What is today's objective?

To understand the steps of an autopsy

AUTOPSIES

HIC LOCUS EST UBI MORS GAUDET SUCCURRERE VITAE

This is the place where death delights to help the living

AUTOPSY means "see for yourself"

PURPOSE: to learn the **truth** about the person's **health during life**, and **how** the person **really died**.

- Find CAUSE & MANNER of death

In most states, it can be ordered by the government.

Exactly who makes the decisions, and who just gives advice, depends on the jurisdiction.

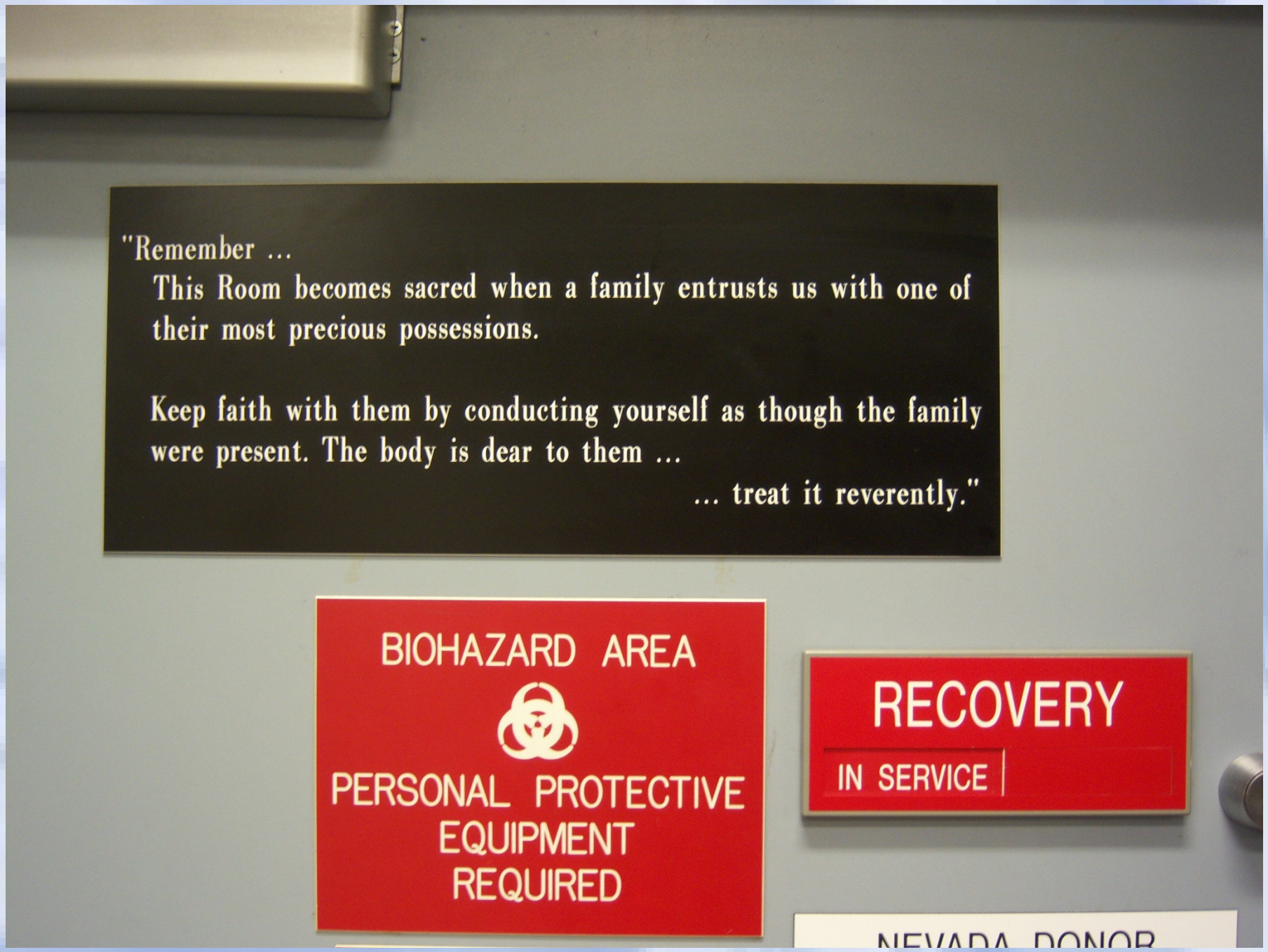
- can be ordered in **every state** when there is suspicion of foul play.
- can be ordered (*in most states)* when there is some public health concern, i.e., a mysterious disease or a worry about the quality of health care.
- may be ordered *(in most states)* if someone dies unattended by a physician (or attended for less than 24 hours), or if the attending physician is uncomfortable signing the death certificate.

