

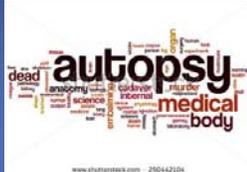
Autopsy Basics

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Goals of Today's talk

- Why do an autopsy?
- Differences between a medical autopsy and a forensic autopsy.
- Medical autopsy consent process.
- How an autopsy is performed.
- Components of the autopsy report.
- Death certificate and Cause of death statement

What is an autopsy?



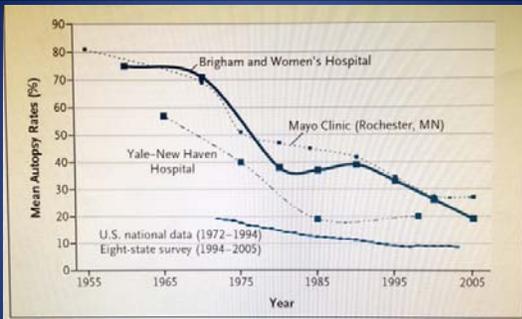
- Greek word *autopsia*, meaning seeing with one's own eyes.
- Inspection and dissection of a body after death, to determine the cause of death; postmortem examination.

Autopsy History

- Autopsies have been performed for thousands of years.
 - Performed to learn about anatomy and disease
- 1800's Karl Rokitansky performed over 30,000 autopsies
- Late 1800's Rudolph Virchow applied microscopic examination to the autopsy
 - Founder of modern pathology

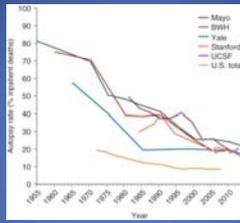
Autopsy History

- Up until about 1970, 40-60% of hospital deaths underwent an autopsy.
 - Joint Commission mandated a 25% autopsy rate in teaching hospitals and 20% autopsy rate in non-teaching hospitals prior to 1970.
 - Mandate has been discontinued.
- 8.3% of all deaths in the US underwent an autopsy in 2003.
- 3.5% of all nonviolent deaths had autopsy in 2014.



Trends in U.S. Autopsy Rates.
Rates are from various published sources contained in a systematic review,¹ publicly available national data, a survey of centers performing autopsies in eight states (Illinois, Indiana, Louisiana, Minnesota, Nebraska, North Dakota, South Dakota, and Wisconsin),² and personal communication with pathologists at individual institutions. Autopsy rates at many institutions are inflated by the inclusion of forensic cases and

The autopsy past and present



From: Autopsy Pathology: A manual and atlas, 2015

Why do an autopsy?

- Establish the cause of death
- To assist in establishing the manner of death
- To compare premortem and postmortem findings
- To provide accurate vital statistics
- To monitor public health
- To assess quality of medical practice

Why do an autopsy?

- To instruct medical students and physicians
- To identify new and changing diseases
- To evaluate the effectiveness of therapies
- To reassure family members
- To protect against false liability claims quickly and fairly

Medical autopsy vs. Forensic autopsy

- Medical autopsy:
 - Performed by anatomic pathologist
 - Requested by treating physician
 - Need consent from appropriate next of kin
 - Priority of next of kin defined by law:
 - The spouse
 - A son or daughter 18 years of age or older
 - Either parent
 - A brother or sister 18 years of age or older
 - A guardian of the decedent at the time of death

Medical autopsy vs. Forensic autopsy

- Medical autopsy:
 - Any restrictions or limitations can be requested and must be followed.
 - Intrauterine fetal death >20 weeks requires autopsy consent for examination.

Medical autopsy vs. Forensic autopsy

- Forensic autopsy:
 - Performed by the State Medical Examiner in Oregon (Coroner system in other states)
 - Coroners are usually elected and are not required to be physicians. If an autopsy is needed, a coroner will frequently consult with a pathologist or forensic pathologist. Medical examiners, in most cases, are appointed and must be physicians.
 - Strict criteria varies from state to state for deaths that are to be reported to the State Medical Examiners office or county coroner

Medical autopsy vs. Forensic autopsy

- Forensic autopsy:
 - Consent not needed as autopsy is performed in good faith by a competent pathologist
 - Typically performed by pathologist with expert training in forensic pathology
 - Additional fellowship training and possible board certification in forensic pathology
 - Work with law enforcement to collect evidence in relation to crime, etc.
 - Mix of legal cases/crimes and natural deaths

Oregon deaths reported to the Medical Examiner:

- Apparently homicidal, suicidal or occurring under suspicious or unknown circumstances
- Resulting from the unlawful use of controlled substances or the use or abuse of chemicals or toxic agents
- Occurring while incarcerated in any jail, correction facility or in police custody
- Apparently accidental or following an injury

Oregon deaths reported to the Medical Examiner:

- By disease, injury or toxic agent during or arising from employment
- While not under the care of a physician during the period immediately previous to death
- Related to disease which might constitute a threat to the public health
- Human body apparently has been disposed of in an offensive manner
- All trauma patients
- DOA or within 24 hours of arrival at a hospital

Oregon deaths reported to the Medical Examiner

- Because a death is reported to the medical examiner DOES NOT mean that the medical examiner will perform an autopsy.
 - After review of clinical data, determine if autopsy is indicated.
 - At times, may sign the death certificate without performing an autopsy, if enough clinical information
 - Medical examiner may determine autopsy not necessary, and release the body, at which point a hospital autopsy may occur, following consent procedures described previously



LEGACYHEALTH
 Authorization for Autopsy of Body and/or Parts of Body

It is the Medical Examiner's duty to perform the autopsy, permission from family is not required.
 If the Medical Examiner does provide a family request for burial, death is an autopsy exception.

Name of Decedent: _____ Age: _____
 Physician Reporting Autopsy: _____

It is extremely important that you locate the appropriate person to sign this authorization.

