SAN BERNARDINO COUNTY SHERIFF – CSI TRAINING UNIT
ADVANCED CSI – DEATH INVESTIGATION
OUTLINE

I. Introduction to Death Investigations
- A. There is no “victim’s” side of the story
- B. Crime scene processing is critical to crime reconstruction
- C. Crime scene processing may be critical to identification of suspect
- D. Crime scene processing may be critical to prosecution of suspect
- E. Crime scene may be only clue to events that occurred

II. General Processing
- A. Extreme care must be taken from the very beginning
- B. Walk slow, look everywhere – even up
- C. Assess scene before entry
  1. Will specialized procedures be required
     a. booties
     b. “bunny suits”
     c. respirators
- D. Assess expected processing
  1. Will additional people be needed
     a. secondary for bloodstain analysis
     b. secondary for trajectory reconstruction
     c. extras for latent printing assistance
  2. Will additional equipment be needed
     a. tools for demolition / bullet recovery
     b. GPS for mapping
     c. specialized chemicals for latent print development
     d. specialized chemicals for blood enhancement
     e. extra supplies – plaster, latent print powder, etc
  3. Will specialized units be needed
     a. narcotics
     b. hazmat
     c. bomb / arson
     d. anthropologist
  4. Will the scene go beyond a safe/reasonable working time
     a. when to shut down / when to resume
     b. scene security required for down time
  5. Will food / bathrooms be needed
     a. is there a bathroom on scene that can be cleared
     b. how long will a food run take
- E. Work scene from outside in
  1. Don’t be rushed
  2. Work methodically
  3. Think of potential evidence in each area of scene before proceeding to next
  4. Don’t get fixated on standard processing steps
     a. you don’t have to photograph entire scene before dusting for prints in one area
     b. if walking though part of a scene may destroy shoe prints or other evidence, do that processing first

5. Don't be hurried by press, brass, victim's family, etc
6. Placard evidence as you find it
    a. body doesn't have to be #1
    b. if you skip something to make numbers go in a particular order you may forget that evidence or not find it again

F. Photo, photo, photo. Then photo some more
G. Take your time – the deceased doesn't care anymore

III Body Processing

A. Assess the deceased
1. What is most likely cause of death
2. What evidence might be lost in transport
3. Was sexual assault involved

B. Cause of death
1. Shooting
    a. collect GSR
    b. look for all shooting evidence
    c. prepare for trajectory reconstruction
2. Stabbing
    a. look for bloodstains – prepare for analysis
    b. look for knife, other potential weapons
3. Strangled / hanging / bound
    a. look for potential ligatures
    b. don't cut any knots
    c. don't remove any bindings or ligatures
    d. look for bruises on neck
4. Overdose
    a. look for drugs / paraphernalia
    b. look for needle marks on victim
    c. look for potential poisons
5. Suicide
    a. look for signs of depression
    b. look for note
    c. look for family photos
6. Accidental / unknown
    a. look for potential cause
    b. look for abuse in children and elderly

C. Assault evidence collection
1. Photograph
2. Sketch significant marks / evidence
3. UV exam
    a. swab suspect areas
    b. mark for photography
4. Visual search for bruises, bite marks, other injuries
5. Tape lifts
    a. section body
    b. mark each lift's location
6. Rape kit
7. Bite marks
    a. swab complete area larger than actual mark
    b. photograph with low angle light
    c. ALS exam / photograph
    d. cast bite marks with silicone casting material

8. Latent print processing
    a. Superglue methods
    b. transfer methods

IV. Post-mortem changes
A. Algor mortis
1. Body no longer regulates internal temperature
2. Equalizes with environment – may go up
3. Approx. 1½ ° / hr
4. Lots of mitigating factors
B. Livor mortis
1. Body no longer pumps blood
2. Blood settles with gravity into lowest extremes of body
3. Blood coagulates and “fixes”
4. Lividity noticeable at 2 hrs, fixed at 6 hrs
5. Turns from red to purple as oxygen leave blood
6. Cherry red can indicate Carbon-Monoxide or Cyanide poisoning
7. Once fixed livor mortis can indicate if victim was moved
C. Rigor mortis
1. Chemical change in muscles that cause temporary stiffening
2. Begins in small muscles – noticeable in face at 2-3 hrs after death
3. Spreads through body for next 4-6 hrs, including muscles of internal organs
4. At 24 hrs body could support itself
5. Goes away in same order as muscles begin to decompose
6. Usually gone by 48 hrs but can last as long as 84
D. At 24 hours
1. Corneas dry up
2. Blood re-liquefaction as decomposition continues
3. Tissue changes
E. At 48 hours
1. Rigor gone
2. Blood and vascular system continue breaking down
F. 72 – 96 hours
1. Loss of hair and nails
2. Skin slippage
3. Gas bubbles form
4. Bacterial growth turns abdomen green
5. Insect activity noticeable
6. Animal activity if exposed
G. Days – months
1. Bloating
2. Green discoloration prevalent
3. Release of gasses
4. Liquefaction of internal organs
5. Loss of soft tissue
6. Partial skeletonization
7. Mummification
8. Adipocere
9. Complete skeletonization

V. Entomological evidence
   A. The decomposition environment
      1. Body is unique ecosystem
      2. Native fauna leave area as body decomposes
      3. New species move in to inhabit corpse
      4. As corpse skeletonizes environment returns to original
   B. Entomological succession
      1. Flies
      2. Beetles
      3. Others
   C. Life cycle of the fly
   D. Other insects

VI. Forensic Anthropology
   A. Human or animal
   B. Sex
   C. Age
   D. Stature
   E. Health
   F. Cause of death

VII. Bone scatter sites
   A. Search patterns
      1. Spiral
      2. Grid
      3. Rows
   B. Marking remains
      1. Pin flags
      2. Placards
      3. GPS locating
   C. Documentation
      1. Notes
      2. Sketches
   D. Photography
   E. Practical Exercise
      Students will be assigned a search grid to look for human and non-human skeletal remains and other “clues”. Students will be expected to mark all significant finds and provide proper documentation and photography of each item identified. Students should be able to determine human from non-human remains

VIII. Gravesite Excavation
   A. Locating the grave
      1. Fresh dirt
      2. Raised / lowered ground
      3. Probes
      4. Misplaced debris
   B. Finding the edges of the excavation
      1. Color
      2. Compaction
   C. Digging in
      1. Shallow slices
      2. Find direction of burial

D. Archaeological way
    1. Excavate in 5cm levels
    2. Gridding excavation
E. Mapping excavation
    1. Sketching remains
    2. Locating evidence
    3. Notes
G. Photography
H. Screening
I. Practical Exercise
    Students will work in small groups to excavate and document buried skeletal remains. Students will be expected to excavate in an accepted archaeological manner including screening all remains, removing all material in 10cm levels, and properly measuring, recording and photographing all evidence recovered.

Skeletal elements are scientific polymer casts of actual human skeletons or non-forensic human remains donated and prepared for educational purposes. Non-human skeletal elements have been donated and prepared for educational purposes.