



Crime Scene Investigation

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- They say that you don't really understand a topic until you teach it. I am never really sure who "they" are, but I can certainly attest after only 4 1/2 years as a university level teacher, that "they" are correct.
- This is applicable to scene investigation as well. How ever much I tell you, you won't realise the importance of it until you do one by yourselves.
- But I cant help as I have to go on telling you about it because this a part of your Forensic curriculum.



Objectives

- At the end of the lecture you should be able to understand
 - What is a crime scene,
 - Why crime scene is important,
 - What are the different types of scenes,
 - What are the basic principals of scene examination,
 - How scene investigation is done,
 - How do you manage a scene of crime





- Crime Scene investigation -

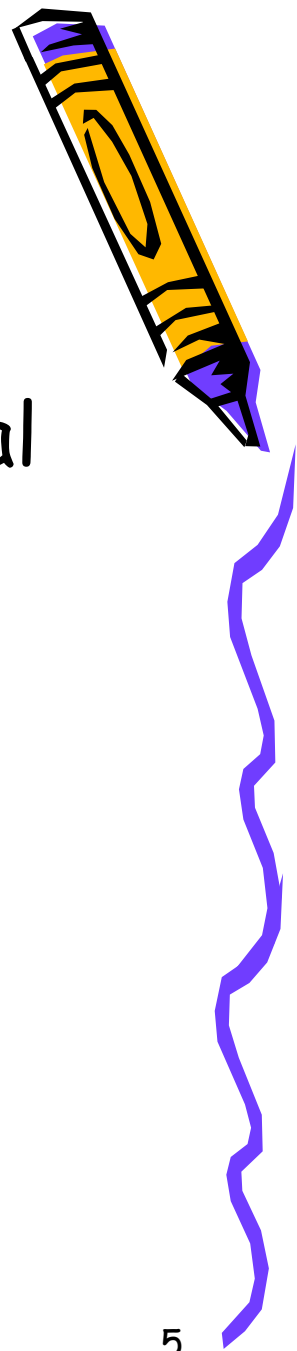
one of the **most important** aspect of the suspicious crime investigation.

Assessment of the scene together with **collection of all relevant samples** and **examination & analysis** of them is crucial for a successful completion of scene examination.



What is a scene of crime?

- Scene of a crime is a place/locus where there is a potential to reveal some evidence of a crime that has taken place.



Case No: 1

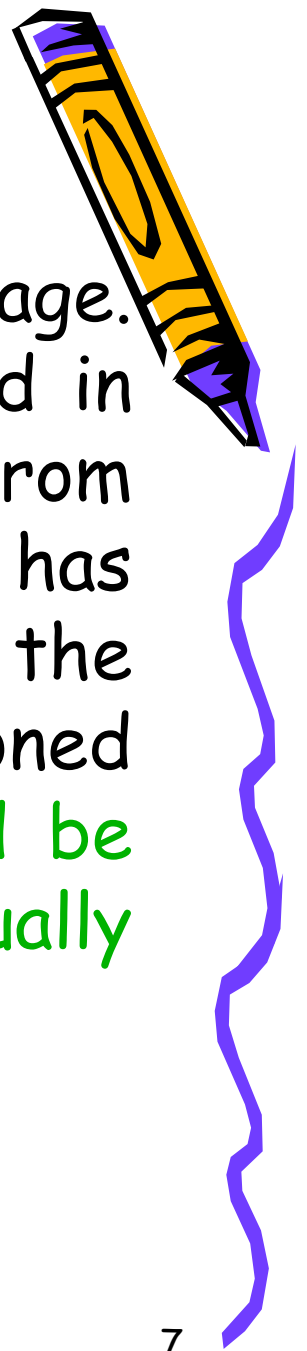


- An eighteen year old male was stabbed outside the back of a public house. He then staggered down the road and leant on a car, which showed a few blood stains. He then continued a further 10m where he collapsed and died. It was initially thought that he had emerged from the house adjacent to where he was found.



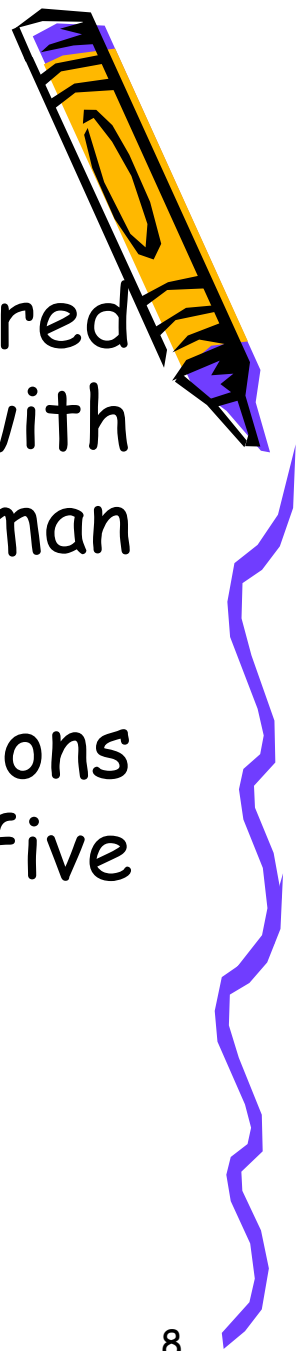
Case 2

42 yr old female was found dead in a garage. She had been strangled by her husband in their house, which was 100m away from where the body was found. He has transported her to the garage during the night, using a wheelbarrow and positioned her body and clothing so that it would be thought that she had been sexually assaulted then killed by another