Who the death of a patient: THE ADVANCE DIRECTIVE IS NO LONGER ENFORCEABLE and the decedent's advance directives may no longer apply to be signed to make decisions regarding the disposition. Please FOLLOW THE FOLLOWING ORDER OF LEGAL/ETHICAL DECISION-MAKERS when determining who can give authorization for autopsy:

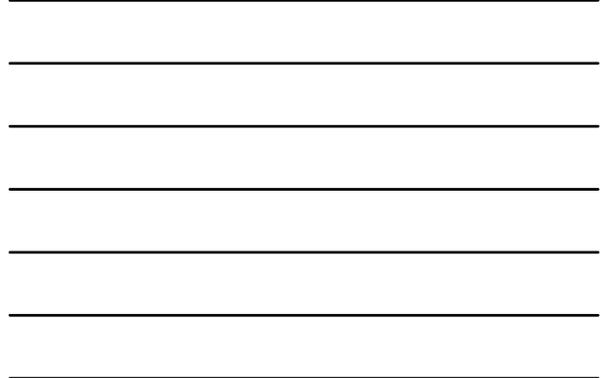
1. Spouse or Domestic Partner a. Son or Daughter 18 years of age or older (all children have equal right of choice)
2. IF NO SPOUSE OR PARTNER b. Brother or Sister 18 years of age or older
3. IF NO CHILDREN EXIST c. Grandchild of the decedent or the spouse of decedent
4. IF NO PARENTS EXIST
5. IF NO SIBLINGS EXIST
6. IF NO GUARDIAN EXIST Any other person or agency authorized or under an obligation to dispose of the remains of the decedent. The chief official of any such agency shall designate one or more persons to receive authorization pursuant to the provisions of this section.

I, _____, the _____ of _____, do hereby authorize a post-mortem examination of decedent, including removal, retention, and examination of such specimens of tissue as of examining physician deems proper, with the exception of _____ or limited to _____.

I hereby release and absolve the attending pathologist and associates and Legacy Health and its agents and employees from any and all liability arising from the post-mortem examination.

Date: _____ Time: _____ Signature of Reporting Physician: _____
 Signature of Decedent: _____ (Signature of Next of Kin if given consent instead)

Legacy Health is not responsible for the return of the body to the family. The body will be returned to the family at the discretion of the Medical Examiner. The autopsy findings will be forwarded to the family member designated on the patient's physician or diagnostic consultant. Family members desiring these results should contact the patient's attending physician.



PLEASE NOTE THE APPROPRIATE CRITERIA LEADING TO REFERRAL FOR AUTOPSY

A. Determine if referred to medical examiner office is **MANDATORILY** according to state law and:

1. The body occurs Oregon or Washington Statutes in reporting death when:

CRITERIA:	EXEMPTIONS:
A. Apparently homicidal, suicidal or occurring under suspicious or unusual circumstances.	a. Involently when an apparent good health patient and/or death occurred within the 30 days preceding death.
B. Resulting from the unlawful use of controlled substances or the use of chemical or toxic agents.	b. Circumstances indicate suicidal or self-inflicted causes.
C. Occurring while incarcerated in any jail, correction facility or a public custody.	c. Inexplicable circumstances.
D. Apparently accidental or falling as an injury.	d. Where a patient's autopsy or post-mortem or coroner's report is to be held.
E. Involuntary asphyxiation or near asphyxiation or strangulation.	e. Unknown or otherwise causes or within one year following an accident.
F. While on under the care of a physician during the post-mortem procedure or return.	f. Caused by any infectious substance;
G. Related to disease which might constitute a threat to the public health.	g. Known or suspected disease;
H. Human body apparently has been deposited as an offensive nuisance.	h. Drowning, hanging, blast, electrocution, gunshot wounds, falls or any infectious, neoplastic, neovascular, degenerative, infectious, or other additional, unusual, unexplained, reflexive or unexplained;
I. All trauma patients.	i. Premature birth or still birth.
J. DNR or within 24 hours of arrival at a hospital.	j. Violent suspicious disease or suspected contagious disease which may be a public hazard.
	k. Abnormal eye, nasal, lacrimal or ocular;
	l. Death of an infant;
	m. Fossilized or is not changed by relative to death.

B. If autopsy is not mandated by law, the physician must determine the possible need for an autopsy consultation.

1. Autopsy of natural deaths, subject to be waived by forensic medical practitioners, under the following conditions, and include the following:
 - a. Deaths in which autopsy may help to explain unknown and unexplained medical complications to the attending physician.
 - b. All neonatal and pediatric deaths.
 - c. Deaths related to injury either accidental or occurring under suspicious circumstances contained prior to or during transportation, including death as a result of unlawful use of controlled substances.
 - d. Deaths known or suspected to have resulted from environmental or occupational hazards.
 - e. Potentially suspicious deaths within 48 hours of injury or extensive diagnostic procedures, an unresponsive or unresponsive deaths referred by the Medical Examiner.
2. Autopsies should also be considered in the following situations:
 - a. All deaths in which the cause of death is unknown.
 - b. Deaths of patients who have participated in clinical trials approved by institutional review boards which also may have a bearing on symptoms or responses of transplant organs.
 - c. Deaths related to possible genetically inheritable conditions for purposes of genetic counseling.
 - d. Death, accidental or a result of medical delivery.
 - e. Family has questions which might be answered by autopsy.
3. Patient must have been an inpatient or outpatient of Legacy Health at the time of death. This restriction may be waived by the Director of Pathology or his/her designee.
4. Families may be advised the Legacy Health may charge the autopsy of the patient was not an inpatient at the time of death.

Send a Copy of this form to Admitting IMMEDIATELY upon completion of the OFFICIAL TIME OF DEATH and another Copy of this form to Admitting upon completion of the form.