- If not required by law, the family can request autopsy from hospital
- ***In VEGAS: the hospitals do NOT do autopsies, but the funeral home does***
- Family can ask funeral home also (costs $3-5K)

  You could still have an open-casket funeral after an autopsy *(secret? pillow and clothes)*

- **Autopsies were developed in Germany**; **autopsy assistant** often called "**diener**", which is German for "***servant***"


CLARK COUNTY
CORONER'S
OFFICE
1704

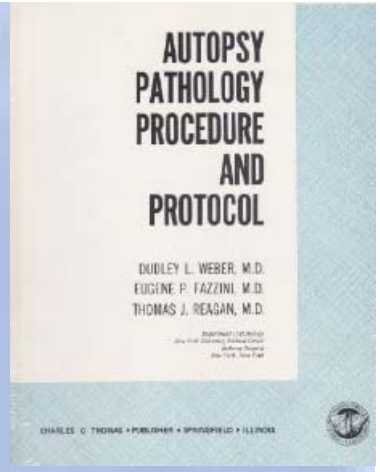

"Remember ...
This Room becomes sacred when a family entrusts us with one of their most precious possessions.
Keep faith with them by conducting yourself as though the family were present. The body is dear to them ...
... treat it reverently."
BIOHAZARD AREA
PERSONAL PROTECTIVE EQUIPMENT REQUIRED
RECOVERY
IN SERVICE


CANYON COUNTY IDAHO
·1892·

AUTOPSIES

Textbook

Steps to an Autopsy



1. **The pathologist first examines the outside of the body.**

A great deal can be learned in this way.

Many pathologists use scalpels with rulers marked on their blades.

2. The body is opened w/ a scalpel using a Y-shaped incision from shoulders to mid-chest and down to the pubic region.

There is almost no bleeding, since a dead body has no blood pressure except that produced by gravity.

3. The skin is reflected back to expose the chest.

4. The cartilages that join the ribs to the breastbone is cut *(so the ribcage can be removed and you can enter the chest cavity).*

This can be done using *a scalpel, a saw, or a stryker saw,* depending on the condition of the ribs

5. a) The breastbone and attached rib cartilages are removed, and examined.

Often they are fractured during cardiopulmonary resuscitation.

5. b) The abdominal cavity is explored

The 1st dissection in the abdomen is usually freeing up the large intestine. *Some pathologists do this with a scalpel, while others use scissors*

6. Freeing up the intestine takes some time. The pathologist in this picture is cutting along the attachment using a scalpel.

7. The chest organs, including the heart and lungs, are inspected.

Sometimes blood from the heart is checked for bacteria in the blood. *(U*se a very large hypodermic needle and syringe)

Other items might be sent to the microbiology lab to search for infection. (ex. blood, urine, bile, or even the fluid of the eye)

- Then the pathologist must decide in what order to perform the rest of the autopsy.

The choice will be based on a variety of considerations.

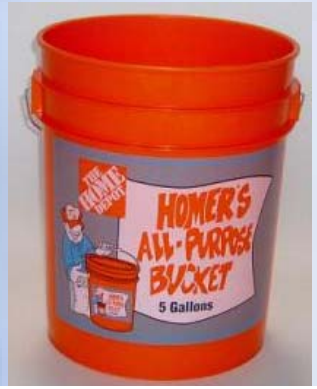
* This team will use the method of **Virchow**: removing organs individually.

(versus the Rokitansky procedure: organs all come out at once)

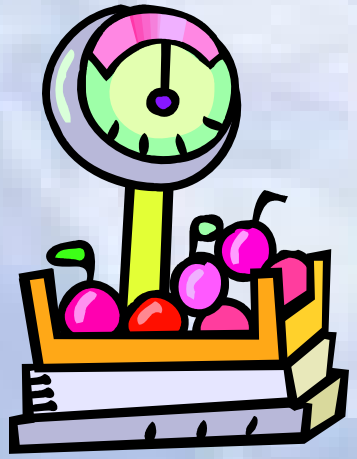
8. The pathologist examines the heart, and usually the 1st step is sectioning the coronary arteries that supply the heart with blood. *There is often disease here, even in people who believed their hearts were normal.*

9. When any organ is removed, you save a section in preservative solution.

The rest of the organ goes into a biohazard bag, which is being held up in a large container (like a 5 gallon "Homer bucker")



10. Weigh the major solid organs (heart, lung, brain, kidney, liver, spleen, sometimes others) on a grocer's scale. The smaller organs (thyroid, adrenals) get weighed.