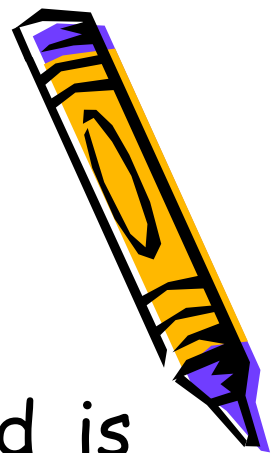
Case No: 3

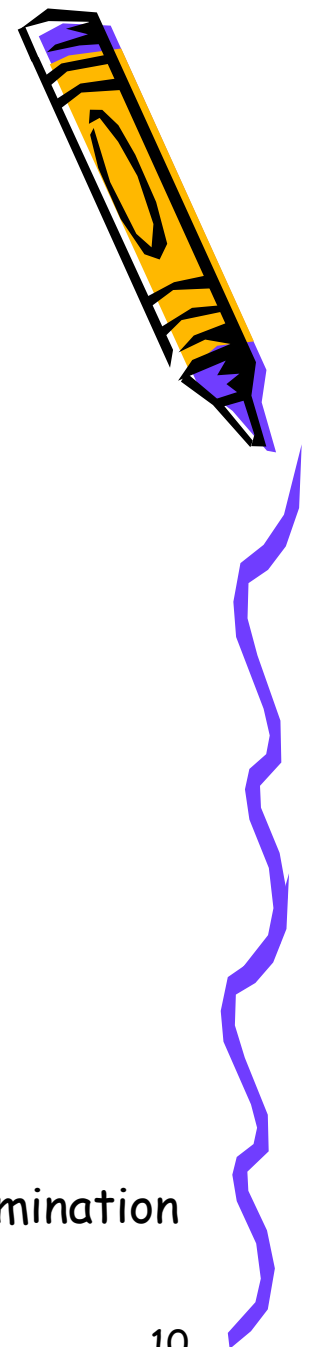
- In East London near a "battered women's refuge, six plastic bags with dismembered body parts of a woman was discovered.
- Despite extensive investigations police could not find anything till five years later.



What you have to realise is;

- The scene at which the body is found is not necessarily the place where the crime was committed. (case 1 & 2)
- Recognize that all crime scenes are unique.
- Some crime investigations ends up nowhere. (case 3)

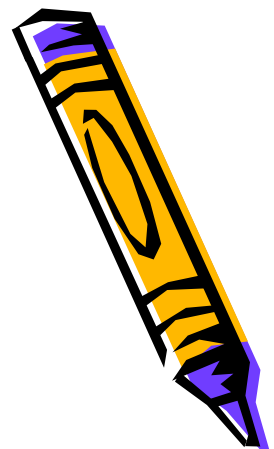




Can you think what has happened?

Probably not without autopsy examination

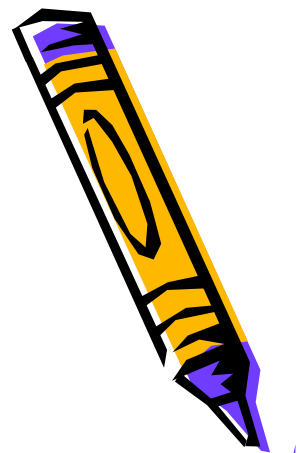




- Couple found dead. Is it homicide? Investigation and autopsy revealed it to be natural.







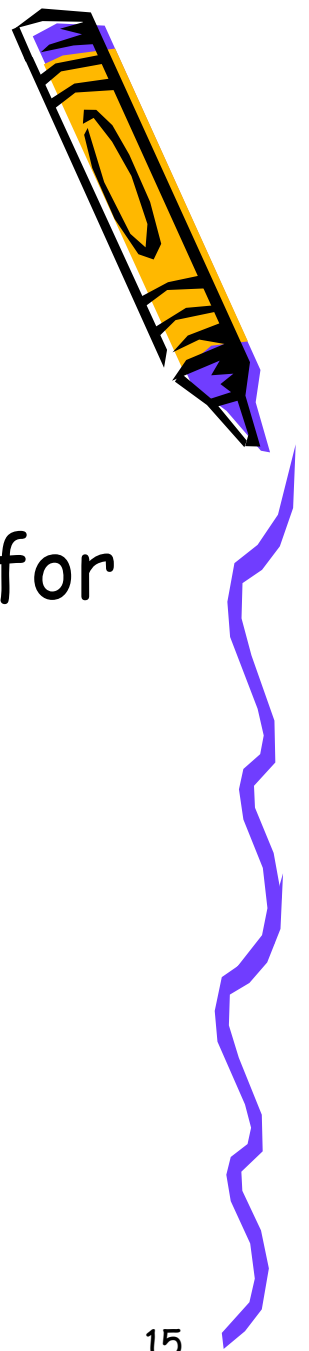
Homicide

- Blood spattering which is compatible with multiple blows.





Accidental death

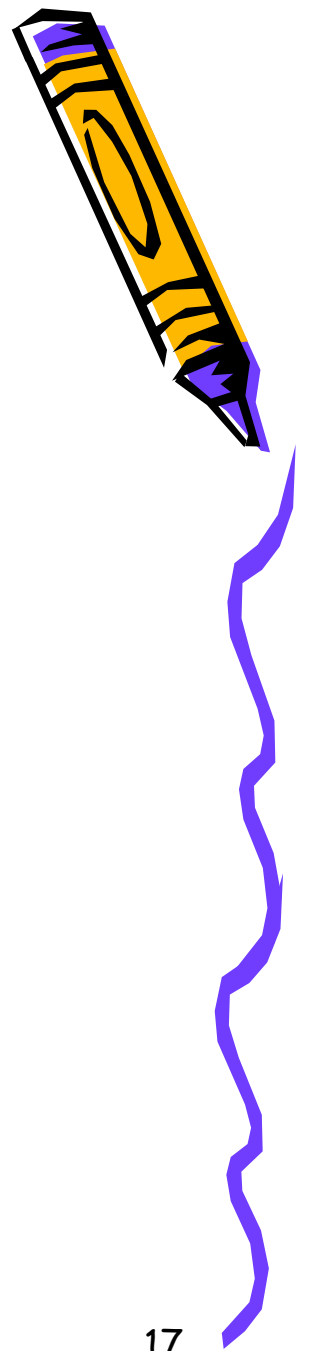


- May appear otherwise
- Proper scene investigation is vital for conclusion about the manner of death.





Parts of the brain found a few feet away



- What is it due to?
- This body was found nearby.....



