“BURIED…LIKE A HUMAN BEING” AT THE MILWAUKEE COUNTY POOR FARM CEMETERY: A BIOARCHAEOLOGICAL APPROACH TO DEFINING FETAL AND INFANT PERSONHOOD THROUGH BIOLOGICAL DEVELOPMENT, HISTORICAL DISCOURSE, AND DIAPERING

by

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ABSTRACT

"BURIED…LIKE A HUMAN BEING" AT THE MILWAUKEE COUNTY POOR FARM CEMETERY: A BIOARCHAEOLOGICAL APPROACH TO DEFINING FETAL AND INFANT PERSONHOOD THROUGH BIOLOGICAL DEVELOPMENT, HISTORICAL DISCOURSE, AND DIAPERING

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Under the Supervision of Professor Dr. Patricia B. Richards

The ambiguity of life is visible in the complex sets of beliefs that cultures develop around abortion, stillbirth, and neonatal death. This research grew out of ambiguities surrounding bioarchaeological methods of age estimation among fetal and infant remains and the need for additional lines of evidence to define what a prenatal or postnatal age contextually means, how these definitions were upheld or challenged, and what impact these definitions had on the mortuary treatment of these bodies.

Discernment between fetal and infant skeletal remains is important to forensic investigations and bioarchaeological questions of personhood, infant mortality, and maternal health. However, skeletal and dental methods of age estimation often lack the precision to determine whether decedents survived birth. Over 450 subadult burials recovered from the Milwaukee County Poor Farm Cemetery with estimated ages-at-death under one year were considered in this study. Dental and osteometric estimations of age were compared with material culture recovered with individuals. The Milwaukee County Poor Farm Cemetery, located in Wauwatosa, Wisconsin served as a burial ground between the late 19th and early 20th centuries for patients of Milwaukee County institutions, unidentified or unclaimed individuals

from the Milwaukee County Coroner's Office, and individuals whose surviving relatives and friends could not secure burial elsewhere.

A feminist approach was taken in order to recognize the systems of power that contribute to and enforce oppression. The rise of professional medicine in the United States throughout the 19th century transformed pregnancy and childbirth into pathological conditions, allowing physicians access and control over women's bodies. Medical discourse around the value of prenatal life validated the criminalization of women who failed to carry a pregnancy to term. To compare how my categorizations reflect the language used in historic texts, I drew from primary sources that identify the names and ages-at-death of those who were buried at the MCPFC.

Across the multiple components of this research, patterns indicate that the construction of personhood progresses with age. The anonymity and ambiguity of fetal entries suggest that these remains were more likely to be subject to abandonment or informal disposal. Higher association with burial inclusions also suggests interaction with a county institution, medical school, or the coroner's office. It also suggests that older decedents, particularly those who survived beyond two weeks after birth, had stronger connections with family and continued to be cared for after death. Perinates encompass the gray area between viability and late-term birth. The category recognizes the potentiality of life, without drawing conclusions about the outcome of pregnancy. The burial treatment and discourse surrounding the MCPFC suggest that in this context, the attribution of personhood began after viability and was a process, not an isolated event. Personhood was not given fully at birth because the sustainability of life itself was uncertain. Yet as individuals moved beyond two postnatal weeks in age, the precarious

personhood became more firmly established through clothing, names, and documented relationships with parents.

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LIST OF ABBREVIATIONS

AMA	American Medical Associaton
CRM	Cultural Resource Management
GLARC	Great Lakes Archaeological Research Center
MCCI	Milwaukee County Coroner's Inquest
MCHS	Milwaukee County Historical Society
MCIG	Milwaukee County Institution Grounds
MCPFC	Milwaukee County Poor Farm Cemetery
MCPFCP	Milwaukee County Poor Farm Cemetery Project
UWM	University of Wisconsin-Milwaukee
UWM-ARL	University of Wisconsin-Milwaukee Archaeology Research Laboratory
UWM-CRM	University of Wisconsin-Milwaukee Cultural Resources Management
UWM-HRMS	University of Wisconsin-Milwaukee Historic Resources Management Services
WMS	Wisconsin Medical Society

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Chapter 1 Introducing Ambiguity

"Q: Why did you wash the child?
A: Because it was all full of blood.
Q: What was your purpose in washing the blood off?
A: Because I wanted to.
Q: As long as it was dead, what difference would it make?
A: Yet (sic), it made lots of difference.
Q: Why did it make any difference?
A: Because it was a child which (sic) needed care.
Q: You didn't care enough about what become of it afterwards, you wrapped it up in a newspaper like an old shoe and put it in the suit case; why were you so particular about its appearance when you weren't so particular about its disposition? Are you sure you are telling the truth?
A: I am positively telling the truth."
…
"Q: Didn't you want to bury the child, have it buried?
A: I thought Mr. Nelson would take of that."
…
"Q: You didn't tell him that the child should be buried at least like a human being did you?
A: No.
Q: I am telling you, that baby was born alive; have you anything to say?
A: I have nothing to say, but I know that I didn't kill the baby."

> Interview with Rose Derra, age 22 years. From Milwaukee County Coroner's Inquest conducted by Coroner Frank Luehring. Inquest dated August 13,1920. On file at the Milwaukee County Historical Society, MCHS Box #535. Interview and records compiled by Brooke Drew.

The above interview followed the discovery that a woman had kept her pregnancy hidden from the world. In the late summer of 1920, Rose Derra delivered a baby by herself in a Milwaukee boarding house and afterward, the father of the child "took care" of its disposal. Avowing that the child was born dead, she was questioned by legal authorities regarding the postnatal and postmortem treatment of the little body. The authorities found it suspect that Derra had not seen a doctor or midwife during any of her pregnancy, and why, even as she was giving birth, she told the father not to contact the hospital. The body was recovered from the Milwaukee River and, before receiving burial at the Milwaukee County Poor Farm Cemetery

(MCPFC), Dr. S.N. Franklin, coroner of Milwaukee County, determined that the child's cause of death was asphyxia through suffocation. The manner of death was ruled a homicide.

Derra's incongruous actions reflect the ambiguity of perinatal personhood. She took the time to wash the blood off of the dead child, as she said, "because it was a child which (sic) needed care." Wrapping the body in newspaper and placing it in a suitcase for disposal may have been an attempt to both conceal and protect the newborn, but perhaps she was protecting herself from the gaze of the dead infant as well. Derra and the father failed to uphold the respectful mortuary treatment assigned to either a stillborn or newborn body and regardless of whether the child was born alive or not, the fact that they took the disposal of the body into their own hands made them vulnerable to incrimination. Furthermore, Derra's refusal to see a doctor or midwife was used against her to suggest that she never intended to raise the child.

Statement of Purpose

Fetal personhood is controversial in modern contexts in the United States and reflects the ambiguous state of a body in development. The attribution of personhood, and protection of life in and out of the womb, comes with a responsibility to provide for and protect the developing life. Fetal personhood was upheld in popular moral and medical discourse at the turn of the century with the effect of stigmatizing women who could not or would not fulfill a full-term pregnancy. The attribution of fetal personhood has legal and life-altering implications for women, yet the difficulty of defining personhood prior to birth leads us to question for whose benefit is fetal life protected?

Feminist theory provides tools to recognize systems of power that contribute to and enforce oppression. With the professionalization of medicine, pregnancy and childbirth transformed into pathological conditions, allowing physicians access to and control over women's bodies. Discourse is "a historically, socially, and institutionally specific structure of statements, terms, categories, and beliefs" (Scott 1988:359). Medical discourse around the value of prenatal life validated the criminalization of women who failed to carry a pregnancy to term. There were, and still are, serious implications for applying terms or categories to subjects. This research compares age categories commonly applied in bioarchaeology to the language used in historical documents to refer to the same cemetery population. Additionally, it compares age-at-death to the types of material culture recovered with fetal, perinate, and infant remains from the MCPFC. I apply feminist theory to reflect upon the meaning behind, and implications of, assigning categories such as person and nonperson or fetus and infant. These measures reconcile bioarchaeological interpretations of perinatal skeletal remains with ways in which personhood was recognized or denied by actors in the community at the time that the MCPFC was in use.

Results of skeletal age estimations that hover around 40 fetal weeks lead the bioarchaeologist to more questions than answers about the body before them. Did the body ever breathe a breath of life? Did someone anticipate its arrival and seek help? Was death an act of desperation? A reflection of poor maternal health? This research grew out of the contradictions and ambiguities surrounding osteological methods of age estimation. It is one thing to factor in a range of error when an individual is, say 40 years old. But a range of plus-or-minus two weeks, applied to subadults, could encompass stillborn, premature, and neonatal

remains. Without “concrete” evidence of postnatal survival, the binary distinction between the unborn and born breaks down. The inclusion of additional lines of evidence and contextualization can help us define what a prenatal or postnatal age means situationally, how these definitions were upheld or challenged, and what impact these definitions had on the mortuary treatment of perinatal bodies.

Osteological methods that distinguish between prenatal and postnatal age are particularly relevant to the MCPFC investigations and more broadly, to the fields of bioarchaeology and forensic anthropology. As the final resting place of Milwaukee County’s unidentified and unclaimed remains, the MCPFC is predicted to contain a higher ratio of victims of infanticide and abandonment compared to cemeteries where burials were paid for by family members. A significant number of subadult entries in the cemetery’s burial registry are unnamed or listed as unknown. Based on Milwaukee County death certificates issued between 1882 and 1925, the remains of 195 individuals (10.8%) under the age of six months were abandoned within the community and received burial at the MCPFC (Drew 2018; Richards 1997). However, not all of these are in the recovered group of burials being considered here.

Archaeology is not the first field that comes to mind when discussing the politics of abortion or even the history of reproduction. I cannot claim through this research to have answers to questions of women’s liberation or bodily autonomy. Instead I seek to broaden the scope of archaeological research to include questions of gender and reproduction, and in turn, add to a growing body of knowledge about the medicalization of childbirth and body autonomy in the United States. It is a reminder that restrictions on body autonomy are always exploitive and disproportionately affect marginalized populations in the past as well as today. In a period

of decreasing access to reproductive healthcare, it is important to recognize the ways in which control over women's bodies, control over any body, is built upon a language of difference and upheld through medical and legal discourse.

Based on osteological and archaeological data generated from controlled excavations at the MCPFC, the research asks, most broadly, how do material culture and biological age-at-death inform interpretations of personhood within an archaeological context? First, consistency across age estimation methods was tested. When both dental and osteometric ages are available, were the results comparable within this population? Did one type of age distribution follow more closely the distribution of material culture across the prenatal into the infant population?

Second, is there a consistent pattern of mortuary behavior across fetal and infant burials within the cemetery population? Is there consistency among those categorized as perinatal? Is there an age at which individuals are more likely or less likely to be buried with safety pins? With other clothing? Personal items? Grave inclusions? Were individuals with estimated ages beyond the perinatal period recovered with more material? Were fetal remains recovered with the same categories of material culture as older individuals?

Third, how were bodies identified in historical records of this population? This question deals with written records associated with individuals recovered from the MCPFC. What terms were used to describe fetal bodies? Do both stillbirths and premature births have comparable records with regards to relationships with parents, names, age-related terms? Were unknown remains distinguished by age-related terms?

The research takes a feminist approach for a number of reasons. First, conceptions of fetal and infant personhood relate directly to how pregnancies are managed. At a time of increasing medical authority over women's bodies, portraying the fetus as a life with at least as much value, if not more, than the mother has dramatic effects on the actions that physicians were willing to take to deliver live births.

This research also benefits from an intersectional approach, one that recognizes the intersection of multiple identities within a person that uniquely shape their experiences. Based in Critical Race Theory, intersectionality considers the marginalization that results when only one layer of oppression is addressed (Crenshaw 1991). In the case of this dissertation, class must be considered in addition to gender. Impoverished communities were differentially affected as the medical field encroached upon the domain of the traditional midwives who attended their births. With fewer midwives available, physicians and medical students gained access to a steady source of patients on whom they could practice obstetric techniques (Leavitt 1986). As Foucault aptly observed, biomedicine could only have developed within a sex- and class-based society, not to mention one that is racially-divided. The medical field could not have grown into the powerhouse that it is today without a steady population of women and the poor to draw upon for research and teaching material (Foucault 1994).

Milwaukee County Institution Grounds and the Milwaukee County Poor Farm Cemetery

The Milwaukee County Institution Grounds (MCIG) evolved from an almshouse where the poor could work the land in return for basic shelter and care, to a burgeoning campus that spatially marginalized the sick, orphaned, and mentally-ill from the rest of Milwaukee. Four

cemeteries were designated on the grounds for burial of County dependents, unidentified or unclaimed remains sent from the coroner's office, and those whose families could not afford or were unwilling to provide a burial for the dead (Richards and Kastell 1993:7) (Figure 1.1).

Between the four cemeteries, over 10,000 individuals were likely buried on site (Richards et al. 2016). Cemetery 2 was in use between 1882 and 1925 and covered an estimated 3.48 acres. Disturbances to the cemetery began as early as 1928, when construction of a nurse's residence began to the east of Cemetery 2. Burials were to be moved to a new location on the Milwaukee County Grounds, Cemetery 3. While grave markers near the forthcoming nurses' residence were removed, it seems that the majority of burials were left in

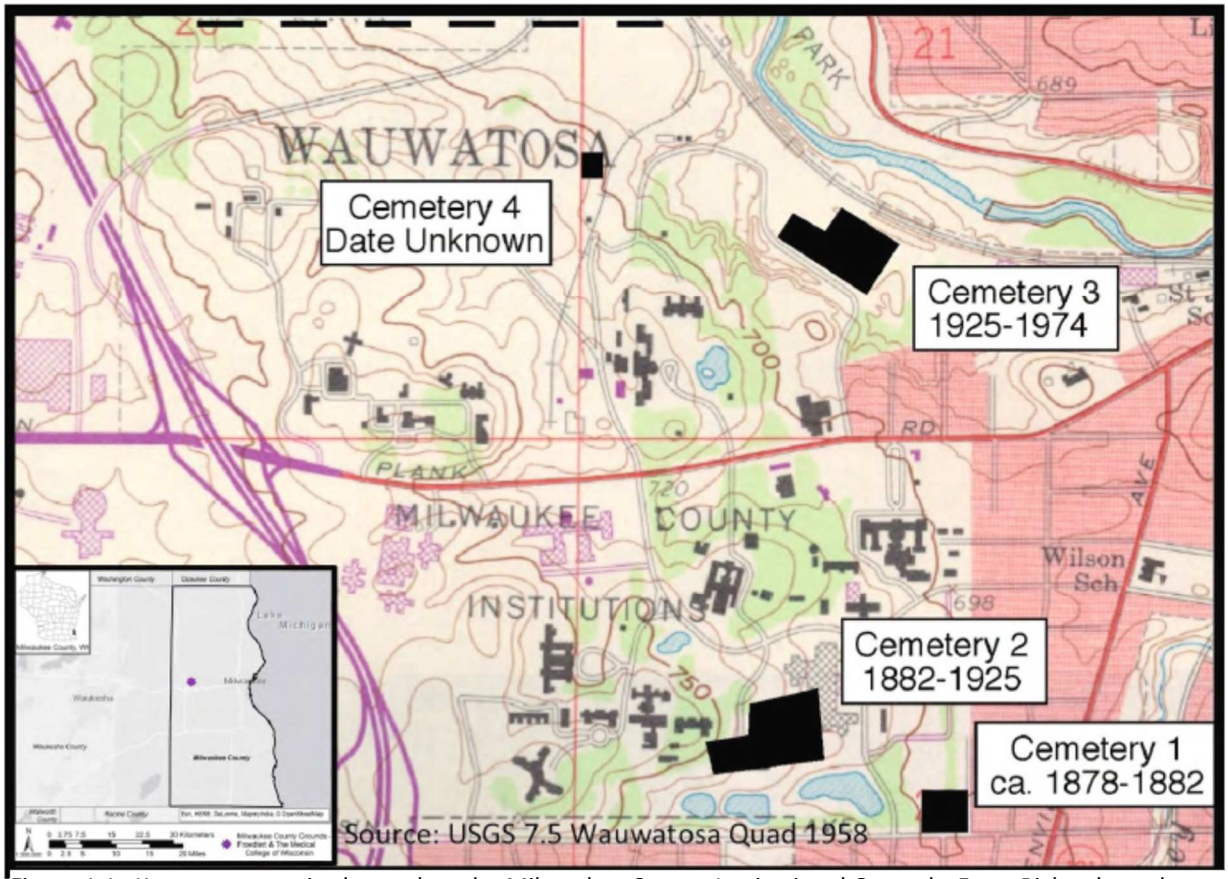

Figure 1.1 Known cemeteries located on the Milwaukee County Institutional Grounds. From Richards et al. (2016:17). On file at UWM-ARL. Reprinted with permission.

their original locations and only a few were ever moved to safety (Richards et al. 2016). Other disturbances, including utility projects and road development, regularly plagued the eternal rest of those buried there.

The Milwaukee County Poor Farm cemetery (MCPFC) is located in the City of Wauwatosa, in Milwaukee County, Wisconsin. While a series of dated maps exist of the Milwaukee County Grounds and its various facilities, Cemetery 2 only appears on one undated map from the Works Progress Administration era (Richards et al. 2016). Other maps allude to the presence of the cemetery, in the form of fenced-in areas or roads to seemingly nowhere. By 1939, a newly-constructed nurses' residence is clearly depicted atop the space which Cemetery 2 occupied. Encounters with the abandoned burials during construction were documented in local newspapers (*Milwaukee Sentinel* 7 April 1932). Additionally, narratives of groundskeepers unearthing and burning child-size coffins have been reconstructed in the course of recent historical research into the MCPFC (Anthony 2015).

Froedtert Hospital facilities currently occupy an area that once contained over 2300 individual burials. While Froedtert is now well aware of the historical importance of the cemeteries, when they first leased the land from Milwaukee County, the presence of burials was unknown to them. The history of the parcel was unearthed in 1991, during a construction project for an ambulatory care center and parking structure. The first excavations of Cemetery 2 were conducted by Great Lakes Archaeological Research Center (GLARC) between 1991 and 1992. A total of 1649 burials were recovered during the project (Richards et al. 2016:17).

After the excavations were completed in 1992, Froedtert carefully planned further expansions to avoid disturbing the remaining burials. Outer boundaries of the remaining

portion of the cemetery were defined through archaeological testing that was conducted during the 1991-1992 excavations. This defined area became a catalogued burial site under Wis. Stats. 157.70. Burial site MI-0527, BMI-0076 includes 1.610 acres (Richards et al. 2016).

Logistical and physical constraints ultimately led to another excavation in 2013. Planning for the development of a Center for Advanced Care began in 2012, and, due to issues with space and logistics, Cemetery 2 became the preferred site for the new facility. After Froedtert's application to disturb burials, notification to the Registry of Interested Persons, public hearings, a Class I Contested Case with the Wisconsin Division of Hearings and Appeals, and a ruling that Froedtert Hospital's request be granted, the Wisconsin Historical Society gave Froedtert permission to disturb Mi-0527, BMI-0076 (Richards et al. 2016). Excavations took place over a three-month period during the summer of 2013. Further discussion of the excavations and subsequent management of the individuals recovered from the cemetery is presented in Chapter 3.

The second chapter combines a discussion of feminist theory with a brief history of feminist movements in the United States, the founding tenets of feminist theory, and feminist approaches to fetal personhood. I address how the construction of knowledge justifies and normalizes gender-based oppression. The chapter also includes background on the discourse of subadults in bioarchaeology and evidence of fetal personhood throughout the archaeological record.

Chapter 3 outlines the standardized methods of the MCPFC project as well as the ways in which I incorporated age-related data from past subadult skeletal analyses from multiple

skeletal collections. It defines the parameters of the dataset and the types of age estimations that were considered. The chapter addresses how material culture that was recovered with subadult remains was categorized and the methods applied to collect data from historical documents. In Chapter 4, I contextualize perinatal death and mortuary treatment during the late 1800s and early 1900s. I focus on the rise of the medical profession as an authority on women's bodies, the language and practices used by physicians to enforce control, and the impacts that reduced access to midwives had on women in Milwaukee.

Chapter 5 presents the results of osteological analyses and correspondence with material culture. I consider the impact that osteological methods have on researcher's interpretations of personhood and address discrepancies between dental and osteometric age estimations. The associations between material culture categories and age are presented. Results from the Milwaukee County Death Certificates and Milwaukee County Poor Farm Cemetery Register of Burials are addressed in Chapter 6. The chapter concludes with a discussion that synthesizes the results from the osteological, material culture, and discourse analyses. Chapter 7 summarizes the background, methods, and results and reflects upon the contemporary relevance of this research.

Chapter 2 Theoretical Framework and Bioarchaeology

Introduction: Feminist Theory, Personhood, and Bioarchaeology

The fetus lies at the heart of the personhood debate. The conferment of personhood onto the fetal body has far-reaching impacts, from prenatal care of childbearing individuals to mortuary treatment of stillborn and neonates. Attitudes towards fetal and infant death in the United States are variable throughout history and require us to look beyond the cemetery to understand what the postmortem treatment of the unborn and newly born may signify. Burials excavated at the MCPFC reveal, at the surface, varying levels of mortuary care. Similarly, terms used in the Register of Burial, death certificates, and coroner's inquests reflect the varying, and often ambiguous, social status of perinates. This chapter introduces feminist theory and approaches to personhood, followed by a background discussion of historical pauper cemeteries in the United States and a review of the bioarchaeology of children.

Theory and Knowledge Construction

"But theory is also needed for archaeology if as a discipline it is to make an impact on current society and in competition with other disciplines. It is through theory, which systematises (sic) and forms a body of knowledge according to specified principles, that the discipline takes its form" (Hodder 1995:5).

Theory deals in generalizations. Personal experiences have the potential to apply theory to real life, to transform the social world, and question the validity of those theories which shape our perspectives. According to the theory of praxis, "theory and thinking are social and cannot be separated from the practices of social life" (Hodder 1995:3). For bell hooks,

theorizing is a healing, liberatory process (hooks 1991). Theory traces lines of suppression, hierarchy, and false binaries back to the power relationships created and maintained by these forces (hooks 1991). Feminist theory provides strategies for identifying ways in which knowledge is constructed and controlled through the naturalization of gender-based differences that legitimize hierarchy (Hartmann 1981; Joyce 2004; Scott 1988). From these insights, we must develop actions leading to social transformation (Hodder 1995; hooks 1991).

Strategies include, as outlined by McCann and Kim (2017), the investigation of general ontology, epistemology, and political systems. Ontology is an overall theory of reality, the things we take for granted or assume to be true. Epistemology is the theory of knowledge production, and politics are related to the actions involved in gaining and maintaining power (Barad 2003; Ross 2013). Standpoint theory suggests that the experiences of those who are subject to structures of domination may be "epistemologically privileged" (Wylie 2003:26). Oppressed individuals may have a unique set of knowledge that allows them to understand the dominant power structure in ways that its own unoppressed members cannot. Feminist approaches to standpoint theory in the 1970s and 1980s were centered around a gendered, and often essentialized, woman's experience. More recent approaches have acknowledged that what a person experiences and how they understand is shaped by the material conditions of our lives (Wylie 2003:31; 2012). A person directly impacted by oppressive systems may be uniquely knowledgeable about how that system works, but at the same time, they may lack the tools, formal terminology, or power to organize for change (Gero 2007; Rubio 2011; Wylie 2003).

Joan Scott critiques the privileging of "experience" as an uncontestable point of origin for recognizing and building histories of difference (Scott 1991:777).

> Questions about the constructed nature of experience, about how subjects are constituted as different in the first place, about how one's vision is structured-about language (or discourse) and history-are left aside. The evidence of experience then becomes evidence for the fact of difference, rather than a way of exploring how difference is established, how it operates, how and in what ways it constitutes subjects who see and act in the world (Scott 1991:777).

We could alternatively apply poststructuralist terms to questions of knowledge use. Knowledge produces a specific reality, which supports power relationships. As hooks notes, it is a privilege to name terms (1991:3). When bioarchaeologists call remains fetus, the term is associated with a particular subadult developmental stage. However, by using the term fetus, we conflate the biological meaning with how we have been socialized to understand the term. We look at the bones through filters of osteological education and experience that legitimate our interpretations.

Scott, for example, co-opted language, discourse, difference, and deconstruction for feminist theory. Language is defined as the entire communicative system through which meaning is constructed (Scott 1988:359). Discourse is the structure in which knowledge is controlled, legitimated, and embodied (Scott 1988:360). Difference is based on presumed contrasts or binary oppositions. Interdependence between oppositions is repressed in ways that heighten contrast. Western philosophy takes difference a step further by adding the element of hierarchy to binary oppositions (Scott 1988:360). Differences in texts can be analyzed and broken down through the practice of deconstruction. Interdependence between binaries, and the deliberate repression of interdependence, can be identified.

Deconstruct Difference and Question Binaries

Deconstruction challenges established binaries within particular contexts (Scott 1988:361). Ambiguity, overlap, and contradiction are not weak points in research. They are opportunities for us to ask why we put so much faith in binary systems and call for more evidence, broader research, and multiple interpretations from multiple voices (Gero 2007). The Binary binds concept was introduced by Ghisleni, Jordan, and Fioccoprile in a recent special issue of the *Journal of Archaeological Method and Theory* (Ghisleni et al. 2016). Contributors to the issue challenge archaeologists to consider how analytical categories shape interpretations of sex, gender, and sexuality. While we may be on-board with challenging binaries in theory, the accepted analytical methods that we use are still rooted in binaries.

Ghisleni et al. (2016:767) identify three topics in archaeology in which binary binds are still pervasive: division of labor, mortuary analysis, and the body. Emphasis was placed on gendered binaries in this article, though attention is also called to how personhood is produced in general. "Also at stake is the circumscription of the ontologies of personhood and our means to recognize what kinds of bodies and identities come into existence, in the past and the present" (Ghisleni et al. 2016:776). Gender is only one part of identity, and just because it has pervasive organizational powers today, does not mean that it held that same weight in different contexts through time and space (Scott 1988).

Feminism in History

Definitions of feminism also fluctuate in response to the diverse demands of women's movements across time and space (Basu 2000; Hill Collins 1990). At its root, feminism is about

ensuring the rights of all, regardless of sex or gender. Feminist theory provides strategies to examine and confront gender-based oppression. In order to challenge the subordination of women and address gender-based oppression, we must recognize that knowledge and our sense of reality are situated within a particular political system (McCann and Kim 2017). Historically, patriarchal structures have been recognized as primary forces in the oppression of women (Mies 1998; Spencer-Wood 2016; Wollstonecraft 1833). Patriarchy can be defined as "a set of social relations between men, which have a material base and which, though hierarchical, establish or create interdependence and solidarity among men that enable them to dominate women" (Hartmann 1981. However, dismantling the patriarchy has not always been the focus of feminist attention. Early American feminists were often comfortable with their positions within patriarchy. As will be discussed later in the context of MCPFC and the rise of professional medicine, feminists often sought freedom within the structure that confined them. Oppression comes from multiple directions, and, as will be seen with the medicalization of childbirth, it may be promoted as the safest option available.

Intersectionality is a model for conceptualizing difference (McCann and Kim 2017:164). Kimberlé Crenshaw articulated how existing categories of discrimination law failed to adequately accommodate the lawsuits of African American women who experienced sexism and racism on the job. Intersectional analyses offer space for overlapping, interconnected identities to be addressed simultaneously. Whereas identity politics ignored differences within groups, intersectionality acknowledges that the violence women face is often shaped by other dimensions of their identities, most notably in the United States, race (Crenshaw 1991). Intersectionality addresses both oppression and privilege. It forces theorists to move beyond

essentialized categories of identity to recognize the complexity of lived experiences. It also considers multiple domains of power and how they interact with one another and within people's lives (McCann and Kim 2017:165).

An intersectional approach to mortuary contexts can challenge otherwise limited interpretations of the burial record. The burial record, for one, does not fully represent the multitude of identities that exist and overlap in a society (Arnold 2016). Within an archaeological context, we must both consider the multiplicity of identities, as well as how these identities may have shifted across time and space (Arnold 2016; Brumfiel 2006). This includes ways in which identities interact with, compound, and create diverse persons (Arnold 2016:842).

In many academic fields, including archaeology, there has been a progression from feminist to queer theories. Archaeological endeavors into queer theory include Alberti (2013), Voss (2000, 2008); Geller (2008, 2017); and Joyce (2004). These writers, like Ghisleni *et al*. (2016), challenge the continued application of binary binds to the construction of past identities (Alberti 2013).

Women's Movements through Time: Whose Body Matters?

The history of feminism in the United States is commonly told using the metaphor of waves. The wave metaphor conceptualizes feminist action as a series of ebbs and flows throughout history. There have been criticisms of this way of organizing the narrative of feminist thought and action, which will be discussed in the following section after brief introductions to the three waves of feminism in the United States.

Early women's movements in the United States fought for inclusion within the public sphere. The dichotomous structures of the women's private sphere and men's public sphere made it difficult for women to actively participate in economics and politics (Mies 1998). Yet the naturalized duties relegated to women could not be transcended without first gaining greater control of their own bodies, including control over if, and when, to reproduce. In the 19th century, both suffragists and members of the Free Love group actively sought freedom from involuntary motherhood. Members of these groups were primarily educated middle class women (Gordon 1973). At the time, the male sex instinct was paired in opposition to women's "maternal instinct" and it was a wife's duty, not to mention legal responsibility, to submit to the sex drive of the husband (Gordon 1973). This is a drastic shift from the 18th century and earlier, when women were portrayed as sexually insatiable. Contraceptives were not accepted among Suffragists and Free Lovers. Instead they promoted abstinence and sexual self-regulation, along with voluntary motherhood. Before they could deny husbands intercourse, women first had to assert that they had sexual desires of their own and that they were in control of their own bodies (Gordon 1973).

Despite not having the vote, women with "social capital" found that they could shape social policy and influence politicians through participation in women's associations (Clemens 1999). These associations provided individuals with a place to develop organizational and leadership skills, voice opinions, educate one another, and form coalitions with other women's groups and male-run associations who were fighting for common goals. Early organizations combined women's rights with the abolition movement, for example. During the 1870s and later in the 1890s, temperance was a major focus (Clemens 1999). The first wave was

aspirational for women who had the means to pursue educational and political endeavors. Voluntary motherhood had little relevance in the context of the struggles of the poor. “Since this first call for birth control was associated with goals which only could be achieved by women possessing material wealth, vast numbers of poor and working-class women would find it rather difficult to identify with the embryonic birth control movement” (Davis 1982:357).

Second wave feminism (1960s-1980s) also focused on and demanded greater autonomy over women’s bodies. Snyder summarizes the classic second-wave feminism argument as follows: “In patriarchal society women share common experiences, and through a sharing of their experiences with one another in consciousness-raising (CR) groups, they can generate knowledge about their own oppression” (Snyder 2008:184). CR groups fostered recognition among women that personal problems that are widely shared would lead to closer examination of ways in which the patriarchal social structure produces and normalizes those problems. Similar to the first wave, the second wave was quite insular and limited and represented the demands primarily of the white middle-class. Mobilization around the systematic sterilization of African American, Latina, and Indigenous women was not one of them. By 1976, 24% of all Indigenous women of childbearing age had been sterilized (Eisen 1972; Davis 1982:363). Thousands of sterilizations were funded annually by the US Department of Health, Education, and Welfare throughout the rise of the second wave (Payne 1974; Davis 1982).

Principal authors like Audre Lorde and Gloria Anzaldúa have been claimed by members of the third wave; however, it should be recognized that they were contributing members of the second wave. Astrid Henry notes that grouping authors of color with the third wave allows younger generations to claim superiority over the work of feminists from past movements. It

makes the second wave look whiter than it was while portraying the third wave as inclusive from the start (Henry 2006; Snyder 2008).

Third-wave feminism (1990s-early 2000s or later) distances itself from the second wave by tackling some of the gridlock created by feminist theory in the 1980s (Snyder 2008). The third wave refers more to a particular approach to feminism than a particular era or age group. Third-wavers do not entirely reject the previous agendas of the preceding second wave. Instead, they critique the movement's oppositional ideology and recognize the constraints placed on identity-based politics. A significant criticism of the second wave has been its use of the essentialized category of "woman" (Snyder 2008).

In response, the third wave encourages personal narratives that illustrate the intersectionality of gender with other structures such as race, class, age, and ethnicity. Personal narratives promote multivocality through an acknowledgment that multiple identities exist within individuals, and these identities are contextual. Individual experiences involve more than merely inhabiting a body. Experiences accumulate over a lifetime and are impacted by social structures and institutions (Sofaer 2006:23).

Third-wavers were the first generation to be born into a world of already-established feminism. With this comes a sense of entitlement to equality, autonomy, and sexual pleasure (Findlen 2006; Snyder 2008). They face a distinct set of challenges within a culture produced through mass media and mass consumption. Third-wave feminism and gender activism dissolved into larger agendas of social justice. Simultaneously, the third wave draws upon postmodern theory, postcolonialism, and poststructuralism.

Second-wavers frequently criticize members of the third wave, claiming that they emphasize personal choice, even at the expense of perpetuating societal ideals. The sea of personal narratives that primarily make up the texts of the third wave are only stories because people do not take the next step: to contextualize the experiences and use them to destabilize dominant discourses.

Feminists such as Linda Nicholson (2010), Jervis (2006), and Kimberly Springer (2006) have challenged the wave metaphor, arguing that it organizes itself around a history of activism among white women. It also projects an oppositional relationship between generations and fails to recognize that the need for feminism is not something that ebbs and flows.

Waves aside, there are numerous approaches to feminism and feminist theory. The Marxist perspective on women usually refers to the relationship between women and the economic system. However, Engels noted that the institution of private property also results in women assuming an inferior position to men (Engels 1884; Hartmann 1981(2017)). Without private property to pass on to the next generation, proletarian women were not as oppressed by patriarchal relations, and Engels viewed women's participation in wage labor to be crucial to their freedom. Capitalism allowed women under certain conditions to be economically independent, and people would, of course, be paid equal wages regardless of sex.

What early Marxists failed to recognize was that men as a class had an interest in perpetuating the subordination of women (Hartmann 1981(2017)). Patriarchy relies on interdependence among men to maintain power over women. Control is maintained over women's labor power through, among other things, restrictions on sexuality (Hartmann

1981(2017)). Economic production and human reproduction are integral to sustaining a functional society and society is organized in a way that promotes reproduction of the species.

Personhood and Mortuary Treatment

Chris Fowler defines personhood broadly as "the condition or state of being a person, as it is understood in a specific context" (Fowler 2004:4). A person is any entity that may be conceptualized as a person having form and agency, though who or what this defines is also dependent on context (Fowler 2004:4). Personhood is not a given, nor is it restricted to the realm of humans. The Western conception of personhood is rooted in individuality of the physical body (Cohen 1994; Fowler 2004). The body is monitored, produced, and reproduced by society. The body is not an indivisible individual; it only gains social recognition through rites that usher it from one state of personhood to the next (Fowler 2004: 41-42). "Just like other rites, those associated with the dead may not be aimed at removing them from society, as we might expect, but reintegrating them back into society as different kinds of entities, different orders of person" (Fowler 2004:45).

Though the body is considered central to individuality, modern Western mortuary practices quickly remove the physical dead from the realm of the living. From the Civil War on, there was a shift in how bodies were cared for in the United States. Embalming became popular during and after the Civil War, as families waited for the bodies of their loved ones to be brought home (Mytum 2004). Mass production gave more people the opportunity to participate in materially-based funerary rituals, such as stone memorials and other funerary crafts. The physical integrity of the deceased body was important for a complete transition to

the next world. Cremation, for instance, was traditionally forbidden in both Catholicism and Judaism.

So how do we treat the dead who were not fully integrated into society in the first place? What state of personhood can be constructed before natural birth? The attribution of personhood to a body does not hinge on whether one has been born. Personhood prior to birth is a documented cultural phenomenon, and in modern Western culture, the development of fetal personhood is encouraged through activities like prenatal monitoring, nursery decorating, and gender reveal parties (Sanger 2012). Mortuary treatment of fetal remains that is comparable to more established members of society, including dressing the body and providing formal burial, would reaffirm that personhood. However, not all fetuses are treated equally, nor do all meet the minimum requirements for personhood directly because biological development was initiated (Fowler 2004). This investigation seeks to recognize patterns in perinatal development and mortuary treatment in 19th and early 20th century Milwaukee that may reflect underlying conceptions of personhood at the personal level.

Fetal Personhood

The fetal body destabilizes conceptions of personhood. It takes the form of living humans and idealizes future relationships in which the child is a part of a family, yet it lacks any of the social interactions that are required to attain and maintain personhood (Fowler 2004:4). Indeed, even after a successful birth, a child may not be recognized as a person, and as Becker (2011), explains, childbirth is only one event, biological in nature yet culturally mediated, that can establish personhood. With conflicting ideas of what constitutes a person and which lives

matter, it is understandable why the ambiguity of the fetal state is continually revisited in contemporary societies.