Forensic autopsy

- Goals of autopsy:
 - Establish cause of death
 - Interpretation and correlation of facts and circumstances related to death
 - Recover, identify, preserve evidence during examination
 - Reconstructing how injury occurred
 - Determine decedent identity
 - Estimate time since death
 - Provide factual objective report for law enforcement
 - Assist in determining manner of death

Forensic Autopsy

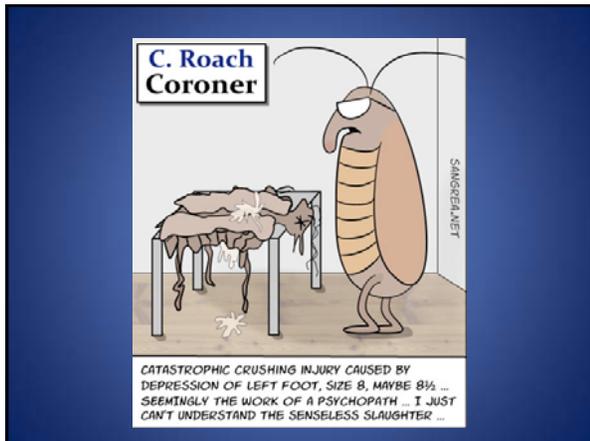
- Toxicology is typically performed.
 - Blood, vitreous fluid often collected and stored
- Report includes cause of death and manner of death
- Manner of death:
 - Natural
 - Suicide
 - Homicide
 - Accident
 - Undetermined

Manner of death:

- **Natural:** death resulted solely from disease and/or the aging process
- **Suicide:** if person dies from an intentional self-inflicted act (injury or poisoning) that was meant to or has a high risk of resulting in self-harm or death

Manner of death:

- **Homicide:** when a person dies of injury or poisoning as a result of an act of a person other than the decedent
 "Accident" if injury or poisoning caused or contributed to death but was unintentional/not predictable, etc.



Financial Cost of an Autopsy

- **Cost of a medical autopsy:**
 - Depends on the hospital.
 - Legacy Health:
 - No charge for autopsies if the patient was a Legacy hospital inpatient or outpatient within the past 30 days, the patient qualifies for an autopsy.
 - Restriction may be waived under certain circumstances
- **Cost of a forensic autopsy:**
 - No charge to family.
 - Costs are covered by local and state governments

Medical Autopsy

- Goals of a medical autopsy:
 - Determine basic underlying diseases
 - Determine the pathophysiologic consequences of diseases
 - Determine the immediate cause of death
 - Compare the clinical diagnosis with the pathologic findings
 - Determine the side effects of treatment
 - Collect and record data for academic study or public health resources
- Autopsy can still be performed after organ and tissue donation

Most hospital medical staffs have guidelines for autopsy consideration (Joint commission requirement)

PLEASE NOTE THE APPROPRIATE CRITERIA LEADING TO REFERRAL FOR AUTOPSY

A. Consensus of medical or medical examiner offices is **MANDATORY** according to state law and:

1. The body must be Oregon or Washington Statutes in reporting deaths when:

CRITERIA:	INDICATIONS:
1. Apparently homicidal, suicidal or occurring under suspicious or unusual circumstances.	a. Unusually when an apparent good health without medical attention within the 30 days preceding death.
2. Resulting from the unlawful use of controlled substances or the use or abuse of chemical or toxic agents.	b. Circumstances indicate unexplained or unexplained manner.
3. Occurring while incarcerated in any jail, correction facility or police custody.	c. Suspicious circumstances.
4. Apparently accidental or following an injury.	d. Where a cause of autopsy or post-mortem or coroner's report is to be held.
5. In disease, injury or toxic agent during or arising from employment.	e. Unknown or obscure cause or within one year following an accident.
6. When under the care of a physician during the period immediately preceding to death.	f. Cause by non-violent substances;
7. Related to disease which might constitute a threat to the public health.	g. Death or suspected disease;
8. Human body apparently has been disposed of in an effluvia manner.	h. Drowning, hanging, burn, electrocution, gunshot wounds, falls or cars, lightning, radioactive substances, explosion, dissection, mutilation or other addition, where, strangulation, suffocation or asphyxiation;
9. All trauma injuries.	i. Premature birth or still birth;
10. DVA or within 2 hours of arrival at a hospital.	j. Violent suspicious disease or suspected contagious disease which may be a public health;
	k. Other appropriate knowledge or evidence;
	l. Death in jail or prison;
	m. Fraudulent or not caused by violence or homicide.

B. If autopsy is not mandated by law, the physician must determine the possible need for an autopsy consultation.

1. Autopsies of natural deaths, subject to law waived by forensic medical jurisdiction, must be strongly considered, and include the following:

- a. Deaths in which autopsy may help to explain unknown and unanticipated medical complications to the attending physician.
- b. All neonatal and pediatric deaths.
- c. Deaths related to injury either accidental or occurring under suspicious circumstances sustained prior to or during hospitalization, including death as a result of unlawful use of controlled substances.
- d. Deaths known or suspected to have resulted from environmental or occupational hazards.
- e. Potentially contagious deaths within 48 hours of injury or infection diagnostic procedure, or intraoperative or intra-procedural deaths referred by the Medical Examiner.

2. Autopsies should also be considered in the following situations:

- a. All deaths in which the cause of death is unknown.
- b. Deaths of patients who have participated in clinical trials approved by institutional review board.
- c. Deaths of any age in which it is believed that autopsy would confirm an unknown or suspected illness which also may have a bearing on diagnosis or treatment of recipient organs.
- d. Deaths related to possible genetically inheritable conditions for purposes of genetic counseling.
- e. Death, accidental or within stated days of abnormal delivery.
- f. Family has questions which might be answered by autopsy.

C. Patient must have been an inpatient or recipient of Legacy Health at the time of death. This restriction may be waived by the Director of Pathology or his/her designee.

D. Families may be advised the Legacy Health may charge the autopsy of the patient was not an inpatient at the time of death.

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What is done in an autopsy?

- External examination
- Internal examination
- Microscopic examination
- Toxicology and microbiology studies not routinely taken.
 - May be obtained on a case by case basis if clinically indicated after review of chart or a clinical question
- Special considerations for some infectious diseases:
 - CJD, Tuberculosis, Biologic isolation

Who performs the autopsy?