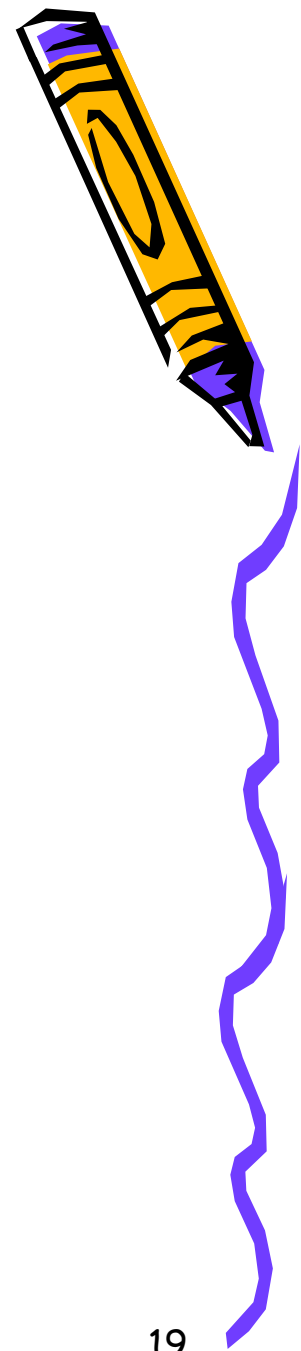


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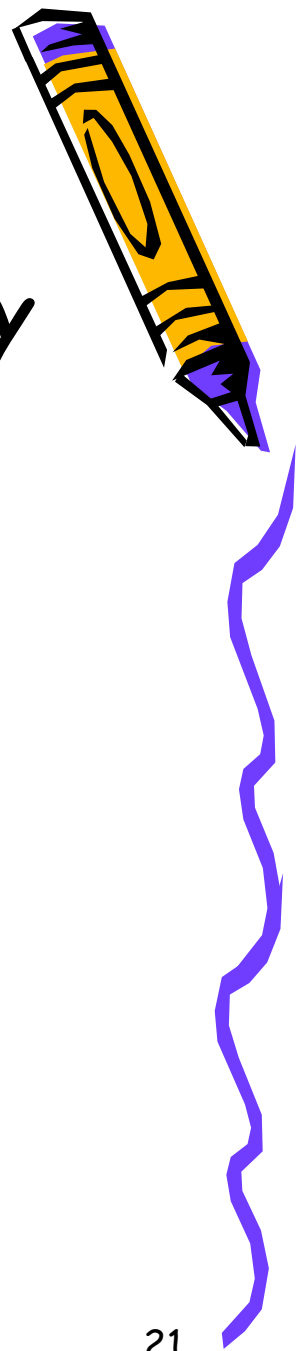
- This was found close to this high rising building.
- Likely is a fall from height.
- Manner - accidental, suicidal has to be determined after investigation



Objectives of a scene investigation

- *Determine the cause of death.*
- *Determine the manner of death.*
- *Determining the mechanism of death.*
- *Tracing the assailant.*
- *Assessment if time since death.*
- *Determining the Post Mortem movement/transportation of the body.*





- *Determining the place of crime.*
- *Determining the volitional activity of the victim.*
- *Finding the offending weapon.*



Fulfilling these objectives is difficult because



- *It is time consuming exercise,*
- *It is difficult to do a comprehensive examination,*
- *There are no substitute for a proper scene examination.*



Basic concepts

- *Main concept is the use of Locard's principle.*
- *It is a team effort.*
- *Most urgent and prime consideration is preservation of life.*
- *Correct management of investigation is essential.*



Locard's principle

- Described by Edmond Locard in 1923.
- Theory of exchange of matter between contacts.
- "When two objects come in to contact with each other there is always transfer of material from one to the other"



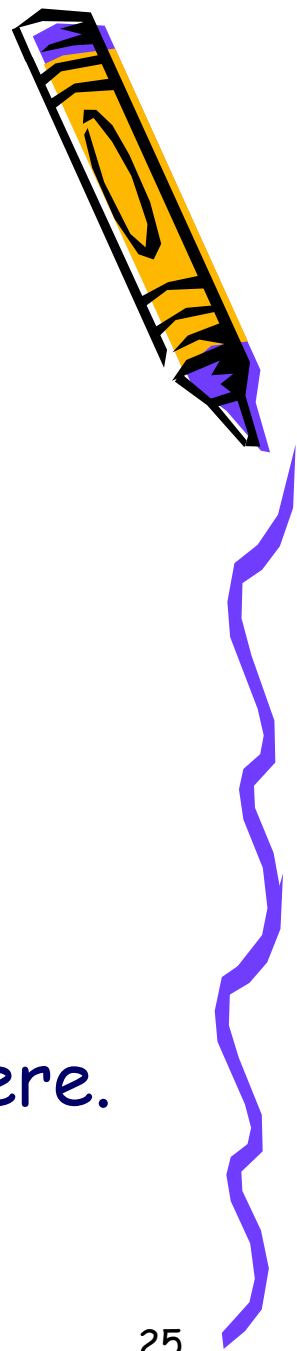
To apply this

- One must

- Find,
- collect,
- preserve & analyse all trace material,

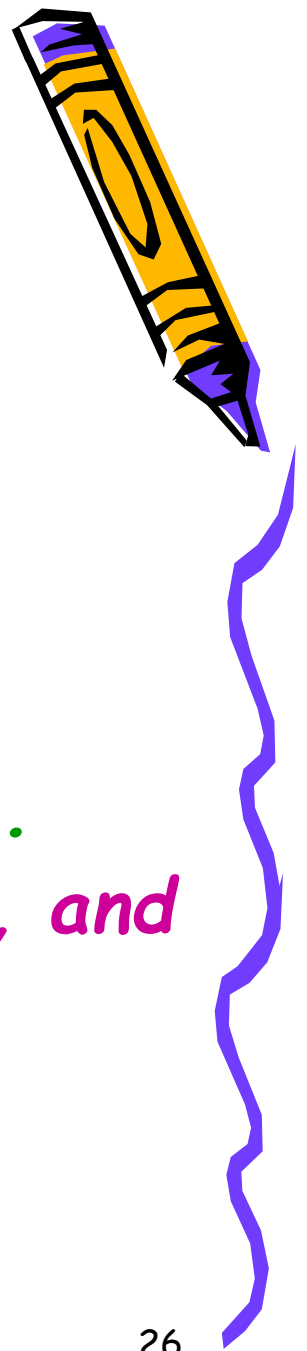
And even;

Look for matching material elsewhere.