The ambiguity of fetal life is visible in the complex sets of beliefs that cultures develop around the treatment of stillbirth and perinatal deaths (Halcrow et al. 2012). For some, a newborn remains in a liminal state until it can transition at a later age into a recognized member of society (Becker 2011:30). Others extend personhood into the prenatal period and attribute protections and rights to the unborn (Standen et al. 2014; Wheeler et al. 2011). The *mizuko kuyo*, for example, is a ceremony practiced in Japan for stillborn, aborted, and miscarried fetuses (Meyer and Nelson 2001; Tan 2004). Women perform spiritual rituals to comfort and honor the fetus through prayer and offerings. They may also participate to publicly demonstrate that their abortion was not a heartless act (Meyers and Nelson 2001). Different attitudes towards the fetus indicate that personhood is not a given before, or after, birth. As bioarchaeologists, we must recognize our notions of the beginning of life if we want to present a comprehensive understanding of it within a particular context (Finlay 2013:207).

The fetal body is a destabilizing force, and its level of personhood varies depending on how personhood is defined within a society. Are there gradations of personhood that exist before biological birth? What happens when social birth precedes biological birth? In the philosophy of Western individualism, the physical body develops before the social body. Once a person is embodied, they retain an individual essence. Individualism supports an either-or definition of personhood, where, if there is a body, there is a person. Fetuses are, according to a pro-life position, complete persons from the moment of conception. The presence of the

body means that the life of the fetus is equal in value to that of the woman carrying it and is subject to protections to ensure that it can survive to the point of freedom from the womb.

Physicians who look after the well-being of both the fetus and the mother may not actively place higher value on one over the other. However, because they are looking out for the well-being of the fetus, they may discredit the woman's self-determination (Cahill 2001). Another type of individualism, liberal individualism, is a typical perspective taken among pro-choice proponents. Liberal individualism stands for individual autonomy over government intrusion. Governments should not interfere or impose particular religious, political, or moral perspectives on people, but instead let people take responsibility for their own choices (Ehrenreich 2008:1).

Feminist Approaches to Personhood

Feminists have turned to relationality as an alternative to individualism. In relational personhood, the person is built and contested through interactions with others. Feminists rely on the presumption that fetuses are not actively interacting with others before birth. However, Lynn Morgan observes that there are ways in which relationality could dismantle feminist arguments from the inside-out (Morgan 1996). Morgan dissects the common pro-choice argument that fetuses, lacking social relationality, cannot be considered persons until after birth (1996). Biological birth is essentialized as a moral dividing line between non-person and person. Personhood that is based on relationships formed after birth hinges on the physical autonomy of the postnatal infant. It does not take into consideration the trend that social birth

precedes biological birth in the United States. The relational personhood model does not recognize the legitimacy of people who experience and mourn miscarriages.

It also presupposes gradations of connections made between the living and the unborn as pregnancy progresses. Late gestation would be no more significant than early gestation if the threshold of birth is not crossed (Morgan 1996). The emphasis placed on birth by relational feminists also vilifies mothers who do not adhere to the social significance of that event. If birth is the "natural" beginning of a person's life, then a child bearer who fails to care for their newborn is "unnatural," and their actions can never be justified (Micucci 2016; Morgan 1996).

Overall, fetal identity is, according to Morgan, based on situationally-produced personhood. One interpretation that Morgan offers is that a fetus is not socially constituted through relationships within the womb; instead, the impetus is on differentiating the new person from others. Fetal death or pregnancy termination could be reframed as "the failure to complete the social process of producing body/persons" (Morgan 1996: 57). It is not murder or death because the person was not completely constructed in the first place.

Feminist theory is concerned with uncovering power dynamics associated with sex and gender (Spencer-Wood 2016). Archaeological applications of feminist theory must consider the context of the research, intersectionality of identities, and how gender and sex are culturally defined to uncover the underlying power dynamics (Halberstam 1998). Pamela Geller (2017) explains the relevance of bioarchaeology to the present and warns that our interpretations of the past strongly reflect our current state of affairs. "Lessons from the past can reveal prehistorical amnesia in the case of marital, erotic, and reproductive choices, as well as track

women's diminishing autonomy over bodily experiences. Hence, writing a prehistory of the present acts to counter essentializing narratives about the current state of socio-sexual affairs" (Geller 2017:9).

The present research applies feminist theory and personhood to the bioarchaeology of childbirth during a period of increased medical intervention and "diminishing autonomy over bodily experiences" (Geller 2017:9). The medical takeover of childbirth resulted in physical control over women's bodies. Exploration of perinate abandonment reiterates the dynamics at work between women and authorities such as medical professionals, law enforcement, and employers, and the flexibility within for individuals to take subversive action. "Wherever infant burials are found in the archaeological record, particularly where perinates or neonates are identified, is frequently suspected. In one way this is unsurprising as it is assumed that no other form of birth control would have been available to pre-modern women. Yet there are many unpleasant and misogynistic undercurrents in the articulation of these assumptions and assertions of infanticide based on an implicit belief in the inherent duplicitousness of women - in other words, we are back to the idea of deviant women again" (Scott 1991:30).

Feminist theory is an appropriate framework for the interpretation of fetal and infant remains recovered from a pauper cemetery due to the overt relations between perinates and women's health and social status. Reproductive freedom has been an ever-present issue for women's rights advocates, yet campaigns to this day do not recognize the concerns of all women. "Voluntary motherhood" was a theme in the 19th century supported by middle and upper-class women who believed that birth control was a means for women to pursue higher education and careers (Davis 1982:357). "Voluntary motherhood" was a way to trivialize the

struggles of working-class women by focusing on the right to not reproduce without recognizing that some women could not, even if they wanted to, reproduce without major social and economic implications (Petchesky 1990). Meanwhile, chronic stress from poverty, classism, and racism increases the risk of premature births. Even among those who wish to have children, oppressive forces have negative impacts on their ability to have a healthy pregnancy (Sziarto 2017). An alternative to individualism recognizes that the capacity to make individual choices is socially constructed and, even when equal rights are available to all, social inequalities prevent some from taking full advantage of them (Ehrenreich 2008:2).

Skeletal remains of perinates reflect the degree of danger that children and women faced throughout pregnancy, labor, and delivery regardless of, and sometimes because of, medical intervention. Similarly, a comparison of coroner's records, death certificates, and skeletal remains from the MCPFC shows the effects of a social structure that supports double standards that punish women, but not men, for sexual deviance and defines gender roles in terms of one's ability to reproduce (Gallop 1988; Reagan 1991).

High rates of stillbirths among abandoned remains may reflect acts of infanticide, such as the case of Emma Rutz, who was a single woman working at a saloon who hid her pregnancy from employers. She delivered the child in secret, and the body was later found on the roof of her place of employment, with a strip of cloth wrapped around its neck (Drew 2018; 7498 case #31). Other cases of women giving birth unassisted are more suggestive of accidental death, wherein the neonate bled to death, or there was confusion as to whether the child was ever alive (Drew 2018).

Historical Overview of Bioarchaeology of Children

"…the body does not exist as an independent entity since many of its physical features are the result of a complex interaction between biological and social biographies and can be interpreted only within a larger social context" (Buikstra et al. 2012:4). This is perhaps especially true of the perinatal body. What we can observe through basic osteological analysis is the state of growth and development reached by the body when life ceased. An age estimation of 37 in utero weeks means that the skeletal elements or dentition used in age estimation is comparable to the development of known individuals of that age from another population. The biological age estimation, measured in "in utero" weeks, suggests that birth had not occurred. To gain a fuller picture of the perinatal period, the biological data must be contextualized within the social.

Age determination plays a large part in the bioarchaeological study of children. Estimated ages are incorporated into studies of fertility, health, weaning, and culture-bound definitions of childhood. Skeletal age estimations, including the laboratory methods developed by the MCPFCP and applied in project research, will be addressed in Chapter 3. It is important to recognize differences in age categories applied across bioarchaeological studies of children. Many terms are used interchangeably to refer to anyone who has not reached adulthood (Gowland 2006; Halcrow & Tayles 2011; Sheuer and Black 2000). Age categories that incorporate broad age ranges tend to mask spikes in physiological and social development that occur throughout childhood (Halcrow and Tayles 2011). Bioarchaeological investigations of childhood rely on biological or physiological age, which is an estimation of the level of growth and development that a child has obtained compared to a standard, known population. This

differs from our traditional measurement of age, which is chronological age measured in time elapsed since birth. Social age by contrast reflects the cultural status and norms for individuals of a given age within society (Halcrow and Tayles 2011).

Similarly, distinctions have been drawn between biological birth and social birth (Kaufman and Morgan 2005; Keane 2009; Sanger 2012). This distinction between biological birth and social birth plays an integral part in the analysis of personhood that will be presented in the following chapters. In *The Archaeology of Infancy and Infant Death*, Eleanor Scott calls for a deconstruction of our own beliefs and biases towards infants and infant death. Scott also demands that we move past the sensationalization of infanticide and infant burial practices (Scott 1999:1, 8). To do so, she explains that we must go beyond the biological interpretation of remains, recognize how the infant category is socially defined, and contextualize archaeological evidence for infanticide and infant burial within gender and family structures, as well as mortuary practices in general (Scott 1991; 1997).

The highest peak in mortality among non-industrial societies is during the perinatal period. This period ranges from the start of the third trimester through the 28th day after birth (Becker 2011). Informal modes of disposal or age-specific clusters of perinatal remains are often interpreted as evidence for infanticide. Natural mortality profiles need to be considered when looking at differences in burial practices between perinates and adult or even children burials. Distinctions may have more to do with the sheer regularity with which perinatal death occurred, along with an inhibited ability for those who gave birth to take care of the deceased.

What is the significance of a perinatal burial? Becker (2011) identified two specialized infant cemeteries in Etruria. The cemeteries accorded anyone under the age of 5.5 years a burial similar to that of stillbirths. The segregation of the young from formal adult cemeteries in Etruria suggests that the transition from neonate to a full-fledged member of society was a long process that was not complete until the probability of survival was higher (Becker 2011). Looking alternatively at the "adult" cemeteries in the same cultural context, children between 5.5 years and 16.5 years were present at expected levels. The absence of remains under 5.5 years was deliberate, not an artifact of low infant mortality or poor preservation of remains. Infancy can be seen as an ambiguous, transitional period in other cultures as well. In ancient Greece, children were not named until they had survived at least seven days past birth (Aristotle 1965; Wilson 1793). Likewise, Roman midwives judged newborns directly after birth to determine whether or not they were worth rearing and were named on the ninth day after birth(Rawson 1991; Wilson 1793). The final decision whether or not to rear the child was made by the male head of household. Newborns not taken in by parents could be subject to exposure, leading to possible adoption, enslavement or death (Todman 2007).

It should be noted that although the remains of Etruscans under the age of 5.5 years were segregated, they were still provided with a formal burial treatment. Another example of alternative mortuary treatment of infants comes from Iron Age Austria. Fetal and neonate skeletons were found exclusively in building features such as within drainage ditches, below house floors, and in entrance areas. The remains were deposited during construction of the features. While the remains were not placed in cemetery contexts, some level of care is suggested by the conscious selection of burial location (Karl and Locker 2011).

Fetal burials are documented in various archaeological and historical contexts. Fetuses as young as 22 fetal weeks were also given "proper burials" at the Kellis 2 Cemetery in Roman Period Egypt (Wheeler et al. 2011). The exclusion of stillborn or unbaptized infants from Catholic and Protestant cemeteries could lead to clandestine burials within churchyards (Lewis 2007). In Ireland, stillborn and unbaptized children were laid to rest in designated areas called cilliní. Located outside consecrated burial grounds, cilliní were used from the 17th century through the mid-20th century. Due to their spatial context, cilliní have been interpreted as burial spaces for those who were marginalized or in an ambiguous spiritual state. Murphy (2011) alternatively suggests that these sites had significant importance to grieving parents and families. While the Roman Catholic Church may have imposed particular views regarding the status of those buried in cilliní, parents still experienced mourning and engaged in mortuary practices as they would a dead child. Morgan cautions that "as archaeologists we need to be cautious not to assume that the obvious religious or collective societal response is the only one worthy of study or apparent in the archaeological record" (Morgan 2011b:425).

Contextualization of Historic Pauper Burials

Economic restrictions also factor into whether or not infants receive formal burial (Karl and Locker 2011). Decisions have to be made regarding to what extent infants (and perinates) receive mortuary treatment, and whether the resources can be spared. In the case of cilliní, stones were commonly used to mark graves, and the furnishings and grave goods that have been found, though sparse, were consistent with those of consecrated graves (Morgan 2011b). Fetal burials within pauper cemeteries reflect, on the one hand, a requirement to treat the remains similarly to those who had experienced life. On the other hand, pauper cemeteries

represent a minimal commitment to the mortuary treatment of community members who could not afford burial. The varying degrees of care beneath the surface expose incongruity within the community over how those without established personhood should be treated after death.

Burial is often a financial burden for the deceased and their surviving family members. Pauper burials were provided for people who could not afford burial elsewhere and signified failure on the part of the individual and their social support system to care for them adequately after death. A pauper's burial was feared because it conveyed anonymity and erasure. The body was not recognized within a social and cultural space and was signified as belonging to no one. Efforts were not made to contact family or friends before burial in a pauper's field, and religious or burial services were not typically held. However, a person relegated to a pauper's grave did not mean they were always or inevitably buried without care or provision by loved ones (Hurren and King 2005). Pauper funerals overseen by authorities could still be embellished with decoration and customary practices (Strange 2002). People strove to claim ownership of the dead and the rights to funerary practices. Respect for the dead could be improvised for relatively little money, such as wearing black and personal gestures and cemeteries offered payment plans and grave leases to decrease the cost of burial.

The starkness and anonymity of a pauper's burial were not the only reasons that people feared the potter's field. The dead bodies of the poor were particularly vulnerable to increased demands for medical cadavers in the mid- to late- 1800s (Laqueur 1983). The poor who were a burden to others in life could finally serve others in death. "Those who in life could not sell their labor for sufficient money to provide for a decent interment were of value only when they no

longer owned their labor or their bodies, i.e., when they were dead. While an individual living had no rights in his body, dead he could become the property of someone else" (Laqueur 1983:122).

Dead or alive, bodies of the poor were exploited for education and research. Applications of feminist theory to gender archaeology in mortuary contexts include the context of the cemetery, the intersectionality of identities, and how gender and sex are culturally defined to uncover underlying power dynamics (Spencer-Wood 2016). The context of this project, a turn-of-the-century pauper's cemetery with links to local medical schools and the county coroner's office, is directly related to the intersection of identities. The dead did not choose to be buried at the MCPFC; instead, the living did not find them worth the money or did not have the money, for a respectable burial. The sick, mentally ill, abandoned, unknown, and the very young were not afforded the same level of mortuary treatment that other members of society could expect. With regards to sex and gender, adult female remains were not included in the skeletal analysis of this project, but the research questions focus on gendered power dynamics due to the connection between the perinates in the collections and the actions of the women who bore them.

Rule 17 of the 1894 Milwaukee County Rules and Regulations for the County Farm and Almshouse outlines the minimal requirements for a proper pauper burial at the cemetery. This included grave depth, placement of a painted and numbered headboard for each grave, cemetery maintenance, and proper recordkeeping of each burial on the property (Richards 1997). Rule 17 ensured that all who died in Milwaukee County would receive proper postmortem treatment. The numbered grave markers were later removed, significantly

complicating identification of interred individuals (Richards et al. 2016). Personal responses to death are often overlooked in mortuary studies in favor of collective social reactions (Murphy 2011).

Aubrey Cannon and Kathryn Cook identify three concepts that archaeologists can use to acknowledge that the actions a person takes in response to grief are mediated by what is socially appropriate. Grief experience is the internalized feeling, "a function of attachment and loss," which in turn, is a function of individual circumstance. Grief expression, on the other hand, is "an indication of sadness and pain" and the ability to feel appropriate levels of grief and express a socially appropriate type of behavior. The last concept is the representation of emotions or the actions that are socially recognized as responses to loss, such as mourning, prescribed treatment of bodies, and funerary activities (Cannon and Cook 2015).

Cannon and Cook (2015) point out that archaeologists are more likely to see variation in how people respond to grief, rather than how they express grief itself. What we observe in burials are coping strategies that both deal with the experience of loss and adjust to the life changes left in the wake of the death (Cannon and Cook 2015). They suggest that there is a biological basis for individual variability in the way that people experience loss and cope with grief. The level of loss is related to the level of attachment, or the strength of the relationship between the living and the deceased. The attachment theory can account for grief experienced after pregnancy-related losses, similar to relational personhood.

One point that needs to be addressed is that "part of the socialization process is teaching members to recognize their place in society" (Scott 1991:9). Recognition of our

personhood also should include education of where other beings in society, in this case, the fetus, fit in. If fetuses were afforded similar burials to other members of society, this strongly suggests that they were considered something more than medical waste (although individuals reduced to “waste” or otherwise anatomized were also buried in coffins at the MCPFC [Richards et al. 2016]). Women who, like Rose Derra, informally disposed of newborns within the community were often criminalized and implicated for homicide. This tension between the actions of those who informally disposed of remains or abandoned newborns and the intervention of law enforcement is discussed further in Chapter 4.

High percentages of fetal and infant remains associated with families, as opposed to abandonment or disposal within the community or inmates of county institutions, indicated that there was a need to treat the dead in a particular manner, regardless of whether or not someone reached full term. Recent research comparing stillbirths buried at the MCPFC to other community cemeteries in Milwaukee suggests that the ratio of stillbirths to other burials is consistent with cemetery data from the city as a whole (Drew 2018). This consistency is surprising considering that the MCPFC stillbirths includes unidentified or abandoned bodies that were discovered in the community and brought to the MCPFC for burial.

Chapter 3 Methods

This research integrates historical documents with archaeological and osteological observations. The historical archaeological approach situates the material body and burial within the discourse surrounding the start of life and personhood within the context of the MCPFC. My research incorporates data from two distinct collections of human remains and their associated material culture. The two collections consist of remains recovered from archaeological excavations at the MCPFC, though conducted 11 years apart from one another. The first excavations took place between 1991 and 1992, and a later excavation was conducted in 2013. The humble wooden grave markers of the individuals who were recovered from the MCPFC had long since been discarded, leaving the burials unidentifiable at the time of recovery (Richards et al. 2016).

The determination of biological or skeletal age of fetal remains are based on time since conception, while for postnatal individuals age is measured in time since birth. For both prenatal and postnatal skeletal material, biological or skeletal age is actually a measurement of how comparable an individual's development is to someone of a known chronological age. Age estimates are paired with margins of error that, among perinates, can mean the difference between unborn and born. Additionally, determinations that live birth occurred, or conversely, that remains are of fetal age, requires an assumption that birth takes place at a particular point in development, i.e., whatever standards recognize as the size or level of development that an average 40 in utero week child should have attained. These assumptions rarely consider the existence of preterm or post-term births (Chen et al. 2011; Schillaci et al. 2011; Wheeler 2009). The neonatal line, which appears in the enamel of deciduous teeth after birth, serves as a

beacon of hope for the identification of postnatal survival among perinatal skeletons, but it is not available for all cases (Canturk et al. 2014; Rythén et al. 2008; Smith and Avishai 2005). The state of the perinate is precarious, and estimation of age in these cases is both a measurement of development as well as a statement regarding the viability of the individual (Halcrow et al. 2012).

Previous MCPFC Subadult Research

Previous research on the subadults recovered from the MCPFC focused on developmental age and health. The majority of this research was conducted with the 1991-1992 remains while they were stored at Marquette University. Colleen Milligan, for example, addressed the relative health of the Milwaukee County Poor Farm Cemetery population through paleopathological analysis and historical research (Milligan 2010). Milligan contextualized skeletal indicators of pathology, growth, and development within Milwaukee's historical efforts to improve the quality of life of the city's inhabitants through public health initiatives. Roughly 90% of the examined individuals displayed evidence of pathological conditions based on descriptions listed in Standards (Buikstra and Ubelaker 1994). These include linear enamel hypoplasia, porotic hyperostosis, cribra orbitalia, tibial periostitis, "infectious disease", and degenerative joint disease. Within the sample analyzed by Milligan, only 31 out of 531 individuals did not show some evidence of skeletal pathology (REF), while pathological conditions were only identifiable in 18 out of 378 subadults (REF). A comparison with Dunning Poorhouse Cemetery in Illinois (Grauer et al. 1998), Monroe County/Highland Park Cemetery in New York (Lanphear 1988) and Voegtly Cemetery in Pennsylvania (Ubelaker et al. 2003) indicated that the MCPFC population was significantly different in terms of

development and nutritional stress patterns, possibly because the cemetery in Milwaukee included both residents and community poor, while the other comparative samples consisted of strictly institutional residents.

Katherine Shillinglaw analyzed a total of 104 juvenile burials excavated in 1991-1992 that were from two temporally distinct sections of the MCPFC (Shillinglaw 2010). The earlier cemetery section was estimated to be in use between 1882 and 1900. Burials within this section were assigned burial numbers in the 6000s. The other section was in use between 1900 and 1920 and was assigned burial numbers in the 9000s. The subadult burials in the 9000s, though more recently buried, were found be more poorly preserved than those in the 6000s and 42% of the 9000 sample could not be assessed for age. The majority of individuals analyzed (42.3%) fell within the third trimester, or between 27 and 42 fetal weeks, while only 10% had estimated ages between 0 and 18 postnatal months (Shillinglaw 2010). Shillinglaw also compiled age categorizations based on the cemetery's burial ledger between the years 1882 and 1920 and found that 40% of listed juveniles were recorded as fetuses, 33% were listed as infants, and 27% were recorded using the general category of child. Not all instances of juvenile burials were identifiable through notations in the ledger; in some cases, particularly among older children, juveniles were listed by their given name and lacked a label indicative of age-at-death. Shillinglaw (2010:80) makes the critical point that the low representation of infants in her analysis compared to the burial ledger records may be a result of differences between chronological age and biological age. For instance, an infant who was born preterm and died shortly after birth would likely have been aged under 40 fetal weeks based on osteometrics yet

would have been viewed as an infant at the time of death because of their positive chronological age.

Laura Ann Hutchins (1998) established population-specific standards of long bone diaphyseal development up to six postnatal months using a sample of 138 unsexed fetal and infant individuals from the 1991-1992 collection (1998:33). Long bone diaphyseal growth was correlated with dental age and individuals were assigned to specific developmental groups to calculate profiles that could be compared to other population-specific long bone standards. MCPFC long bone growth standards were consistently lower than modern long bone growth standards (Maresh 1970) for each developmental age group but were more consistent with other archaeological populations (Hutchins 1998:44).

Introduction to Historical Sources

While a register of burials lists the names of individuals buried at the MCPFC between 1882 and 1974, the system that assigned burial numbers to the individuals recorded within the cemetery's Burial Register is inconsistent and incomplete. Approximately 190 individuals have been tentatively identified thus far; the remaining individuals have yet to be re-associated with the identities recorded in the burial register (Drew 2018). The skeletal data remain disconnected burial from the Register and other archival resources that are introduced in this section. As such, I must emphasize that the documentary study and osteological research described below reflect the same cemetery population but cannot be directly correlated with one another.

Three primary sources were utilized in the discourse study of personhood of fetal and infant remains in this project: The MCPFC Register of Burial, Milwaukee County Death Certificates (MCDC), and Milwaukee County Coroner's Inquests (MCCI) (Table 3.1). Records of MCDCs and MCCIs were available through Brooke Drew's extensive archival work. Drew provided an Access query of county-issued death certificates and coroner's inquests for all individuals of known or estimated age under six postnatal months who were buried at the MCPFC. Coroner's inquests were typically conducted in cases where an individual died without an attending physician, including most accidents, suspected suicides, homicides, and some medical deaths that occurred within the county (Drew 2018:55). Death certificates were generally issued by a physician, coroner, midwife, or commissioner of health. While Milwaukee County Death Certificates and Coroner's Inquests are available for the entire county, data collected by Drew only includes individuals who were buried at the MCPFC.

Table 3.1 Primary sources.

Historical Source	Date Range	Number of Entries	Compiled By	Curation Location
Register of Burial	May 7, 1898 to Dec 31, 1907 and Oct 18, 1920 to May 27, 1925	n=627	B Charles	UWM-ARL
Milwaukee County Death Certificates	Feb 13, 1882 to Nov 26, 1925	n=1799	Brooke Drew	UWM Golda Meir Library (1852-1907) and Milwaukee County Vital Records Office
Milwaukee County Coroner's Inquests	July 4, 1882 to July 11, 1925	n=271	Brooke Drew	Milwaukee County Historical Society

In addition to the MCDC and MCCI, a photocopy of each page of the Register of Burial resides at the UWM ARL. Each hand-written entry that was listed between 1882 and 1925 within the MCPFC Register of Burial was consulted, and all individuals who were identifiable as

children were recorded in a Microsoft Access database. Figure 3.1 depicts the database form used for recording MCPFC Register of Burial data. Figure 3.2 is a sample of the coroner's inquest database form created by Drew. Typical entries include skeletally-relevant autopsy or trauma details, circumstances of death and burial, witness interviews, and demographic information. Figure 3.3 provides a sample MCDC form entry. With all three types of historical documents, it is clear that there is a level of uncertainty surrounding the age of children. Stillborn appears to be broadly applied to indeterminate deaths occurring around, or even after birth.

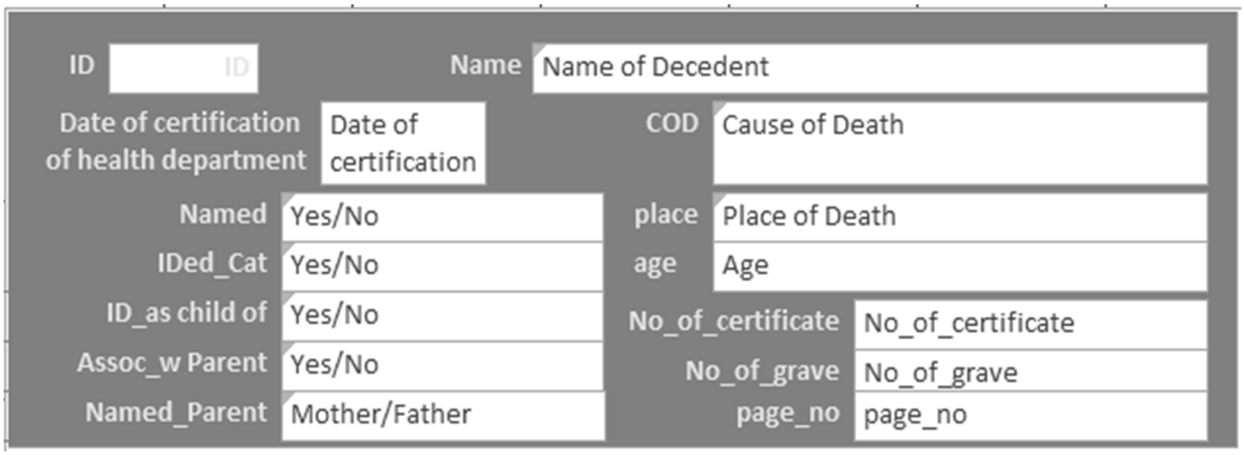

Figure 3.1 Sample Microsoft Access Form: MCPFC Register of Burials entry.

Rule 17 of the *Milwaukee County Rules and Regulations for the County Farm and Almshouse* (1894) outlines the duties of the superintendent with regards to burials conducted on the County Farm. The rule mandated that graves be at least six feet deep and marked by a painted and numbered headboard (Richards et al. 2016). Burial records were to include the name of the deceased, date of death, cause of death, number of burial permit, and grave number. The original burial register is a large, single-volume ledger that is now curated at the Milwaukee County Historical Society (MCHS). Once believed to be a near-complete list of the burials that occurred on the county grounds between 1882 and 1974, further archival research

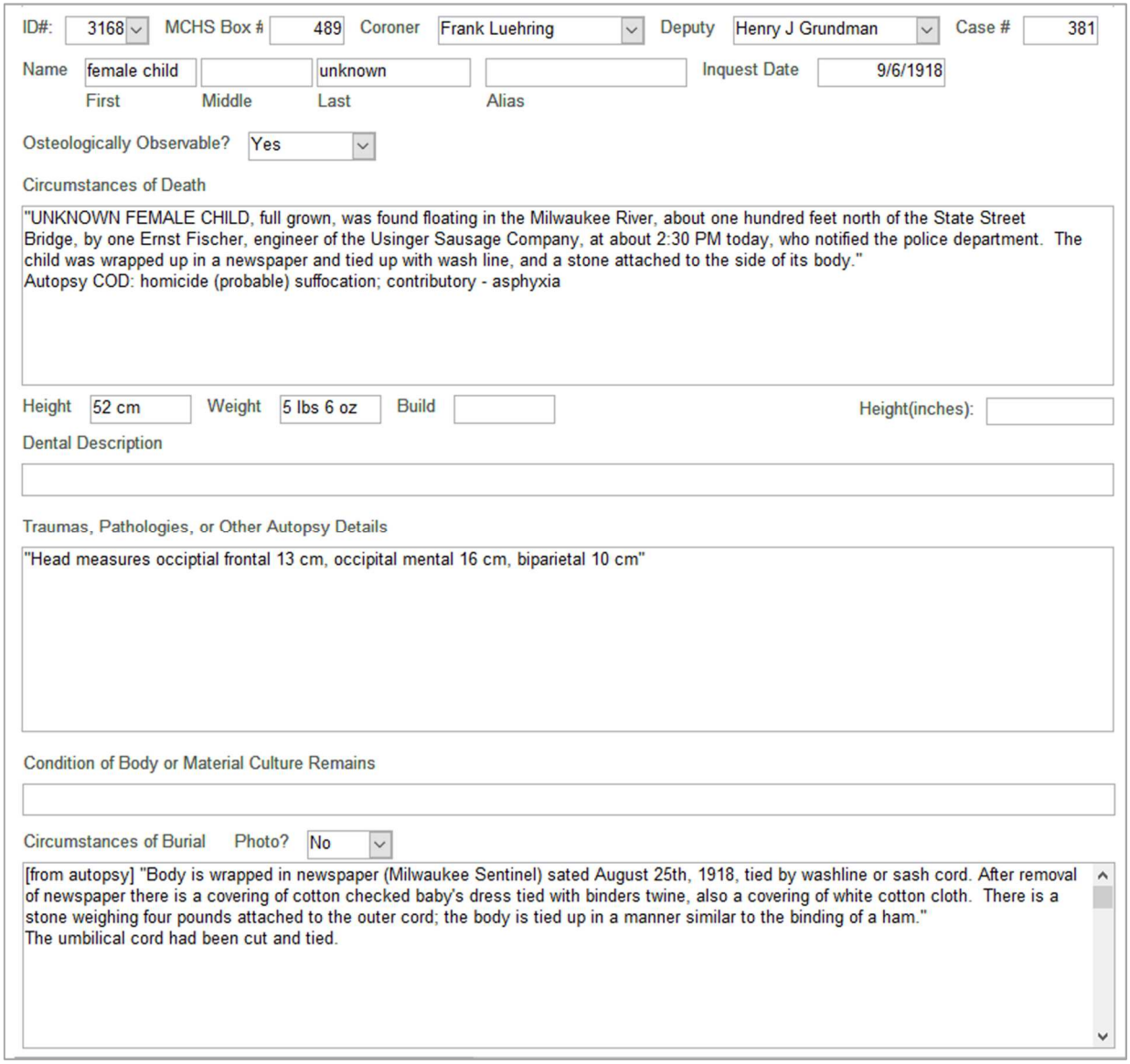

Figure 3.2 Coroner's Inquest Access Form (Drew 2018).

has uncovered a large number of individuals who were buried at the cemetery but are absent from the register. Burial locations were numbered in the burial register, but inconsistently and unsystematically. The register represents only a portion of the individuals buried at the county grounds and the correspondence between burial numbers listed in the register and actual mapped burial locations remains unknown.

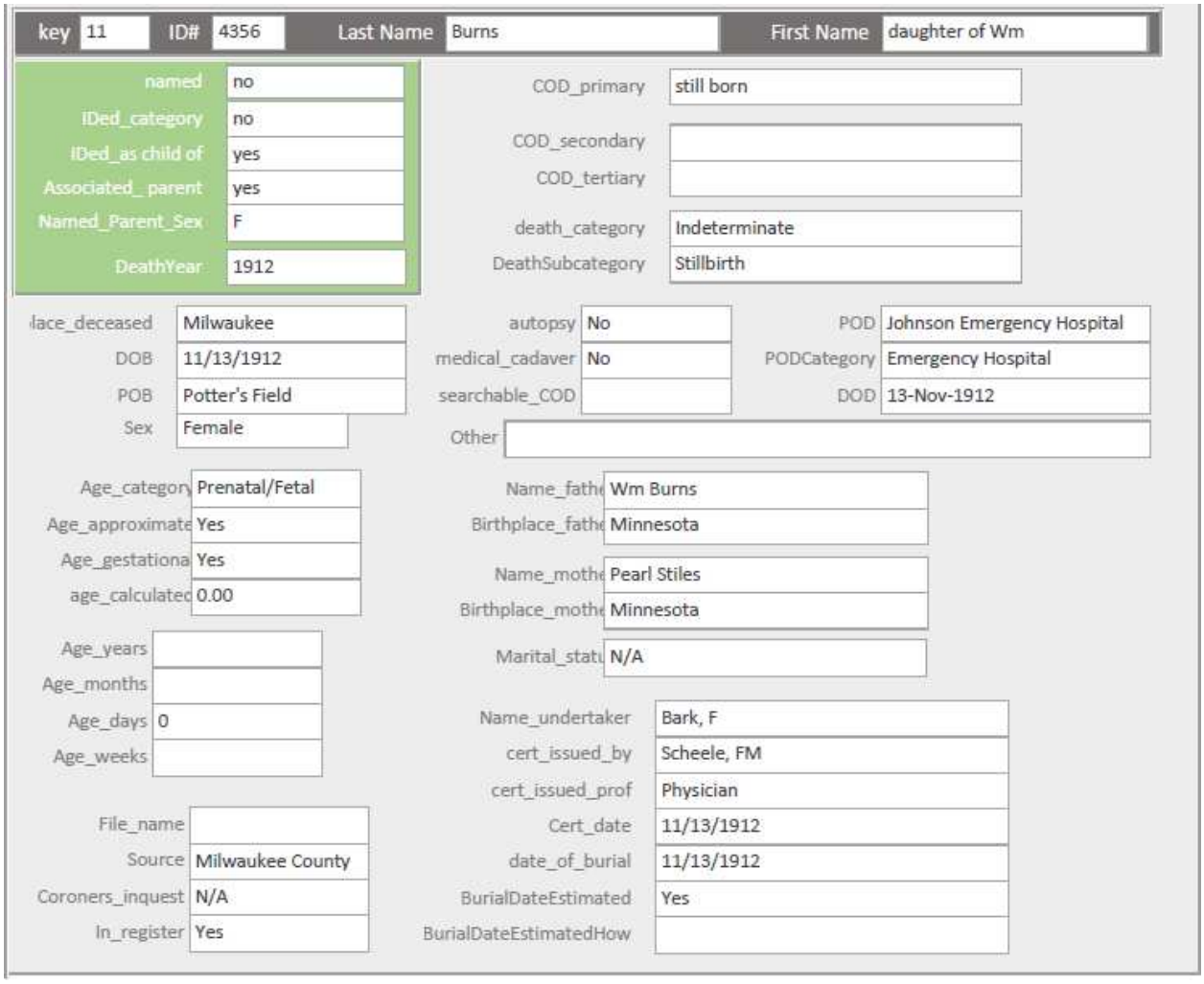

Figure 3.3 Milwaukee County Death Certificate Access Form (modified from Drew 2018).

Documented Age Categories

MCDC and MCPFC Register of Burial entries were identified through different means. First and last names were recorded when available; however, unknown remains were regularly documented using age-related descriptors such as “unknown baby” or “unknown male infant”. In some cases, an age-related term was used in correlation with a last name, such as “female foetus Sontag”. Other instances, like “child of Elsie Schwartz”, identified the child through its relationship with a parent.

The main focus of the documentary research was to correlate particular age categories with how individuals were identified in the Milwaukee County Death Certificates and Register of Burial. To demonstrate this, I determined whether subjects were recorded with a first and last name. I also listed whether or not they were identified by an age-related descriptor in lieu of a name, such “foetus”, “babe”, “baby”, or other age-dependent terms. Last, it was determined whether or not their identity was defined relative to a parent. This was done by asking the following three questions: Was the subject described as “child of”, “son of”, “daughter of”, or another similar identifier? Was the child listed in association with an adult? And, if a parent was named, was it the father or mother?

Introduction to Osteological Material

First and foremost, the osteological research is an early effort to combine the results of subadult analyses across both the 1991-1992 and 2013 collections, focusing on individuals below one year of age at time of death. The issues associated with the implementation of age estimation methods for a large population exhibiting varying degrees of preservation, while also presenting cohesive, comparable results across two skeletal collections, are reviewed below. The research group includes remains with estimated ages at or below one postnatal year from both the 2013 collection and 1991-1992 collection. While both collections were recovered from the same cemetery, their post-excavation histories vary, resulting in one collection in which all individuals have an estimated age-at-death, and one collection in which some, though not all, individuals have an estimated age-at-death. Preservation conditions in the two areas excavated were also varied, with a disproportionate impact on the smaller, more fragile skeletal elements.

