



Exploring the social histories of decomposition cases in 2016

Ajayi Pickering-Haynes, Intern

Forensic Investigations, District of Columbia Office of the Chief Medical Examiner

Introduction

Forensic investigators handle many cases involving significant bodily decomposition. Decomposition is the breakdown of tissues through autolysis or putrefaction. Autolysis is the breakdown of cells or organs through an aseptic chemical process caused by intracellular enzymes. Putrefaction is the anaerobic breakdown of tissues through bacterial flora of the gastrointestinal tract spreading throughout the body. Decomposition is affected by two main factors; the environment, and the body. The environmental factor includes the location of death, the temperature of a specific location, and seasonal environmental conditions. The body is a factor as it is dependent on its temperature, state of tissues and organs, weight and size, existing medical conditions, and the influence of external social factors.

Understanding what factors lead to decomposition is necessary to understand what larger public health and societal issues may be occurring. In this study, I investigate if there are any social patterns consistent among decedents who were early, moderate, and advance decomposed cases at the D.C. OCME in 2016.

Criteria for Study

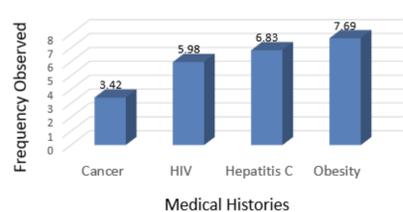
- Decomposition was assessed to include decedents who were early, moderate, and advance decomposed. The level of decomposition was determined either by scene notes or by ID through fingerprints, X-Ray, Dental X-Ray, at OCME via photograph, or identification was possible at the scene or at OCME.
- Social Factors among decomposition cases investigated included:
 - Medical & Social History (Existing Conditions & Cause of Death)
 - Public Disposition
 - Age
 - Gender
 - Race
 - D.C. Ward
 - Familial Support

Methods

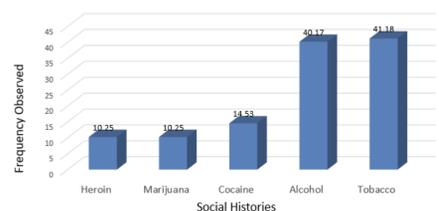
- Review circumstances of 117 cases:
 - Intake Information Review
 - Medical History
 - MLI Body Examination
 - Cause/Manner of Death
- Pull out most common social histories.
- Produce pivot tables and charts to determine which social histories were more observed among the total number of cases in relation to each other.
- Determine what the most observed social patterns suggest.

Data & Observations

Medical Histories Among 2016 Decomposition Cases

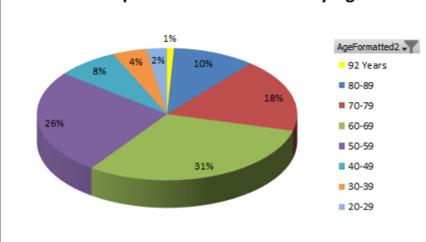


Social Histories Among 2016 Decomposition Cases

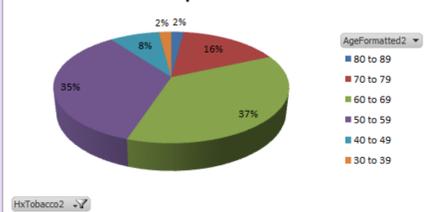


These figures show the observed frequencies of medical and social histories among 117 decomposition cases. At 7.69% obesity is the most prevalent medical history, while alcohol and tobacco are the most prevalent social histories at 40.17% and 41.18% respectively. These results show that there are prevalent social patterns among the 2016 decomposition cases.

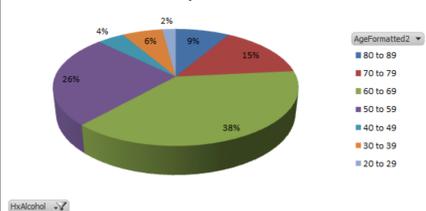
Decomposition Cases in 2016 by Age



Tobacco Use by Age Among 2016 Decomposition Cases



Alcohol Use by Age Among 2016 Decomposition Cases



The first figure shows that decedents between the ages of 60-69 and 50-59 were the most prevalent age groups observed out of 117 decomposition cases in 2016, at 31% and 26% respectively. The second and third figures show the percentage breakdown of alcohol and tobacco use by age demographics. Decedents between the ages of 60-69 and 50-59 had the highest reported use of both alcohol and tobacco use. These results show that decedents among the most prevalent age groups were also the most prevalent alcohol and tobacco users.

Conclusions & Impact

- The patterns observed suggest that the social patterns of age, tobacco, and alcohol use correlate to the vast amount of decomposition cases observed. Past research has confirmed that one of the factors that affect the rate of decomposition is the individual variation of the body's physical conditions. In addition, since bodies begin to break down as individuals age, expectations are that older individuals will decompose faster.
- A better understanding of the social patterns found among decomposition cases could lead to a decrease in the number of decomposition cases investigated at medical examination offices. Decreasing the number of decomposition cases could potentially allow the determination of cause and manner of death to be optimized.
- The social patterns of age, tobacco use, and alcohol use among decomposition cases suggest that late discovery, elderly neglect, and the consumption of tobacco and alcohol from a death investigation standpoint remain widespread public health phenomena that affect health and the certification of death.
- Based on the observations outlined in this research, further studies and initiatives suggest that decreasing late discovery, elderly neglect, and the consumption of tobacco and alcohol may inadvertently affect the rate of decomposition and the number of decomposition cases investigated at OCME.

Limitations

- There remains a lack of a concrete standard to measure the exact state of decomposition. Classifying the state of decomposition remains a relatively subjective determination by an on-scene investigator and pathologist.
- Each decomposition case is specific and different, since the body, environment, and social factors vary.
- The complexity and role of social factors, like alcohol and tobacco on the cause and manner of death and on the rate of decomposition, remain variable and not entirely understood.

Proposed Solutions

1. A public health intervention that addresses alcohol and tobacco consumption, as well as elderly neglect specifically within the 50-70 age range.

Evaluated through RE-AIM:

- Reach
- Effectiveness
- Adoption
- Implementation
- Maintenance

RE factors evaluate the intervention's effectiveness to reach its intended demographic. **AIM** factors evaluate the success of the intervention in public health practice in the short and long term.

2. A family, neighborhood, and community accountability media campaign that encourages that citizens remain aware and active in the lives of their loved ones and neighbors and that we all put a stop to elderly neglect and late discovery.

3. A cross-sectional study that analyzes the effectiveness of the proposals effect on the number of decomposition cases seen, as well as the number of undetermined certification of deaths at the Office of the Chief Medical Examiner.

- Along with further investigation of decomposition cases, the Office of the Chief Medical Examiner to include data and statistics on decomposition rates, the most common factors found among decomposed cases, and evaluation of initiatives to decrease decomposed cases in the yearly annual report.

Summary

The vast amount of alcohol and tobacco consumption in addition to the age demographic of 50-70 observed amongst the majority of the decomposition cases by OCME in 2016 is of no coincidence. The use of drugs remains a widespread public health issue, one in some cases that may be preventing medical examination offices from determining a manner of death. In addition, the age demographic most observed in this study may suggest that elderly neglect is a larger societal issue that also contributes to the number of decomposition cases seen. The effect of these social factors on decomposition remains ambiguous and under-researched, and thus reveal the importance of this area of work. OCME's goal remains to investigate death to keep the public safe and healthy, and further research in decomposition cases is one way of optimizing that goal.