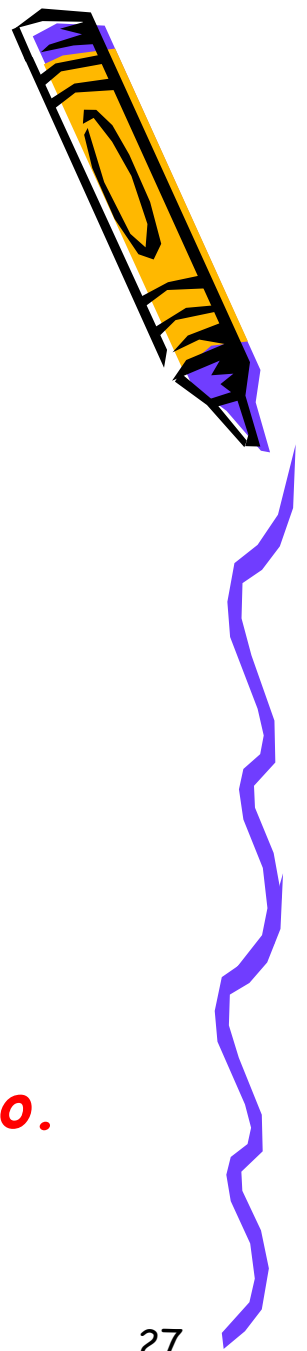
When you are called to investigate a crime scene

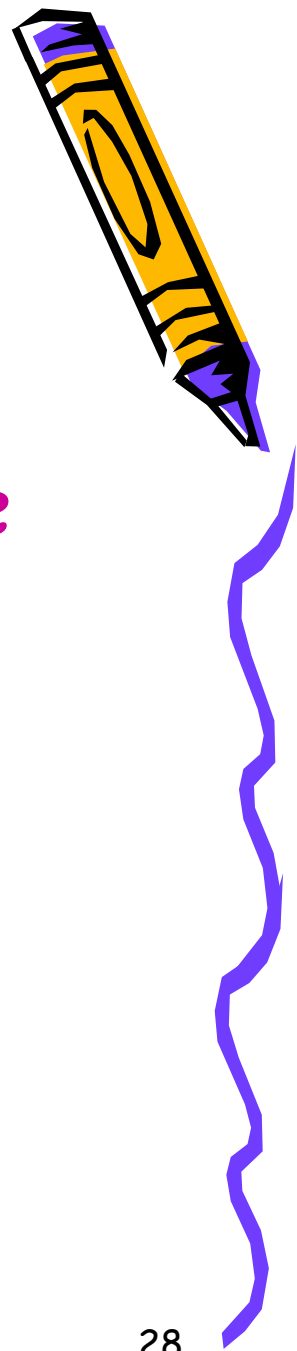
- *Determine Team Composition*
- *Initial Response/Receipt of information.*
- *Safety Procedures.*
- *Emergency Care.*
- *Secure and Control Persons at the scene.*
- *Boundaries: Identify, Establish, Protect, and Secure.*
- *Document Actions and Observations*



Basic stages of scene examination

- Approach and protect the scene.
- Examination of the body.
- **Ascertaining the fact of death.**
- **Assess the post mortem interval.**
- Identifying artefacts.
- Initial survey.
- **Determine boundaries.**
- Evaluate physical evidence possibilities.
- Prepare narrative description.
- **Depict scene photographically - still and video.**





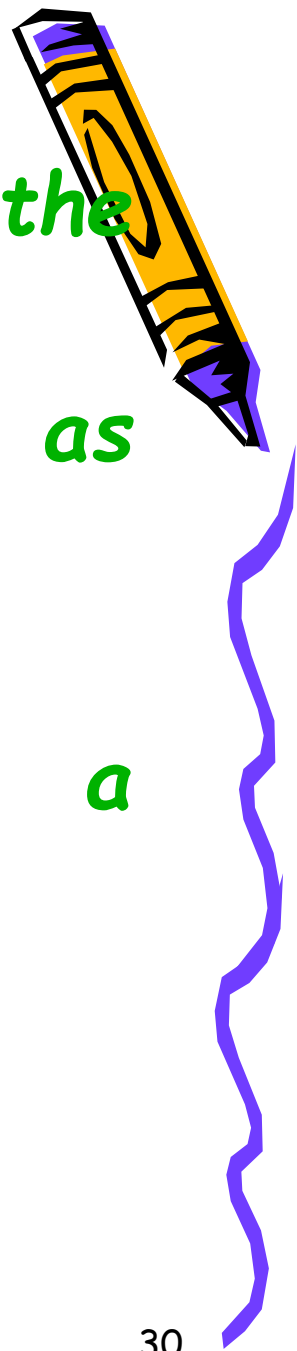
- *Prepare diagram/sketch of the scene.*
- *Conduct detail search.*
- *Record and collect physical trace evidence.*
- *Conduct final survey.*
- *Release the scene.*



Team composition -may vary according to the need

- Crime scene officer,*
- Forensic Pathologist/JMO,*
- Forensic scientist/Government analyst,*
- Photographer (Forensic),*
- Entomologist, fire arm expert, botanist etc.*



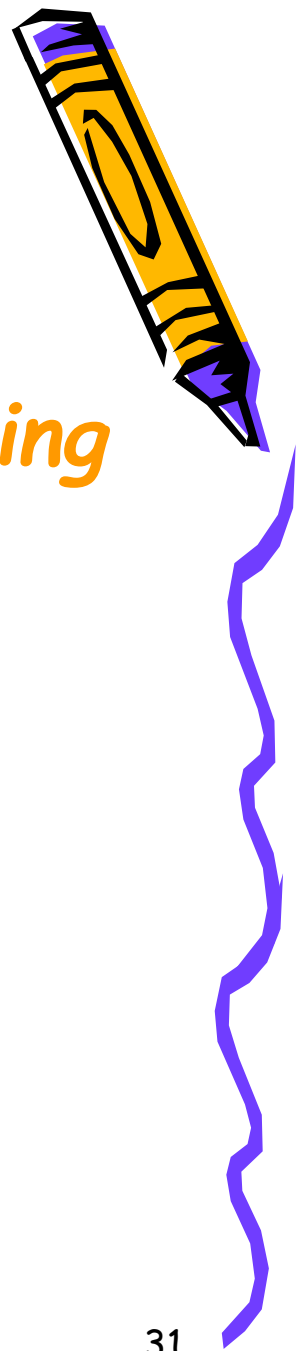


- *Most appropriate method is the team approach.*
- *Reach the scene as early as possible.*
- *There should be a team leader.*
- *Each member should have a definitive role.*



Team leader should;

- *Take the responsibility of managing the scene,*
- *Do the initial assessment,*
- *Securing the scene,*
- *Decide on an action plan,*
- *Briefing the team,*
- *Communicating with the others*