Complete analyses of all 2013-recovered subadult, adult, mixed, and commingled burials were conducted in 2014 and results were published in *Nine for Mortal Men Doomed to Die* (Richards et al. 2016). No comparable full-scale osteological study of all burials has been conducted to-date for the 1991-1992 excavations, though the work is in progress. The skeletal analysis of the individuals recovered in 2013 set the standard for how subsequent analyses were to be conducted and documented, and as such, this chapter primarily describes the standard operating procedure for subadult age estimation of the 2013-collection. Modifications of these methods and their application to the ongoing investigations of the 1991-1992 remains are outlined as well.

1991-1992 Excavation

Great Lakes Archaeological Research Center, Inc (GLARC) excavations began in September 1991 and continued through December 14, 1991. The second season of excavation ran between March 17, 1992 and ended November 18, 1992 (Richards and Kastell 1993:60). Burial pits and coffins were initially identified by stripping overburden with a backhoe that was equipped with a toothless bucket. Careful stripping removed as little as one inch of soil at a time (Richards and Kastell 1993:55). Burials were located under 2-20 meters of fill from previous landscaping and construction projects (Richards and Kastell 1993:56). Subadults were recovered through on-site waterscreening, a process that varied from the hand excavation of the adult burials. Coffin matrix of all subadults was removed and waterscreened and then remains were allowed to dry before they were placed in bags for transport. Pit fills were checked for secondary individuals after the matrix was removed.

GLARC, the Cultural Resource Management group that was contracted to carry out the 1991-1992 excavation, did not have sufficient resources to perform osteological analyses of the recovered individuals as required by the Wisconsin Historical Society. Marquette University was willing to take on the task of housing and documenting the collection while GLARC coordinated the rest of the archaeological reporting. Fast forward seventeen years and the state had still not received a complete report of the individuals recovered from the 1991-1992 excavation. UWM Anthropology faculty member Dr. Patricia Richards petitioned the state historical society for final disposition of the remains, in part to fulfill the duties that had been neglected by Marquette. In 2008, after being referenced and used in numerous conference papers and research projects, but never fully documented in a consistent manner, the remains and all associated materials were transferred to UWM's Anthropology Department. An initial inventory of all individuals was conducted in 2008-2010, during which I had my first experience working with the cemetery collection as an undergraduate student at UWM, under the supervision of Patricia Richards and Emily Epstein.

The inventory process collected basic information, including levels of preservation, presence/absence of elements, and whether the individual was subadult or adult. For each individual, we removed the entire contents of each bag, including skeletal elements, fragments, and sediment. Provenience information on the original bags was transferred to new records during inventory and repackaging at the UWM-ARL. In July 2017, Dr. Patricia Richards received Research Growth Initiative Award 101X357 from the UWM Graduate School. The Research Growth Initiative Award (RGI) funded a small team of UWM graduate, undergraduate, and post-doctoral personnel to initiate analysis of burials from the 1991-1992 collection.

2013 Excavation

The University of Wisconsin-Milwaukee Historic Resources Management Services (UWM-HRMS), now UWM-Cultural Resources Management (UWM-CRM) conducted excavations between June 10, 2013 and September 6, 2013, prior to the construction of the Froedtert Hospital Center for Advanced Care (Richards et al. 2016). A minimum of 665 individuals were recovered from the MCPFC during the 2013 excavations. At least 381 adults, based on estimated skeletal age-at-death of 20 years or above, and 284 subadults were recovered. Documentation of juvenile excavations was recorded on juvenile-specific forms. Burials were hand excavated and the matrix of all subadult coffins were collected for flotation at the UWM-ARL (Richards et al. 2016:41).

Individuals recovered during the 2013 field session were stabilized directly after excavation and received a comprehensive osteological analysis at the UWM-ARL by a team of UWM-CRM staff, graduate students, and faculty. Subsequent skeletal analysis of all 665 individuals and, at minimum an additional 166 individuals from 50 commingled burials, were completed at the University of Wisconsin-Milwaukee Archaeological Research Laboratory (UWM-ARL) and published in the UWM-Cultural Resources Management (UWM-CRM) report entitled, *Nine for Mortal Men Doomed to Die: The Archaeology and Osteology of the 2013 Milwaukee County Poor Farm Cemetery Project (Froedtert Tract -47MI0527)* (Richards et al. 2016). Final disposition is currently unknown for the 2013 collection and the individuals, along with all archaeological records, maps, and photographs were currently housed at UWM at the time of this writing.

2013 Collection Age Estimation Protocols

The methods of subadult analysis for the 2013 collection are presented first because that collection was the first to be analyzed completely. Methods established for the 2013 collection were, for the most part, also applied to the 1991-1992 collection and will be addressed later in the chapter. Basic skeletal profiles were documented for all subadults recovered in 2013 and included age, pathology, taphonomy, and inventory of recovered elements. The subadult age estimation process was performed prior to the inventorying of each individual and consisted of three assessments: fusion, dental development, and osteometrics. An independent set of mean age and age ranges were produced for each method. Some updates were applied to the age estimation methods for the more recent osteological analysis and these are outlined below. A small team of analysts worked to complete the subadult osteological analysis of the 2013 collection under the supervision of Dr. Emily Epstein. The entire team was trained on the standardized procedures for subadult laboratory analysis and followed the manual of guidelines written by Epstein. I conducted analyses for 107 of the 284 subadults. Chris Hamlin, Eric Burant, Jessica Skinner, and David Strange also contributed to the analyses of the youngest subadults.

The two goals of the osteological analysis of the 2013 individual and commingled burials were as follows: “The first is to document the demographic parameters, stature, pathologies, and other physical conditions of these individuals. Our second goal is to provide the data necessary to preserve and/or recover the individuality of as many people recovered as a result of the 2013 excavations as is possible” (Richards et al. 2016:166).

In all cases, a single analyst was assigned to the analysis and inventory of a burial and was responsible for the completion of all assessments and repackaging. Both visual and quantitative inventories were generated. The visual inventory was recorded on one of four skeletal outline forms, each containing an outline drawing that represented a different age group (Prenatal to 2.49 years, Early Childhood, Late Childhood, or Adolescent) (Richards et al. 2016).

The age estimation process consisted of three distinct assessments (Table 3.2). The first assessment was referred to as "Fusion." It included observations of primary element development and epiphyseal fusion following Scheuer and Black (Scheuer and Black 2000) and Schaefer (2009). The second, dental development, included methods outlined by Lysell et al. (1962) as described in Scheuer and Black (2000), Moorrees et al. (1963a, 1963b), Sunderland et al. (1987), and Ubelaker (1989). The third was an osteometric assessment, following the standards presented by Fazekas and Kósa (1978) and Maresh (1970). Figure 3.4 depicts the age estimation methods implemented during the 2013 subadult analysis. Arrows reflect the age range to which the methods are applicable within the fetal, perinate, and infant periods. Note that no osteometric methods were applicable for the period between 40 fetal weeks and 1.5 postnatal months.

Table 3.2 2013 Age estimation methods.

Method Type	References
Fusion	Scheuer and Black (2000) and Schaefer et al. (2009)
Dental Development	Lysell et al. (1962, as described in Scheuer and Black 2000), Moorrees et al. (1963a, 1963b), Sunderland et al. (1987), and Ubelaker (1989)
Osteometric	Fazekas and Kósa (1978) and Maresh (1970)

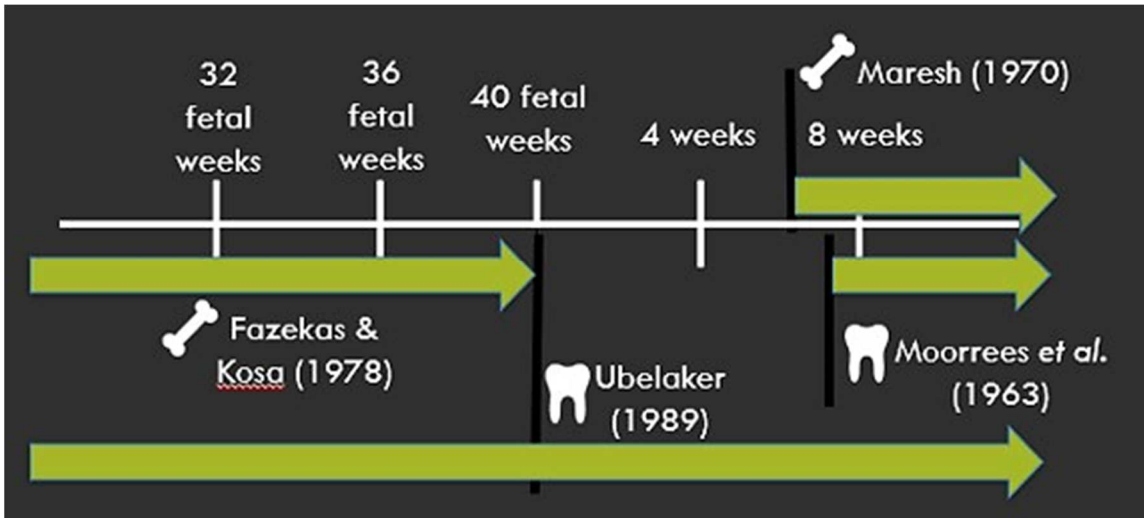

Figure 3.4 2013 age estimation methods applicable to the perinatal period. Arrows reflect the age ranges that the methods cover within the fetal, perinatal, and infant period.

Fusion

Many aging methods are only applicable to individuals who fall within particular ranges of development. For instance, the osteometric standards of Fazekas and Kósa (1978) apply only to skeletons at or below 40 in utero weeks. The first step of the 2013 age estimation protocol grouped subadults into broad age groups based on observations of development and fusion. This initial step identified which methods of age estimation would be most appropriate and limited additional observations to only those appropriate for that particular broad age group.

The fusion age first confirmed that the individual fit the subadult category, i.e. had an estimated age below 20 years at death. Subadults were then classified into one of four broad age groups: prenatal to 2.5 years, early childhood (2.5-5.9 years), late childhood (6-12.9 years), and adolescent (13-19.9 years).

The fusion methods evaluated primary element development and epiphyseal fusion of 64 specific joints throughout the skeleton, as outlined in Scheuer and Black (2000) and Schaefer et al. (2009) (Richards et al. 2016). Degree of development and/or fusion were assigned to epiphyseal centers spanning between 20 fetal weeks to greater than 30 years. Not all areas of development were applicable to the fetal and infant sample under consideration in this research project. Open or unfused centers were categorized as "O". Centers in which fusion was underway, but epiphyseal plates are still visible were designated "U". Completed fusion was assigned an "F". After all assessable fusion areas were observed, an age range was generated using the lowest age assigned an "O" or "U" and the highest age assigned an "F". In instances where fusion ages were sex-specific, the average of the listed male and female reference data was applied (Richards et al. 2016:46).

Osteometrics

Osteometric growth was measured according to Fazekas and Kósa (1978) for fetal and neonatal remains and Maresh (1970) for postnatal ages. Fazekas and Kósa (1978) presents a thorough description of the human fetal skeleton from a medicolegal perspective. The text provides detailed osteometric analyses for most measurable elements of the fetal skeleton and also generalizes observations for medicolegal authorities without previous experience

identifying or analyzing fetal remains. Fazekas and Kósa derived standards from a forensic sample of 138 fetal skeletons with ages between the 3rd to 10th lunar month of pregnancy.

To develop fetal osteometric standards, Fazekas and Kósa divided their forensic sample by sex and further split into groups in age increments of 0.5 lunar months. The mean measurement values for each age group were used in their statistical analysis. Ages were based on body length rather than duration of pregnancy since the date of conception was not known in every case and previous research found Haase's rule to be a highly accurate predictor of age from body length (Fazekas and Kósa 1978:30). Body length was measured prior to autopsy. Bodies were then macerated over a period of many days and dried at room temperature. Measurements were made to the 0.1mm using sliding calipers. Fazekas and Kósa (1978) acknowledged that there is a general range of +/- 10 days deviation for the duration of pregnancy. Maresh's (1970) standards were applied to long bones that surpassed the maximum prenatal measurements. These standards were derived from a longitudinal study conducted on children beginning at the age of three months and continuing through adolescence (Maresh 1970; Scheuer and Black 2000). Radiographs of the radius, ulna, humerus, tibia, fibula, and femur were taken at regular intervals at the University of Colorado. Because the results were divided by sex, the mean values of male and female measurements at each age interval were averaged for MCPFCP application to the 2013 collection.

Complete elements were measured to the dimensions depicted in Schaefer, Black, and Scheuer (2009). Sliding calipers were used for all measurements except long bone length, which was measured with a digital miniature osteometric board. Left elements were measured unless damaged or incomplete, in which case, if available, the right side

was used. The overall estimated osteometric age range was generated by combining the highest and lowest age ranges corresponding to the measurements observed. Individuals were assigned one of the following categories based on the age range: fetus (9-40 fetal weeks), neonate (birth-4 weeks), or infant (4.1-51.9 weeks) (Table 3.3).

Table 3.3 Age categories and ranges for 2013 collection subadult analysis.

Category	**Age range**
Fetus	9-40 fetal weeks
Neonate	0-4 postnatal weeks
Infant	4.1-51.9 postnatal weeks

Dental

The following methods were used to assess and document dental development among the 2013 subadult sample that fell within the age limits of this research: Moorrees et al. (1963a, 1963b), Sunderland et al. (1987), and Ubelaker (1989). The combination of methods covered dental development from deciduous mineralization to permanent root completion.

Moorrees et al. (1963a) is based on a longitudinal study by the Fels Research Institute in Yellow Spring, Ohio that chronicled the dental development of local patients through radiographs. From the radiographs, 14 stages of dental development were generated to assess mineralization of the crowns, roots, and apex of the mandibular deciduous canine and first and second molar. Each tooth was assessed independently. This method had no corresponding stages of development for individuals under 0.15 years because the standards were based on living patients, making it inapplicable to fetal remains. However, the stages have been co-opted by other researchers, including Charles and Epstein (2015), who applied the stages to a sample of deciduous teeth from individuals recovered from the MCPFC in 2013. A more broadly

recognized system is the London Atlas of Human Tooth Development (Adams et al. 2019; AlQahtani 2009; AlQahtani et al. 2010; AlQahtani et al. 2014; Pavlović et al. 2017). The London Atlas updates the Moorrees et al. (1963 a, b) stages of crown and root development and resorption. Unlike Moorrees et al. (1963 a, b), the London Atlas is applicable to all deciduous and permanent teeth.

The presence or absence of mineralized deciduous dentition was recorded for each individual. Sunderland et al. (1987) identifies the 15th percentile in weeks post-fertilization and the range for the mineralization of each deciduous tooth type. Sunderland et al. (1987) age standards were assigned to dentition and the oldest assigned age was recorded.

Ubelaker (1989) graphically represents levels of mineralization, development, and emergence of teeth at incremental ages. Ubelaker compiled data from numerous studies of American Indian and other "non-white" populations to create a chart of dental development from 5 months in utero through 35 years for archaeological individuals of unknown sex. The chart represented full sets of dentition rather than individual tooth types. Each set of teeth depicted the average degree of growth and development associated with incremental age ranges. Ubelaker (1989) notes that age ranges do not actually represent standard deviations because the data came from multiple sources. Rather, the age ranges cover most of the variation for each stage (Klepinger 2006). Klepinger (2006) also reminds analysts that Ubelaker's dental chart is most applicable to intact and in situ teeth and that age intervals should be expanded when applied to loose teeth, though "by how much is a judgment call" (Klepinger 2006:45).

Recently, Primeau et al. (2016) tested the applicability of this approach to a medieval Danish population and found that age estimates using Ubelaker (1989) were not substantially different from estimates generated using a method that was developed specifically for modern Scandinavian children (Haavikko 1970, 1974; Primeau et al. 2016:138). When tested on modern clinical material as well as remains of known age, the Ubelaker dental chart had an accuracy of -0.8 years (standard deviation=1.27) (AlQahtani et al. 2014). MCPFC remains with teeth preserved in dental crypts, either erupted or not erupted (Richards et al. 2016:46) were compared with the Ubelaker (1989) chart to determine which stage the recovered set of teeth resembled. Four stages of development were applicable for the age range of this sample: 5 months in utero (±2 months), seven months in utero (±2 months), birth (±2 months), six months (±2 months), and nine months (±3 months). Rather than assessing each tooth separately, individuals were assigned an age range based on which stage most closely reflected the total set of teeth recovered.

After the completion of all dental age assessments, an overall estimated dental age range was calculated by combining the lowest and highest age ranges generated from the individual methods. Individuals were assigned one of the following categories based on the age range: fetus (9-40 fetal weeks), neonate (birth-28 days), or infant (29 days-11.9 months).

Dataset

Only single burials were included in the dataset. Due to differences in project protocols between the collections, the summary attributed ages that were used to build the combined dataset vary slightly. Burials recovered in 2013 include all individuals with MCPFCP age

estimates of one postnatal year or less. I reviewed the age ranges estimated for every individual based on dental development and osteometrics and recategorized them (from fetal, neonate, or infant) to fit the new categories (fetal, perinate, or infant) based on age. Each was also assigned an attributed age category, for a total of three separate age determinations. The dental age category by default became the attributed age category. Burials that had open-ended age ranges, for example, “greater than or equal to 30 fetal weeks”, were categorized as indeterminate and removed from the sample. Likewise, any individuals with ages above the Infant range were removed.

1991-1992 Collection Age Estimation Protocols

Analysis began in 2017 and is ongoing for subadult burials from the 1991-1992 collections. Methods for subadult age estimation were streamlined in 2017 for the osteological analysis of the 1991-1992 collection**.** This was mainly accomplished by collapsing all fusion, dental, and osteometric aging methods into a single form that was applicable to all subadults. Dental and osteometric aging methods could each be performed independent of the results of an initial fusion assessment.

Fusion

Additional adjustments were made to the process for determining fusion age range and mean age in order to more accurately reflect the level of development observed among remains. For the 1991-1992 analysis, the same “O”, “U”, or “F” stages were recorded. However, it is understood that if physes are open, the individual is under the age at which that site fuses. All observations of open, or unfused sites, therefore, result in an upper age limit for the fusion

age range. Ossification centers that have begun fusing but were incomplete had not reached the age at which fusion is complete and could also define the upper age limit. A fused physis would indicate that the individual reached, at minimum, the earliest age of fusion, and a lower age limit can be assigned. To create a fusion age range, the highest upper age range and the lowest lower age range were used.

Osteometrics

In addition to the modification of the fusion age range, a handful of osteometric measurements were removed from the assessment because experiences during the 2013 analysis found them to be unreliable or rarely complete enough for accurate measurement. Postnatal osteometric standards were replaced with quadratic regression formulas (Primeau et al. 2016) (Figure 3.5).

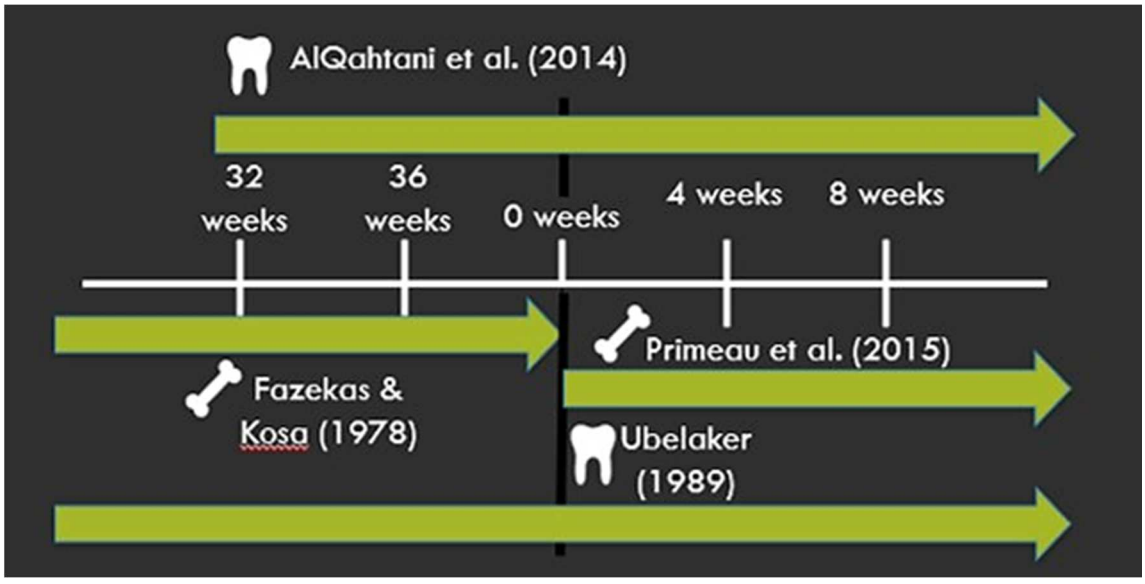

Figure 3.5 1991-1992 age estimation methods applicable to the perinatal period. Arrows reflect the age ranges that the methods cover within the fetal, perinatal, and infant period.

Dental

Perhaps the most important modification to the 1991-1992 age methods was the replacement of Moorrees et al. (1963a) dental age stages in favor of those in the London Atlas. This broadened the applicability of the dental development stages for this research from the deciduous mandibular canine and first and second molar to all deciduous maxillary and mandibular teeth and extended this type of single tooth assessment into the fetal period.

The attributed age categories were assigned for 1991-1992 based on age range and mean age. Observations were not correlated with age standards until all fusion, osteometric, and dental observations were completed. Each type of method (fusion, osteometric, and dental) received its own age range and mean age prior to the estimation of an attributed age range and mean age. The dental age range and mean age were given preference over other methods when available for the determination. If no dental ages could be estimated, the osteometric age was used. Age categories assigned based on each method are listed in Table 3.4.

Table 3.4 Age categories and associated age ranges.

Age category	**Age range**
Fetal	9 to 31.9 fetal weeks
Perinate	32 fetal weeks to 1.9 postnatal weeks
Infant	2 to 51.9 postnatal weeks

Dataset

My dataset was drawn from the age estimations produced by the subadult analysis teams. Although analysis of the 1991-1992 burials is incomplete, individuals with estimated ages from that collection were included in the dataset. Subadult analysis carried out under the RGI grant began with burials that numbered in the 6000s. The 6000 block of subadult burials is

located in the southwest portion of the cemetery, adjacent to the eastern boundaries of the 2013 excavations. This area was a logical place to begin, as the 6000s contained the lowest subadult burial numbers. From there we analysis of burials continued numerically. Burial numbers with evidence of multiple individuals in a single burial were put aside for analysis at a later date. About halfway through the funded analysis period, we transitioned to a different area of the cemetery: the 9000s. The 9000s were recovered from the northeast section of the cemetery and include the easternmost subadult burials within the cemetery boundaries. This area was chosen over others because of its recorded preservation rates and because it is spatially chronologically-distinct from the southwest section that contains 6000s and the subadult burials recovered in 2013.

I was the primary analyst and supervisor of the 1991-1992 subadult analyses. I adapted a new subadult osteology manual based on the methods developed in 2013 by Emily Epstein. Jessica Skinner, a colleague who had also previously worked with the 2013 subadults, also contributed to the subadult analyses. Together we completed analysis of 362 subadults, including 244 with estimated ages at or below one postnatal year.

Material Culture

Material culture data for the 2013 collection was derived from excavation and material culture records conducted by UWM-HRMS (UWM-CRM) and published in Richards et al. (2016). Material culture data from 1991-1992 was derived from GLARC excavation and inventory records housed at the UWM-ARL. Material culture recovered during the 2013 excavations was divided into two major categories: grave goods and grave inclusions. Grave goods were further

categorized into clothing and personal items. Clothing included fasteners, buttons, safety pins, fabric, footwear, and belts. Personal items included the subcategories of adornment, pocket tools, ritual items, coins, indulgences, and medical/health items (Richards et al. 2016:70).

For much of the material culture recovered from the MCPFC, the question was whether it should be considered a grave good or burial inclusion. A grave good would suggest that it was intentionally placed with the body and carried some cultural significance for either the deceased or their mourners. Yet, "Those interred at the MCPFC are unlikely, for the most part, to have had mourners" (Richards et al. 2016:99). Conversely, grave inclusions would "indirectly relate to the interred, but are associated with some aspect or behavior of the Milwaukee County Institutions, the Milwaukee County Coroner's Office, or one of the Milwaukee area medical schools" (Richards et al. 2016:101). The inclusion category applies to both discarded items and accidental inclusions. A third, "utilitarian" category included material culture that could not be confidently assigned to either the grave good or burial inclusion classes.

The four classes of material culture used in this research are based on those established for the MCPFCP. Each burial was defined according to the presence or absence of the following material culture classes: personal items, clothing (not including safety pins), safety pins, and inclusions. Personal items, inclusions, and clothing (minus the safety pins) contained the same subcategories and items as the project definition of those classes of material culture. Safety pins were isolated in their own category due to the very specific purpose that they served for the young individuals.

Basic statistics were performed in R. Statistical significance between age categories and each material culture category was determined using chi-square tests. Cramer's V was calculated to determine the effect size. The relative proportion within an age group of burials recovered with a material culture category was compared to the relative proportions of the other age groups. The number of different types of material culture recovered within a single burial was compared across age groups.

Chapter 4 Contexts of Pregnancy and Perinatal Death in Milwaukee County

"…we need to attend to the historical processes that, through discourse, position subjects and produce their experiences. It is not individuals who have experience, but subjects who are constituted through experience" (Scott 1991:779).

Introduction

This chapter provides a context for perinatal death in Milwaukee County in the late 1800s and early 1900s. To do so, historical background is provided on those involved in assigning value to the dead, including medical professionals and coroners. The personal narratives of those who discarded the remains that ultimately were buried at the MCPFC are examined.

The Medical Takeover of Childbirth

During the 19th and early 20th century in the United States, physicians rose in authority, and their ability to shape the public's conceptions of personhood increased accordingly (Banks 1999). Physicians delegitimated their competitors, primarily female midwives, through the promotion of scientifically-supported medical methods (Arney 1982; Borst 1989; Costello 2006; Noyes 1912; Williams 1910). Meanwhile debates raged over the responsibilities that physicians had for pregnant women relative to the unborn (Williams 1910). Historical archaeology has an advantage over other fields of archaeology because, in addition to the archaeological record, there is written documentation of participant voices from the period of study. Medical textbooks, journals, and medical school bulletins can be read critically to identify meaning systems that valued some bodies over others and legitimated medical authority over women.

The evidence that we have, in the form of an excavated portion of a cemetery population, is far removed from the actual interactions that resulted in mortality and final disposition within the MCPFC. Contextualization of fetal burials promotes dialogue regarding the power that physicians had in assigning value to the lives of patients, how those classifications influenced which practices they performed and endorsed as a professional group, and how they affected women's access to healthcare.

Prior to the 18th century, childbirth in the United States traditionally occurred at home with midwives who relied upon mentorship and their own experiences to manage birth and postnatal care (Borst 1989). By the 18th century however, some women began calling upon male physicians for assistance during labor (Leavitt 1983). Midwife attendance had advantages over physician-assisted birth, including shared gender experiences, lower prices, and, particularly among immigrant populations, common language and birth customs (Borst 1989; Dye 1987; Noyes 1912). When problems arose during labor or delivery, midwives could defer to physicians who were trained in more aggressive forms of interventions, including tool use and surgery. This led to a distinction between normal and difficult childbirths, with the assumption that all births were normal and could be attended by midwives until proven otherwise (Arney 1982). Over time, people were led to believe that physicians could fulfill promises of reduced suffering and threats to life that midwives could not and, by the end of the 18th century, doctors were invited to attend births alongside women attendants within the home.

The late-1800s saw a rise in the professionalization of medicine and, as the male-dominated field gained influence, midwives decreased in popularity among the middle and upper classes. Expectant mothers were especially drawn to promises of quicker, less painful

childbirth attended by doctors who were formally trained in scientifically-validated obstetric methods (Leavitt 1983). Physicians gained jurisdiction over childbirth by framing it as a pathological condition in which any number of things could go wrong about which they had the knowledge and tools necessary to recognize potential problems and address them appropriately (Arney 1982).

Physicians were seen as more knowledgeable than midwives, with access to medical technology to handle birth-related complications. For those who could afford it, physicians offered greater security and they became more desirable among women who were moving up in status (Leavitt 1983). One sought-after perk that physicians could provide that set them apart from midwives was anesthesia, which became available in the mid-19th century for use during birth. Ether was introduced in 1842 and, similar to delivery instruments, required trained medical personnel to attend birth (Arney 1982). Increasingly, family and friends were pushed out of the delivery area, which was still situated within the home. Formal training, along with the use of drugs and instruments, were desired by patients. Birth attendees and patients alike expected physicians to take the lead throughout the birthing process, even when no intervention was necessary (Leavitt 1983).

Midwives continued to be popular among the working class, though they were increasingly seen as roadblocks to the advancement of medical knowledge and the burgeoning medical control over childbirth. Midwifery flourished in Wisconsin; between 1870 and 1920, there were almost 900 midwives in four counties alone (Borst 1989). The state benefited from an influx of immigrants from central and southern Europe who had obtained formal midwifery training in their home countries. While the practitioners did not draw well-paying customers

away from physicians, midwives did provide care for women who would otherwise have served the practical needs of medical students. Medical schools offered obstetric services to the poor, and in turn, were able to attract prospective students with a consistent supply of patients in whose treatment clinical experience could be gained. Students of Milwaukee's medical schools had clinical opportunities in local hospitals and dispensaries affiliated with the MCPFC (WI College of Physicians and Surgeons 1912). The Milwaukee Medical College and Wisconsin College of Physicians and Surgeons also provided burial for unclaimed bodies after they were used as medical cadavers. A state statute (Ch 406, 1871) gave officials in possession of unclaimed bodies permission to notify interested medical establishments, who could request the body for anatomical purposes, provided that the medical college paid for transportation and proper burial.

That their patients were generally poor and had few other options for medical care cannot be overlooked. The subjects' value rested in the availability of their bodies to others both before and after death. Regardless of institutional affiliation, physicians and students could justify spending less time with poor patients because they were receiving little to no pay for their services. Attendants in some cases may have rushed labor or depended too readily on instruments to hasten delivery (Leavitt 1986). By 1912, some obstetricians were publicizing the fact that improperly trained students and professionals relied too heavily on instruments and intervening measures for delivery and these misguided practitioners had the potential to cause more damage than the midwives who were typically vilified by the profession (Arney 1982; Williams 1912).

Charitable institutions also addressed health issues such as infant and maternal mortality in the Milwaukee community and offered aid to the deserving poor. The Milwaukee Maternity Hospital, for example, was founded in 1906 and offered prenatal care and childbirth services to poor women both in the hospital and through home visits (Charaus 2010:32; *Milwaukee Leader* 2 January 1915). The Maternity Hospital was also open around the clock for emergency cases. This contrasts with the services offered by the Milwaukee County Hospital on site at the MCIG, which required admittance through the County Poor Office, which was not open at night (Charaus 2010:32).

Although physicians distinguished themselves through the implementation of specialized tools, the degree of medical intervention necessary during birth was highly contested among professionals. Destructive obstetric methods such as the embryotomy and craniotomy fragmented the body of the unborn to expedite birth during prolonged or constricted labor. Embryotomy and craniotomy saved lives at a time when antiseptic measures were not standard and Caesarean sections posed a high risk of puerperal infection. The destruction of the fetus made embryotomies and craniotomies controversial however, and, along with abortion, these procedures were implicated in "the decay of the American family" (Harrington 1904:241).

The medical community impacted how fetal life was perceived through active policing and punishment of criminal abortion practitioners. The Wisconsin Medical Society (WMS) took an official stand on abortion as early as 1867. WMS mandated that any member found guilty of nontherapeutic abortions would lose their membership. They later defended that decision with

claims of both the immorality of the practice and associated health hazards (Numbers and Leavitt 1981).

Professional journals published the names of practitioners involved in criminal abortion. The Wisconsin Medical Journal, for example, outlined the cases of Drs. Schnittker and Schaefer, who were convicted by a coroner's jury of performing a criminal abortion that led to the woman dying of peritonitis. Dr. Schnittker had been charged with manslaughter in a previous case and was fined $250 for performing an abortion (State Medical Society of Wisconsin 1906:86). Dr. Schaefer had previously unsuccessfully applied to the Wisconsin State Board for a medical license and was found to be holding diplomas from two fake medical schools (State Medical Society of Wisconsin 1906:50).

A lively discussion was published in a 1904 volume of the Wisconsin Medical Journal regarding abortion and craniotomy. Dr. T.L. Harrington initiated the conversation with the firm belief that abortion was never justifiable.

> "These facts are horrible, but they are too frequent and too true; often, very often, must all the eloquence and all the authority of the practitioner be employed; often he must, as it were, grasp the conscience of his weak and erring patient, and let her know in language not to be misunderstood, that she is responsible to her Creator for the life of the being within her." (Harrington 1904:245).

Drs. J.J. McGovern and G.J. Kaumheimer were among the many Milwaukee physicians who advocated for women in contrast to the uncompromising condemnation of abortion evinced by Harrington. McGovern noted that it is indeed a duty in some cases to perform abortions to save the mother and that the mother's life is of greater value, given how few conceptions actually result in viable children who survive beyond their first year of life. "When

we consider the sacrifice made by the mother, the important position in society occupied by her, and all of the dangers incident to child-bearing, is it too much to say that the life of the mother is to be considered before the life of the child?" (Harrington 1904:248).

The editors of the Wisconsin Medical Journal also included articles published by national organizations like the American Medical Association (AMA). One publication was a summary of the Chairman's address before the Section on Obstetrics and Diseases of Women of the AMA. In the article, Dr. C.S. Bacon defended "the legal responsibility of the physician for the child in utero," arguing that the physical condition of the mother must be in danger before an abortion is permissible, and that physicians should have the legal right to perform an abortion on an endangered woman after conferring with another physician. However, Bacon also prompts physicians to weigh their moral responsibilities against legal rights and argues that physicians must not give in to the requests of family members. "The frequency and boldness with which the right to decide the sacrifice of the fetus is claimed by the father or relatives of the mother must be firmly resisted." (Wisconsin Medical Journal October 1907:103).

Locally, Marquette University became affiliated with the Milwaukee Medical College in 1907. The medical school's board of trustees maintained authority over the Milwaukee Medical College, with the caveat that it must uphold all the ethical and educational principles of Marquette University, a Jesuit institution (Engbring 1991:32). Among the topics that faculty were banned from teaching and practicing were abortion and craniotomy (Engbring 1991:9). The ongoing debate was chronicled publicly in local newspapers and culminated in the spring of 1920 with the resignation of four full-time faculty and 12 clinical faculty members (Engbring 1991:32-33; Milwaukee Sentinel 7 May 1920; Milwaukee Leader 22 May 1920). The 16 faculty

members signaled through their resignation that they placed the lives of women above the indeterminate lives of the unborn.

Coroner, Personal, and Family Conceptions of Personhood

Historic documents such as death certificates and coroner's inquests provide insight into medical, legal, and personal conceptions of perinatal personhood at the turn-of-the-century. Inquests also occasionally included interviews with parents. These personal narratives, while orchestrated by legal authorities, are glimpses into the lives of those who the MCPFC succeeding in marginalizing, deeming them unnatural, and to be erased from the history of Milwaukee. For instance, the coroner's inquest into the death of Philomena Widman's child, includes testimony of medical officials, local witnesses, and Widman herself. It also describes the consequences that Widman suffered as a result of denied care, including bodily harm and accusations of infanticide.

Philomena Widman, a 29-year old German immigrant who worked as a domestic in Chicago, fled to Milwaukee in 1919 after her employer raped her. Widman was just over two months pregnant when she visited a Milwaukee doctor to request an abortion. The physician, George H. Dickinson, MD, explained in a later MCCI interview that he denied her an abortion. Instead, he offered to help her carry the pregnancy to term and deliver at a local maternity hospital. Ashamed, not wanting others to know about the pregnancy, and without any family in the United States, Widman declined Dickinson's offer. She chose to conceal her pregnancy and find work in Milwaukee. Widman testified that she went into labor alone in her room and according to her own testimony, disposed of the neonate in the garbage, unsure of whether it had survived birth or not because she lost consciousness after delivery.

The discovery of the unwrapped body at the bottom of a trash can by a garbage man prompted a medicolegal investigation into the death of the child. Meanwhile, Dr. Dickinson received an unknown visitor who was heavily hemorrhaging. The physician did not recognize her as the same person who had previously sought him out for an abortion, that is until he realized that the woman was in such a poor condition because she had just given birth. He took her to Trinity Hospital where the $26 that she had to her name would secure her a week of treatment.

Investigators eventually connected Widman with the disposed body. Authorities conducted a coroner's inquest and the child's death was ultimately declared a homicide, with the primary cause of death identified as suffocation-asphyxia and a secondary cause of death faulty delivery. After investigation at the Milwaukee County Coroner's Office, the remains of the newborn received the same mortuary treatment that most bodies turned over to the coroner received-a pauper's burial at the MCPFC, complete with a simple wooden coffin and wooden grave marker with a metal number placard granted at the expense of the county.