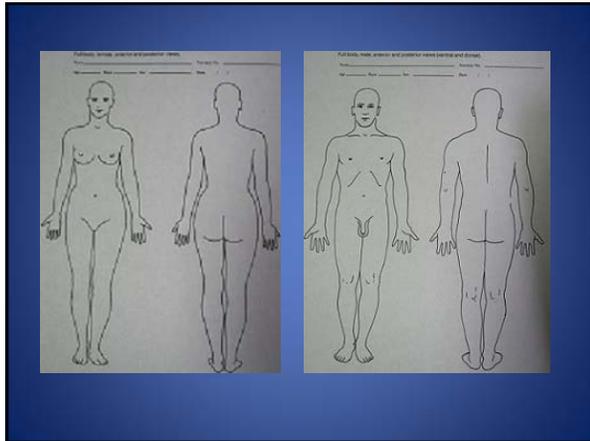
- Prosector:
 - Remove organs (either en-bloc or organ by organ)
 - Doesn't have to be a pathologist or pathologist assistant
 - Typically on the job training with knowledge of anatomy
- Pathologist or Pathologist Assistant:
 - Examine the organs grossly, describe them, determine what sections to take
 - Pathologist Assistant is a 2 year Master's Program with formal education in autopsy and grossing surgical pathology
- Pathologist:
 - Must perform the microscopic examination and sign the report.

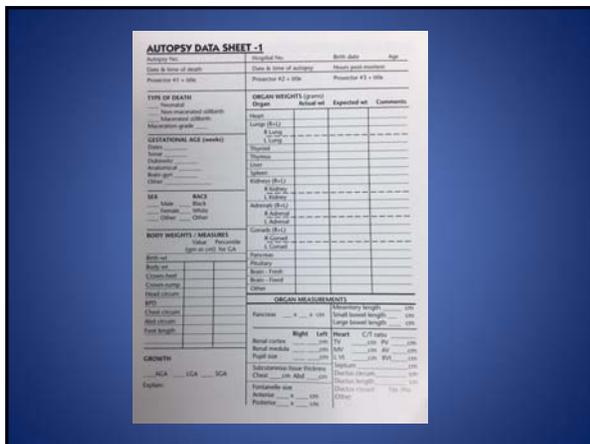
Preparation for medical autopsy:

- Review consent for proper authorization
- Assemble relevant clinical records
- Consider ME notification requirements
- Contact clinical team
- Review imaging studies if relevant
- Coordinate with members of clinical or surgical team if they desire to be present
- Notify appropriate hospital personnel about expected timing of autopsy

External Examination:

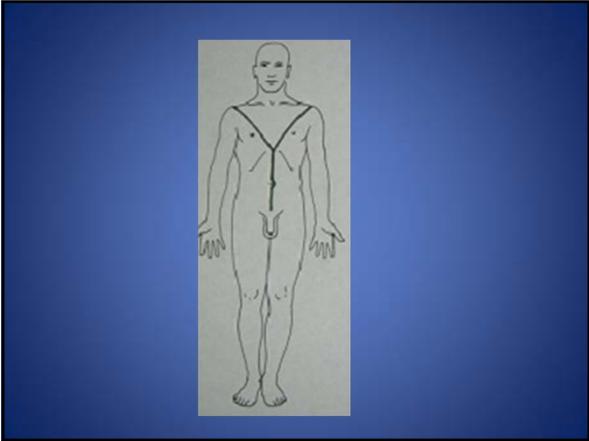
- Appropriately identify patient
- General:
 - Length, estimated weight, sex, appearance, approximate age, state of nutrition, presence of surgical hardware, tubes, catheters.
- Skin:
 - Pigmentation such as jaundice or discoloration, rashes, wounds, scars (location, size and age), tattoos.
- Head:
 - Scalp (trauma, hair, lesions), Ears, Eyes, nose, mouth, teeth.
- Extremities:
 - Absent digits, clubbing, hemorrhage, nodules, etc.
- Chest
- Abdomen
- External Genitalia



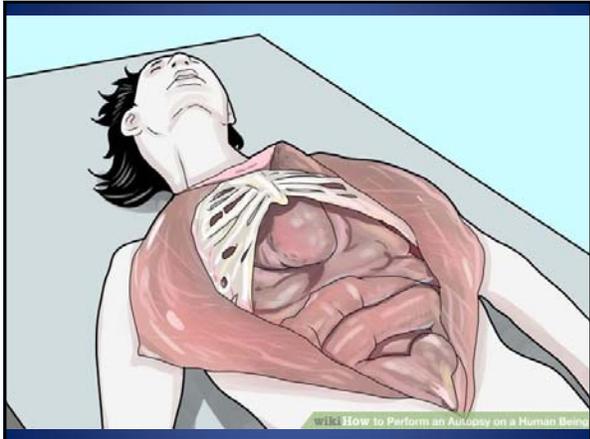


Internal Examination

- Y-shaped incision to expose chest and abdomen
 - Rib cage is removed to examine lungs and heart
 - Abdominal musculature is reflected to examine abdominal organs