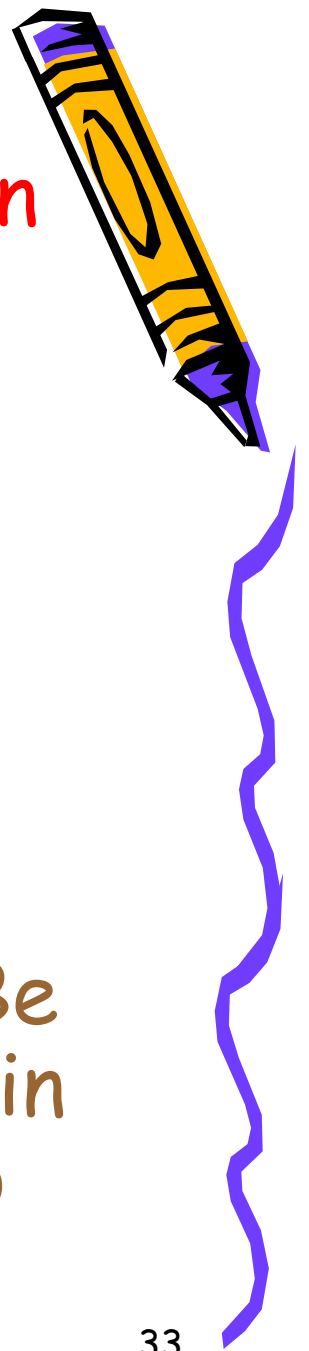


Initial Response/Receipt of Information



- One of the most important aspects of securing the crime scene is to preserve the scene with minimal contamination and disturbance of physical evidence.
- The initial response to an incident shall be expeditious and methodical.





- A. Note or log dispatch information (e.g., address/location, time, date, type of call, parties involved).
- B. Be aware of any persons or vehicles leaving the crime scene.
- C. Approach the scene cautiously, scan the entire area to thoroughly assess the scene, and note any possible secondary crime scenes. Be aware of any persons and vehicles in the vicinity that may be related to the crime.



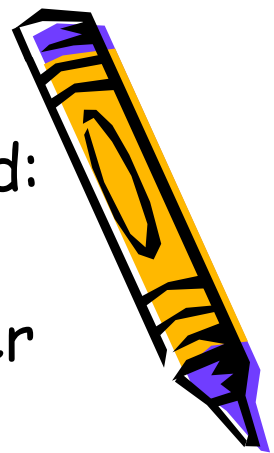
- *a. Assess the need for additional personnel. Be aware of the need for additional personnel in cases of multiple scenes , multiple victims, numerous witnesses, or other circumstances.*
- *b. Assess forensic needs and call forensic specialists to the scene for expertise and/or equipment.*



- *c. Ensure that scene security and the entry/exit documentation are continued.*
- *d. Select qualified person(s) to perform specialized tasks (e.g., photography, sketch, latent prints , evidence collection).*
- *e. Document team members and assignments.*



- Upon arrival at the scene, the investigator should:
- A. Assess and/or establish physical boundaries.
- B. Identify the incident e.g. fire, gunshot, murder etc.
- C. Number of deceased people/ extent of damage.
- D. Security- for the team/ scene. Arrange for removal of animals or secure (if present and possible).
- E. Use personal protective safety devices (physical, biochemical safety).
- F. Obtain clearance/authorization to enter scene from the individual responsible for scene safety (e.g., fire marshal, disaster coordinator).



Protecting the scene

- Cordoning the scene,
- Removing unwanted personals.
- Preventing unwanted people getting in.
- Avoid contamination of scene.
- Covering the scene.
- Avoid/prevent disturbing the scene.



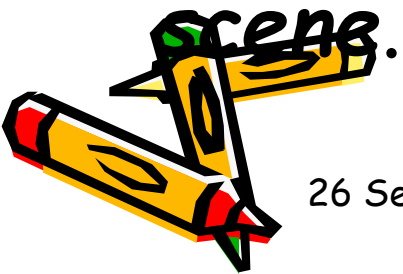


a. Establish boundaries of the scene's, starting at the focal point and extending outward to include:

- Where the crime occurred.
- . Potential points and paths of exit and entry of suspects and witnesses.
- Places where the victim/evidence may have been moved (be aware of trace and impression evidence while assessing the scene).



- *b. tape, available vehicles, personnel, other equipment) or use existing boundaries (e.g., doors, walls, gates).*
- *c. Document the entry/exit of all people entering and leaving the scene, once boundaries have been established.*
- *d. Control the flow of personnel and animals entering and leaving the scene to maintain integrity of the scene.*



- *e. Effect measures to preserve/protect evidence that may be lost or compromised (e.g., protect from the elements (rain, snow, wind) and from footsteps, tire tracks, sprinklers).*
- *f. Document the original location of the victim or objects that you observe being moved.*
- *g. Consider search and seizure issues to determine the necessity of obtaining consent to search and/or obtaining a search warrant.*

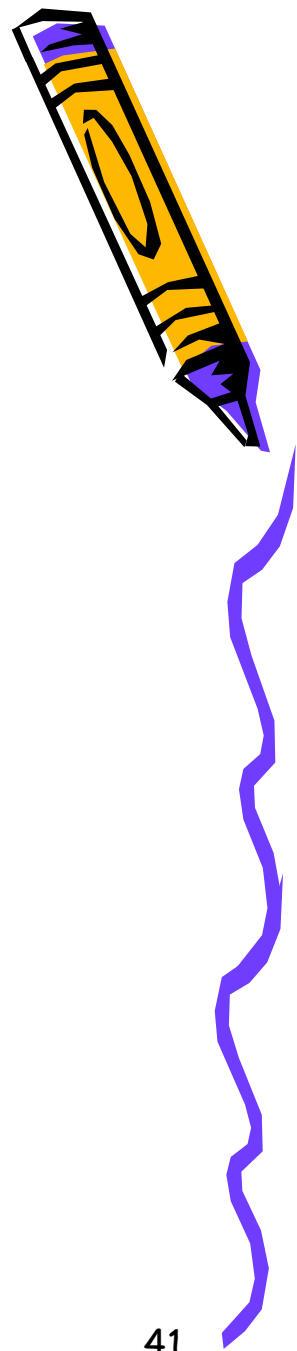


Examination of the body.

A. Photograph the scene, including the decedent as initially found and the surface beneath the body after the body has been removed.