Widman's experience was by no means unique. MCCIs from the early 20th century reflect the frequency with which the bodies of fetuses, stillbirths, and neonates were discovered in the community. Eileen Murphy (2011:69) asks how a woman who just experienced birth would be able to coordinate a funeral or other form of disposal without the involvement of others. Widman was both alone and, based on the coroner's inquest, had limited financial means to secure postnatal care for herself, let alone to find the means of burying the remains of a child who might or might not have survived birth. It is interesting to

note that the Coroner's Inquest for the child of Rose Derra also enumerated the amount of money that Derra had in her name at the time of birth.

The shame and stigma of carrying an "illegitimate" child, not to mention one that was the product of non-consensual sex, led Widman to avoid medical attention and conceal the pregnancy from everyone but herself. She attempted to maintain control at a time when women were increasingly pressured to passively receive medical care (Charaus 2010:23). Despite the fact that the Widman child's remains were buried at the MCPFC, it would be difficult to assume such a narrative for a cemetery full of unmarked and seemingly uniform institutionally-provided burials.

Chapter 5 MCPFC Skeletal and Material Culture Results

Introduction

The question that informed this research project was how do material culture and biological age-at-death impact interpretations of personhood? The results of this bioarchaeological analysis are presented in this chapter. First, dental, osteometric, and attributed age estimations are compared within and across individual burials to determine whether results of different aging techniques were consistent with one another. Associations between each material culture category and age are presented. The associations between age and material culture are then applied to burials with conflicting dental and osteometric ages.

Overall Age Results

To minimize false certainties about the natal status of individuals in this population, a common term was chosen that bridges the late fetal and neonatal periods. Modern viability is defined beginning at 24 gestational weeks and full-term at between 37 and 42 gestational weeks (Crawford and McLean 2010; Scheuer and Black 2000:6). Lewis (2011) defines the perinatal period to include everything from 24 gestational weeks to one postnatal week. The age range associated with perinates for this research project was adjusted to reflect a more reasonable age of preterm viability related to the time period (Williams 1904). The upper age limit of the perinatal period was also altered to two postnatal weeks. The perinatal period was designed to distinguish between the remains that definitively were not viable (fetus), those with the potential to survive birth (perinate), and those who definitively survived birth (infant).

The category of perinate does not distinguish between preterm infants or stillbirths; rather it serves as the ambiguous intermediary between two more easily definable states.

The cemetery project has thus far emphasized a population-level perspective of age distributions, so it was critical to this work that age assessments be derived for as many individuals as possible. This made statistical analysis problematic however because methods of age estimation have varying levels of precision and accuracy. To be more transparent about the variability of age estimations that can be observed for an individual simply depending on the methods applied, each individual was given three age assessments: dental, osteometric, and attributed age. All burials received an attributed age category, derived from dental age when available; otherwise the osteometric age category was used.

A total of 456 subadults under an estimated age of one year at death were assessed. This included 241 burials from the 1991-1992 collection and 215 burials from the 2013 collection (Table 5.1). Burials with measurable dental ages included a total of 47 fetal (10%), 98 perinatal (21%), and 178 infant (39%) burials (Figure 5.1). Out of 456 subadults under the estimated age of one year, 133 (29%) could not be assessed for dental age. Comparatively, when age was estimated using osteometrics, 78 were categorized as fetal (17%), 275 were categorized as perinate (60%), and 27 were categorized as infant (6%) (Figure 5.2). The remaining 76 (17%) were indeterminate or not measurable osteometrically. The attributed age categories resulted in comparable perinatal and infant proportions. Perinatal burials made up 38% (n=173) of the attributed age categories and infants were 39% (n=179). A total of 104 burials (23%) were in the fetal attributed age category (Figures 5.3-5.4).

Table 5.1 Distribution of age categories by method.

Category	Dental	Osteo	Attributed Age
Fetal	47	78	104
Perinate	98	275	173
Infant	178	27	179
Ind/NM	133	76	0
Total	456	456	456

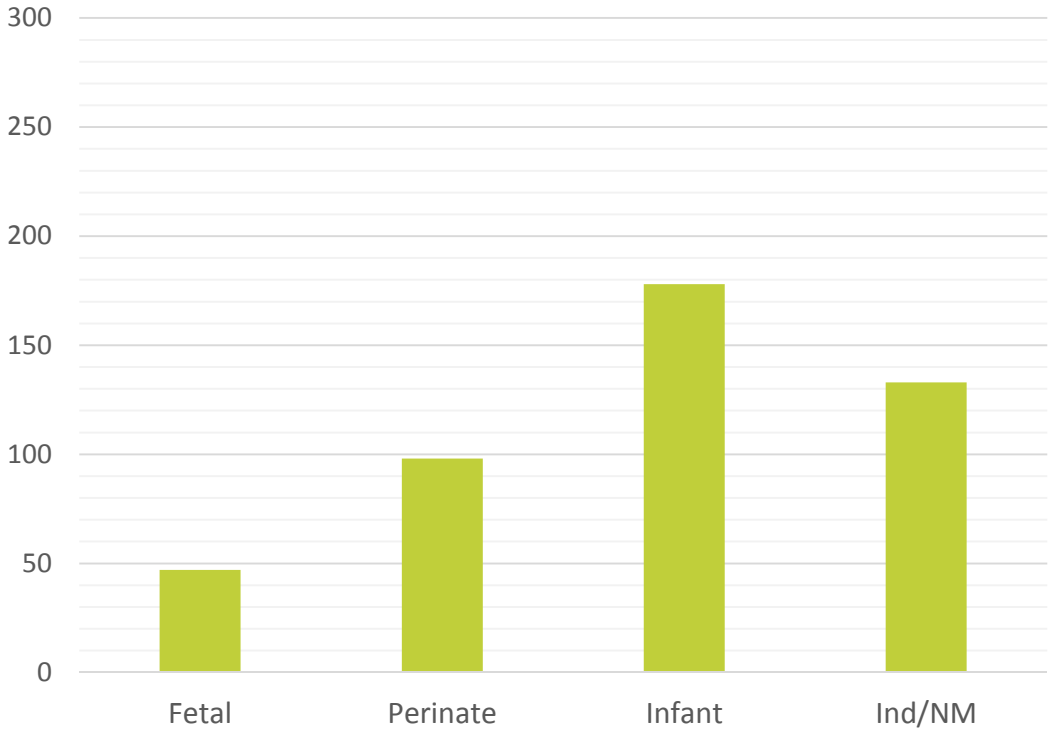

Figure 5.1 Distribution of age categories based on dental age estimation.

Tables 5.2-5.4 list the frequencies in which dental, osteometric, and attributed ages agreed with one another. Perinatal burials appeared to be the most consistently identified category between osteometric and dental methods with 82 burials having both perinatal osteometric age and perinatal dental age. However, a larger number of burials (n=91) were categorized as perinate based on osteometric results, when paired with an infant dental age. The perinatal age category based on osteometric categories included over 60% of the burials

(n=275) and was by far the largest age category across the three age types. In general, the osteometric ages skewed younger, whereas dental skewed older.

Table 5.2 Frequency of dental and osteometric age categories.

		Dental Age			
		Fetal	**Perinate**	**Infant**	**Unknown**
Osteometric Age	**Fetal**	16	3	2	57
	Perinate	27	82	91	75
	Infant	1	1	24	1
	Unknown	3	12	61	0

Table 5.3 Frequency of osteometric and attributed age categories.

		Attributed Age		
		Fetal	**Perinate**	**Infant**
Osteometric Age	**Fetal**	73	3	2
	Perinate	27	157	91
	Infant	1	1	25
	Unknown	3	12	61

Table 5.4 Frequency of dental and attributed age categories.

		Attributed Age		
		Fetal	**Perinate**	**Infant**
Dental Age	**Fetal**	47	0	0
	Perinate	0	98	0
	Infant	0	0	178
	Unknown	57	75	1

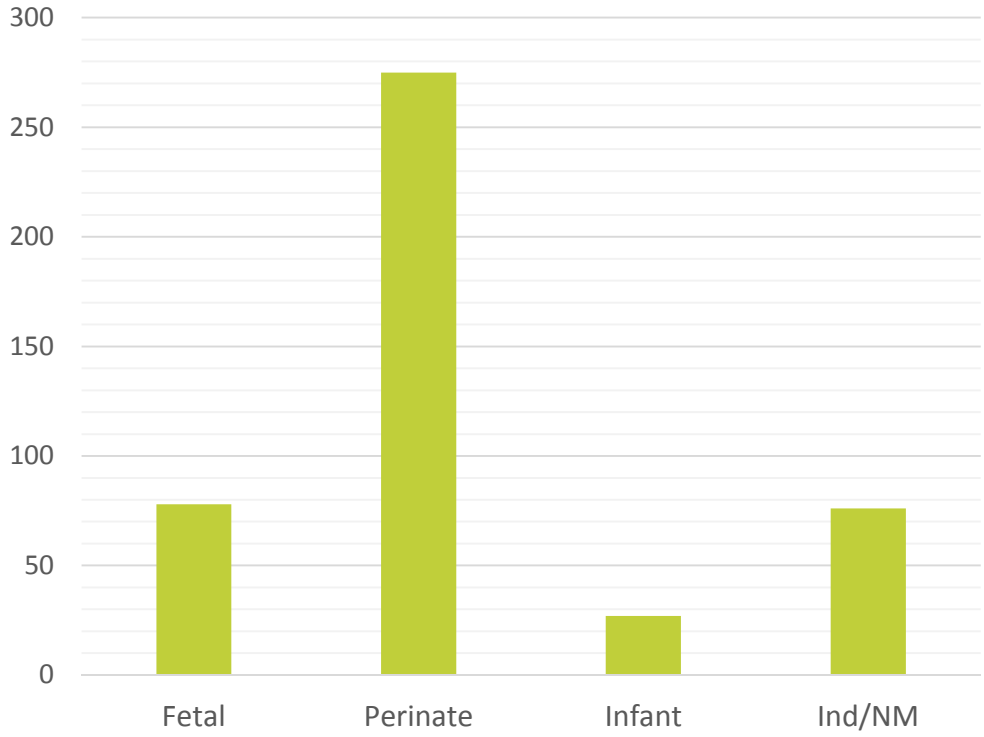

Figure 5.2 Distribution of age categories based on osteometric age estimation.

A brief discussion of the post-excavation treatment of the 1991-1992 collection prior to curation at UWM is also necessary to account for a pattern of recurring mistreatment of remains. While in the custody of Marquette University, the remains were stored in cardboard boxes, in the original paper bags that they were placed in after excavation. In the course of analysis at the UWM-ARL since receiving this material we have documented various curatorial alterations, such as the use of adhesive tapes on bones, pencil or pen markings, teeth embedded in dental wax, and teeth glued into alveolar processes. These were the result of inappropriate curatorial standards applied while the remains were stored at Marquette. Damages have been recorded both among subadults and adults, though the practice of embedding the delicate tooth buds of subadults in strips of wax was particularly destructive and impacted the ability to estimate dental age.

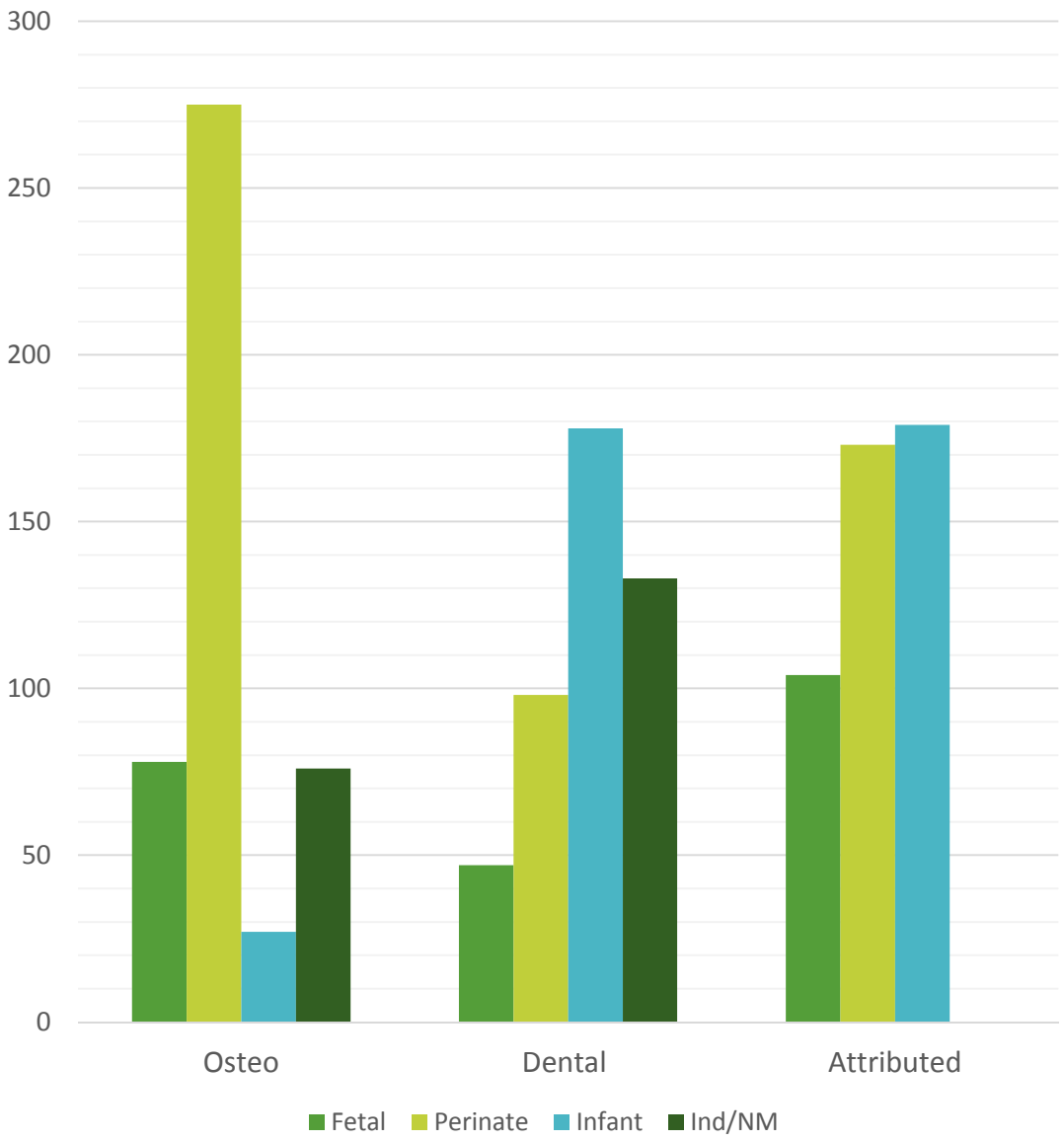

Figure 5.3 Distribution of age categories by method.

Almost 30% (n=133) of the individuals in the dataset were assigned an indeterminate dental age or were not measurable. Dental age was not measurable for a number of reasons. Dentition may not have been recovered from the burial, or if recovered, developmental margins were not preserved enough for assessment. Additionally, unerupted teeth within the maxillary or mandibular crypts were sometimes occluded from view and could not be assessed.

A noticeable disparity in measurable dentition was observed in the 1991-1992 collection compared to the 2013 collection. In part, this may have been due to the more careful methods of excavation that were applied during for the excavation of subadults in 2013. Conversely, subadults from the 1991-1992 collection also lost dentition, and in some cases, mandibles, between their excavation and arrival at UWM 18 years later. Over 75% of the burials with indeterminate/not measurable dental age were from the 1991-1992 collection. A total of 100 burials from the 1991-1992 portion of this dataset (42%) had indeterminate/not measurable dental ages, compared to 33 (15%) out of the 2013 cohort of the dataset.

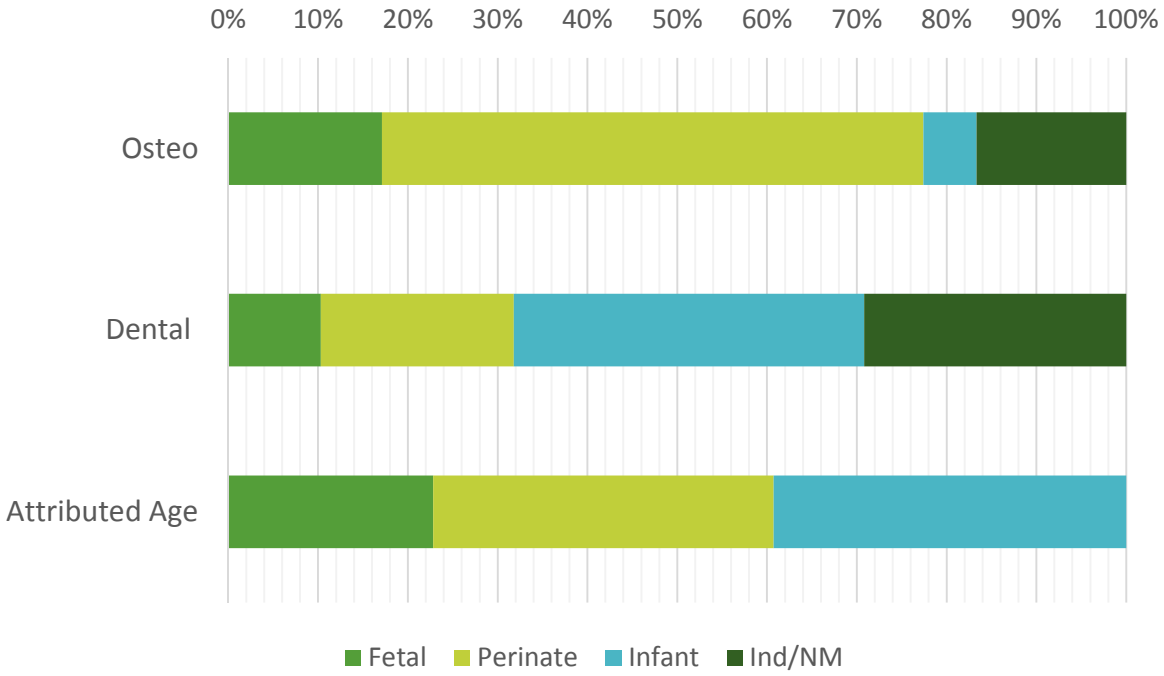

Figure 5.4 Relative proportion of age categories estimated by each method.

Material Culture Results

The material culture incorporated into the current research was categorized according to the classifications used by the MCPFCP in project reports. The four categories of material culture were personal items, clothing, safety pins, and inclusions. Table 5.5 defines each

material culture category and lists examples of items recovered with subadults from each material culture category. Coffin hardware was excluded from consideration, as subadult coffins recovered from the cemetery rarely had coffin handles, while nails and screws were ubiquitous. The classification of material culture hints at who was caring for individuals around the time of death based on what was or was not buried with them.

In the 2013 MCPFC collection, Richards et al. (2016) identified 264 mapped subadult burials, defined as under 20 years of age at death. Out of the 2013 collection subadults of any age under 20 years, over twice had material culture (n=177) as those that did not (n=87). Comparatively, among 368 mapped adult burials, the number of burial locations that contained material culture (n=185) was almost equal to those that did not (n=183) (Richards et al. 2016). The current dataset includes only subadults under one year of age in the 2013 collection and the addition of subadults under one year from the 1991-1992 collection. The results from the current combined dataset found that 177 burials did not include items from any of the material

Table 5.5 Material culture category definitions, adapted from Richards et al. (2016).

Category	Definition	Examples
Personal Items	Non-clothing items reliably associated with an individual. Subcategories include adornment, ritual, indulgences, pocket tools, coins, and personal medical/health items	Adornment: Angel trinket, glass beads Ritual: Rosary, metal crucifix Indulgences: Ceramic pipe, glass stopper
Clothing	All items related to personal wardrobe, institutional attire, and medical dressings (excluding safety pins)	Buttons (plastic, glass, shell, or wood), diapers, fabric, blankets, fabric bandages, leather, footwear
Inclusions	Items indirectly related to the interred, but associated with some aspect of the Milwaukee County Institutions, Coroner's office, or medical schools	Glass, wire, paper/newspaper, redware flower pot, tin can, rubber, hollow wax cylinder, mason jar, plastic, ceramic fragments, microscope slide, wood shavings, charcoal, glass vase fragments, glass tube, cuprous tube
Safety Pins	Metal pin that secures close with a guard	Safety pins used for diapering, shrouds, bandages, etc.

culture categories. Based on attributed age categories, 60 fetal, 83 perinate, and 34 infants were recovered without items from any of the four categories of material culture. The proportion of fetal burials without any material culture is almost 58%. Nearly 50% of the perinate burials likewise contained none of these items. Only 19% of infant burials were absent of material culture. The total number of unique material culture categories recovered from each burial was calculated, with a range of zero (no material culture recovered) to four (clothing, safety pins, personal items, and inclusions recovered). Figure 5.5 exhibits the relative frequency with which each attributed age category was recovered with 0, 1, 2, 3, or 4 material culture categories.

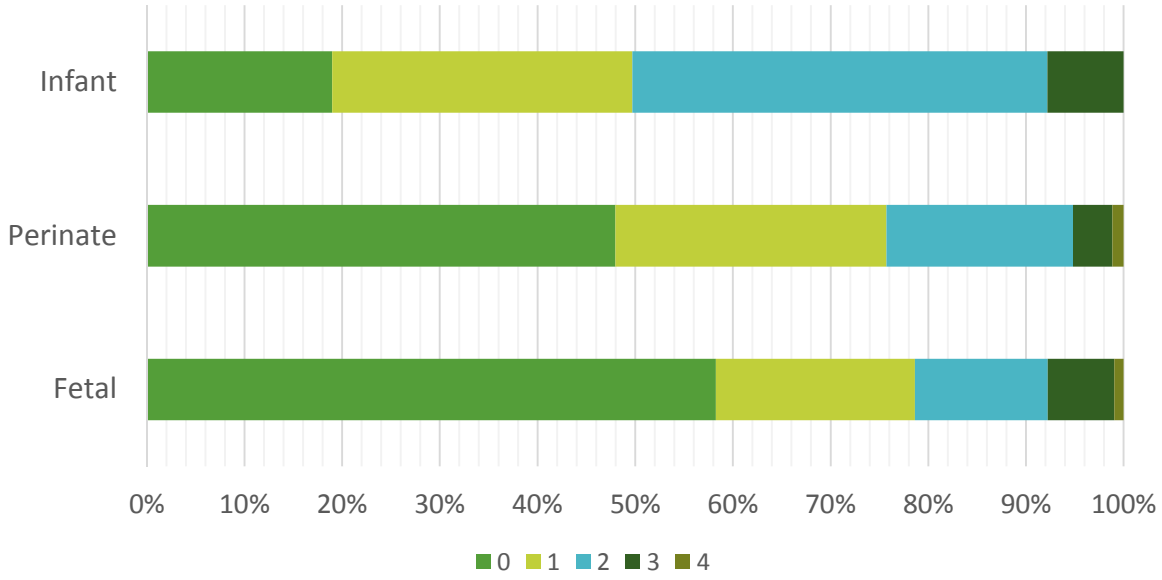

Figure 5.5 Relative frequency of multiple material culture categories recovered for each attributed age group.

Personal Items

Grave goods that were not classified as clothing or safety pins were grouped into a "personal item" category. The personal items category was subdivided into the following subcategories: adornment, pocket tools, indulgences, medical/health, ritual, and coins. Personal items were recovered in much smaller numbers than clothing items for both juvenile and adult burial locations (Figure 5.6). Among the subadults under the age of one year, only 11 burials were recovered with personal items. One fetal, five perinatal, and five infant burials, based on attributed age, contained personal items (Figure 5.7).

A Pearson chi-squared statistic indicated that there was no association between the presence of personal items and attributed age category (Pearson χ^2=1.21, df=2, p=0.55). Dental

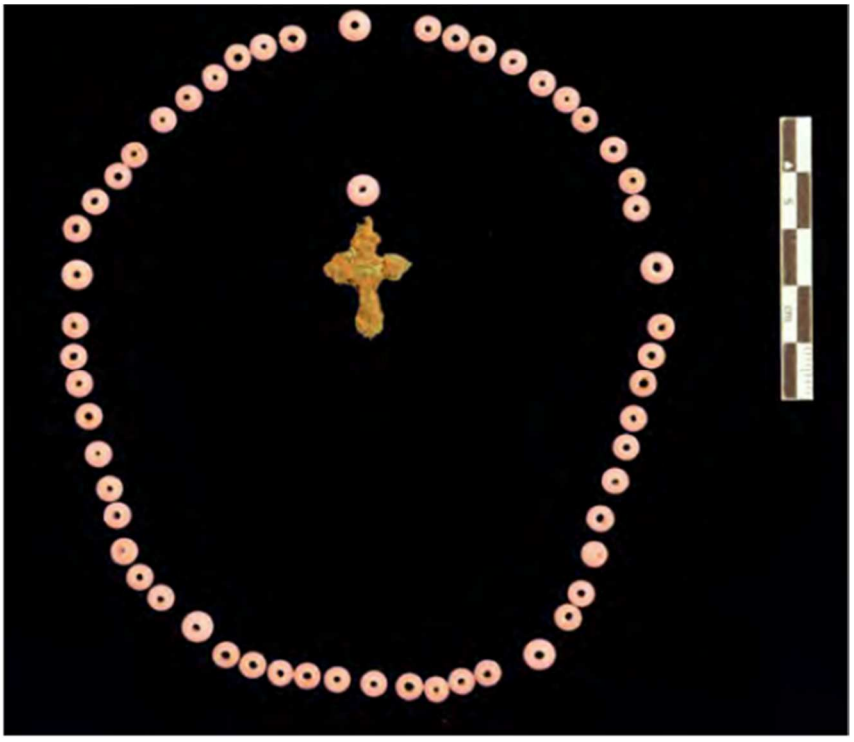

Figure 5.6 Rosary recovered from Burial 10038. From Richards et al. (2016:130). On file at UWM-ARL. Reprinted with permission.

age categories and osteometric age categories were also tested for association with each of the material culture categories. There was no association between dental age and personal items (Pearson χ^2=6.43, df=3, p=0.09) nor between osteometric and personal items (Pearson χ^2=3.78, df=3, =0.29). Results of Chi-Square Tests comparing material culture and age are listed for each method of age estimation in Tables 5.6-5.8.

Table 5.6 Results of Chi-Square Tests comparing material culture and dental age.

Material Culture Category	**Pearson χ^2**	**Df**	**p-value**	**Cramer's V**
Personal items	6.4346	3	0.09	0.119
Clothing	51.947	3	>0.001	0.338
Inclusions	3.4066	3	0.33309	0.087
Safety pins	39.904	3	>0.001	0.296

Table 5.7 Results of Chi-Square Tests comparing material culture and osteometric age.

Material Culture Category	**Pearson χ^2**	**df**	**p-value**	**Cramer's V**
Personal items	3.7766	3	0.2866	0.091
Clothing	38.418	3	>0.001	0.29
Inclusions	13.620	3	0.0035	0.173
Safety pins	28.954	3	>0.001	0.252

Table 5.8 Results of Chi-Square Tests between material culture and attributed age.

Material Culture Category	Pearson χ^2	df	p-value	Cramer's V
Personal items	1.208	2	0.55	0.051
Clothing	50.288	2	>0.001	0.332
Inclusions	7.063	2	0.03	0.125
Safety pins	41.759	2	>0.001	0.303

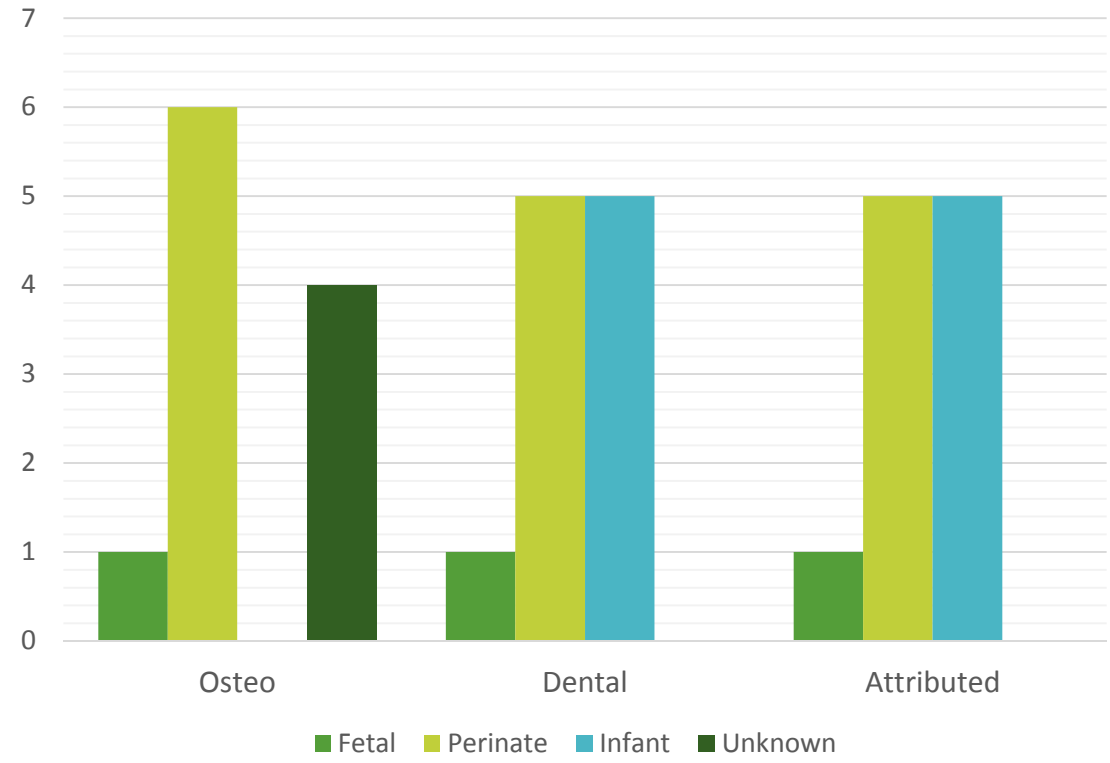

Figure 5.7 Distribution of burials in each age category recovered with personal items.

Clothing

According to Rule 2 from the *Rules and Regulations for the County Farm and Alms House* (1894), inmates forfeited their clothing and personal effects to the superintendent upon arrival to the county institutions. They would be "returned to the owner or his or her relatives on death, or on leaving the institution" (Richards et al. 2016:118). Instead of being buried in their own clothes, inmates who died at one of the institutions on the county grounds would likely have been wrapped in a burial shroud. Burial shrouds commonly were made of tightly woven linen.

Previous analysis of clothing from the 2013 collection identified burial shroud fragments in 16 subadult burials (under 20 years-at-death). These were determined to be shrouds, and not

diapers, based on location and/or fabric type (Richards et al. 2016:119). Diaper fabric was recovered exclusively from subadult burials. A total of 70 fragments were recovered from 34 subadult burials, representing 19% (n=34) of the subadults recovered with material culture in 2013 (Richards et al. 2016:119).

In addition to shrouds and diapers, other clothing included fabric bandages, leather, footwear, blankets, other fabric, and fasteners including buttons. Figure 5.8 depicts buttons of varying size and materials that were recovered from subadult burial 10028. The current research project found a large association between attributed age category and the presence of clothing (Pearson χ^2=50.29, df=2, p>0.001). Fetal burials make up only 13% of the burials containing clothing (Figures 5.9-5.10). Over half of the infant burials (58%, n=103) were recovered with clothing, compared to approximately 21% (n=22) of fetal and 27% (n=47) of perinatal remains (Table 5.9).

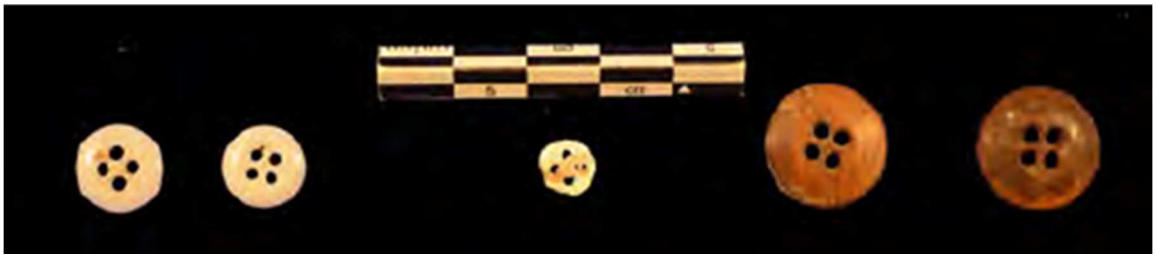

Figure 5.8 Buttons recovered from Burial 10028. From left, Prosser ceramic (2), shell (1), bone (2). Adapted from Richards et al. (2016:112). On file at UWM-ARL. Reprinted with permission.

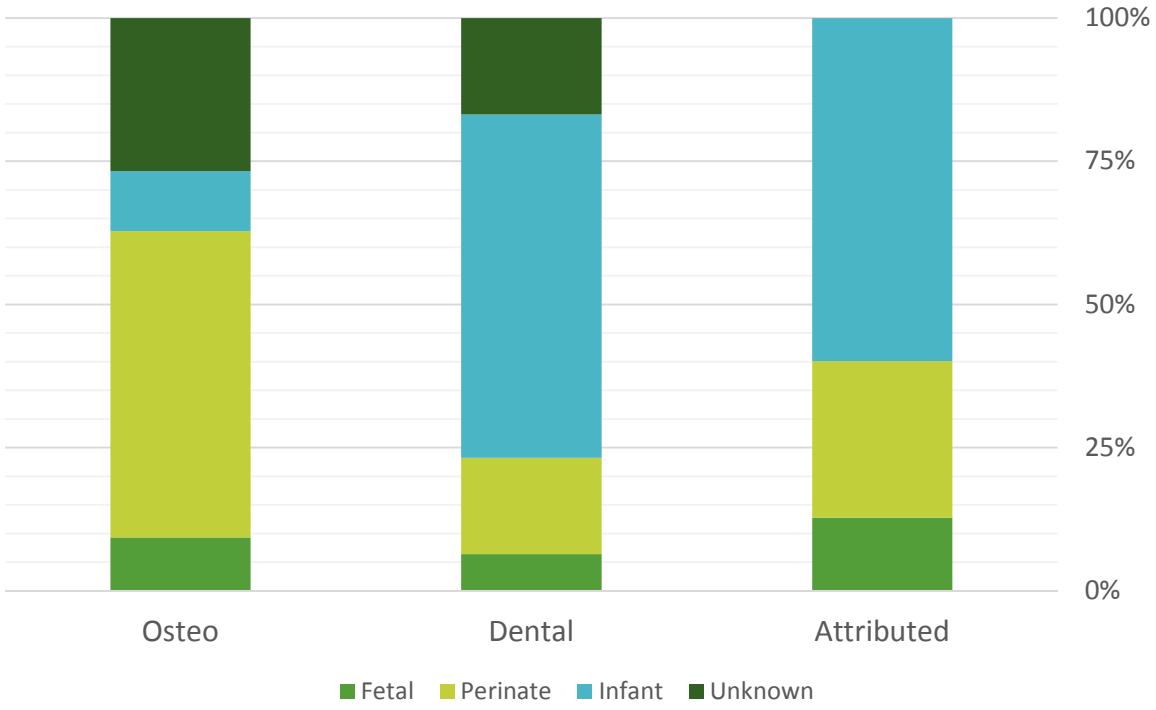

Figure 5.9 Relative frequency with which each age category recovered with clothing.

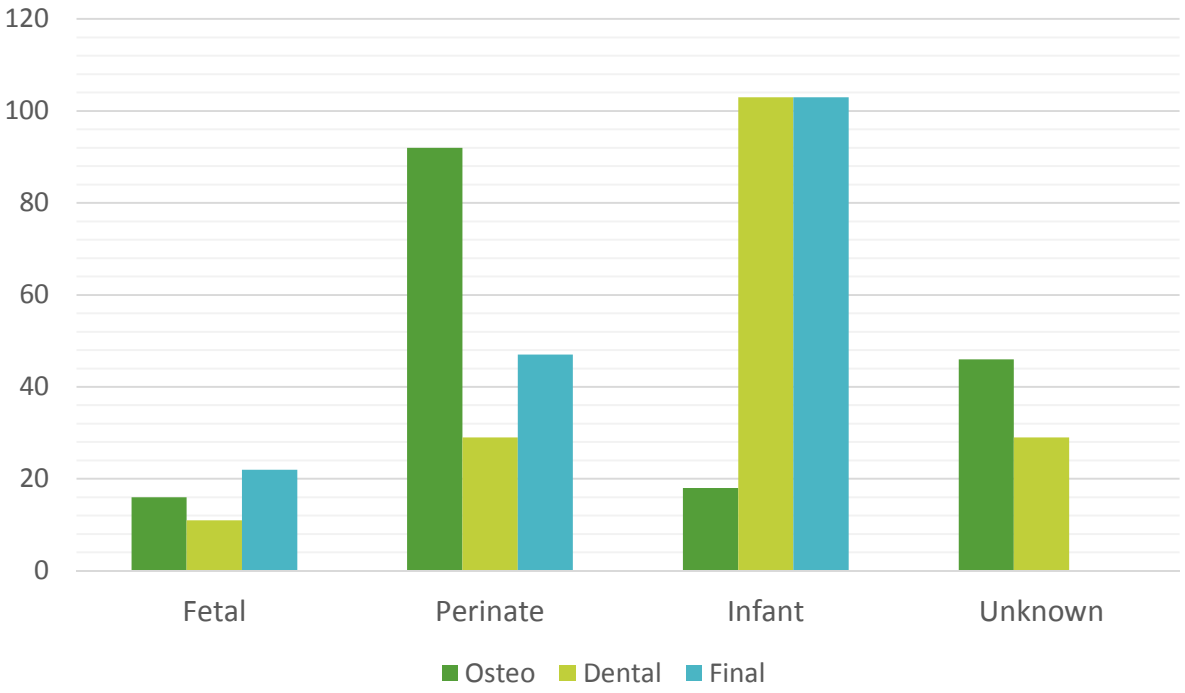

Figure 5.10 Distribution of burials recovered with clothing across age categories.