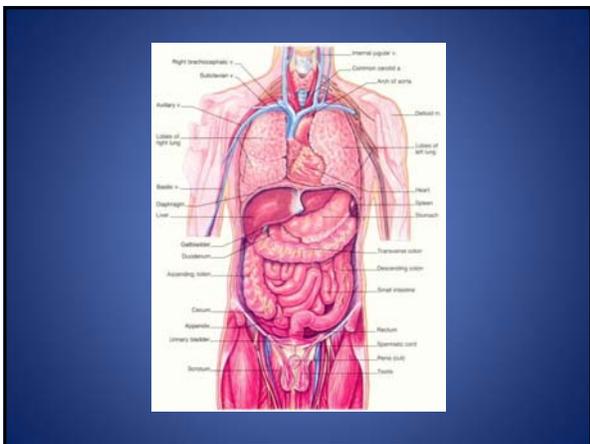


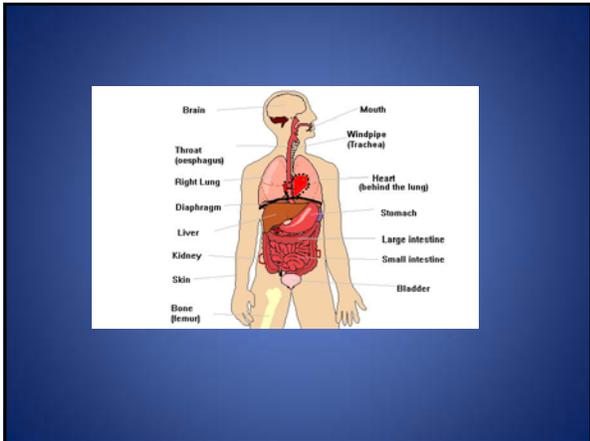




Internal Examination

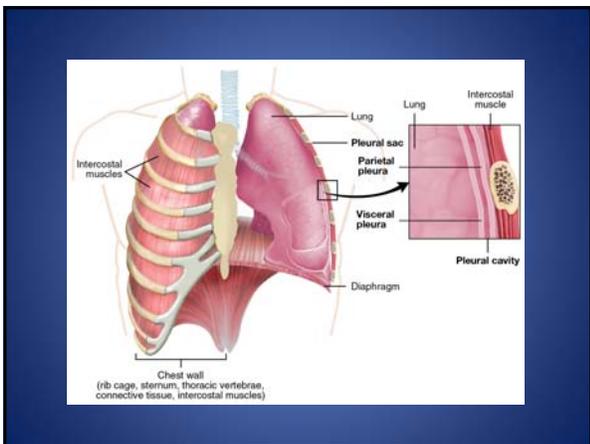
- Two main methods of organ examination:
 - En-block:
 - Remove organs (either chest organs and abdominal organ blocks separately or one large block with both thoracic and abdominal organs)
 - Allows visualization of natural anatomic relationships
 - May be needed for certain cases, pathologist preference
 - Organ by Organ:
 - Individual organs removed and measured and examined.
 - Most common method done, quicker and easier.

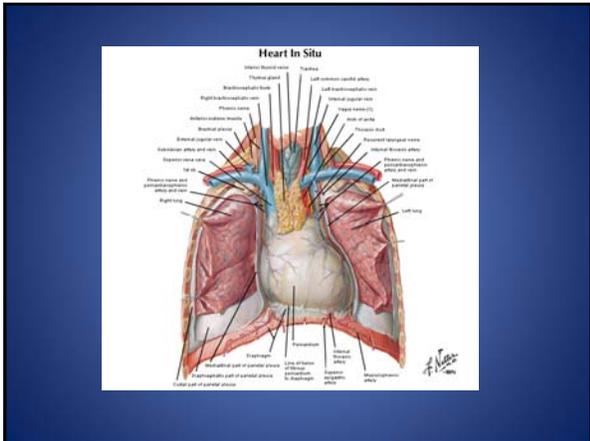


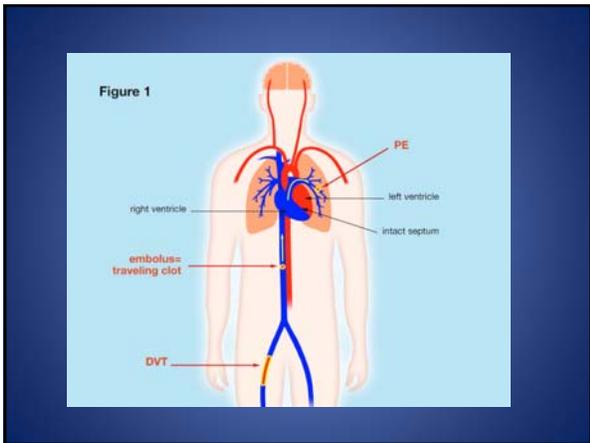


Internal Examination

- Thoracic cavity:
 - Amount and character of pleural fluid, pleural adhesions, pericardial fluid and adhesions, inspect pulmonary artery for large thromboemboli, configuration of aorta and major branches
- Abdominal cavity:
 - Note the thickness of abdominal fat, peritoneal adhesions, masses or lesions of omentum, location and rotation of abdominal organs



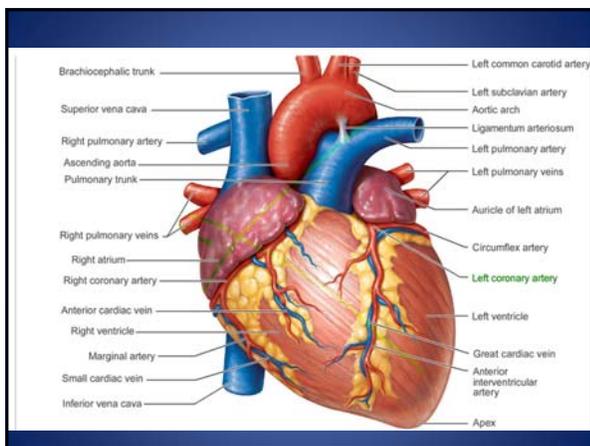




- ### Internal Examination
- Organ dissection:
 - Examine aorta for atherosclerosis and tears, dissections, etc.
 - Weigh individual organs
 - Expected organ weights based on patient sex.
 - Gives an indication of larger or smaller than expected.
 - Lungs:
 - Vessels examined for smaller thromboembolic, parenchyma sectioned, looking for masses or areas of consolidation (pneumonia)

Organ/Structure	Weight (g)	Measurement (cm)
Cardiovascular system		
Heart (see table 9.3)		
Male	300 (270-360) ¹	
Female	250 (230-280) ¹	
Ventricles + septum (V)	~250 ¹	
Left ventricle (LV)	~180 (LV-V) ²	1.0-1.5 Back (7 cm distal to MA) ³
Right ventricle (RV)	~65 (RV free wall) ²	0.2-0.4 Back (7 cm prox. to PV) ^{1,4}
Atria		0.1-0.2 Back ³
Valves ^{5,6}		
Aortic		Max. 6.7 (5.0-7.4), female, 6.3 (5.7-6.6)
Pulmonary		Max. 6.6 (5.2-7.1), female, 6.2 (5.7-6.7)
Mitral		Max. 9.0 (7.4-9.9), female, 8.6 (8.2-9.1)
Tricuspid		Max. 11.4 (11.2-11.7), female, 10.6 (10.2-10.9)
Aorta		
Ascending		8.5 circumference ⁷
Thoracic		4.5-7.0 circumference ⁸
Abdominal		3.5-4.5 circumference ⁸
Lung		
Right	475 (360-670) ⁹	
	Max. 45, female, 43 ⁹	
Left	375 (225-480) ⁹	

- ### Internal Examination
- Heart:
 - Weight
 - Examine coronary arteries for obstruction, clots.
 - Dissect according to blood flow, open from right atrium to right ventricle, left atrium to left ventricle.
 - Look at valves, measure valves, look for vegetations, calcifications, etc.
 - Section ventricles to examine for thickening of the myocardium, scarring, fibrosis, discoloration.

