authorities can use them. For instance, the findings may become evidence for a police investigation or court case.Once there is no further need for an autopsy, the deceased persons loved ones can have a funeral.Here are some frequently asked questions about autopsy.After an autopsy, an individuals body becomes the responsibility of either family members or the state.Forensic pathologists can perform autopsies many years after death.Family and loved ones should be able to see the body after an autopsy. Autopsies are postmortem examinations performed by forensic pathologists to find out information about a deceased person. This may be their identity, an estimate of when the death occurred, or the cause and manner of death.Forensic pathologists can do all this with visual inspection techniques, surgical methods, laboratory tests, and by examining clothing or items on a body.Legal authorities can order autopsies as part of a police investigation or for the purposes of a court case. Hospitals can request autopsies when an individual dies under their care. These are medicolegal and clinical autopsies, respectively. Individual citizens can also pay for private autopsies.

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