11. Explore the bile ducts and free up the liver.

12. After weighing the heart, you dissect it. There are a variety of ways of doing this, depends on case.

If the pathologist suspects a heart attack, a long knife may be the best choice.

13. The liver is removed and examined.

If it is too light, too orange, and a bit too big, there person maybe have been a heavy drinker. *(normal weight = 1400g)*

The liver is cut at intervals of about a centimeter, using a long knife.

This enables the pathologist to examine its inner structure.

14. You can choose to remove the neck organs, large airways, and lungs in one piece.

- This requires careful dissection. The pathologist always examines the neck very carefully.

The lungs are almost never normal at autopsy. Pink lungs suggest a non-smoker.

The pathologist will inspect and feel them for areas of pneumonia and other abnormalities.

Both lungs are weighed separately, then together.

15. Continue with the removal of the other organs.

- Gastric contents may be checked for poison.
- The brain is usually suspended in fixative for a week so that the later dissection will be clean, neat, and accurate. *If no disease of the brain is suspected, the pathologist may cut it fresh.*
- The kidneys are weighed before they are dissected.

16. When the internal organs have been examined, the pathologist may return all but the portions they have saved to the body cavity. *Or the organs may be cremated without being returned*.

17. If the head is to be opened, the pathologist makes a second incision across the head, joining the bony prominences just below and behind the ears.

When this is sewed back up, it will be concealed by the pillow on which the dead person's head rests.

The cut follows along like a set of headphones

18. The scalp is reflected back.

19. The skull vault is opened using two saw cuts, one in front, and one in back.

These will not show through the scalp when it is sewed back together.

A special vibrating saw that cuts bone but not soft tissue is used.

20. The top of the skull is removed, and the brain is very carefully cut free of its attachments from inside the skull.

21. The breastbone and ribs are usually replaced in the body.

The skull and trunk incisions are sewed shut ("**baseball stitch**"). The body is washed and is then ready to go to the funeral director.

22. The pathologists will submit the tissue they saved to the histology lab to be made into microscopic slides.

When these are ready, they will examine the sections, look at the results of any lab work, and draw their final conclusions.

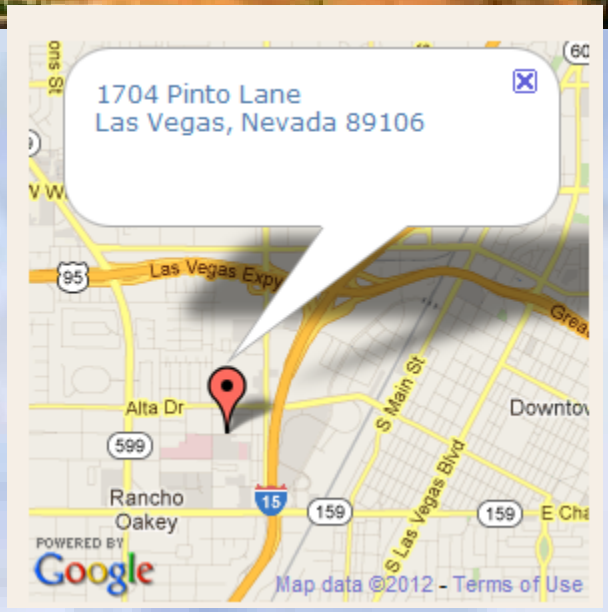
23. A final report is ready in a month or so.

The glass slides and a few bits of tissue are kept forever, so that other pathologists can review the work.

What is today's objective?

To compare "textbook" autopsies to what is "actually" done

CLARK COUNTY
CORONER
LAS VEGAS



Steps to an Autopsy

1. **The pathologist first examines the outside of the body.**

Many pathologists use scalpels with rulers marked on their blades.