Table 5.9 Proportion of burials with clothing in each age category.

Age Category	Dental	Osteo	Attributed
Fetal	0.234	0.205	0.212
Perinate	0.218	0.605	0.272
Infant	0.579	0.667	0.575
Unknown	0.296	0.335	Not Applicable

Safety Pins

Among subadults, safety pins most commonly represent the act of diapering. A total of 2807 whole and fragments of safety pins were recovered from 166 burial locations in 2013 (Figure 5.11-5.12). All recovered safety pins were made of copper. Subadult burial locations make up 77% of the burial locations containing safety pins (n=128) from the 2013 collection and safety pins represent 72% of the material culture recovered from subadult burials in 2013.

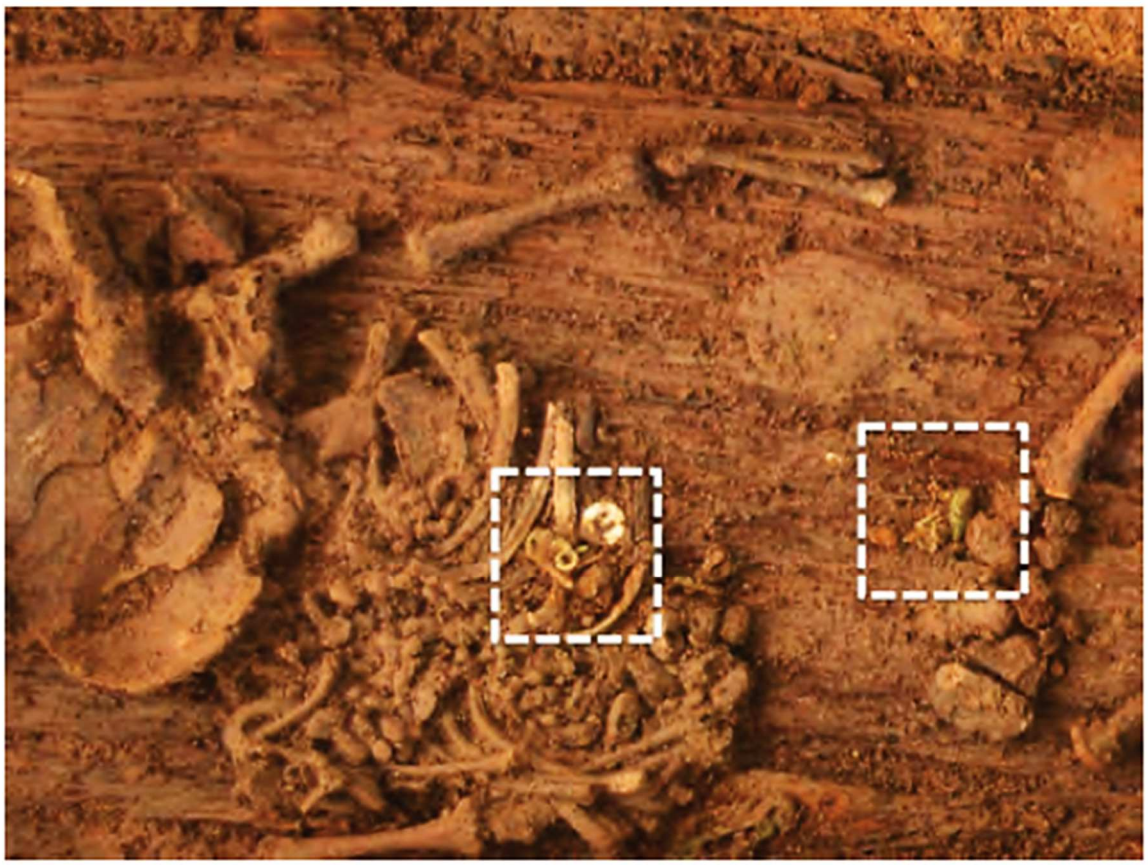

Figure 5.11 Safety pin and button in situ. Burial 10047. From Richards et al. (2016:113). On file at UWM-ARL. Reprinted with permission.

In the dataset of combined subadults under one year of age from both the 1991-1992 and 2013 collections, safety pins were recovered from 209 of the 456 burials. A total of 113 (54%) of the burials recovered with safety pins were infants, compared to 26 fetal (12%) fetal and 70 perinate (33.5%) (Table 5.10). Results of a chi-square test indicate there is an association between attributed age and the presence of safety pins (Pearson $\chi^{2=}41.76$, df=2, p>0.001). Infant burials (n=113) were more likely to contain safety pins (63%) than either fetal (25%) or perinatal (41%) burials. Both dental and osteometric age categories also were associated with the presence of safety pins. Across dental age categories, presence of safety pins increases with age (Figures 5.13-5.14).

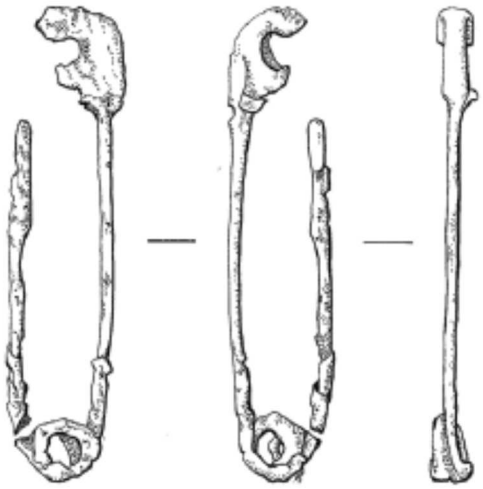

Figure 5.12 Illustration of safety pin from Burial 10100. From Richards et al. (2016:114). On file at UWM-ARL. Reprinted with permission.

Table 5.10 Proportion of burials with safety pins in each age category.

Age Category	Dental	Osteo	Attributed
Fetal	0.298	0.269	0.250
Perinate	0.418	0.436	0.405
Infant	0.635	0.704	0.631
Unknown	0.308	0.645	NA

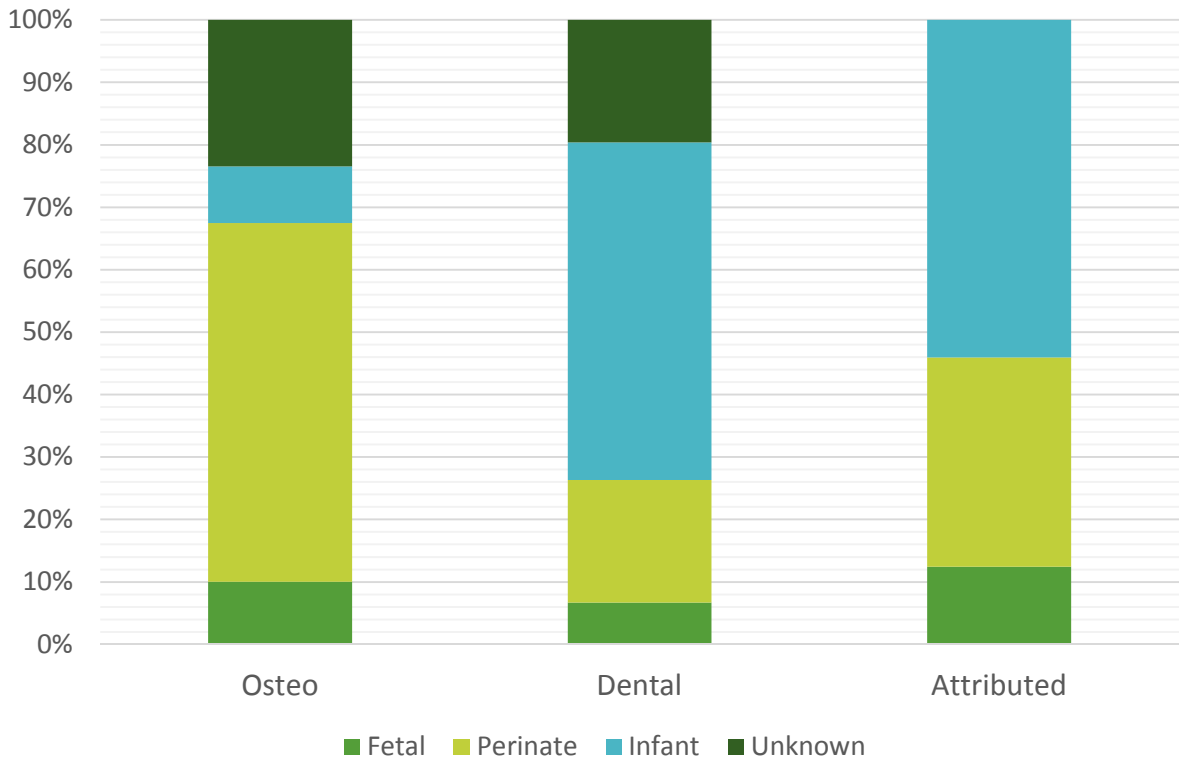

Figure 5.13 Relative frequency with which each age category recovered with safety pins.

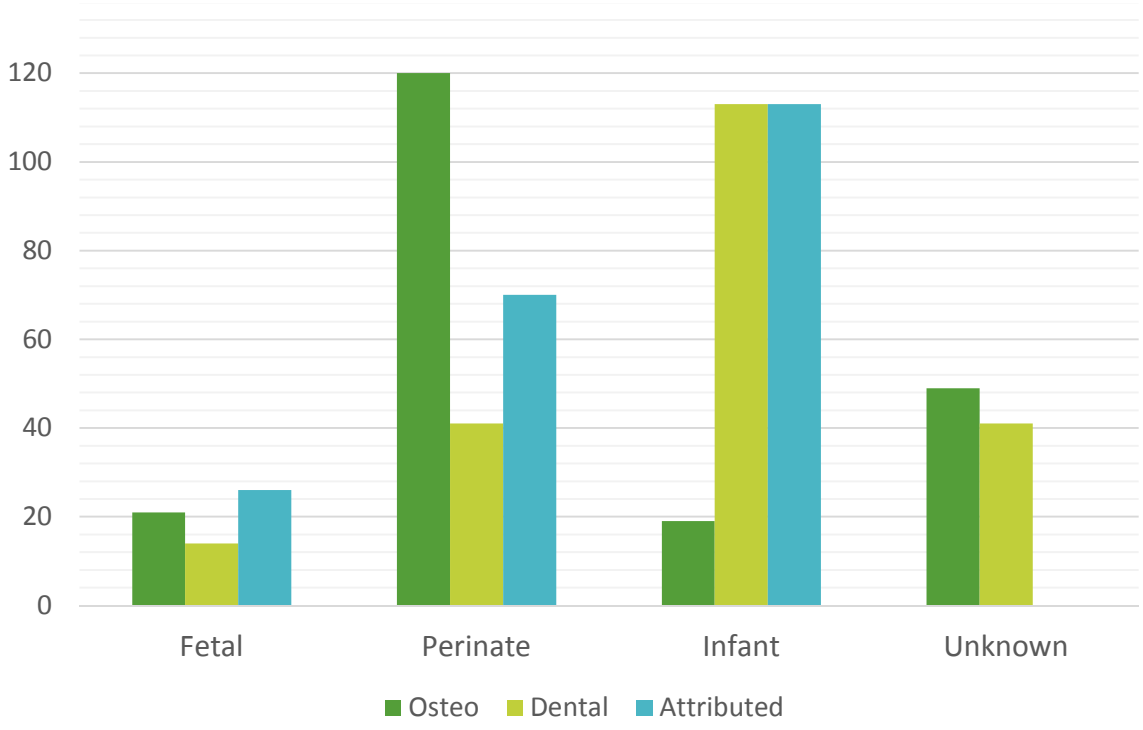

Figure 5.14 Distribution of burials recovered with safety pins across age categories.

Inclusions

The "Inclusion" category reflects artifacts within burials that were not personally associated with the deceased. Material culture in this category includes medical and utilitarian artifacts, as well as more general refuse like heavy wire, glass, a hollow wax cylinder, and bullet (Figure 5.15).

In 2013, items that could be reliably associated with medical institutions were catalogued as "medical and hospital" material culture. These artifacts may have come from the MCIG, the Milwaukee County Coroner's Office, or local medical schools. "Artifacts in this category may reflect behaviors of medical practitioners and use of the individual interred for

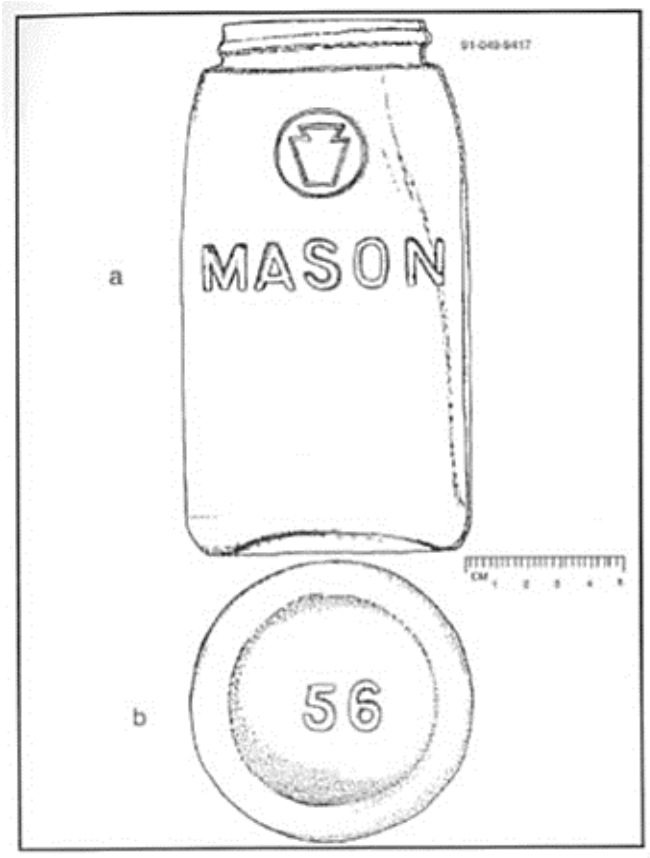

Figure 5.15 Mason jar from Burial 9417. (Richards and Kastell 1993:123). On file at UWM-ARL. Reprinted with permission.

medical training or research. Artifacts in the category of medical and hospital items include petri dishes, microscope parts, specimen jars, test tubes, scalpel holders, bandages, jars, flat glass, and other items that appear to have been disposed of in coffins. A total of 1,804 whole or fragmentary personal items were recovered from 114 burial locations" (Richards et al. 2016:131). Medical waste was recovered from 19% (n=34) of mapped juvenile coffin locations and 36% (n=67) of adult burial locations.

Newspaper was another item categorized as medical waste. Newspaper was recovered from 10 juvenile burial locations, including two burials in which the body appeared to be wrapped in the paper (Richards et al. 2016). A single microscope slide was recovered in subadult burial #10204.

Among the burials included in this research project, results of a Pearson chi-square test indicate that there is an association between attributed age categories (χ^2=7.0625, df=2, p=0.03) and the presence of inclusions and that there is a moderate effect (Cramer's V=0.125). Fetal burials were more likely to contain inclusions (n=25, 24%) than either perinates (n=21, 12%) or infants (n=28, 16%) (Table 5.11; Figures 5.16-5.17).

Table 5.11 Proportion of burials with inclusions in each age category.

Age Category	Dental	Osteo	Attributed
Fetal	0.255	0.299	0.243
Perinate	0.153	0.124	0.121
Infant	0.157	0.148	0.156
Unknown	0.144	0.171	NA

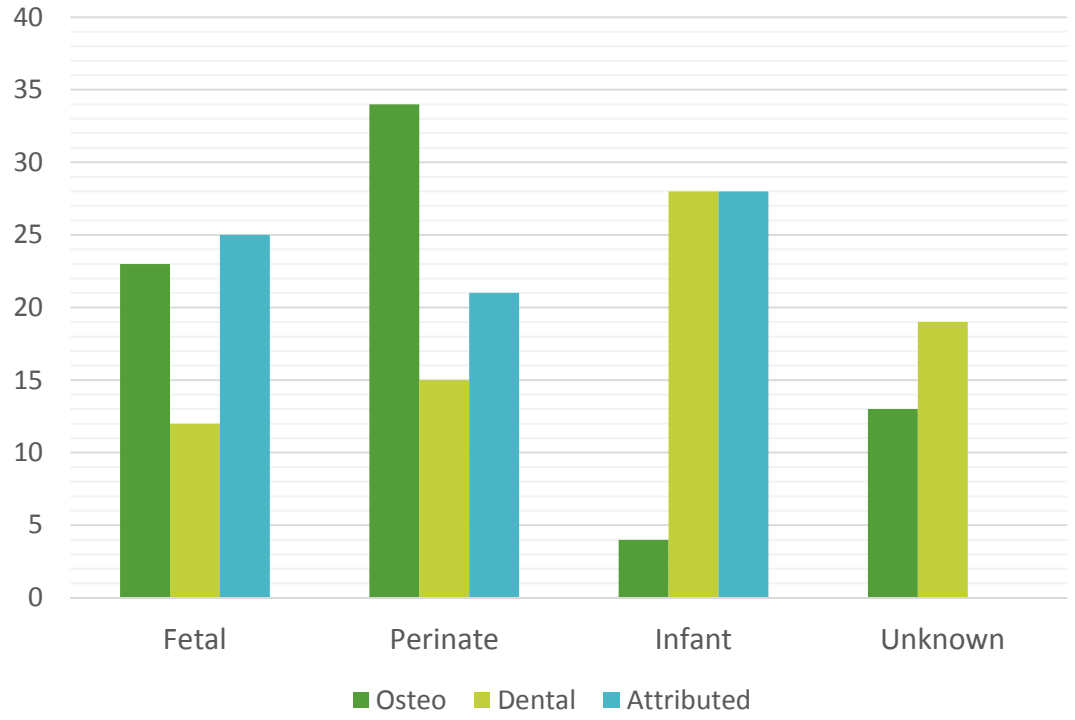

Figure 5.16 Distribution of burials recovered with inclusions across age categories.

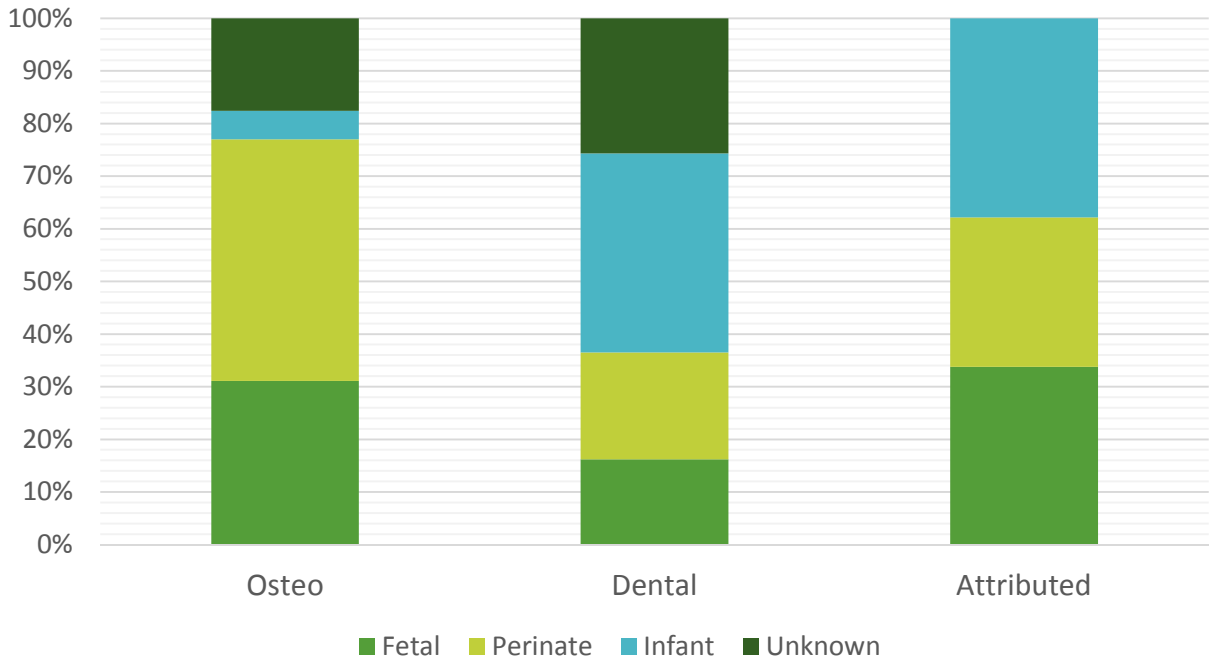

Figure 5.17 Relative frequency with which each age category recovered with inclusions.

Spatial Distribution of Material Culture

The 456 burial locations included in the current research project are mapped in Figure 5.18. Each grave is color-coded to represent the distribution of attributed age categories across the research group. Distribution of material culture categories among subadult burials under one year at death are depicted in Figures 5.19-5.22. No major discernable patterns were recognized across the 456 graves that were included in analysis. One point to mention is the absence of inclusions from the Northeast Block of the cemetery. Only four burials in this section were recovered with inclusions. If inclusions were primarily associated with some aspect of one of the medicals schools, Milwaukee County Institutions, or Milwaukee County Coroner's Office, then their absence from the Northeast Block suggests that either that part of the cemetery was in use prior to 1894 or bodies that were received from the medical schools, institutions, or coroner's office were not buried in that area. Burial of medical cadavers in the MCPFC was not recorded until 1894, two years after Milwaukee's first medical colleges were established (Richards et al. 2016).

Shillinglaw (2010) previously documented poorer preservation among subadult burials located in the northeast section compared to the southwest area. This may have been due in part to lower burials and wetter conditions in the northeast area. The poorer preservation resulted in more indeterminate age estimations, which also affects the overall distribution of material culture as only burials with identifiable ages were included in the maps. The blank spaces among the graves in the Northeast Block may represent subadults of indeterminate age or individuals above the age of one year.

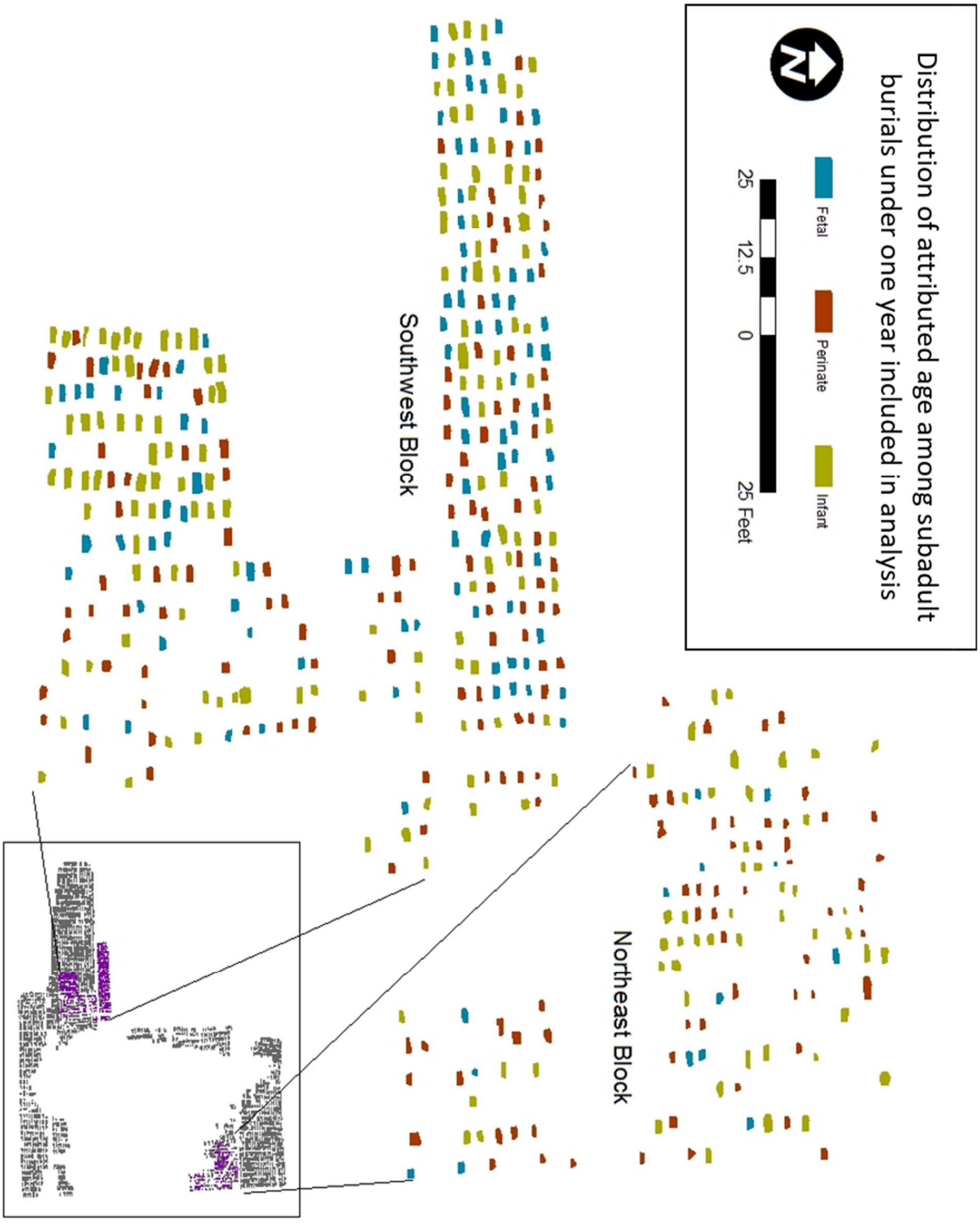

Figure 5.18 Distribution of attributed age categories among subadult burials included in analysis with estimated ages under one year.

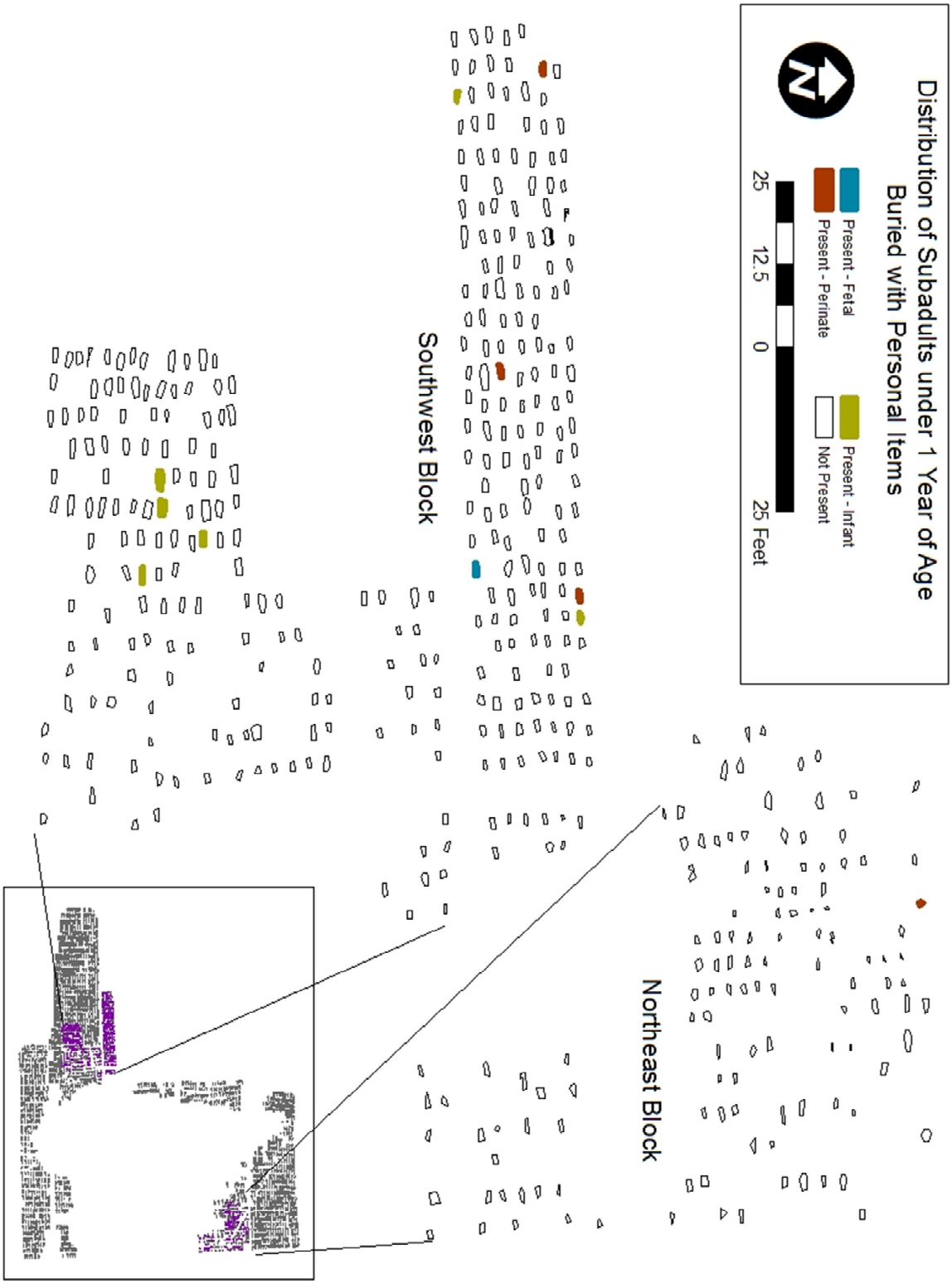

Figure 5.19 Distribution of personal items in subadult burials under one year of age at MCPFC.

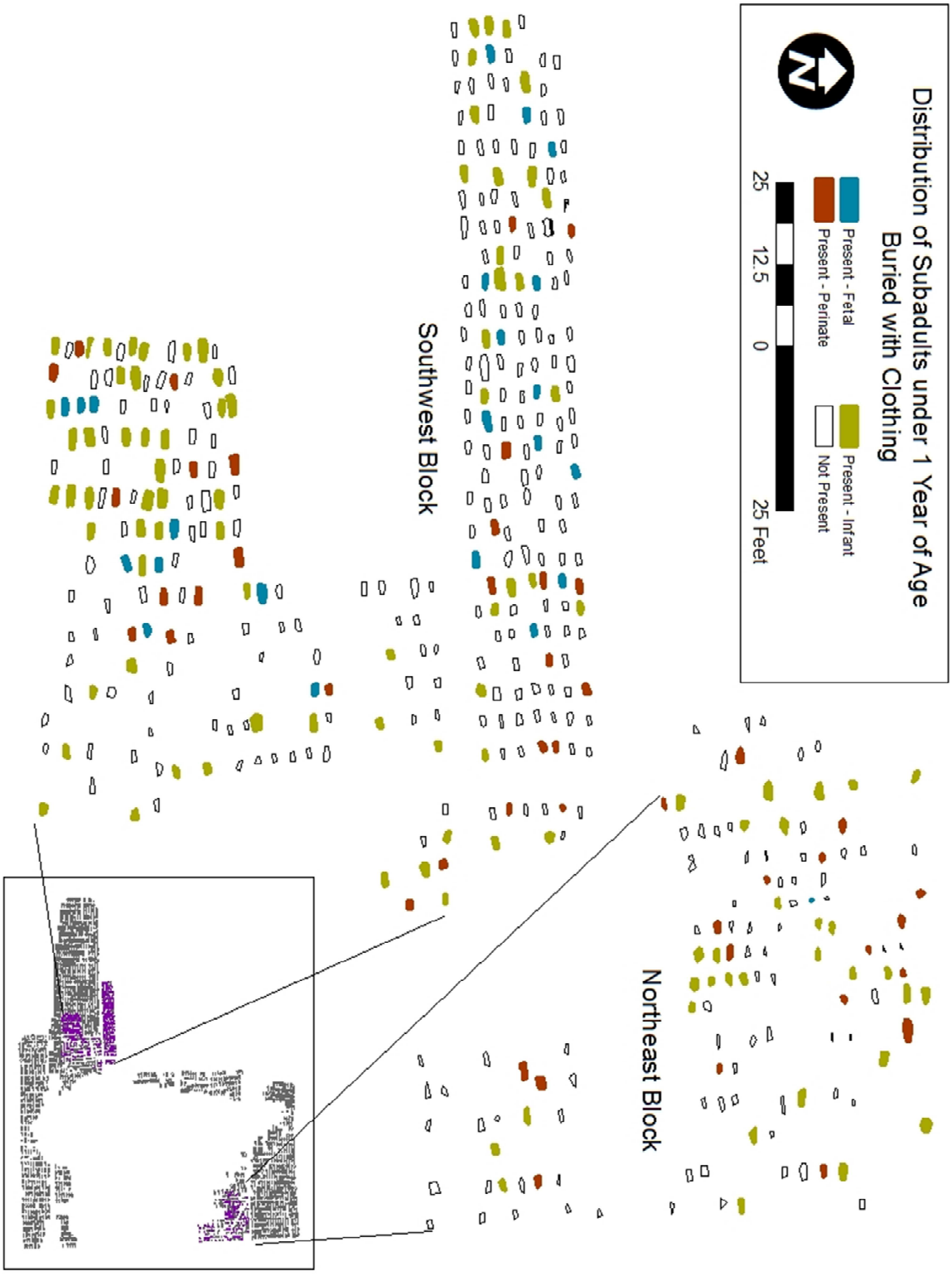

Figure 5.20 Distribution of clothing recovered in subadult burials under one year of age at MCPFC.

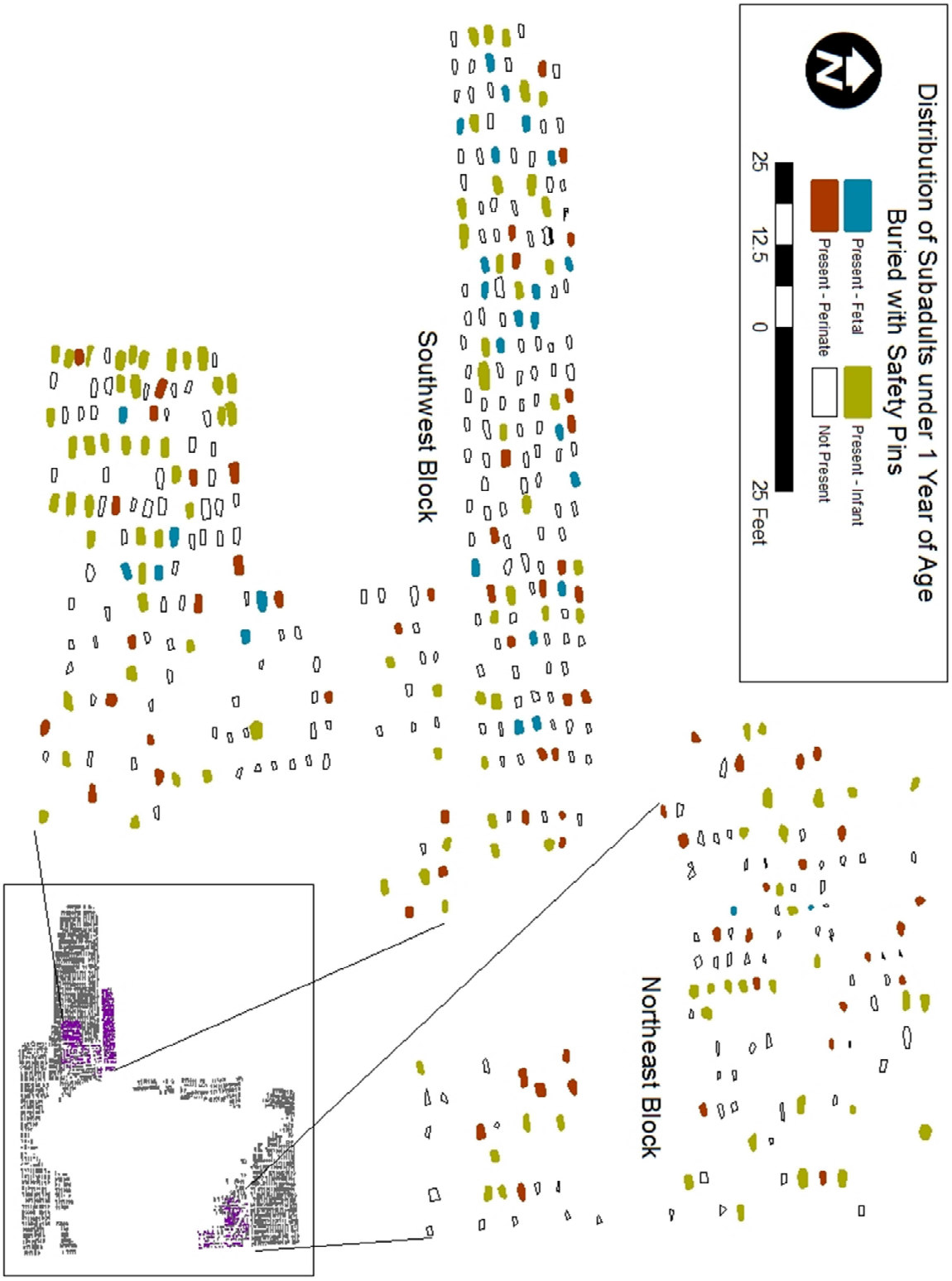

Figure 5.21 Distribution of safety pins among subadults under one year of age at MCPFC.