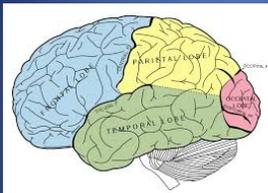


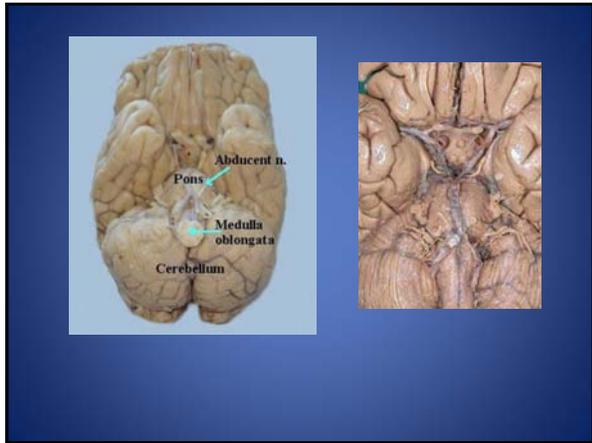
Internal Examination

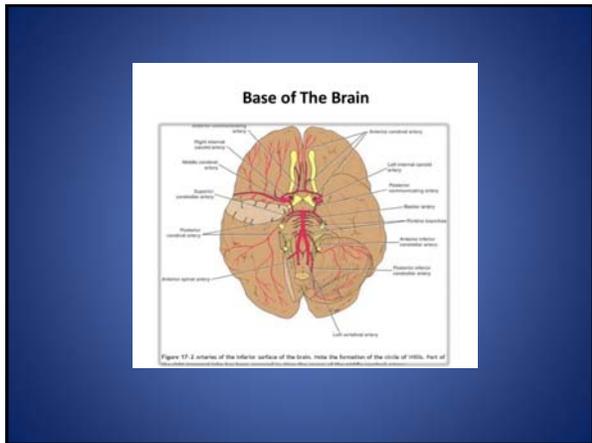
- Abdominal organs:
 - Examine the kidneys, ureters and bladder
 - Examine spleen
 - Examine gallbladder and liver
 - Examine the pancreas
 - Open the stomach and into the duodenum
 - Examine the small intestine colon
 - Examined the genital organs (testes or ovaries and uterus)

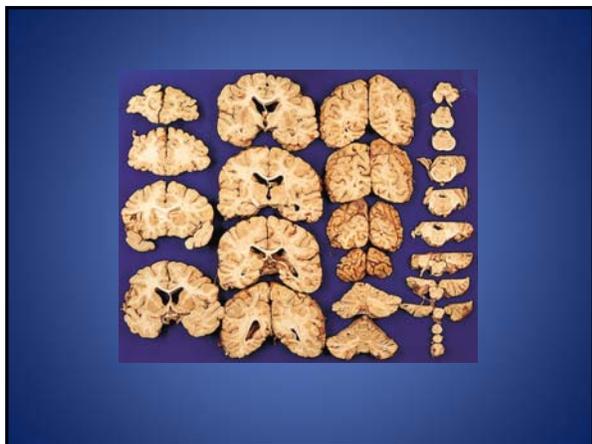
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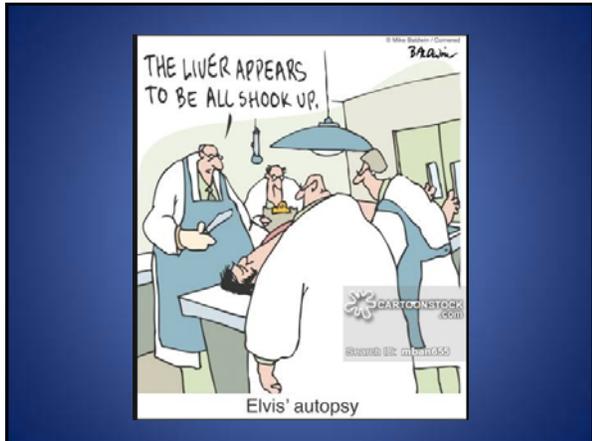
- Brain:
 - Weigh brain fresh.
 - Typically section brain after fixation in formalin
 - Examine vessels at base of brain for thrombosis, embolism, aneurysm, or atherosclerosis.
- Spinal cord:
 - Not routinely examined.
 - Removed in certain clinical situations.











Microscopic Examination

- Routine sections taken for H&E stain at the discretion of the pathologist
- Sections taken from all abnormal areas.
- Examine tissue slides for pathology, disease, etc.



Medical Autopsy Report

- Preliminary Autopsy Diagnosis:
 - Released within 2 business days of autopsy (not of death).
 - Preliminary case information
 - Preliminary Diagnosis
 - Typically based on initial gross findings at autopsy.
 - Often many portions are pending further examination
 - Preliminary Cause of Death

Medical Autopsy Report

- Gross Description:
 - Divided by organ system, describes all of the findings from the external and internal examination, including organ weights, any gross abnormalities.
- Microscopic Description:
 - Describes what sections were taken
 - Describes abnormal microscopic findings

Medical Autopsy Report

- Final Autopsy Diagnosis (released within 30-60 business days of autopsy):
 - Brief case information.
 - Brief summary of the clinical information, obtained from the medical record
 - Final Diagnosis:
 - Usually presented in outline form.
 - Top of the outline is the most significant finding leading to patient's death
 - Combines both gross and microscopic findings from the autopsy which led to the patients death
 - Cause of Death:
 - Statement describing the cause of death
 - Clinical Pathologic Correlation:
 - Paragraph or paragraphs correlating the clinical information to the findings (both gross and microscopic) of the autopsy

Cause of Death Statement

- What ultimately lead to patient's death.
- Not the mechanism of death (such as cardiac arrest or respiratory arrest), but what caused the cardiac arrest (i.e. myocardial infarction due to severe atherosclerosis).

Medical Autopsy Report

- Final Autopsy Diagnosis:
 - Report released to the ordering physician (physician who ordered the autopsy).
 - Ordering physician contacts family to discuss the autopsy findings.
 - Only in rare circumstances does the pathologist discuss findings with the family.
 - Report doesn't typically go directly to the family.
 - Very technical report, not written in lay terms.