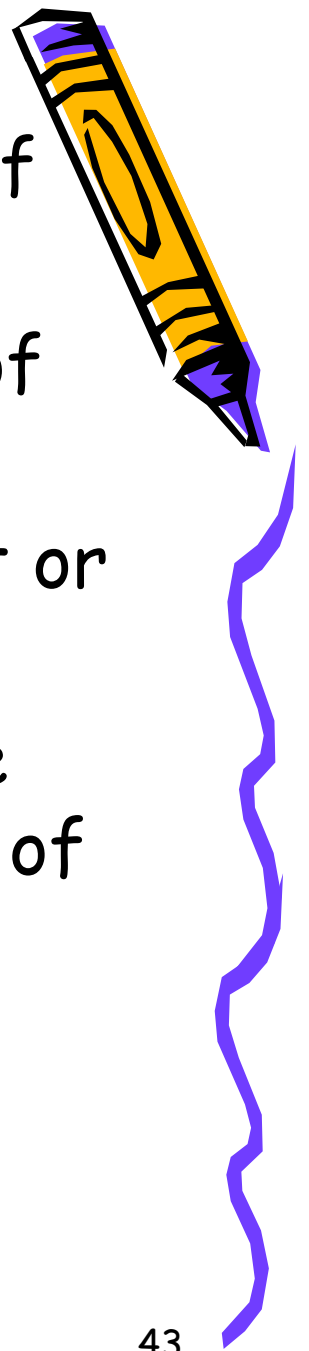
Note: If necessary, take additional photographs after removal of objects/items that interfere with photographic documentation of the decedent.

B. Photograph the decedent with and without measurements (as appropriate), including a photograph of the decedent's face.



- C. Document the decedent's position with and without measurements (as appropriate).
- D. Document the decedent's physical characteristics.
- E. Document the presence or absence of clothing and personal effects.
- F. Document the presence or absence of any items/objects that may be relevant.

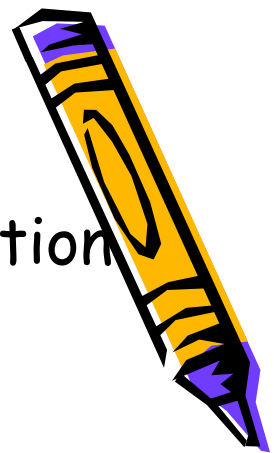




- G. Document the presence or absence of marks, scars, and tattoos.
- H. Document the presence or absence of injury/trauma, petechiae, etc.
- I. Document the presence of treatment or resuscitative efforts.
- J. Based on the findings, determine the need for further evaluation/assistance of forensic specialists (e.g., pathologists, odontologists).



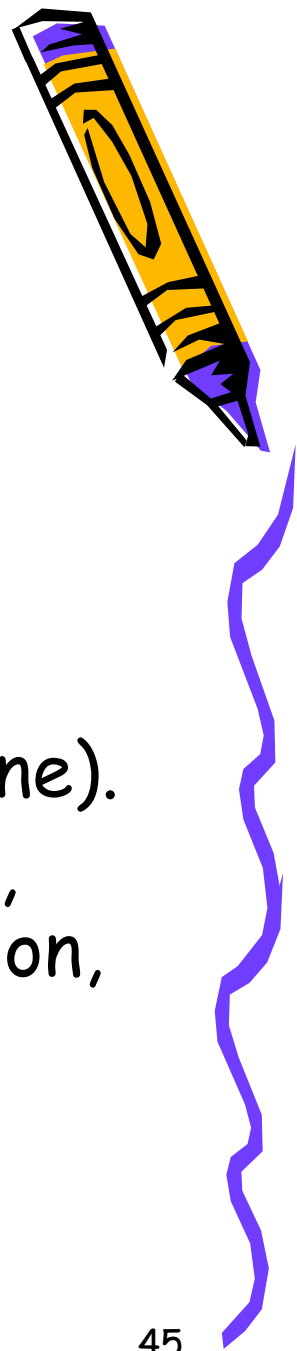
Ascertaining the fact of death



- Appropriate personnel must make a determination of
- death prior to the initiation of the death investigation.
- The confirmation or pronouncement of death determines
- jurisdictional responsibilities.
 - A. Locate and view the body.
 - B. Check for pulse, respiration, and reflexes, as appropriate.
 - C. Identify and document the individual who made the official determination of death, including the date and time of determination.
 - D. Ensure death is pronounced, as required.



Assess the post mortem interval.



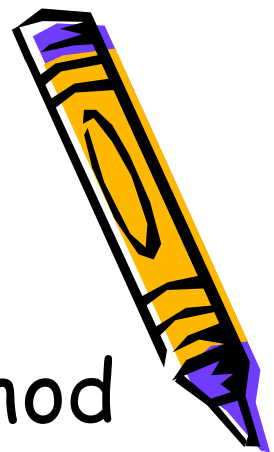
- A. Livor (color, location, blanchability, Tardieu spots) consistent/inconsistent with position of the body.
- B. Rigor (stage/intensity, location on the body, broken, inconsistent with the scene).
- C. Degree of decomposition (putrefaction, adipocere, mummification, skeletonization, as appropriate).



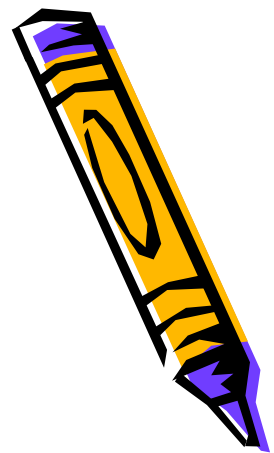
D. Insect and animal activity.

E. Scene temperature (document method used and time estimated).

F. Description of body temperature (e.g., warm, cold, frozen) or measurement of body temperature (document method used and time of measurement).



Establish Decedent Identification



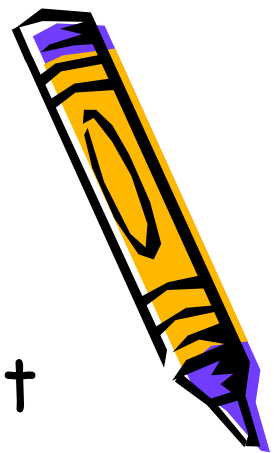
Principle: The establishment or confirmation of the decedent's identity is paramount to the death investigation. Proper identification allows notification of next of kin, settlement of estates, resolution of criminal and civil litigation, and the proper completion of the death certificate.