1. **The Forensic Tech takes pictures of the body**

Use a cardboard tab with the case # as a "ruler"

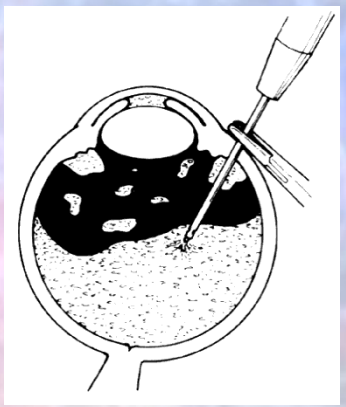
Use actual ruler for stab wounds

Steps to an Autopsy

2. The Pathologist does an external examination (uses a recorder, not paper)

The techs stand around and move the body if the doctor needs them to

Steps to an Autopsy



3. The Forensic Tech removes the fluids

- vitreous
- heart
- chest cavity
- bladder

The pathologist decides if an autopsy will be performed

2. The body is opened w/ a scalpel using a **Y-shaped incision** from shoulders to mid-chest and down to the pubic region.

3. The skin is reflected back to expose the chest.

4. The Forensic Tech begins the autopsy with the Y-incision and reflects the skin

4. The cartilages that join the ribs to the breastbone is cut.

5. a) The breastbone and attached rib cartilages are removed, and examined.

5. The Forensic Tech removes the breastbone

5. b) The abdominal cavity is explored

6. The Forensic Tech removes the heart and lungs and gives it to the pathologist to examine

6. Freeing up the intestine takes some time.

7. The chest organs, including the heart and lungs, are inspected.

7. While the Pathologist examines the heart & lungs, the Forensic Tech starts on the brain

The brain is examined in **EVERY** case that they autopsy

- Then the pathologist must decide in what order to perform the rest of the autopsy.

Virchow: removing organs individually.

(versus the Rokitansky procedure: organs all come out at once)

8. The CC coroner uses the Virchow method

8. The pathologist examines the heart
9. When any organ is removed, you save a section in preservative solution.
10. Weigh the major solid organs
11. Explore the bile ducts and free up the liver.

9. The pathologist examines and weighs the organs, while the Forensic Tech removes more organs.

Some pieces of the organs are preserved, while the rest are “disposed of” in the bucket

12. After weighing the heart, you dissect it.

13. The liver is removed and examined.

10. The pathologist slices apart the liver and the heart to “get a good look”

14. You can choose to remove the neck organs, large airways, and lungs in one piece.

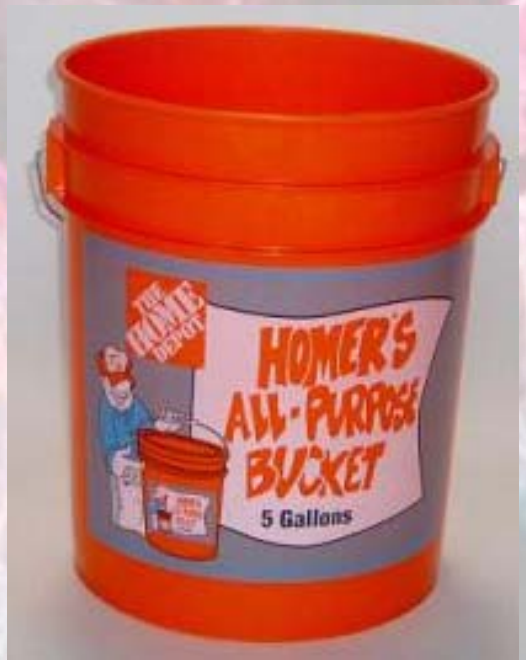
11. The Forensic Tech will remove the tongue and esophagus *IF* the pathologist requests it ***(the lungs have already been removed)***

15. Continue with the removal of the other organs.

12. Continue until all organs are removed and examined

16. When the internal organs have been examined, the pathologist may return all but the portions they have saved to the body cavity.

13. The portions of the organs that are not saved will be wrapped up in the plastic bag



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The cut follows along like a set of headphones

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19. The skull vault is opened using two saw cuts, one in front, and one in back.

16. The skull is sawed open, following the same lines as the scalp cut

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The skull and trunk incisions are sewed shut ("**baseball stitch**"). The body is washed and is then ready to go to the funeral director.

19. The tech only does 2 stitches on the chest, and 3 on the head.

The mortuary will "make the body pretty"

21. The pathologists will submit the tissue they saved to the histology lab and the fluids to toxicology

20. The techs gets the tissue to histology, and the fluids are sent to toxicology in Texas.

21. The pathologist submits his recording to the transcribers, who will write up the report.

22. A final report is ready in a month or so.

22. The tox results will take 4-8 weeks to return, and then the pathologist can do the “final sign off” on the report.