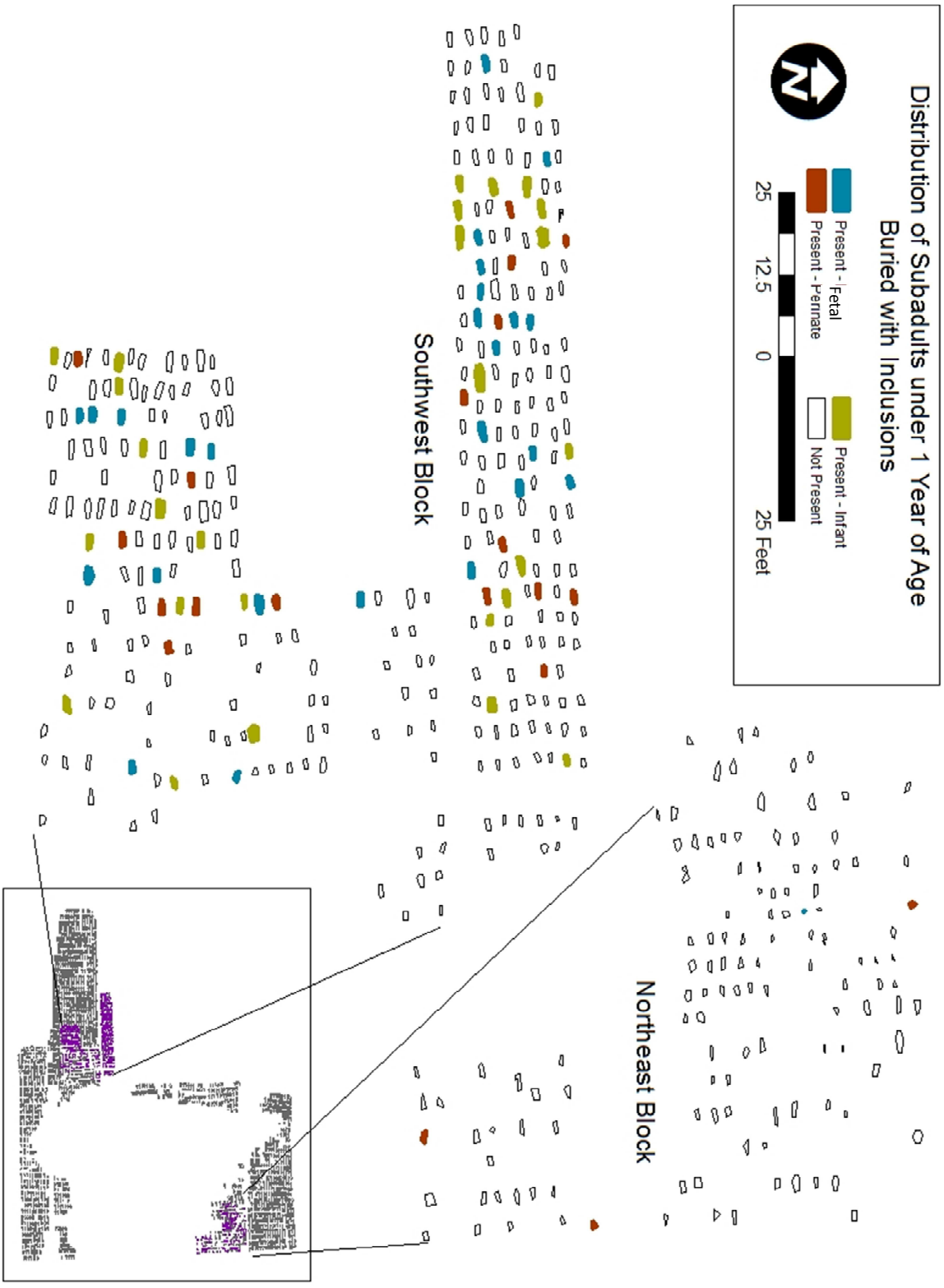

Figure 5.22 Distribution of inclusions among subadults under the age of one year at MCPFC.

Discussion of Personhood and Material Culture Results

The age estimations attributed to each of the 456 burials indicate that developmental landmarks the individuals had passed. Two landmarks that stand out in the interpretation of personhood are viability and postnatal survival. Viability indicates that the child could have lived outside of the womb, i.e., establish physical independence from its carrier. Postnatal survival indicates that the child has fully differentiated itself physically and can begin to interact socially (Finlay 2013). Infants who are beyond 42 fetal weeks were born alive, though for how long they remained alive after birth is less certain. If we were to apply a relational model to define personhood among the burials, it would be easy enough to use the 40 fetal week mark to (roughly) divide those with personhood from those without it, but this would again create a binary that is inadequate on several levels. To break down personhood, I do use the two categories, fetal and infant, but only as starting points from which to ultimately challenge my own bioarchaeological conclusions based on evidence for personhood in the form of material culture.

Richards (1997) classified material culture into three categories to suggest three potential classes of burial: 1) those who died in one of the county institutions, 2) individuals who were unclaimed or unidentified and received from the Milwaukee County morgue, and 3) those who had family involved in the burial but were without the financial means to bury in an alternative cemetery. A fourth class of burial was added following the study of the 2013 material culture and skeletal remains. The fourth category added includes individuals from categories 1 and 2, who additionally were used as medical cadavers before burial (Richards et al. 2016). Category 1 was represented by either an absence of material culture altogether or

medical/hospital-related items. Categories 2 and 3 were associated with clothing and personal items. Burials in category 4 were associated with bandages and other medical waste.

The four burial classifications identified by Richards et al. (2016) overlap with the material culture categories of clothing, personal items, safety pins and inclusions. The clothing and inclusion categories appear to be the most useful for distinguishing between prenatal and postnatal status, defined as either before or after birth, not before or after 40 fetal weeks.

The fact that fetal-aged remains were buried within the cemetery alongside other subadults says something about how they were materially conceptualized. They received the standard wooden coffin and were not segregated from other non-adult members of the community. Inside the coffins lay marked differences appear in the patterns of material culture present, however. Fetuses were most likely to be recovered with inclusions, including non-grave good items such as microscope slides, glass fragments, tin cans, and other discarded items. They were also least likely to be recovered with either safety pins or clothing. In terms of number of unique material culture categories, fetal burials were most likely to contain no material culture, and less likely than perinates or infants to contain one or two different categories of material culture. Interestingly, fetal burials contained three material culture categories and four material culture categories at comparable frequencies to the other two age categories.

Infants were more likely than either fetal or perinatal burials to be recovered with clothing. Infant burials were also more likely to be recovered with safety pins. Out of the three

age categories, infants were least likely to be recovered without any material culture and most likely to be recovered with a total of two different material culture categories in a single burial.

Fetal burials were more frequently recovered with inclusions than perinatal or infant burials. The younger the decedent, the more likely they were to be treated as an object of disposal. It also suggests that older decedents, particularly those who survived birth, received treatment that constructed and signaled personhood. Non-viable fetal remains were recovered with medical paraphernalia, tin cans, glass, and other refuse.

If inclusions in the coffin indicated lack of personhood, dressing the body in clothing can be read as a humanizing act. Among adults, recovery with clothing was associated with individuals who came from the coroner's office or who were members of the community. This association is likely the case in subadult burials recovered with clothing as well. Infants were more frequently recovered with clothing than either perinate or fetal burials. A closer look at the types of clothing that were associated with each burial may be more indicative of the postnatal treatment of the decedent. Almost 11% of the death certificates issued to decedents under six months of age between 1882 and 1925 were for cases in which discarded bodies were found within the community (n=195). While those who were brought to the cemetery by community members were likely, if dressed, to be in age-appropriate attire, abandoned bodies were often wrapped in assorted garments, sheets, or newspaper before being discarded. Evidence suggests that personal items were transferred with the body from the coroner's office to the grave, though samples were sometimes kept with coroner's inquests for future identification. A closer look at the type of clothing recovered from a burial, therefore, may

identify whether the body was prepared by family for burial or was disposed of informally, then passed through the coroner's office before receiving a grave at the cemetery.

Coroner's Inquests such as case number 88, "Male baby 46," describe bodies wrapped in various articles of clothing and found in the community. "Male baby 46" was wrapped in cheese cloth and part of a female night shirt, then bundled in the pages of a Milwaukee Sentinel newspaper. The body was discovered after spectators chased away a dog that was eating from a package. Upon a closer observation, the package contained the remains of the baby, whose cause of death was listed as "probable" exposure by Coroner HL Nahin, February 24, 1911. Other garments found wrapped around fetal, perinatal, and infant remains include ladies' clothing and undergarments (Inquest dated 30 April 1886), a checked baby's dress (dated 6 September 1918), black outer skirt, flannel nightgown, and flannel kimono (Inquest dated 16 February 1921), a torn adult woolen jacket and baby clothes (Inquest dated 14 March 1911), newspaper and petticoat (Inquest dated 23 March 1921), and linen rags, a pillowcase and newspaper (Inquest dated 28 November 1923). The "male child" of Rose Derra, whose interview was featured in the beginning of Chapter 1, was also found wrapped in clothing, inside a suitcase (Inquest dated 13 August1920).

The records suggest in each of the above cases that the decedents were newborn, or as the inquests regularly noted, "full grown." Burials that were identified as infant were more likely than fetal or perinatal burials to have clothing. They would have exceeded the newborn period at which the discarded and discovered bodies from the community were found. Burials under the infant age that were recovered with clothing may have been more likely to have been buried with adult garments, or fragments thereof.

Alternatively, it could be said that if someone was not preparing to care for a child after birth, they would not have the appropriate attire to clothe a newborn. Wrapping the body in what was available may have been an attempt to protect or comfort the body, even while recognizing that the child was not alive. For example, Rose Derra explained that she washed the blood off her newborn and wrapped it up before placing it in a suitcase.

Informal postmortem treatment does not necessarily indicate infanticide. Neonates and infants who died of natural causes were sometimes disposed of in privies, trash heaps, or other non-cemetery settings (Green 1999; Seitz 2014). In the 1800s New York City laws even distinguished between acts of infanticide and the "concealment" of pregnancy and/or deceased infants. Infanticide and abandonment of dead or dying newborns were accepted options when contraception, abortion, or adoption were not available (Micucci 2016:7). Antebellum New York offered single, working-class women independence over traditional kinship networks, but also left them vulnerable. Micucci explains, "Independence in this context must be reinterpreted, as independence for women who chose infant abandonment or infanticide was not evidenced simply by their freedom of action, but rather, they exercised independence by making difficult choices within a narrow space of action" (Micucci 2016:17). Between 1839 and 1859, abandoned or unidentified infants made up approximately 20% of recorded infant deaths in the city. At the same time, almost 75% of recorded infant deaths occurred at home and were identifiable (Micucci 2016:54).

Safety pins, unlike clothing, had more specific relevance to subadults. Safety pins were used in adult burials to secure burial shrouds but were far more prevalent among subadults. Among the 456 subadult burials under the age of one year from the combined 1991-1992 and

2013 collections, almost half were recovered with safety pins (n=209). Over half of the infant burials were recovered with safety pins, suggesting that infants were commonly buried in diapers or shrouds. The combination of safety pins and clothing was most common among infants.

Ambiguities among the Burials

The following section directly examines cases in which dental and osteometric ages did not align with one another. The original age estimations of each burial are considered, along with the types of material culture that were recovered with the skeletal remains during excavation. The ages and material culture were then applied to reconsider the status of each burial.

Fetal Osteometric Age and Infant Dental Age

Two burials, #6033 and #10543, were each estimated to have fetal ages based on osteometric measurements and infant age based on dental development. Fetal age was estimated for #6033 based on osteometric age estimation from a single measurement, the width of the petrous temporal (30 fetal weeks). The infant dental age category was based on the development of the left maxillary second incisor, which was comparable to development at six postnatal months (AlQahtani et al. 2010). One safety pin was recovered from #6033. No clothing, personal items, or inclusions were recovered from the burial, though the presence of a safety pin makes it more likely that the individual was indeed postnatal at the time of death.

Burial #10543 was estimated to be fetal based on a low range of 22 fetal weeks from sphenoid body width and high range of 40 fetal weeks. Measurements from the sphenoid had

the tendency to lower the mean age of individuals and the low range of 22 fetal weeks is not likely representative of the biological age. Considering all 22 osteometric measurements recorded for #10543, the mean age was 36.8 fetal weeks. The project protocol for subadult analysis, however was to create an age range from the lowest and highest observed ages and use the mean age for age categorization. In this case, the resulting mean age was 31 fetal weeks. Comparatively, the developmental stages observed for the mandibular canine and first molar place the individual in the three to six postnatal month range (AlQahtani et al. 2010). One metal grommet and three white glass vase fragments were recovered from the grave of #10543. The individual was not recovered with any safety pins, clothing, or personal items. The lack of safety pins or clothes, along with presence of inclusions, suggest that the individual may have come from the coroner's office or a medical school.

Fetal Osteometric Age and Perinatal Dental Age

Three burials (6104, 10158, and 10187) were categorized with fetal osteometric and perinatal dental ages. The osteometric age for #6104 based on a low range of 28 fetal weeks from distal humerus width and a high range of 34 fetal weeks from petrous temporal width (mean age=31 weeks). The mean age, based on nine osteometric measurements, was 31.6 weeks. The perinate dental age was based on development of the deciduous second maxillary incisor with a mean age of 40 weeks. No material culture was recovered with #6104.

Burial #10158: Fetal osteometric age estimation was based on a low range of 18 fetal weeks from sphenoid body width and a high range of 38 fetal weeks from mandible length (mean age=28 weeks). A total of 19 osteometric measurements were observed, with an average age of 33.6 fetal weeks. The perinate dental age assignment was based on a

combination of mineralization presence (Sunderland et al. 1987) and formation and eruption following Ubelaker (1989). The mean dental age, according to the protocol for 2013 analysis, was 35 fetal weeks. No material culture was recovered with #10158.

Burial #10187: Fetal osteometric age estimation was based on a low range of 22 fetal weeks from the sphenoid body width and 40 fetal weeks from humerus length, maximum ischium length, maximum tibial length, and multiple craniofacial elements. A total of 31 osteometric measurements were observed, with an average age of 36.5 fetal weeks. Perinatal dental age was assigned based on a lower age range of 32 fetal weeks and upper age range of 12.5 postnatal weeks based on a combination of Ubelaker (1989) and Moorrees et al. (1963). Application of the London Atlas to the recorded Moorrees et al. (1963) categories would result in an age range of six to nine postnatal months. Safety pins and clothing were recovered with #10187, suggesting the remains were attended to after death.

Infant Osteometric Age and Perinatal Dental Age

Age estimations for Burial #10047 suggested infant based on osteometrics and perinate according to dental development. Infant osteometric age estimation was based on a low range of 38 fetal weeks from the maximum width of the pars basilaris, humeral distal width, and radial length. The upper age range was 1.5 postnatal months from tibial length. Mean age was two postnatal weeks. A total of 15 osteometric measurements were recorded. Six measurements were greater than 40 fetal weeks, including four long bones that were also less than 1.5 postnatal months when Maresh (1970) postnatal osteometric standards were applied. Perinatal dental age was assigned based on consistency with the birth stage of Ubelaker (1989).

Clothing and safety pins were recovered with #10047, suggesting the remains were attended to after death.

Perinatal Osteometric Age and Fetal Dental Age

A total of 28 burials had estimated osteometric ages in the perinate category and dental development in the fetal category. None of the 28 burials were recovered with personal items. Six burials were recovered with clothing, four with inclusions, and six with safety pins. Only one burial with this age combination (#10230) was recovered with clothing, safety pins, and inclusions. A perinatal osteometric age was estimated for #10230 based on a lower age range from the sphenoid lesser wing length and an upper age range from the humerus, radius, ulna, femur, tibia, and fibula, among other elements. The mean osteometric age based on the overall age range was 36 fetal weeks. When the 27 observed measurements for this burial were considered, the mean age was 39 weeks. Fetal dental age was based on a combined age range from Sunderland et al. (1987) and Ubelaker (1989). Both observations were based on the presence of a single tooth. The application of Sunderland et al. (1987) is inappropriate for this case, as it does not accurately reflect the stage of development at death, only that the dentition had passed a minimum degree of mineralization. Taking this into account, the age range associated with the assigned Ubelaker stage is four to nine fetal months, leading one to weigh the observation of a single tooth against 27 separate measurements. Burial #10230 was recovered with shell buttons, safety pins, shell, charcoal, and glass. The combination of inclusions, clothing, and safety pins suggests that care was taken to attribute personhood to the body.

Perinatal Osteometric Age and Infant Dental Age

Out of 456 subadults with estimated ages under one year, 91 produced different perinatal osteometric ages and infant dental ages. The group of individuals with this discrepancy in aging represents a common area of ambiguity in bioarchaeology and will be addressed more thoroughly. One burial (#10007) was recovered with personal items. Burial #10007 was also recovered with clothing and safety pins. Fabric recovered from #10007 was determined to be burial shroud material and a headrest. Brass eyelets and leather fragments were interpreted as belonging to a child's shoe (Richards et al. 2016). Also recovered from #10007 was an angel trinket. The mean osteometric age of #10007 was 39 fetal weeks based on petrous temporal length and width. Mean dental age, based on Ubelaker (1989), was five postnatal months. The presence of multiple categories of material culture, including multiple pieces of clothing, suggests infant age. The headrest and angel trinket add an additional layer to the mortuary treatment of the body that was not commonly observed at the MCPFC. The headrest suggests someone was concerned with the postmortem comfort of the individual. As Fowler noted, rituals associated with the dead may be about reintegrating them back into society as new entities, as opposed to removing them from it (Fowler 2004). The death of the young, in this sense, may not mean the end of one's relationship with their child, particularly if they believe in an afterlife, which is suggested by the presence of the angel trinket.

Inclusions, most commonly associated with fetal burials, were recovered from 11 burials in this age group (perinatal osteometric and infant dental estimates). Among these burials, #10075's perinatal age resulted from a low age range of 38 fetal weeks and a high range that exceeded the 40 fetal weeks of the Fazekas and Kósa (1978) standards. Because long bones

were incomplete for this individual, no postnatal osteometric age was calculable. The other 10 burials with associated inclusions in this age group had similar situations in which osteometric estimations were limited by availability of applicable aging methods. Osteometric ages either bridged the between fetal and postnatal ages (#6005, 10086, 10130, 10206), ended at 40 fetal weeks (#10238, 10289, 10494), or only involved a single osteometric measurement (#6141).

A total of 55 burials were recovered with safety pins and 36 were recovered without. Of the burials in the group without safety pins, 12 were recovered with clothing, and two with inclusions. The following burials were recovered with clothing but not safety pins. Burials #6050 and #10039 were recovered with a single straight pin and #10162 was recovered with both a straight pin and fabric. Five burials (#6130, 9105, 9128, 9325, and 10245) were recovered solely with buttons. One burial, #10076, was recovered with a fabric blanket, and #10087 was recovered with a metal buckle, shell buttons, and a fabric pillow. A fabric pillow, along with a glass button, cloth, and hair were recovered from #6116. Last in in this group was #10133, which was associated with a fabric bandage wrapped around metal pin, some unknown metal, and thread.

Other Material Culture and Age Results

Inclusions: Inclusions were recovered from 74 burials. Twenty-five out of 106 fetal burials, based on attributed age categories, contained inclusions (24% of fetal burials). In comparison, 12% of perinates (n=21) and 16% of infants (n=28) were recovered with inclusions. Over half of the burials recovered with inclusions were also associated with clothing (n=38) and

28 total burials were recovered with items from each of the clothing, safety pin, and inclusion categories. There were 22 burials with material culture only from the inclusion category.

Three burials (#9120, 10204, and 10592) were recovered with items from each of the four categories of material culture. Burial #9120 was associated with safety pins, cloth, glass and plastic fragments, paper, a chain, and a cross (possibly from a rosary). Both dental and osteometric assessments agreed with the perinatal age category.

Burial #10204 was recovered with fabric, safety pins, a fragment of melted glass, a microscope slide, seeds, and items tentatively identified as BBs. The osteometric age range was between 28 and 32 fetal weeks, while dental age was between 17 and 35 fetal weeks. Even though items recovered from the grave of 10204 were classifiable outside of the Inclusion category, both dental and osteometric age estimations place the remains below the threshold of viability, suggesting that the grave appears to have served the purpose of disposal for one of the local medical institutions. Possible evidence of tool use/severing cuts were present on the left ilium, further suggesting medical interactions prior to burial.

Burial #10592 was recovered with the following items: two fabric bows, a shell button, fabric with adhered metal, safety pins, and a cuprous tube. The bows were recovered near the left wrist and the copper piping was recovered near the pelvis in the south coffin wall. Based on osteometric and dental age estimations, the individual was in the perinatal range. The osteometric age range was 32-40 fetal weeks and the dental range was 32 fetal weeks to eight postnatal weeks. Safety pins and clothing suggest the child was born alive, though the early osteometric age may indicate preterm birth and a high risk of early infant mortality. Prevalence

of low osteometric ages and preterm births are further discussed below in relation to maternal health infant mortality rates.

Discussion

Results of the osteological analyses identified discrepancies between dentally- and osteometrically-derived ages. The largest inconsistency was between individuals who were categorized as perinate based on osteometric measurements and as infant based on dental age estimation methods. Few infants were identified osteometrically (n=27), while infant was the largest age group identified dentally (n=178). There was no association between personal items and dental, osteometric, or attributed age categories. Associations were found between attributed age categories and the recovery of clothing. Dental and osteometric ages were also associated with clothing. Infants were more likely to be recovered with clothing items than either fetal or perinate categories, regardless of the method of aging. There was moderate association between inclusions and age.

Age Results

Sunderland et al. (1987) was used during analysis of the 2013 collection to estimate age based on the presence of deciduous dentition. This source identifies the timing of deciduous crown mineralization, measured in weeks post-fertilization. Age ranges associated with this method encompass ages between 13- and 20-weeks post-fertilization. While the standard project procedures for 2013 had a step built into the attributed dental aging process to identify contradictory observations, ages generated from Sunderland et al. (1987) were still used on occasion. Sunderland et al. (1987) was excluded completely from the analysis of the 91-92

collection to avoid underestimation of ages. For example, burial #10158 had a calculated mean age of 35 fetal weeks resulting from the low age range generated by applying Sunderland et al. (1987). Applying the modified techniques, the dental age range would have been 38 fetal weeks to two postnatal months. The utility of Sunderland et al. (1987) was that teeth did not need to be complete for assessment, so long as they were identifiable. While the other methods required observable developmental edges, this method did not, making it the only available dental age estimation for some burials. However, the assessment marked the bare minimum age of an individual, not its developmental progress.

Distinctions between dental and osteometric ages suggest that skeletal age was commonly underestimated in this dataset. These results are consistent with previous research conducted by Laura Hutchins (1998). Hutchins found that, among a sample of fetal and infant burials from the 1991-1992 collection, MCPFC long bone growth standards were lower than modern standards and more consistent with other archaeological populations (Hutchins 1998).

Inadequate fetal growth is related to significantly higher rates of infant mortality and may reflect maternal health. A recent study looked at aberrant fetal growth over a 12-year span in Milwaukee (1996-2007). Researchers compared the prevalence of small for gestational age (SGA), appropriate for gestational age (AGA), and large for gestational age (LGA) with infant mortality. SGA is defined as neonatal birth weight below 10% for the gestational age (Chen et al. 2011). Factors for inadequate growth include maternal disease, substance abuse, placental disease, and renal disease (Chen et al. 2011). Researchers found that the majority of SGA deaths occurred within 27 days after birth. Breaking down the postnatal period into early (0 to six days after live birth), late (seven to 27 days), and postneonatal (28-364 day) periods,

newborns with SGA had significantly higher mortality for each period compared to AGA or LGA. Five other factors were identified that also increased the risk of death, in descending order; preterm birth, absence of paternity on birth record, hydramnios or oligohydramnios, cesarean delivery, and abnormal condition of newborn at birth (Chen et al. 2011: 261.e8). Preterm birth is to this day one of the leading causes of death within the first year of life. Premature birth was identified as the primary cause of death in almost 13% of the MCDCs for individuals under six months who were buried at the MCPFC.

The inclusion of osteometric, dental, and a "summary" attributed age was important to account for variation in rates of growth and development and to identify possible preterm births. Objectivity of growth rates must be considered alongside population variation, inter- and intra-observer error, and the range of preservation across observable elements. The bioarchaeology of prenatal and postnatal subadults relies upon consistent methods, and interpretations of topics like infant mortality and weaning hang upon estimated ages. If only osteometric ages were used, in the case of the MCPFC, interpretations would suggest that the perinatal category was the largest age category among burials under one year. It would also suggest that perinates and infants were almost equally as likely to have been buried with clothing. Some skeletal or dental components may be more reliable than others, but due to any number of factors, those components may not be well enough preserved. Multiple routes should be considered, and the results of each trajectory should be taken into account when making conclusions. The lower osteometric ages compared to dental development in this dataset is consistent with previous MCPFC research that indicated slower rates of development

among the fetal and infant population and in general with a population that was susceptible to preterm birth.

Chapter 6 Historical Document Results

"The bodies on which gender and other social identities are mapped in mortuary contexts are not actors but objects; the actual performers are the deceased's living contemporaries." (Arnold 2016:842)

Introduction

In this thesis, the interest in discourse stems from the ambiguity of skeletal material in allowing us to determine solely on the remains whether they were stillborn or born alive. In many instances, historical documentation included clues to the relationships between the dead and the living. The Cemetery Burial Ledger, Milwaukee County Death Certificates, and Coroner's Inquests identified subadult individuals by name or an alternative identifier such as an age-related term or surname. The results of that analysis follow. First, results from the death certificates of individuals buried at the MCPFC are presented, followed by the results from the Register of Burial. The discussion section compares the results from both sets of documents and provides interpretation of conclusions in relation to the results of the skeletal analysis.

Milwaukee County Death Certificates

Data from MCDC files utilized the archival work previously conducted by Brooke Drew (2018). While reviewing the Cemetery Register of Burial and Milwaukee County Death Certificates, it was noted whether subadults were identified through their relationships with adults. For instance, many children are not listed by name within the Burial Ledger, but rather are referred to as "child of…" and a parent's name. A few instances refer to the subadult with an alternative term like son, daughter, etc., but still indicate the existence of a relationship with a known adult individual.

Overall Age Distribution

A total of 1799 death certificates were included in this analysis. Based on ages derived from the death certificates, the entries were identified as fetal (<32 fetal weeks), perinate (32 fetal weeks to 1.9 postnatal weeks), or infant (two to 52 postnatal weeks). The majority of entries were perinatal (n=1070, 59.5%), followed by infant (n=660, 36.7%). Fetal entries were the smallest group, with 69 entries (3.8%) (Table 6.1; Figure 6.1-6.2).

Table 6.1 Distribution of MCDC age categories among entries under one of age between 1882-1925.

Fetal	Perinate	Infant	Total
69	1070	660	1799

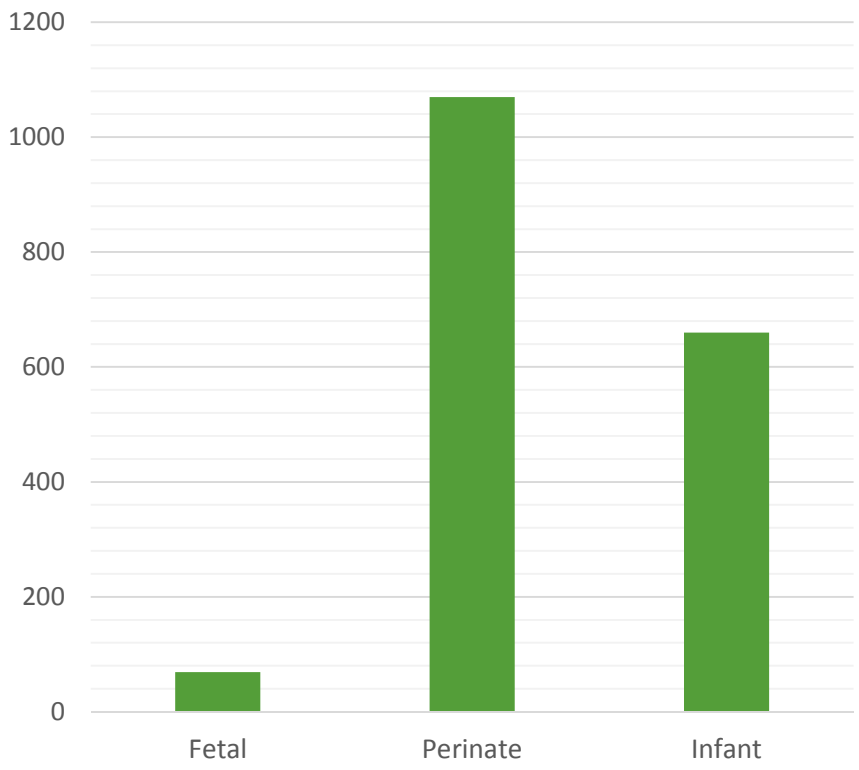

Figure 6.1 Distribution of age categories based on ages listed in Death Certificates (1882-1925).

Distribution of Identified Categories

A total of 735 entries included an age-related term (40.9%) while 1064 entries (59%) were not associated with any age-related term. “Foetus” (sic) was used to describe decedents in 15% of the entries (n=274) and “Infant” was used in 13% (n=237). “Child” was used as an identifier slightly less frequently, with 11% (n=200). Only 24 entries were identified as “Baby” or “Babe” (1.3%) (Table 5.2; Figure 6.3).

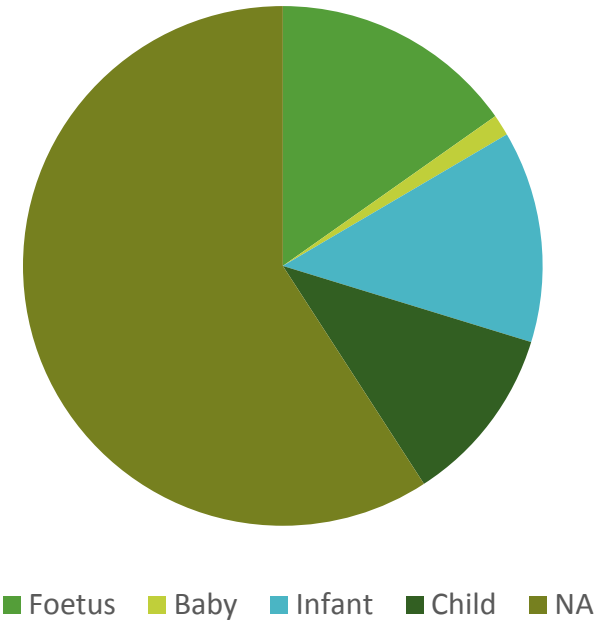

Figure 6.2 Proportion of age-related terms used in Death Certificates (1882-1925).

Table 6.2 Use of age-related terms in MCDC (1882-1925).

Foetus	Baby	Infant	Child	NA	Total
274	24	237	200	1064	1799

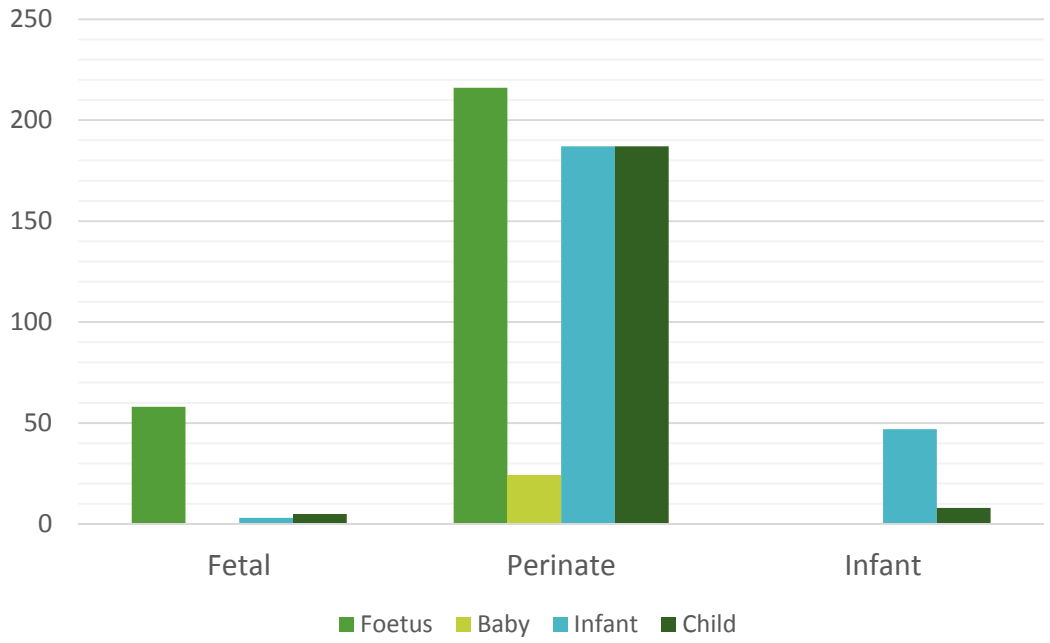

Figure 6.3 Age-related terms applied to Death Certificate entries from each age category.

Comparison of Identified Categories to Overall Age Distribution

The listed age of the individual was compared to the age-related term that was applied to it. There was an association between the identified age-related term and the summary age category that an individual entry was assigned (Pearson χ^2=686.79, df=8, p>0.001) and there was a medium effect (Cramer's V=0.437). All entries that included "Babe" or "Baby" were in the perinatal age category. Entries labeled "Infant" were much more likely to be in the perinatal age category (n=187, 78.9%) than either Fetal or Infant individuals. Entries in the Infant age category were rarely identified using one of the age-related terms (n=55, 8.3%). Infants were more likely to have been listed with their first and last names, as opposed to a more general age-related term.

Identification through Parents

Overall, 860 entries included the decedent's first and last name (47.8%) (Figure 6.4). A Chi-squared test indicated that there was an association between age and whether or not an entry was listed with a full name (Pearson χ^2=784.36, df=2, p>0.001). The Cramer's V indicates a large effect (Cramer's V=0.66). Infants were more likely than fetal or perinatal to be named. Only one fetal entry was named (1.4%), compared to 260 perinates (24%) and 599 infants (90.8%) (Table 6.3).

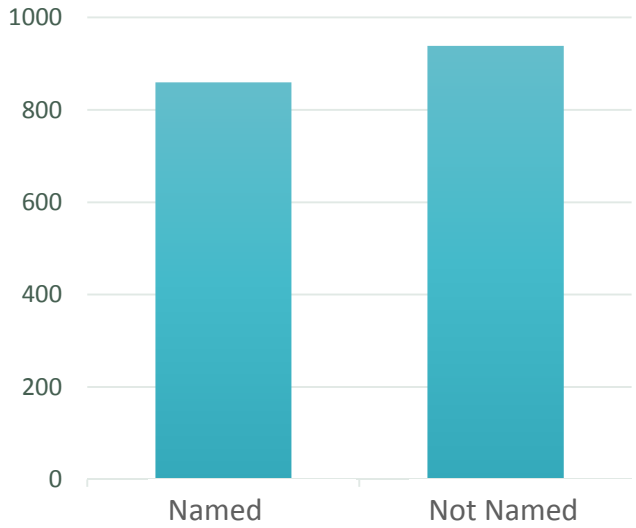

Figure 6.4 Proportion of named Death Certificate entries in dataset.

Table 6.3 Relative frequency of each age category identified with relation to a parent.