- A. Direct visual or photographic identification of the decedent if visually recognizable.
- B. Scientific methods such as fingerprints, dental, radiographic, and DNA comparisons.
- C. Circumstantial methods such as (but not restricted to) personal effects, circumstances, physical characteristics, tattoos, and anthropologic data.



Scene photography

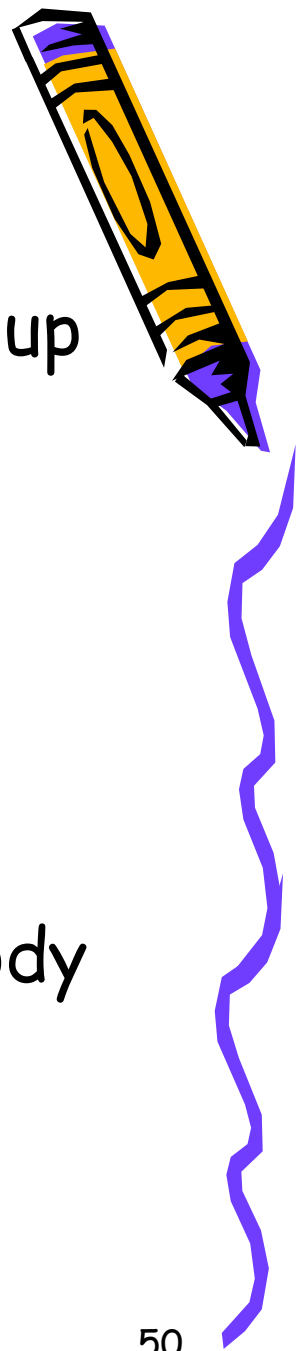


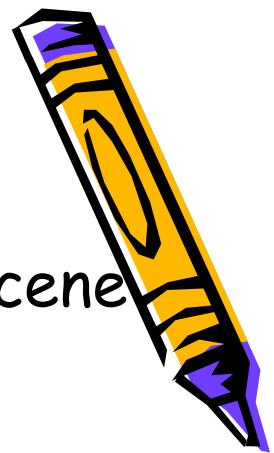
Do as soon as possible

- Photography allows for the best permanent documentation of the death scene.
- It is essential that accurate scene photographs are available for other investigators, agencies, and authorities to recreate the scene.
- Photographs are a permanent record of the terminal event and retain evidentiary value and authenticity. It is essential that the investigator obtain accurate photographs before releasing the scene.



- Procedure of taking photographs:
- Photographic log.
- Scene utilizing overall, medium, and close-up coverage.
- Evidence to be collected with and without measurement scale and/or evidence identifiers.
- Victims, suspects, witnesses, crowd, and vehicles.
- Additional perspectives (e.g., aerial photographs, witness' view, area under body once body is removed).





- A. Remove all nonessential personnel from the scene.
- B. Obtain an overall (wide-angle) view of the scene to spatially locate the specific scene to the surrounding area.
- C. Photograph specific areas of the scene to provide more detailed views of specific areas within the larger scene.
- D. Photograph the scene from different angles to provide various perspectives that may uncover additional evidence.
- E. Obtain some photographs with scales to document specific evidence.
- F. Obtain photographs even if the body or other evidence has been moved.





Searching -

- Best search option is the most difficult one to do,*
- You cannot over document a scene,*
- There is only one chance to perform the job properly,*



Searching;

- *Based on evaluation.*
- *Use specialized search patterns -*
 - *Grid, quadrant, line, spiral etc.*
- *Photograph items before collection.*
- *Mark evidence location on diagrams or sketches.*
- *Do not handle evidence excessively.*
- *Seal evidence containers.*
- *Use correct packaging techniques.*
- *Constantly check your work.*



Collection of evidence



- *Principle: Prioritize the collection of evidence to prevent loss, destruction, or contamination.*



- *a. Conduct a careful and methodical evaluation considering all physical evidence possibilities (e.g., biological fluids , latent prints, trace evidence).*
- *b. Focus first on the easily accessible areas in open view and proceed to out-of-view locations.*



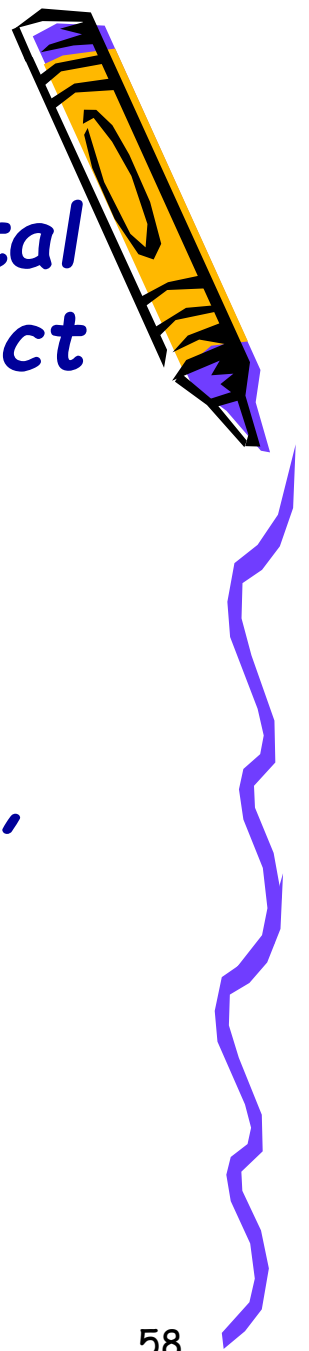
- *c. Select a systematic search pattern for evidence collection based on the size and location of the scene(s).*





- *d. Select a progression of processing/collection methods so that initial techniques do not compromise subsequent processing/collections methods.*
 - *Concentrate on the most transient evidence and work to the least transient forms of physical evidence.*
 - *Move from least intrusive to most intrusive processing/ collection methods.*





- *e. Continually assess environmental and other factors that may affect the evidence.*
- *f. Be aware of multiple scenes (e.g., victims, suspects, vehicles, locations).*



- *g. Recognize other methods that are available to locate, technically document, and collect evidence (e.g., alternate light source ,*
- *enhancement, blood pattern documentation, projectile trajectory analysis).*