Ex. Preliminary Autopsy Diagnosis

- Preliminary Diagnosis:
 1. Liver with 6.0 x 5.8 x 5.0 cm mass and associated satellite nodules
 2. Right lung with extensive adhesions and encasement by a thickened hemorrhagic soft tissue rind, suspicious for pleural metastasis.
 3. Right pleural effusion, 250 cc of sersanguinous fluid
 4. Atherosclerosis of multiple sites including aorta, coronary arteries and pulmonary arteries
 1. Left anterior descending coronary artery with approximately 50% occlusion
 5. No gross evidence of intracranial hemorrhage, acute myocardial infarction, or saddle pulmonary embolism
- Preliminary Cause of Death: Sequelae of malignant neoplasm

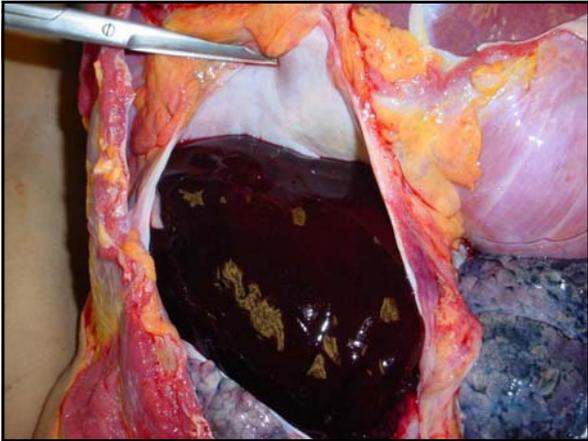
Ex. Final Autopsy Diagnosis

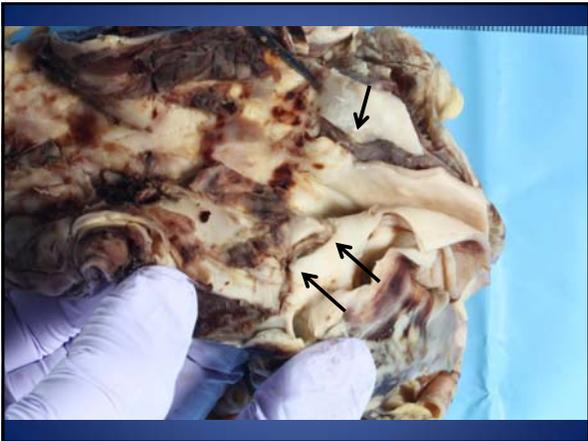
1. History of cardiac arrest:
 - A. Heart without significant pathologic abnormality
 1. No significant atherosclerosis of coronary arteries, or thrombosis within coronary arteries
 2. No gross or microscopic evidence of an acute myocardial infarction
 3. No microscopic evidence of amyloid deposition or other cardiac abnormality
 - B. Bilateral heavy lungs (right lung: 900 grams; left lung: 890 grams)
 1. Bilateral lungs with alveolar capillary congestion
 2. No thrombotic pulmonary emboli
 - C. Brain with no significant pathologic abnormality
 1. No evidence of ischemic change, acute inflammation or intracranial hemorrhage.

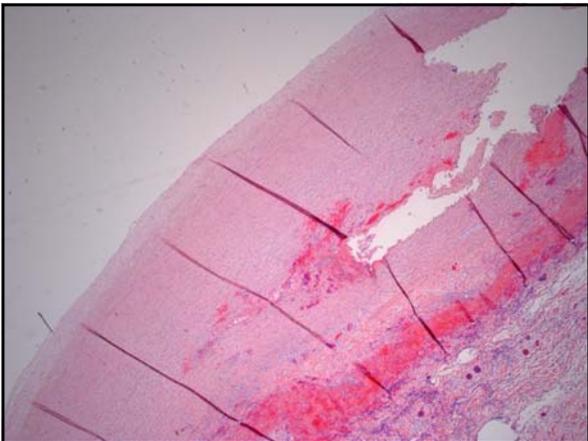
Cause of death: Presumed cardiac arrhythmia

Case Examples

- Middle age (40's) year old woman with hypertension, found to have an aortic aneurysm.
- Underwent surgical repair, tear was covered with a graft, the patient did well, and was discharged.
- Returned to ED three days later with back pain.
- Extremely hypertensive. She was admitted.
- Became bradycardic, then lost her pulse and became unresponsive.
- Despite resuscitative attempts, she expired.







Autopsy Report

- Aortic dissection (Type A), with full thickness tear, and rupture, proximal to stent in thoracic aorta.
 - Pericardial hemorrhage and clot over anterior heart, causing cardiac tamponade.
 - History of recent aortic dissection with TEVAR repair.
 - Massive left ventricular hypertrophy, 3.0 cm in thickness.

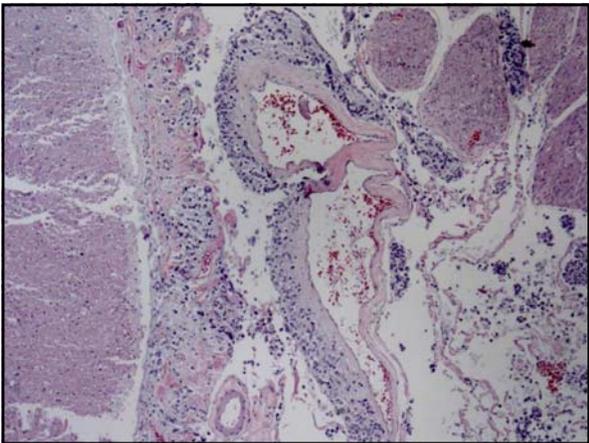
Cause of death: Cardiac tamponade secondary to ruptured aortic dissection (type A) with full thickness tear in aorta.