Age category	Named	Associated with Parent	Identified "as child of"
Fetal	0.014	0.246	0.029
Perinate	0.243	0.837	0.274
Infant	0.908	0.989	0.009

Individual entries were categorized by whether they were associated with a parent, i.e., whether a last name was listed for the entry. A total of 1566 entries (87%), were associated with a parent (Figure 6.5-6.6). The remaining 233 (13%) were unknown. There is an association between the summary age category and whether an entry was associated with a parent (Pearson χ^2=333.56, df=2, p>0.001) and there is a medium effect size (Cramer's V=0.429). Fetal entries were only associated with a parent 24.6% of the time (n=17), while 83.74% of perinates (n=896) were associated with a parent. Infants were associated with parents 98.9% of the time (n=653).

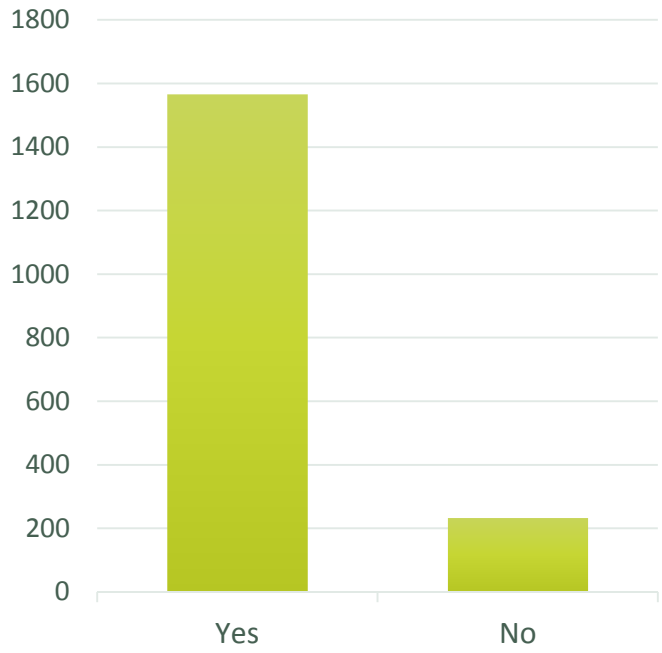

Figure 6.5 Proportion of Death Certificate entries associated with a parent in dataset.

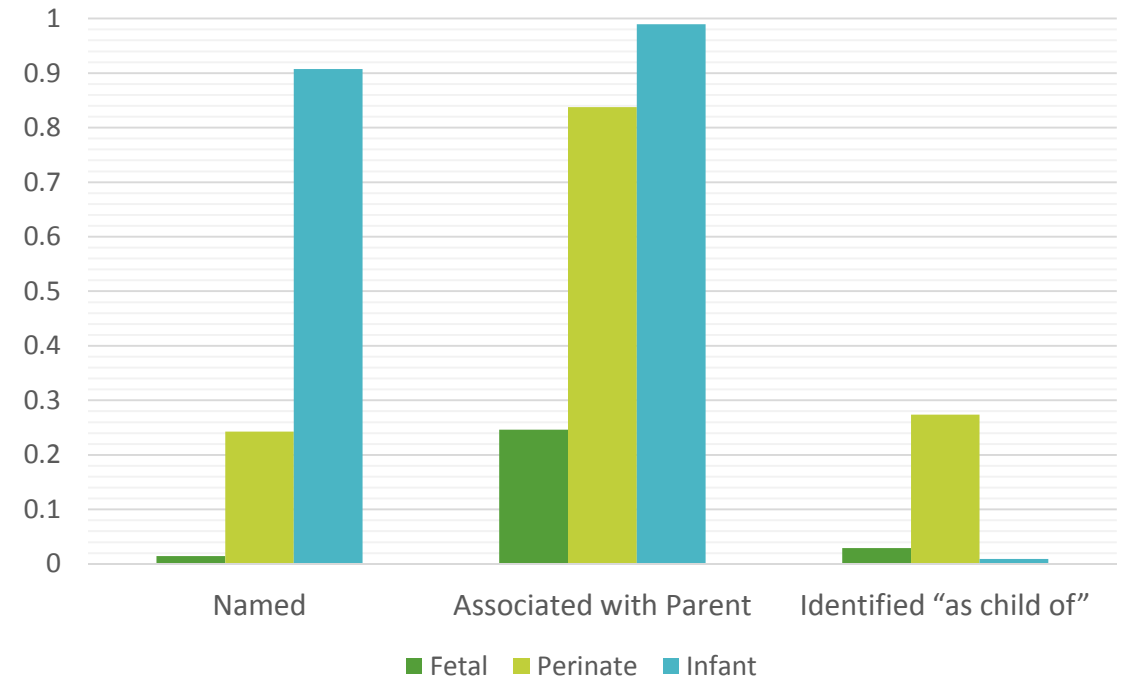

Figure 6.6 Relative frequency with which each category identified in relation to a parent in death certificates.

Register of Burials

The type and specificity of entries detailed in the Register of Burials was inconsistent through time and additional listed information was documented when available. Earliest entries were strictly names, date of death certificate, certificate number, and grave number. From May of 1898 through the end of 1907, individual’s ages were included in Register entries. Beginning in 1908 and continuing at least through 1925, ages were replaced with cause of death. “Place” was also recorded starting in May of 1898. Entries in this column were typically general locations from where the bodies came, such as the city of Milwaukee, the town of Wauwatosa, or the County Morgue. In some instances, specific hospitals or addresses from the community were listed. Names and words were transcribed with as much accuracy as possible to reflect the

spelling of the handwritten words, though discretion and imagination was necessary in some instances of poor legibility.

Overall Age Distribution

A total of 626 entries were included from the Register of Burial. Entries were only included from two time periods that the cemetery was in use: May 1898 through December 1907 and Oct 18, 1920 to May 27, 1925. Over half of the dataset (n=369, 58.9%) did not have associated ages. Infants were the largest single age group (n=205, 32.7%). Only 51 perinates were identified (8.14%) and one fetal entry (0.16%) (Table 6.4; Figures 6.7).

Table 6.4 Overall age distribution of subadult Burial Register entries.

Fetal	Perinate	Infant	Unknown
1	51	205	369

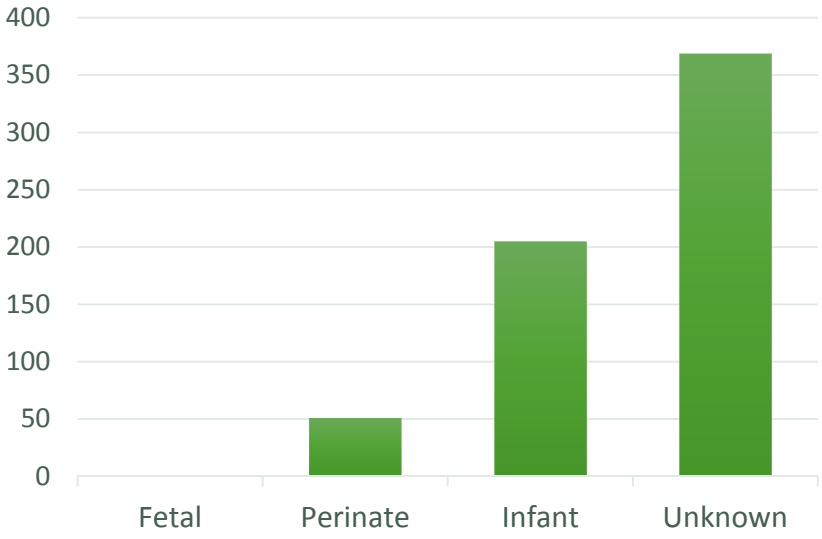

Figure 6.7 Age distribution of Burial Register entries.

Distribution of Identified Categories

A total of 257 entries (41.1%) included an age-related term as an identifier and 369 (58.9%) had no age-related term. “Child” was the most commonly used age-related term (n=145, 23.1%). It was used twice as frequently as “Foetus” (sic), which was the next most

frequently used term (Figure 6.8). "Foetus" was used to describe 62 entries (9.9%). "Infant" was used in 35 entries (5.6%), "Baby" or "Babe" in 24 (3.8%), and "Foundling" was used three times (0.48%).

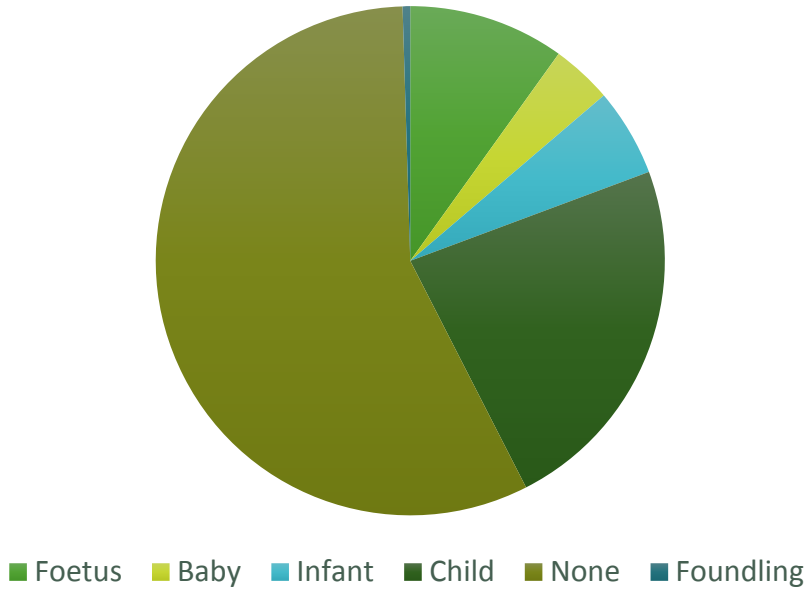

Figure 6.8 Use of age-related terms in Burial Register.

Comparison of Identified Categories and Overall Age Distribution

The listed age of the individual was compared to the age-related term. Given the high frequency of entries without estimable ages, however, results of Chi-square tests were not meaningful.

Identification through Parents

A total of 338 individuals (54.0%) were identified with a first and last name. A Chi-square test indicated that there was an association between summary ages and whether an entry included a full name (Pearson χ^2=279.21, df=3, p>0.001). The results of Cramer's V indicated a

large effect (Cramer's V=0.668). The Infant age group was most often named (n=198, 96.6%), followed by Perinate (n=42, 82.3%). Entries of unknown age were named only 26.6% of the time (n=98) (Table 6.5; Figure 6.9).

Entries were more likely than not to be associated with a parent (n=513, 81.9%). A Chi-square test indicates that there is an association between age and an individual's association with parents (Pearson χ^2=75.670, df=3, p>0.001). The effect size was medium based on a Cramer's V of 0.348. Infants and perinates were both associated with parents around 98% of the time (n=200 and n=50, respectively). Entries of unknown age were more likely than not associated with parents (n=263, 71.3%).

In 18.5% of cases, the individual was identified through a parent using phrasing such as "daughter of", "son of" or "child of" (n=116). In these instances, the child was identified through the father 65.5% (n=76) of the time, through the mother 29.3% (n=34) of the time, and in 5.17% of the cases, the gender of the parent could not be discerned (n=6).

Table 6.5 Relative frequency of each age category identified with relation to a parent in the Burial Register.

Age Category	**Named**	**Associated with Parent**	**Identified "as child of"**
Fetal	0.000	0.000	0.000
Perinate	0.824	0.980	0.137
Infant	0.966	0.976	0.000
Unknown	0.266	0.713	0.295

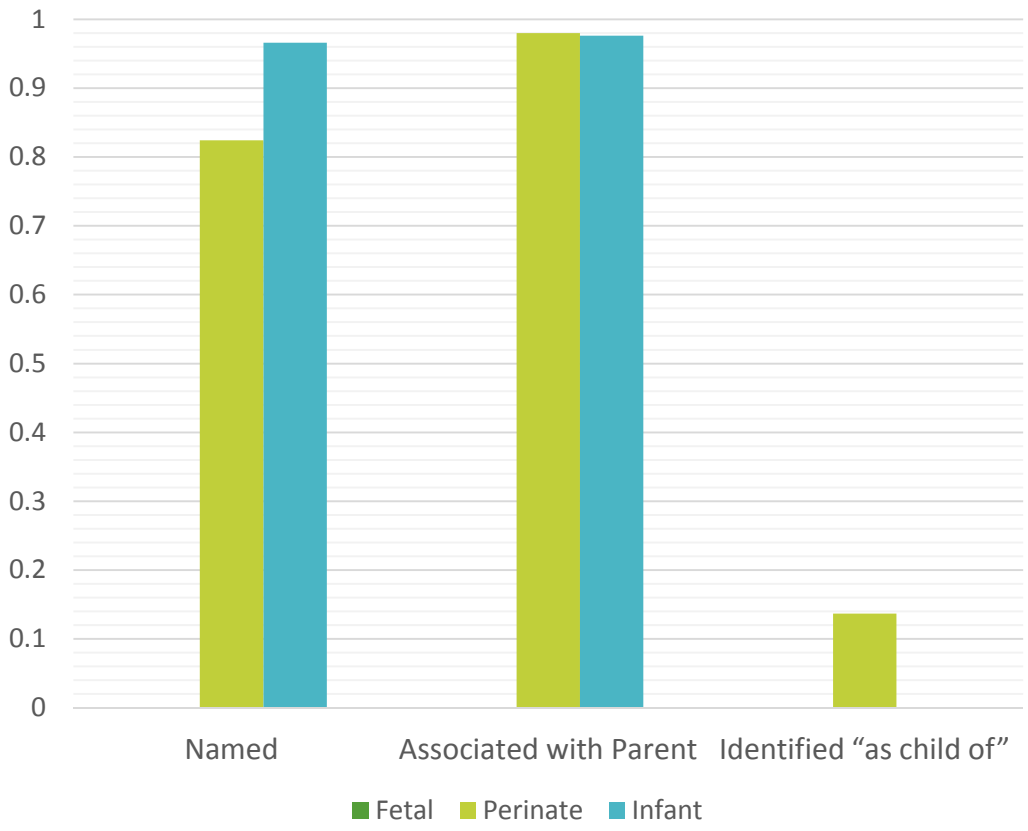

Figure 6.9 Relative frequency with which each category identified in relation to a parent in the MCPFC Register f Burial.

Discussion

The purpose of this research component was to explore how fetal, perinatal, and infant decedents were identified in historical records. Through the language of the records, we can see more concretely the attribution of personhood by the same actors who would be involved in the decedent's mortuary treatment. To summarize, the fetal group was least likely to be explicitly listed in the MCDC or Register of Burial. I say explicitly because it is possible that they were recorded without a known age and were therefore not included in the group for analysis. The relative proportion of fetal-aged entries is certainly lower than the proportion of skeletal remains that were estimated to be fetal. Despite being underrepresented in the records, the term "Foetus" (sic) itself was used more frequently than any other age-related term to identify

individuals. Fetal-aged entries were more often referred to as “foetus” than either perinate or infant ages, but the term was applied to perinatal entries as well. Fetal entries were rarely named and were least likely to be identified through an association with a parent. Again, their presence in MCDC and the Register of Burial indicates that recognition of their deaths was important, at least to those who were keeping the records, i.e., the county. The anonymity and ambiguity of fetal entries however suggest limited personhood was attributed to decedents in this age category.

The bioarchaeological results for perinates indicated a range of patterns that fell between fetal and infant treatment. The historical records are more definitive in terms of how perinates were differentiated from the other two age groups. “Infant”, “Child”, and “Foetus” were the age-related terms most often used to refer to perinates. Perinates were named in death certificates 24% of the time yet were identified through an association with a parent almost 84% of the time. Perinates were identified in the Register at a higher rate than they were in death certificates (98%), likely impacted by the high number of Register entries without an age-at-death listed.

Identification with parents was an important component to this research. On the one hand, association with a parent reflected a connection that the dead had with the living. The shared name was something that would live in perpetuity through the written record. Documentation also was an acknowledgement that the child belonged to someone. This was potently visible in instances where phrases such as “child of…” were used. The majority of perinatal death certificates had an identity established through their relationship with a parent, even though less than one-quarter of the perinates were listed with a first and last name. Given

that over 90% of infants were identified by first name, it does not seem that the lack of first names among the perinate category was an oversight by recordkeepers. Nor was it the case that the perinates were abandoned or unknown. They simply had not yet received a first name. The attribution of personhood among the fetal, perinate, and infant burials at the MCPFC was a process, not an isolated event. Personhood was not accorded fully at birth because the sustainability of life itself was uncertain. Yet as individuals moved beyond two postnatal weeks in age, the precarious personhood became more firmly established through the acknowledgment of a full name and association with parents. Infants were named over 90% of the time and almost all infant entries were associated with parents (98.9%).

On the other hand, identification through parents could be seen as a way to hold them responsible for the death. Decedents identified through phrasing such as “child of”, “son of” or “daughter of” were most often listed with the father’s name. Interestingly, only mothers are listed in these cases when the manner of death was deemed a homicide. The individuals who went through the physical labor of childbirth only received acknowledgement when authorities were looking for culpability. For instance, the death certificates for the children of Rose Derra and Philomena Widman both list the names of the involved fathers, but the decedents are identified as “male child of Rose Derra” and “female child of Philomena”.

The shift of childbirth management from midwives to physicians also promoted the concept of fetal life at the expense of the woman. Midwives continued to be popular in Milwaukee through 1920, but access to their services depended upon one’s neighborhood and ethnicity. Borst (1989) found that Milwaukee midwives from 1870 to 1920 predominantly worked within their ethnic communities. In Milwaukee County, 61.5% of birth attendants had

come from Germany. Polish and Russian midwives were only found in Milwaukee County, while Scandinavian midwives predominantly served rural Wisconsin counties. Those who traveled out of their own neighborhood for work, did so to attend to members of the same ethnicity (Borst 1989).

Medical schools in Milwaukee offered cheap or free medical attention to people who could not afford their own physician. This included attendance at the birth of a child in one's home or temporary residence at the county's lying-in facility. If one wanted to continue working throughout pregnancy, the lying-in hospital was not a reasonable option. Likewise, women who were employed as domestic staff and lived at their employer's house would have to navigate homebirth, with or without their employer's knowledge. Physicians were skeptical that a woman could go through childbirth alone and were more likely to believe that death was accidental if someone did not have a physician present at birth. By today's measures, this could lead to charges of child endangerment, neglect, or intentional infanticide (Goodwin 2016).

Concepts of personhood are constructed and engaged through social, political, and economic powers (Hodder 1995). Under a paternalistically watchful eye, women are urged to make the right decisions, live up to biological duties, and find fulfillment in motherhood, because that is the role valued by society. The responsibility to carry a fetus to term is not one that ends after nine months. One must shoulder the mental and physical labor, not to mention monetary expenses, of raising a child. Reproduction, broadly defined, is "the power to determine who lives and who dies" (Kaufman and Morgan 2005:322). Focusing on the personhood of fetuses distracts us from the larger issues that unequally threaten the lives of women. It is not a moral issue about the protection of innocent life; it's about controlling who is

contributing to the population. As long as reproductive health care lies in the hands of people without uteruses, they have the power to chastise, criminalize, and keep women in a state of dependence.

Chapter 7 Conclusions

> "The poverty stricken, overworked and overburdened woman, perhaps already the mother of a greater number of children than she can properly care for, becomes pregnant and with the dread of the condition born of former experiences naturally looks about her for some means of escape. After repeated and vain efforts to accomplish her desires through alleged successful remedial agencies she not infrequently consults the doctor. Her tale is a pitiable one, her theories plausible though faulty, and her plea for assistance pathetic. In her condition and position she loses sight of everything but her pregnancy and is willing in her disturbed state of mind to incur almost any risk in an attempt at relief…Firmness on the part of the doctor and an absolute and emphatic refusal to entertain even a criminal proposition, coupled with a little wholesome advice and a clear exposition of the dangers and wrong connected with the operation, will usually send the patient away reasonably well satisfied that her best interests will be subserved by leaving matters alone and sooner or later she will know that the advice given her was the advice of a friend."
>
> W.H. Earles 1902

Originally read before the Milwaukee County Medical Society, the article "Criminal Abortion" by W.H. Earles, M.D. addressed the professional and moral responsibility that physicians have to both mother and fetus and the criminality of terminating life before birth. Earles asserted that modern legislation fixes the start of life at conception, thereby granting embryos the same rights as those "having a distinct, separate and individual existence" (Earles 1902:303). The article, published in the *Milwaukee Medical Journal* in 1902, focused on physicians' roles in reducing abortions, but behind that argument lies the belief that fetal personhood is established at conception and that their patients are best served when nature is allowed to run its course. The above passage exemplifies the physician's paternalistic and uncompromising view of women, particularly poor women, and the resolve with which they would deny compassionate care at the expense an already struggling family.

Criticism within professional medical discourse that patronizes and denigrates women may drive patients to put themselves in harm's way by concealing pregnancies, seeking care from less reputable sources, or attempting abortions or deliveries alone. Yet medical discourse on fetal life at the turn-of-the century was not one-sided. There were certainly physicians who valued the lives of women over the unborn child, particularly when continuation of pregnancy would threaten the woman's life (Davis 1912). This study of mortuary treatment of fetal and infant burials recovered from the Milwaukee County Poor Farm Cemetery suggests that, while infants who definitively survived birth were more likely to be clothed and associated with family, there is more ambiguity in how fetal and perinatal remains were treated.

A short drive west out of downtown Milwaukee, Wisconsin lies the City of Wauwatosa, where state-of-the-art facilities of the Milwaukee Regional Medical Center sit proudly atop gently rolling hills. Once a Poor Farm where indigent Milwaukee inhabitants could work in return for basic necessities like food and shelter, the land has undergone multiple transformations throughout the history of Milwaukee County. For over a century, the past has been swept under the rug there in efforts to keep up with a growing population and medical advances. In 1852, a portion of the land was purchased to develop a working Poor Farm; over time, the Milwaukee County Institution Grounds housed numerous county institutions, as well as cemetery space for the community poor and those who died at one of the county-run institutions.

The Milwaukee County Poor Farm Cemetery may be a misleading name, given that only a fraction of the cemetery population spent time institutionalized under the care of the county. In addition to patients, inmates, and orphans who died while on the Milwaukee County

Institution Grounds, unidentified and unclaimed remains from the Milwaukee County Coroner's office, the remains of medically dissected individuals as well as the dead whose families were unable or unwilling to secure burial elsewhere all received an expedient burial at the expense of the county.

There were four designated cemetery locations on the Milwaukee County Institution Grounds containing an estimated total of over 10,000 buried individuals. Approximately 1649 individuals were recovered at the MCPFC during excavations conducted in 1991-1992 and an additional minimum total of 665 individuals were excavated in 2013. The remains of those laid to rest at the MCPFC represent a unique burial population, in the sense that they were not unified by one religion, ethnicity, or familial line like many formal cemeteries in the United States. What tied them to one another was the fact that they were not afforded burial elsewhere. Uniform graves provided a nominally-respectable burial at the lowest possible cost to Milwaukee County while obscuring the dynamic backgrounds of the population and severing relationships with the living.

We will never have a complete picture of the past. Ambiguity in the archaeological record however should not prevent us from questioning why some subjects are privileged while others are silenced (McCann and Kim 2017:11). Devaluation and suppression of historical experiences from public discourse obscures the perpetuation of medical dominance over childbearing individuals. While this power is also supported by a gendered and racialized social structure outside of medicine, the scientific and professional authority granted to physicians directly impacts political and legal policy.

The simple graves at the MCPFC fail to convey the complexity of life and death in the late 19th and early 20th centuries. A fetus, newborn, child, and adult could all expect equal treatment from the county. The very fact that some fetuses received burial space in the cemetery speaks to how early development was conceptualized during this time period. Feminist thought criticizes the construction of categorical difference, asking how naturalized binaries or oppositions intentionally enforce hierarchies and systems of exclusion. The categorical distinctions that can be drawn from here include, but are not limited to, person or non-person, fetal or infant, man or woman, unintentional or criminal, medical or layperson, paying customer or indigent individual. Fetal burial within the MCPFC suggests that those in charge of indigent burials did not consider live birth a requirement for assigning personhood, yet distinct patterns in mortuary practices between non-viable individuals and those who survived beyond forty in utero weeks reflect contradictory individual treatment.

The research explored how material culture and biological age-at-death inform interpretations of personhood within an archaeological context. Estimations of age-at-death are critical to bioarchaeological research of subadults. I examined consistency of age estimation methods applied to subadults under one year of age from the MCPFC. I asked whether one type of age distribution follows more closely the distribution of material culture across the prenatal through infant population? Were any age categories more likely to be buried with clothing, safety pins, inclusions, and personal items? Were individuals with estimated ages beyond the perinatal period recovered with more or different material culture? Were fetal remains recovered with the same categories of material culture as older individuals?

In addition to the archaeological and biological data, this research used archival data to explore how those buried at the cemetery were documented in Milwaukee County Death Certificates and the Register of Burial at the Milwaukee County Poor Farm Cemetery. In particular, were distinctions made in the language used to identify fetal, perinatal, and infant decedents? Do both stillbirths and premature births have comparable records with regards to relationships with parents, names, age-related terms? Were unknown remains distinguished by age-related terms?

Materials

The bioarchaeological portion of the research was drawn from two skeletal collections, each recovered during archaeological excavations at the MCPFC. The collections are distinguished from one another by the years in which they were excavated: the most recent excavations occurred in 2013 and basic inventory and biological profiles for all individuals were completed in the time since excavation. Comparable analysis of the 1991-1992 collection remains incomplete; however, in July 2017 Dr. Patricia Richards received the Research Growth Initiative Award 101X357 (RGI) from the UWM Graduate School to fund the analysis and documentation of this collection. All subadult age-related data from the 1991-1992 collection used in this research were generated by RGI-funded work.

Due to time constraints, analysis of subadults from the 1991-1992 collection focused on two areas of the cemetery, the “6000s” in the southwest and the “9000s” in the northeast. Skeletal preservation was noted to be better among the subadults in these areas over others, though differential preservation rates were observed between the 6000s and 9000s as well. Previous research by Shillinglaw (2010) found that the 9000s were in poorer condition, due in

part to the northeast burials being in lower, wetter ground, as well as the area being older than the southwest part of the cemetery. Time was split evenly between the two areas. In total, 241 of the analyzed subadults from the 1991-1992 collection were under the age of one year at death and included in this research. Additionally, 215 burials under the age of one were identified from the 2013 collection. Combining the two collections, a total of 456 burials, including skeletal remains and associated material culture recovered from the grave, were included in the research

This dissertation also analyzed the use of language in the conceptions of personhood assigned to fetal, perinate, and infant decedents. Primary source data were compiled from the MCPFC Register of Burial and Milwaukee County Death Certificates. Additionally, Milwaukee County Coroner's Inquests provided invaluable narratives of concealed, abandoned, or discarded perinates within the community.

Osteology

Basic inventory, age, pathology, and taphonomy were documented for all subadults from the 2013 collection. Age estimation consisted of three assessments: fusion, dental development, and osteometrics. Each assessment resulted in its own set of mean age and age ranges. The fusion age assessment classified subadults into one of four broad age groups. From this classification, more developmentally-specific methods of age estimation could be applied for more precise conclusions. The four fusion age groups were: prenatal to 2.5 years, early childhood (2.5-5.9 years), late childhood (6-12.9 years), and adolescent (13-19.9 years). The primary element development and epiphyseal fusion of joints throughout the skeleton were evaluated, with timing of completion spanning between 20 fetal weeks to greater than 30

years. All areas of evaluation are listed in the Fusion form (see Appendix XX) and were compiled from Scheuer and Black (2000) and Schaefer et al. (2009) (Richards et al. 2016).

Osteometric analysis of the 2013 subadults was conducted based on the methods developed by Fazekas and Kósa (1978) and Maresh (1970). Sliding calipers were used for all measurements except long bone length, which was measured with a digital miniature osteometric board. Left elements were measured unless incomplete, in which case the right side was used if available. The highest and lowest ages resulting from the observed measurements were combined to create an overall estimated osteometric age range. The mean age was ultimately used to categorize the individual into the three age categories defined for the present research.

Dental age was estimated using the following assessments: Moorrees et al. (1963a, 1963b), Sunderland et al. (1987), and Ubelaker (1989). Moorrees et al. (1963a, b) presents a total of 14 stages of dental development based on radiographs from a longitudinal study conducted by the Fels Research Institute in Yellow Spring, Ohio. Only the deciduous mandibular canine and first and second molar were utilized in Moorrees et al. (1963a). Each tooth was assessed independently for degree of crown, root, and apex mineralization. The method had no corresponding stages of development for individuals under 0.15 years of age, making it ineffective for fetal and perinate aging.

Sunderland et al. (1987) identifies the 15th percentile of the presence of mineralized deciduous dentition in weeks post fertilization and the range for the mineralization of each deciduous tooth type. Sunderland et al. (1987) age standards were assigned to dentition and the oldest assigned age was recorded.

The dental development charts of Ubelaker (1989) depict development from five months in utero through 35 years of age and are a standard method of age estimation among archeological populations. Four stages of development were applicable for the age range of this sample: five months in utero (± two months), seven months in utero (± two months), birth (± two months), six months (± two months), and nine months (± three months). Rather than assessing each tooth separately, individuals were assigned an age range based on which stage most closely reflected the set of teeth recovered.

From the results of the three methods, the lowest and highest age estimations were combined to create an overall estimated dental age range. The present research assigned dental age categories (fetal, perinate, or infant) to burials from the 2013 collection according to these measurements. A few changes were made to the subadult age estimation protocols prior to analysis of the 1991-1992 collection. Among dental development, the London Atlas was used instead of Moorrees et al. (1963a, b). Maresh (1970) was also replaced with Primeau et al. (2015) for postnatal osteometric standards.

Age categories were assigned to each burial from 1991-1992 and 2013 with estimated ages below one year at death. The fetal category corresponds to ages between nine and 31.9 fetal weeks. The perinatal category corresponds with 32 fetal weeks to 1.9 postnatal weeks an infant refers to ages from two to 51.9 postnatal weeks. The categories were applied to both dental and osteometric age estimations. Each individual was also assigned an “attributed” age. This age is essentially the conclusion of the analysis results. It was not always possible to estimate both dental and osteometric ages, but all burials were assigned an attributed age. If both dental and osteometric ages were measurable, then the dental age was given precedence

over the osteometric age. Without a dental age, however, an attributed age was still assigned using the osteometric age.

Material Culture

Material culture recovered with each burial was identifiable through GLARC and UWM-HRMS documentation housed at UWM-ARL. Items were classified into four categories: Personal items, clothing (not including safety pins), safety pins, and inclusions. Statistical analysis was performed in R. The statistical relationship between age categories and the recovery of each material culture category was tested through Pearson Chi-square tests. Effect size of associations was measured through Cramer's V.

Historical Documents

Data were collected from 1799 death certificates issued between February 13, 1882 and November 26, 1925 for individuals six months or younger (compiled by Brooke Drew). Data from the MCPFC Register of Burials were collected for 627 entries. Because the information listed for each decedent changed over the course of the Register's use, I only incorporated entries from two periods of time. The first, May 7, 1898 to December 31, 1907 included the age of the decedent for each entry. From October 18, 1920 to May 27, 1925, entries were assigned grave numbers that were distinguishable as either child or adult.

The following variables were collected for each type of document: whether subjects were recorded with a first and last name and whether they were identified with an age-related term such as "foetus", "babe", or "child". Each entry was also broken down to extrapolate data about relationships to parents. This was done by asking the following three questions: Was the

subject named “child of”, “son of”, “daughter of”, or another similar identifier? Was the child listed in association with an adult? And, if a parent was named, was it the father or mother?

Results

Osteological and Material Culture Results

Age estimation results did vary depending on the methods used. The breakdown of attributed age categories are as follows: 104 fetal, 173 perinatal, and 179 infant burials. Comparatively, only 47 burials were identified as fetal based on dental methods and 78 osteometrically. A total of 98 perinate and 178 infant burials were identified through dental methods, while osteometric estimations resulted in 275 perinate and 27 infant burials. Almost 30% of the burials were not assessable for dental age due to missing or damaged dentition (n=133). The largest discrepancy between osteometric and dental ages identified burials with perinatal osteometric age and infant dental age. In general, osteometrics underestimated age compared to the dental results. The lower long bone growth rates were comparable to previous MCPFC research that found the growth rates to be more consistent with other archaeological populations than modern standards (Hutchins 1998). Research on a modern population in Milwaukee indicated that newborns who are “small for gestational age”, defined as having a neonatal birth weight below 10% for their gestational age, have significantly higher infant mortality rates than those of appropriate or larger sizes at birth (Chen et al. 2011). Evidence of disparity between osteometric and dental age may be indicative of newborns who were preterm or small for gestational age.

The age estimations attributed to each of the 456 burials provides the bioarchaeologist with a basic understanding of where a body was developmentally in relation to others of known

chronological age at death. This is useful up to a point, as we can say with certainty that fetal remains with estimated ages below viability were not born alive. From there the osteological evidence must be weighed against other lines of evidence, including material culture, in order to conceptualize personhood at this age.

Only 11 burials were associated with personal items. There was no meaningful association between the presence of personal items and age. The presence of clothing was strongly associated with age. Over half (n=103) of the infant burials, based on attributed age, were recovered with clothing (Figure 7.1). Comparatively only 21% of fetal and 27% of perinatal burials were associated with clothing. Safety pins were recovered from 209 of the 456 burials included in this research. There was a large association between the recovery of safety pins and age category, regardless of aging method. Infant burials were more likely to contain safety pins than fetal or perinatal burials, and of the burials recovered with safety pins, fetal burials were approximately twice as likely to contain inclusions (24%) than either perinatal (12%) or infant burials (16%). There was a moderate association between attributed age categories and

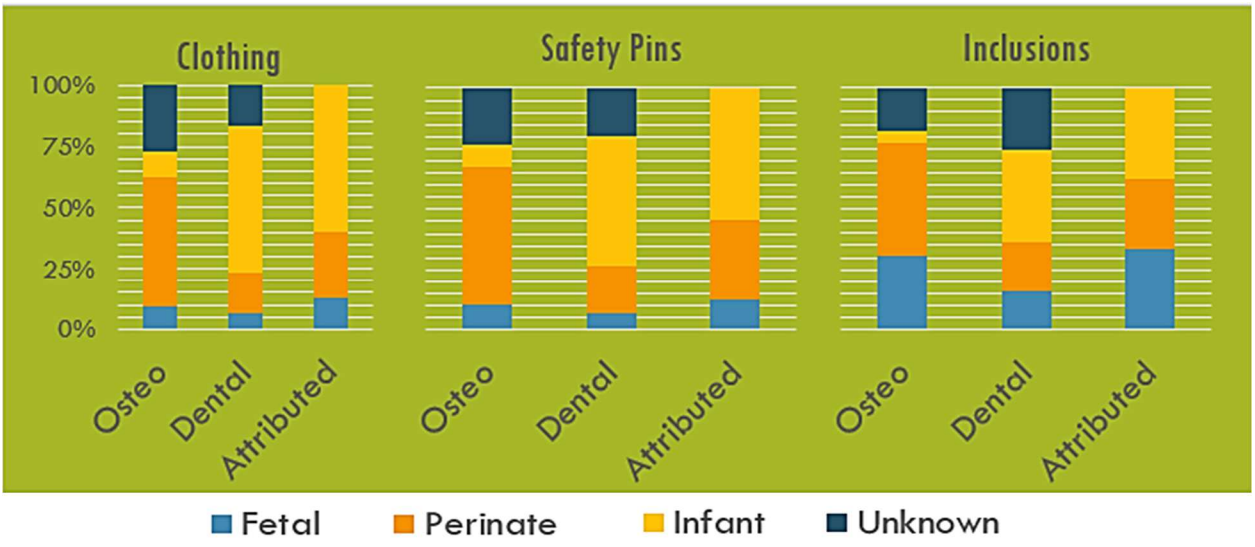

Figure 7.1 Relative frequency with which each age category was recovered with material culture.

presence of inclusions. Over half of the burials recovered with inclusions were also associated with clothing (n=38) and 28 burials were recovered with clothing, safety pins, and inclusions.

Inclusion of fetal burials alongside adult and other subadult burials suggests that the remains, though not viable, demanded some comparable form of mortuary treatment. The patterns of material culture recovered or absent from fetal burials indicate, however, a limited interpretation of personhood. Fetuses were most likely to be recovered with inclusions, or non-grave good items that were disposed within the grave. They were least likely to be recovered with either safety pins or clothing, and most likely to be recovered without any material culture at all. A higher percentage of fetal burials were recovered with inclusions than perinatal or infant burials, suggesting that the older a decedent was, the more likely it was that the family participated in acts that defined the personhood of the child, and the less likely it was that their grave would be treated as a site for disposal. For instance, the inclusions recovered with Burial #10204 are associated with medical activity or research, including a microscope slide, melted glass, and seeds. The burial also contained fabric and safety pins, which may reflect diapering, though given the rest of the burial, it is more likely some sort of bandaging. The estimated ages for Burial #10204 fell below the threshold of viability.

While an important goal of the MCPFC Project is to continue the work of individual identifications, it has generally been assumed that infant identification would be difficult if not impossible and indeed all identified individuals to date are adults (Richards et al. 2016). However, in the case of Lot# 6137, osteological and material culture analysis provided a putative identification. Lot #6137 had an estimated age of 24-30 fetal weeks based on osteometrics. A tin can, and nothing else, was recovered with the remains. This aligns with the

details of a Coroner's Inquest from April 19, 1917. The inquest describes the discovery of a fetus of approximately five gestational months in a tin can at the corner of 25th Street and St. Paul Avenue (Drew 2018).