Documentation

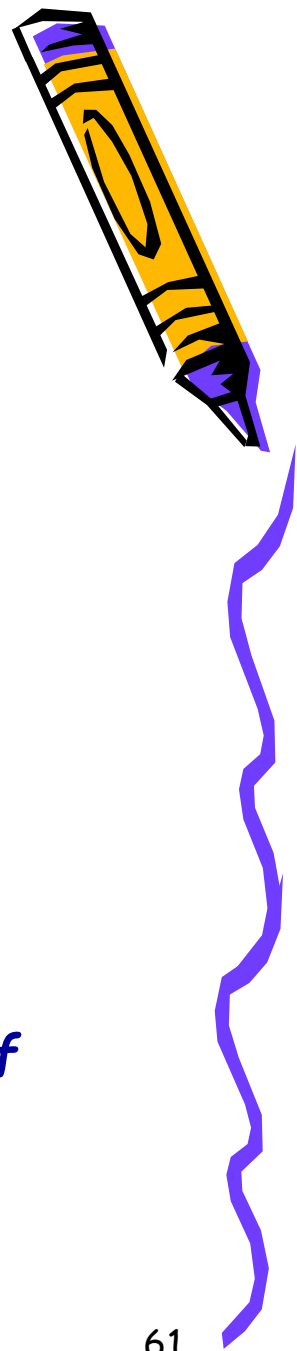


- *Principle: An assessment of the scene determines what kind of documentation is needed (e.g., photography, video, measurements, notes, sketches).*



Categories of documentation:

- **Administrative worksheet.**
 - Major events, management of the scene & administrative steps
- **Narrative description.**
 - General appearance at first.
- **Photographic log.**
 - Process of scene photography.
- **Diagrams/sketches.**
 - Physical evidence locations, measurements, relationships.
- **Evidence recovery log.**
 - Recognition, collection, marking and packaging of evidence.



Case 4

- a 55yr old male who lived alone in a flat had not been seen for a week. A worried friend informed the police, who found him in his premises after they had forced an entry. His living room was in a state of disarray and he was lying virtually naked in a prone position. Clearly the appearance of the scene and multiple superficial injuries on the body gave rise to suspicion of foul play. An autopsy was done revealed he had died of bacterial meningitis.

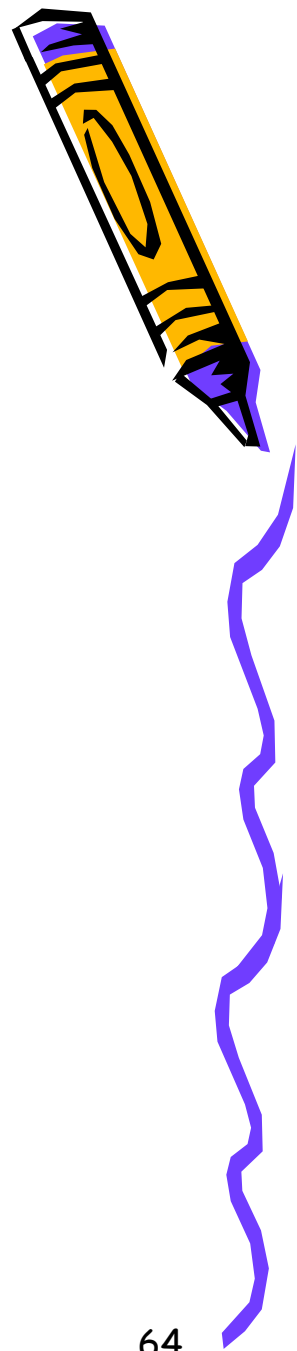


What should the Forensic pathologist/JMO do at the scene visit?



1. Preparation.
2. Record the time requested to attend the scene.
3. Report to the in charge officer on arrival at scene.
4. Wear protective gear.
5. Ascertain what is required.





6. *Preliminary examination.*
7. *Describe the body in situ.*
8. *TSD assessment.*
9. *collect trace material.*
10. *supervise removal of the body.*

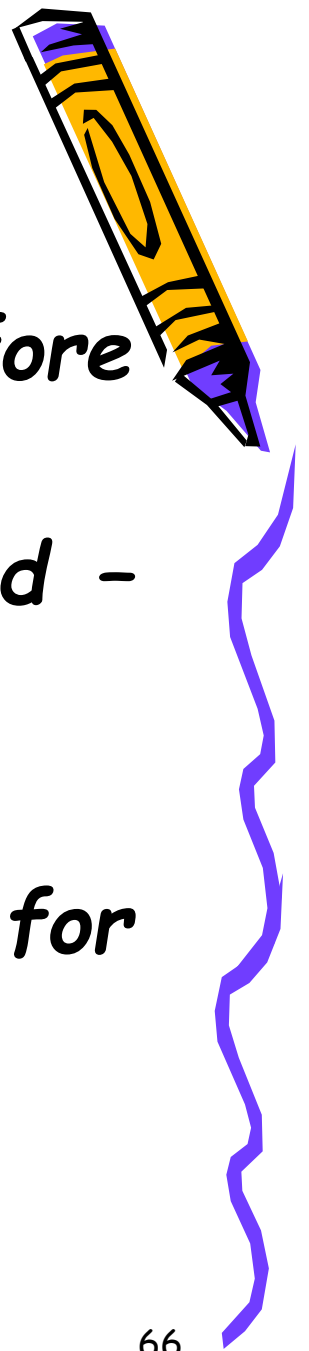




- A young female was found with a 0.22 semi-automatic rifle by her right side and two wounds in her neck. (one being only a flesh wound.) **initially it was thought that she has killed herself** after she has killed her two children, mother and father. Sometime later however a **silencer was retrieved from the gun cupboard with blood inside. The outside been wiped.** The brother was arrested.

» **Homicide -**





Supervise removal of the body.

- *Body should be bagged before removal.*
- *Hands and feet properly covered - paper bags.*
- *Avoid clumsy handling.*
- *Necessary security for transportation.*



- *A. Ensure that the body is protected from further trauma or contamination (if not, document) and unauthorized removal of therapeutic and resuscitative equipment.*



- *B. Inventory and secure property, clothing, and personal effects that are on the body (remove in a controlled environment with witness present).*
- *C. Identify property and clothing to be retained as evidence (in a controlled environment).*





- **F. Ensure/supervise the placement of the body into the bag.**
- **G. Ensure/supervise the removal of the body from the scene.**
- **H. Secure transportation**





- *D. Recover blood and/or vitreous samples prior to release of remains.*
- *E. Place identification on the body and body bag.*





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