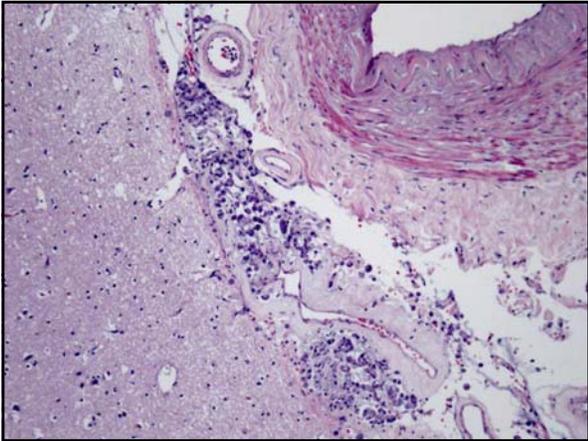
- Previously healthy 60's year old male, long distance runner. Presented with fatigue and headache.
- After extensive workup, including imaging (MRI), etc., determined he had Guillain Barre (autoimmune disease attacking the nerves).
- Discharged to skilled nursing facility.
- Returned to hospital after significant aspiration event and shortness of breath, abdominal pain.
- Respiratory failure and expired.

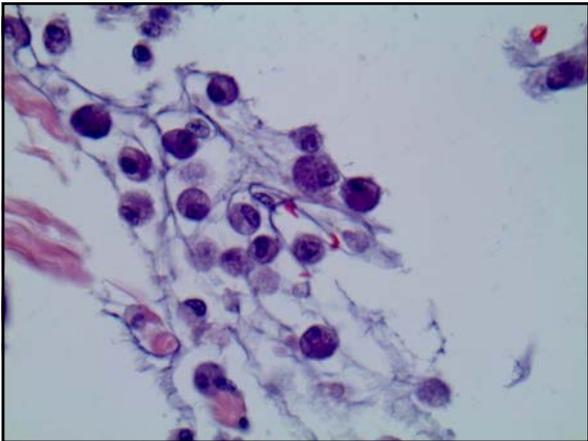


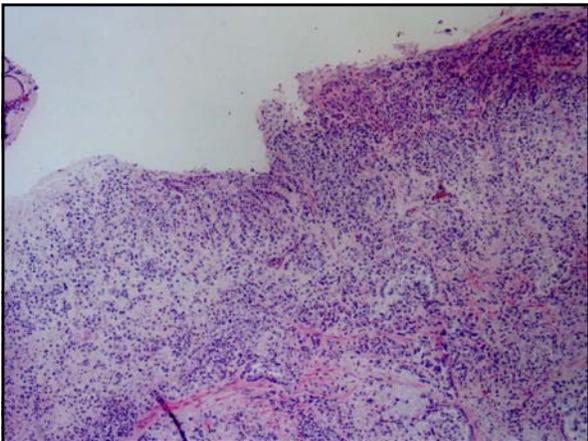


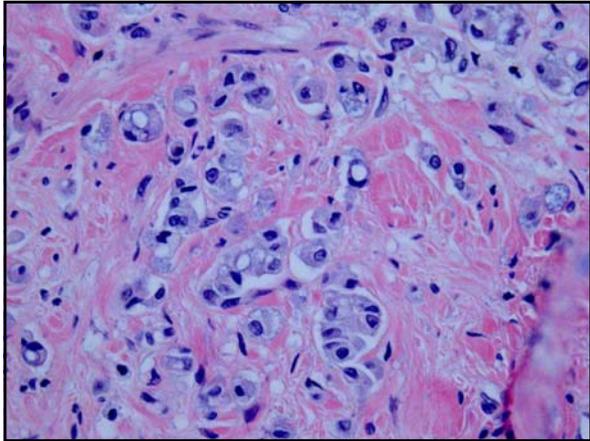


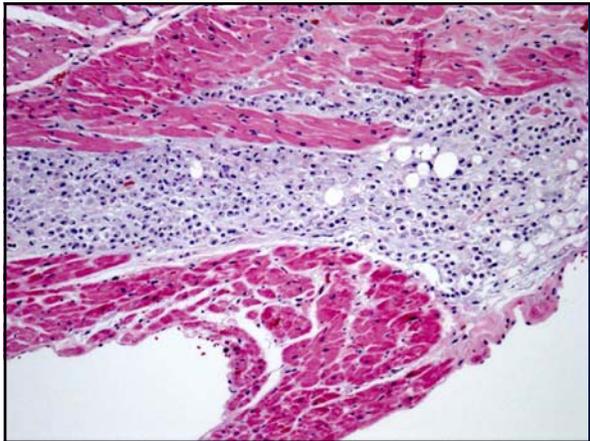












- I. Poorly differentiated gastric adenocarcinoma with widespread metastases including extensive CNS involvement
 - Extensive soft tissue and vascular space involvement by tumor of all sampled lymph nodes, heart, kidney, and spinal cord
- Cause of death: Multiorgan failure due to widespread gastric adenocarcinoma.
- Neurologic changes most likely caused by tumor metastasis.



Medical Certification of Death and Cause-of Death Statements:

- Medical certification of death involves reporting, on the death certificate, the physiologic conditions (diseases/injuries) that culminated in death.
- Relevant information such as manner of death and the circumstances surrounding deaths due to external causes (injury/poisoning).

US standard certificate of death contains three major categories of information:

1. Demographic and personal information (educational attainment, occupation, social security number, place of birth, etc)
2. Details about the method and place of bodily disposition (burial, cremation, etc)
3. Information about the cause and circumstances surrounding death (Medical certification of death)

Cause of death/Cause of death statement:

- Sequence of conditions that ultimately resulted in death
- Sequence reported by listing first (on the top line) the condition that occurred closest to the time of death, then, on the lower lines going backward in time, the other conditions in the sequence so that the item on the bottom contains the condition (disease or injury) that started the sequence of events that led to death.

Cause of death/Cause of death statement:

- Item on top line is "Immediate cause of death"

Examples:

Part I

- A. Acute myocardial infarction
- B. Thrombosis of ruptured coronary artery plaque
- C. Atherosclerotic coronary artery disease

Part II (other significant conditions)-Conditions contributing to death but not resulting in the underlying cause of death in part I.

More examples of cause-of-death statements:

Examples:

Part I

- A. Upper gastrointestinal hemorrhage
- B. Probable penetrating peptic ulcer of the stomach

Part I

- A. Drug-induced seizure
- B. Cocaine poisoning
- C. Crack cocaine smoking

Questions?