Clothing was more likely to signify the other end of the age spectrum. Infants were likewise more frequently recovered with clothing than fetal or perinatal burials. A total of 172 burials were recovered with clothing, including 22 fetal burials. Among adults, recovery with clothing was associated with individuals who came from the coroner's office or who were members of the community. This association is likely the case of subadults recovered with clothing as well. A closer look at the types of clothing that were associated with each burial may be more indicative of the postnatal treatment of the decedent.

Infants were more likely than fetal or perinate burials to contain either clothing or safety pins. They were also least likely to be recovered without any material culture and most likely to be recovered with multiple unique material culture categories. The high frequency of clothing and low frequency of inclusions suggest that the body was attended to after death and that family or community members were invested in the mortuary treatment of the infant.

Perinates, by comparison, appear to represent a majority of the unknown and abandoned decedents. Almost 11% of the death certificates issued to decedents under six months of age between 1882 and 1925 were for cases in which discarded bodies were found within the community (n=195). While those who were brought to the cemetery by community members were likely, if dressed, to be in age-appropriate attire, abandoned bodies were often wrapped in assorted garments, sheets, or newspaper before being discarded. A closer look at the type of clothing recovered from a burial, therefore, may distinguish whether the body was

prepared by family for burial or whether it received informal disposal and only ended up receiving a grave at the cemetery because it wound up at the coroner's office. The records suggest in each of the above cases that the decedents were newborn, or as the inquests regularly noted, "full grown." Burials that were identified as infant were more likely than fetal or perinatal burials to have clothing. They would have exceeded the newborn period at which the discarded and discovered bodies from the community were found. It is more likely that the clothing associated with the infants were evidence of personhood. Meanwhile, burials under the infant age that were recovered with clothing, appear to have been more likely to be buried with adult garments, or fragments thereof. In one case, clothing makes the person, in the other, it concealed their existence.

Results from Death Certificates and Register of Burial

Among the death certificates, 59.5% were in the perinatal age range and 36.7% were infants. Only 3.8% of death certificate entries were for fetal decedents. Perinates were more likely than infants or fetuses to be identified using an age-related term. Almost half of the death certificates analyzed included the decedent's first and last name. Infants were most likely to have a full name listed (90%), compared to only 24% of perinates. Despite not being recorded with a full name, however, over 80% of perinates were identified through their relationship with a parent. Individuals were identified through parents using phrasing such as daughter of, etc. in 16.7% of the death certificate entries. In cases where decedents were identified through phrasing using child of, etc., 70% were identified with father, and 29% with mother.

Of the 626 entries included in the Register dataset, over half did not have associated ages. Only one entry was identified in the fetal age category. The distribution of the remaining

entries with listed age consisted of almost 80% infant individuals and 20% perinates. “Child” was the most commonly used term (n=145), followed by “foetus” (n=62). There was no meaningful measurement of association between age-related terms and actual listed ages of entries. 54% of register entries included first and last name. The infant age group was most often named (96.6%), followed by perinate (82.3%). Both infants and perinates were associated with parents around 98% of the time.

Through the language of the records, we can see more concretely the attribution of personhood by the same actors who would be involved in the decedent’s mortuary treatment. To summarize, the fetal group was least likely to be explicitly listed in the MCDC or Register of Burial. I say explicitly because it is possible that they were recorded without a known age and were therefore were not included in the group for analysis. The relative proportion of fetal-aged entries is certainly lower than the proportion of skeletal remains that were estimated to be fetal. Despite being underrepresented in the records, the term “Foetus” (sic) itself was used more frequently than any other age-related term to identify individuals. Fetal-aged entries were more often referred to as “foetus” than either perinate or infant ages, but the term was applied to perinatal entries as well. The term “foetus” or “fetus” in contemporary medical texts referred to life before full birth (Earles 1912). Fetal entries were rarely named and were least likely to be identified through an association with a parent. Again, their presence in MCDC and the Register of Burial indicates that recognition of their deaths was important, at least to those who were keeping the records, i.e., the county. The anonymity and ambiguity of fetal entries however suggest that these remains were more likely to be subject to abandonment or disposal and in fact rationalizes the informal disposal of fetal remains within the community. Higher

association with burial inclusions also suggests interaction with a county institution, medical school, or county coroner's office.

The bioarchaeological results for perinates indicated a range of patterns that fell between fetal and infant treatment. The historical records are more definitive in terms of how perinates were differentiated from the other two age groups. "Infant", "Child", and "Foetus" were the age-related terms most often used to refer to perinates. Perinates were named in death certificates 24% of the time and were identified through an association with a parent almost 84% of the time. Perinates were identified in the Register at a higher rate than they were in death certificates (98%), likely impacted by the high number of Register entries without an age-at-death listed. Case in point, entries of unknown age were only named 26.6% of the time yet were associated with parents 71.3% of the time (Table 7.1).

Table 7.1. Summary of age category associations.

Age Category	Material Culture	Named	Associated w/ Parents	Other Discourse
Fetus	Inclusions	1.4%	25%	Majority labeled "foetus"
Perinate	Safety pins, Clothing (less frequent)	24%	84%	Age-related terms and "as child of"
Infant	Clothing, Safety pins	91%	99%	Rarely associated with age-related terms or "as child of"

Identification with parents was an important component of this research. On the one hand, association with a parent reflected a connection that the dead had with the living. The shared name was something that would live in perpetuity through the written record. Documentation also was an acknowledgement that the child belonged to someone. This was potently visible in instances where phrases such as "child of…" were used. The majority of

perinatal death certificates had an identity established through their relationship with a parent, even though less than one-quarter of the perinates were listed with a first and last name. Given that over 90% of infants were identified by first name, it does not seem that the lack of first names among the perinate category was an oversight by recordkeepers. Nor was it the case that the perinates were abandoned or unknown because the majority did have an identifiable relationship with a parent. They may have simply not lived long enough to receive a first name. Another possible, if not overlapping, explanation is that if these deaths occurred near the time of birth, they were likely reported by a physician or midwife who was present. A newborn may or may not have received a first name, but that was not as important to vital statistics as details about the death itself. Either way, the attribution of personhood among the fetal, perinate, and infant burials at the MCPFC was part of a process, not an isolated event occurring at conception or birth. Personhood was not accorded fully at birth because the sustainability of life itself was uncertain. Yet as individuals moved beyond two postnatal weeks in age, their precarious personhood became more firmly established through acknowledgment of a full name and association with parents. Infants were named over 90% of the time and almost all infant entries were associated with parents (98.9%).

On the other hand, identification through parents could be seen as a way to hold them responsible for the death. Decedents identified through phrasing such as “child of”, “son of” or “daughter of” were most often listed with the father’s name. Interestingly, only mothers are listed in these cases when the manner of death was ruled a homicide. The individuals who went through the physical labor of childbirth only received acknowledgement when authorities were looking for culpability. For instance, the death certificates for the children of Rose Derra and

Philomena Widman both list the names of the involved fathers, but the decedents are identified as “male child of Rose Derra” and “female child of Philomena”.

The skeletal, material culture, and historical evidence suggest that infants, defined as individuals with estimated ages of two weeks post-birth, had stronger connections with family and continued to be cared for after death (Table 7.2). What I find more interesting, however, is the ambiguity with which the remains of perinates were treated. People still claimed the lives of the dead as their own through association with last names or the full names of parents.

Table 7.2. Summary conclusions of age category associations.

Age Category	**Interpretations**
Fetus	-More likely to be considered disposals -More likely affiliated with activities of medical school, institutions, or coroner’s office -Less likely attended to by family prior to burial
Perinate	-Majority associated with parent but not named -Less likely to be abandoned -Potential involvement of birth attendant/physician
Infant	-Dressed and diapered -Mortuary treatment -Almost all named and associated with parent -From community and/or coroner’s office

What has Changed?

For some, pregnancy and birth were experiences to be concealed from the public eye because failure to carry pregnancy through and bring a new life into the world could mean criminalization. The narratives of women such as Philomena Widman, whose pleas for an abortion were denied, resound today. Only three abortion clinics remain open in Wisconsin today and the state has among the most invasive laws aimed at discouraging individuals from

attaining abortions in the nation. Transvaginal ultrasounds are required in Wisconsin for individuals up to 12 weeks pregnant, during which time the provider must describe the image to the patient (Goodwin 2016). The medical imaging is not for the sake of the patient; it is an attempt to personify the unseen and confirm the existence of the fetus as an individual (Keane 2009). An in-person counseling appointment is required, followed by a 24-hour waiting period before any procedure can be provided. Telemedical administration of abortifacients, a tool that would reduce transportation and work-based barriers, is prohibited (Guttmacher Institute 2018). As history has shown, restricting access to safe abortions does not reduce the number of abortions that occur, it just makes them more dangerous. Drastic measures will be taken if and when safe reproductive healthcare is not available.

Safe reproductive healthcare, however, is not limited to contraception and abortion. Focusing on such only leads us back to the era of white middle-class women endorsing voluntary motherhood. “When Black and Latina women resort to abortions in such large numbers, the stories they tell are not so much about their desire to be free of their pregnancy, but rather about the miserable social conditions that dissuade them from bringing new lives into the world” (Davis 1982:355). The ability to choose if and when you have a child is only one side of the issue. Preterm birth was listed as the primary cause of death among 13% of the death certificates reviewed from 1882-1925. Today, Milwaukee, Wisconsin has one of the highest infant mortality rates in the nation and the high infant mortality disproportionately affects Black people. The infant mortality rates within the Black community in Milwaukee is approximately three times higher than the mortality rate for white infants (Sziarto 2017). Between 2005 and 2008, 58.7% of Black infant deaths in Milwaukee were attributed to preterm

births, defined as birth prior to 37 weeks in gestation. The greatest racial disparity in causes of infant mortality is also related to preterm births, though public health measures have tended to focus on racialized campaigns targeting sleep-related deaths (Sziarto 2017). Race itself is not the cause of the high infant mortality rates, but rather the chronic stress that accompanies a lifelong experience of racism (Stephenson 2017). Maternal health conditions and behaviors matter, but the economic, social, and environmental conditions that continually shape the lives of potential parents does as well. Systemic oppression has physiological effects that can lead to preterm births and ultimately deprive people of their reproductive futures.

In this research, I approached fetal and infant personhood through a feminist bioarchaeological framework. The large population of fetal and infant burials recovered from the MCPFC was intriguing and filled my head with hypotheses of infanticide, medical mishaps, delivery trauma, and abortion. As extensive as our understanding of the bones themselves may be however, it can never tell the full stories of the people who were interred at the MCPFC. Bioarchaeology loses relevance if we do not recognize the ambiguity that lies between assumed binaries like life and death, personal experience and professional discourse, person or not, agency or absence of choice.

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Appendix A: 2013 Subadult Osteology Analysis Forms

Juvenile Age Assessment Part I – FUSION Prenatal to Childhood Milwaukee County Institution Grounds Poor Farm Cemetery 47BMI0076/Collection Location: UWM–ARL & Curatorial Facility	**Lot No.** 2013.001-_____ Assoc. Lot #s: _____ ☐ Mixed lot assessment
Observer Name: Date Started: Date Completed:	
SUMMARY AGE Category: ☐ Prenatal (Prenatal – 2.49 y) ☐ Early Childhood (2.5 – 5.9 y) ☐ Late Childhood (6-12.9 y) ☐ Indeterminate **AGE RANGE:**_____ fw / pn m/ pn y *to* _____fw / pn m/ pn y ☐ Indeterminate * 'fw' fetal weeks; 'pn m' postnatal months; 'pn y' postnatal years.	

FUSION OF OSSIFICATION CENTERS

Use the Manual when completing this form. Record fusion data using the following codes: O = open, U = fusion underway, or F = fusion complete though not obliterated. Slash the box when the feature is not observable.

Element	Primary Elements	Observation Code:	Fusion Complete
Sphenoid	Lesser Wings to Sphenoid Body		5 fm
	Presphenoid to Postsphenoid Body		8 fm
	Greater Wings to Sphenoid Body		1 y
	Foramen Ovale (Greater Wing)		1 y
Temporal	Tympanic Ring to Temporal Squamous		35 fw
	Petromastoid to Squamotympanic		1 y
Occipital	Supraoccipital to Interparietal Squama		5 fm
	Superior Median Fissure		1 y
	Sutura Mendosa		1 y
	Pars Lateralis to Squama		1 – 3 y
	Hypoglossal Canal (Pars Lateralis)		2 – 4 y
	Pars Lateralis to Pars Basilaris		5 – 7 y
Mandible	Mandibular Symphysis		1 y
	Coronoid to Main Mass		by 8 f wks
Frontal	Fusion of left and right Frontals		9 fm - 2 y
	Metopic Suture obliterated (generally)		2 – 4 y
Vertebrae	C1 – R & L Posterior arches (to one another)		4 – 5 y
	C1- Anterior Arch to Anterior Bars		5 – 6 y
	C2- Intradental union (becomes Dens)		Full term
	C2- R & L Neural Arches (to one another)		3 – 4 y
	C2- Dens to Neural Arch		3 – 4 y
	C2- Centrum to Neural Arch		4 – 6 y
	C2- Ossiculum Terminale of dens		12 y
	C3-L5 Neural Arches (to one another)		1 – 2 y
	C3-L5 Neural Arches to Centra		2 – 5 y
Sacrum (S1 and S2)	Lateral Elements to Neural Arches → 'Wings'		2 – 5 y
	Wings to Centra		2 – 6 y
Os Coxa	Ischiopubic Ramus		5 – 11 y
Humerus	Greater and Lesser Tubercles to Head		2 – 6 y

*'f m' indicates 'fetal month'; 'f wks' indicates 'fetal weeks'; 'm' indicates postnatal months; and 'y' indicates postnatal years.

Estimated Age

Step 1) Age Range.

Indicate the estimated age range of your individual in the fields below after referring to the fusion table above. In the first field, indicate the youngest age associated with 'O' or 'U' fusion observations. In the second field, indicate the oldest age associated with 'F' fusion observations.

_____ fetal weeks / postnatal months / postnatal years (circle unit)

to

_____ fetal weeks / postnatal months / postnatal years (circle unit)

* Remember to indicate the age range in the summary section on the top of page 1 of this form.

☐ Indeterminate, i.e. no evidence to assign the individual to an age category. Proceed to step 3.

Step 2) If you were able to provide an age range in step 1, skip this step and proceed to step 3.
If you selected 'Indeterminate' in step 1 but your individual includes other evidence to allow you to assign the individual to an age category, indicate the information and the estimated age below (e.g. petros portion compares favorably to individual 20 fetal weeks old). Then, use this information to select a categorical age in step 3.

Step 3) Age Category:

If you provided an age range in step 1, calculate the mean from of the ages and use the value to select an age category below.
Alternatively, if you arrived at step 3 following the directions in step 2, to proceed to assign your individual to an age category below based on the data you provided in step 2.

Supervisor signature:_____ Lot:_____Date:_____

After your supervisor signs this form in the field above, proceed to complete the appropriate JUVENILE AGE ASSESSMENT PART II form:

☐ Prenatal – 2.5 years (LMP – 2.49 years)
☐ Early Childhood (2.5 – 5 years)
☐ Late Childhood (6 – 12 years)
☐ Indeterminate; i.e. no evidence to allow you to assign the individual to an age category.

Juvenile Age Assessment Part II- Prenatal – 2.49 years Milwaukee County Institution Grounds Poor Farm Cemetery 47BMI0076/Collection Location: UWM–ARL & Curatorial Facility	**Lot No. 2013.001-** _____ Assoc. Lot #s: _____ _____
Observer Name: Date Started: Date Completed:	☐ Mixed lot assessment

SUMMARY DATA:

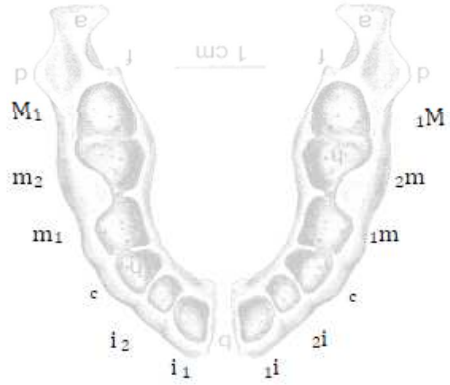
Dental Age: Age range:_____-_____ fw/pn m / pn y ☐ Indeterminate
Sub-age Category: ☐ Embryo ☐ Fetus ☐ Neonate ☐ Infant ☐ Toddler ☐ Indeterminate
Osteometric Age: Age range:_____-_____ fw/pn m / pn y ☐ Indeterminate
Sub-age Category: ☐ Embryo ☐ Fetus ☐ Neonate ☐ Infant ☐ Toddler ☐ Indeterminate
* 'fw' fetal weeks; 'pn m' postnatal months; and 'pn y' postnatal years.

NON-METRIC DENTAL AGE ASSESSMENT

Use and attach a Juvenile mixed dentition outline if that form is more appropriate for your subject lot.
☐ Mandible not present ☐ Maxilla not present ☐ Mandible and Maxilla not present

Right Maxilla, occlusal view Left

Illustration Key:
● Articulated Tooth
○ Loose Tooth
X Missing Tooth



Right Mandible, occlusal view Left

Eruption times (After Lysell et al. 1962, as presented in Scheuer & Black 2000:153)
Instructions: In the fields below, indicate whether a deciduous tooth is present or absent. Beneath the table, indicate the oldest mean age and age range given the teeth present.

	Tooth	Emerged past alveolar crest? (yes/no)	Mean (months)	Age Range ± 1 SD (months)
Maxilla	Central Incisor		10	8-12
	Lateral Incisor		11	9-13
	Canine		19	16-22
	First Molar		16	13-19*
	Second Molar		29	25-33
Mandible	Central incisor		8	6-10
	Lateral incisor		13	10-16
	Canine		20	17-23
	First molar		16	14-18
	Second molar		27	23-31*

Mean Age: _____ mths Age range: _____ - _____ +/- 1 SD

Unable to make assessment due to:
☐ Missing ☐ Fragmentation ☐ Unable to observe tooth above alveolar crest ☐ Other:

Estimated Age, Combined Nonmetric Dental Assessment

1) Age Range: The final estimated age range is the youngest mean age/age of a given range and the oldest mean age/age of a given age range derived from any of the non-metric dental age assessment methods above.
   a. Do results from one assessment disagree markedly from others and other extant osteological evidence? If so, discuss the age range, the assessment, and contrary evidence with your supervisor (e.g., 18 – 20 week mineralization age range, but neonatal petrosa*).
      i. Age range: _____ - _____ derived from the _____Method
      ii. Contradictory osteological evidence: _____
   b. Indicate age range in fields below and in the summary section on page 1 of this form. If you provided information in section a. (above), ***do not use it for the age range (below).***
      *Do not use data other than that collected in the non-metric dental assessment for the age range.

   Age range _____ Unit: fetal weeks/postnatal months/postnatal year (circle).
   to
   _____ Unit: fetal weeks/postnatal months/postnatal year (circle).

2) ***Mean Age.*** Calculate the average of the oldest and youngest mean age scores or provide a single mean score from above when only one exists.
   Mean Age: _____ Unit: fetal weeks / postnatal months / postnatal year (circle one).

3) ***Age Category.*** Select the age category into which the value you generate following step 2 fits. Select the same category in the summary section on page 1 of this form.

   ☐ Embryo (0-8 weeks or two lunar months)
   ☐ Fetus (9 – 40 weeks)
   ☐ Neonate (Birth – 28 days)
   ☐ Infant (Birth – 11.9 months)
   ☐ Toddler (1 – 2.49 years)
   ☐ Indeterminate Lot: _____ Date: _____

OSTEOMETRIC AGE ASSESSMENT - FETAL

Note: The following osteometric assessments are applicable only to individuals determined to be prenatal based on preceeding fusion and dental assessments. See the Manual for instructions on collecting measurements as well as on deriving age estimations.

Cranial Measurements

Occipital: Pars lateralis and Pars basilaris (Frazekas and Kosa 1978)

Element	Measurement name	Left (mm)	(mm)	Right (mm)	Age:
Pars lateralis	Maximum length		N/A		
Pars basilaris	Maximum width (MW)	N/A		N/A	
	Sagittal length (SL)	N/A		N/A	

*If you were unable to collect any measurements, indicate the reason below:

Age estimation from pars basilaris (Scheuer and MacLauighlin-Black 1994)

The pars basilaris MW measurement value (above) is

☐ Larger than the SL measurement value → then ≥ 30 fetal weeks

☐ Smaller than the SL measurement value → then ≤ 28 fetal weeks

☐ Not applicable; unable to collect data due to:_____

Sphenoid (Fazekas & Kosa 1978)

Measurement name	*Left* (mm)	*Midline* (mm)	*Right (mm)*	*Fetal Age*	**Not measured?*
Body – Length (BL)	N/A		N/A		
Body – Width (BW)	N/A		N/A		
Lesser Wing – Length (LWL)		N/A			
Lesser Wing – Width (LWW)		N/A			
Greater Wing – Length (GWL)		N/A			
Greater Wing – Width (GWW)		N/A			

Temporal (Fazekas & Kosa 1978)

	Left (mm)	*Right (mm)*	*Fetal Age*	**Not measured?*
Petrous - Length				
Petrous - Width				

Mandible, Maxilla, and Zygoma (Fazekas & Kosa 1978)

	Left (mm)	*Right (mm)*	*Fetal Age*	**Not measured?*
Mandible – Length				
Mandible – Width				
Mandible – Oblique length				
Maxilla – Length				
Maxilla – Height				
Maxilla – Width				
Zygomatic- Length				
Zygomatic – Oblique Height				

**Place a '✓' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section on p. 5*

Lot:_____ Date: _____

Postcranial Measurements

Shoulder elements and upper limbs (Fazekas & Kosa 1978)

Measurement name	*Left (mm)*	*Right* (mm)	*Fetal Age*	**Not measured?*
Clavicle – Length				
Scapula – Length (height)				
Scapula – Width				
Scapula – Length of the Spine				
Humerus – Length (height)				
Humerus – Distal Width				
Radius – Length				
Ulna – Length				

Pelvic elements and lower limbs (Fazekas & Kosa 1978)

Measurement name	*Left (mm)*	*Right* (mm)	*Fetal Age*	**Not measured?*
Maximum iliac length				
Maximum iliac width				
Maximum ischium length				
Maximum ischium width				
Maximum length of pubis				
Femur maximum length				
Femur distal width				
Tibia maximum length				
Fibula maximum length				

**Place a '✓' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below*

COMMENTS:

OSTEOMETRIC AGE ASSESSMENT – Postnatal through 2.49 years

Note: The following osteometric assessments are applicable only to individuals with ages determined via fusion and dental assessments to be postnatal through 2.49 years of age. Methods follow Maresh (1970).

Element	*Left (mm)*	*Epiphysis included?*	*Age:*	*NM**	*Right (mm)*	*Epiphysis included?*	*Age:*	*NM**
Humerus								
Radius								
Ulna								
Femur								
Tibia								
Fibula								

**NM indicates Not Measured. Place a '✓' in the far right columns of tables to indicate any measurements you were unable to collect. If you need more writing space, please use the comments section below*

Comments:

Estimated Age, Combined osteometric

1) Age Range:
   The final estimated age range is the youngest mean age/age of a given range and the oldest mean age/age of a given age range derived from the osteometric assessments above. Indicate this data in the fields below and in the summary section on page 1 of this form.

   _____ Unit: fetal weeks/postnatal months/postnatal year (circle).

   to

   _____ Unit: fetal weeks/postnatal months/postnatal year (circle).

2) Mean Age:
   Calculate the mean of the ages you provided in the age range above or provide a single mean age when only one exists.

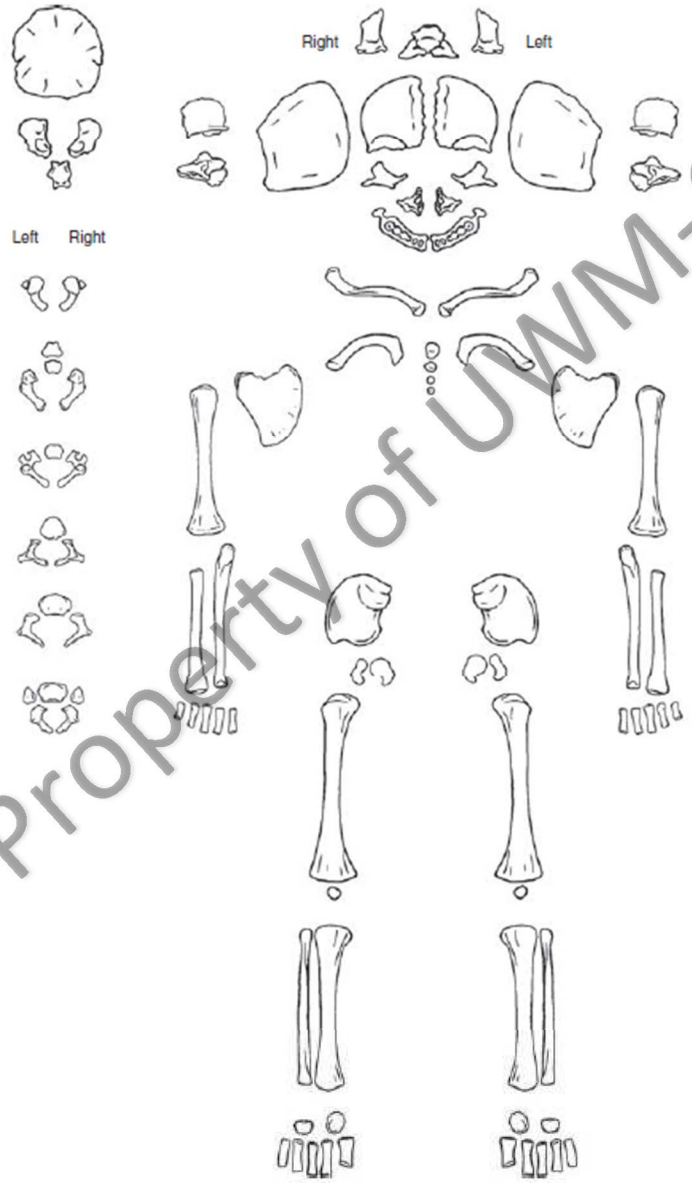
   _____ Unit: fetal weeks/postnatal months/postnatal year (circle).

3) Select the age category into which the value you generated following step 2 fits. Select the same category in the summary section on page 1 of this form.

   ☐ Embryo (0-8 weeks or two lunar months)
   ☐ Fetus (9 – 40 weeks)
   ☐ Neonate (Birth – 28 days)
   ☐ Infant (Birth – 1 year)
   ☐ Toddler (1 – 2.49 years)
   ☐ Indeterminate

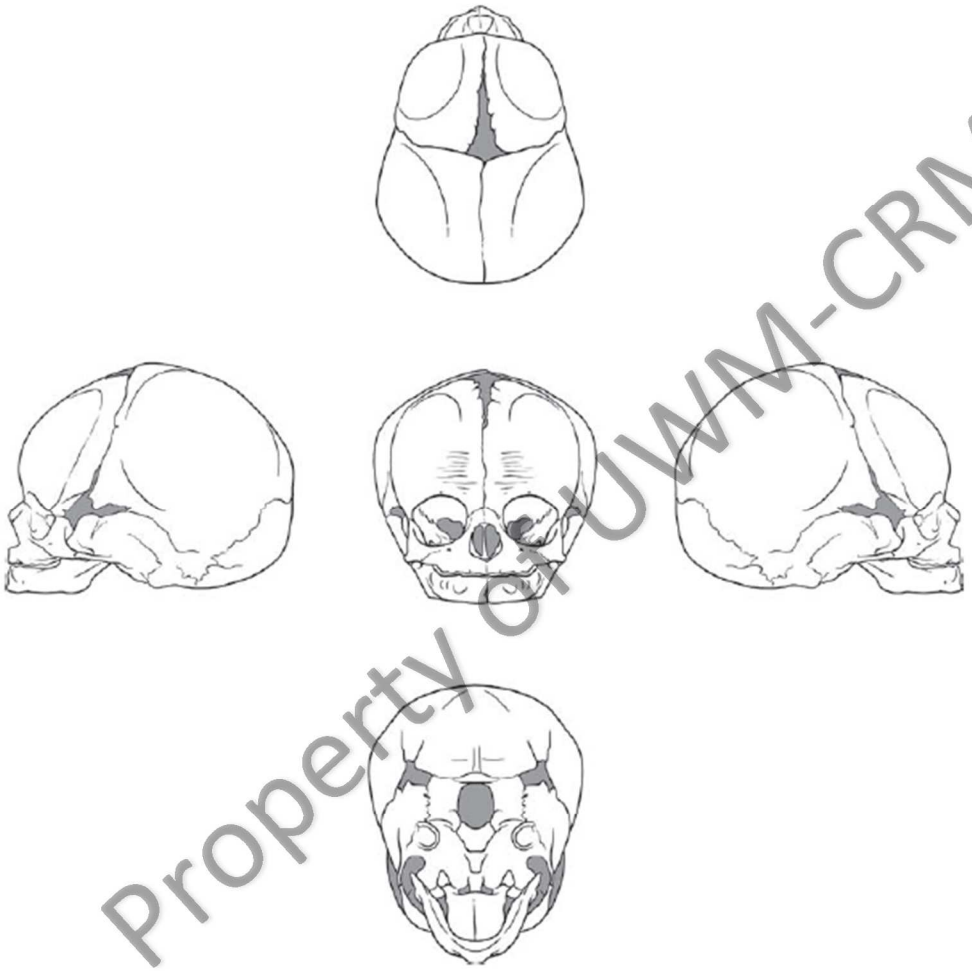
Supervisor:_____ Lot:_____ Date: _____

Juvenile Skeletal Outline - **Fetal – 2.49 years** Milwaukee County Institution Ground's (MCIG) Poor Farm Cemetery 47BMI0076/Collection's Location: UWM–ARL & Curatorial Facility	**Lot No.** 2013.001. _____ Asso. Lot #s: _____ _____
Observer Name: Date Started: Date Completed:	☐ Mixed lot assessment
Indicate form's purpose: ☐ Visual Inventory ☐ Pathology & Trauma ☐ Taphonomy ☐ Other: _____	



Skull

☐ No Skull

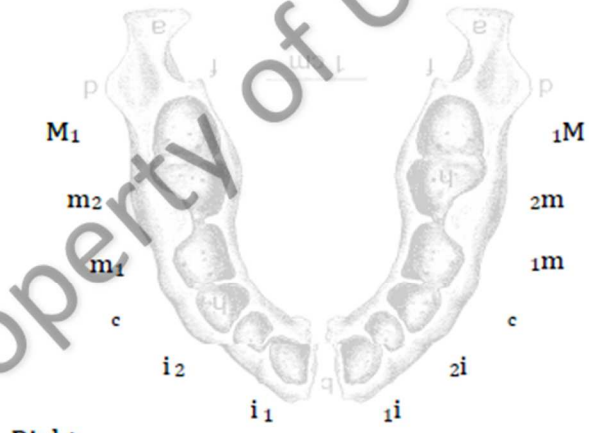


Lot: _____ Date: _____

Dentition ☐ No Dentition

Use the outline below to indicate the presence of any teeth, by shading in their shape.

Maxilla, occlusal view



Mandibular, occlusal view

Supervisor: _____ Lot: _____ Date: _____

Skeletal Pathology & Trauma Recording Form – JUVENILE
MCIG Poor Farm Cemetery 46BMI00076/Collection's Location: UWM – ARL&Curatorial Facility

Observer Name: Date started: Date completed:

Lot No. 2013.001-_____
Asso. Lot #s:_____
_____
(do not include pelvic flot lot #s).
☐ Mixed lot assessment ☐ No Pathology ☐ No Trauma ☐ No Pathology or trauma

INSTRUCTIONS: Complete this form while referencing the MCIG JUVENILE INVENTORY & ANALYTICAL SOP. Assess the lot for the presence or absence of pathologies listed in the tables below by placing a respective check mark in the 'P' or 'A' to the right of the lesion's name. Indicate pathology locations on the skeletal appropriate skeletal outline while referencing numerals in the 'key' column below. If the individual exhibits numerous conditions, use color pencils to illustrate your skeletal outline.

PATHOLOGY:	P	A	Key
Unidentified Lesions			
Blastic			1
Lytic			2
Growth & Developmental Stress			
Cribra orbitalia			3
Porotic hyperostosis			4
Spina bifida			5
Uni.d. cranial morphology			6
Uni.d. post-cranial morph			7
Other:			8
Joint Pathology			
Anklyosis			9
Eburnation			10
Schmorls nodes			11
Osteophytic lipping			12
Degenerative joint disease (DJD)			13
Other:			14
Non-specific Infection			
Periostitis			15
Osteomyelitis			16
Other:			17
Neoplastic Conditions			
Osteoma			10
Neoplasm			19
Other:			20
Trauma			
Healed fracture			21
Other:			22
Pre- or Ante- mortem Medical Intervention			
Healed amputation			23
Trepanation			24
Other:			25
Perimortem Activity			
Cut or sawed bone without evidence for healing			26
Craniotomy			27
Unhealed burr hole or trepanation			28
Unhealed fracture			29
Other:			30

DENTAL PATHOLOGY	P	A	Key
Growth & Developmental Stress			
Enamel Hypoplasia			31
Uni.d. enamel morph			32
Other:			33
Periodontal disease			
Calculus			34
Caries			35
Abscess (note: abscess may app to any element)			36
Remodeled alveolus/ tooth loss			37
Other:			38
Anomolous Condition			
Peg tooth			39
Supernumerary tooth.			40
Dental agenesis			41
Other:			42
Cultural / Occupational Modification			
Pipestem grooves			43
Other:			44
Durable Medical Device, Dentition:			
Bridge:			45
Dentures:			46
Fillings:			47
Other:			48

Supervisor's signature:_____
Date:_____

Appendix B: 1991-1992 Subadult Osteology Analysis Forms

UWM-CRM - Human Skeletal Aging - Juvenile

Project #:_____ Site #:_____ Project Name:_____

Analyst:_____ Date Started:_____ Date Completed:_____

Lot No: _____

Assoc. HR Lots: _____

SUMMARY DATA

Age Cat: □ Fetal □ Neonate □ Infant □ Toddler □ Early Child □ Late Child □ Adolescent □ Indt Juv □ Amb □ NM

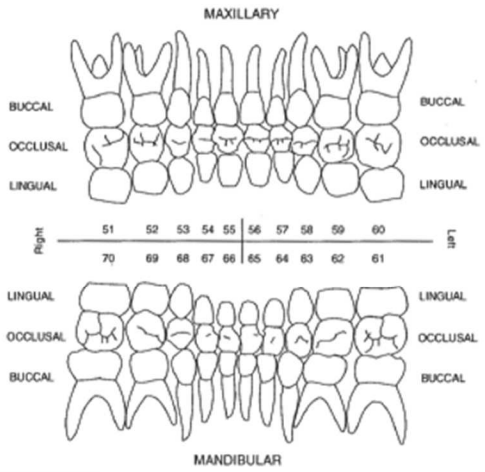
Age Range: _____ - _____ or □ none

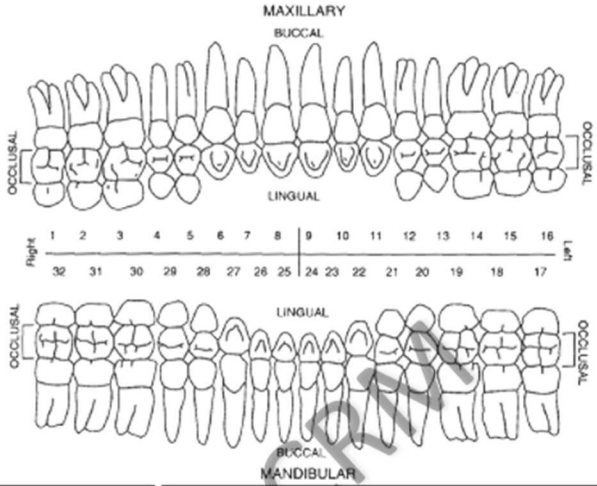
FUSION AREA	#	AGE
Occipital lateral to squamous		
Occipital lateral to basilaris		
Occipital hypoglossal canal		
Temporal tympanic ring to the squama		
Temporal squamo-tympanic to petrous		
Sphenoid lesser wings to body		
Pre-sphenoid to post-sphenoid		
Sphenoid greater wings to body		
L and R frontals		
L and R mandibular symphysis		
C1 L and R arches		
C1 Anterior arch to neural arch		
C2 Dens		
C2 L and R neural arches		
C2 Dens and neural arch		
C2 Centrum and neural arch		
C2 Ossiculum terminale to dens		
C3-L5 Centra and neural arches		
C3-L5 L and R neural arches		
Scapula coracoid-glenoid		
Scapula acromion		
Scapula inferior angle		
Hyoid body to alae		
Ischiopubic ramus		
Iliac crest		
Anterior inferior iliac spine		
Ischial tuberosity		

FUSION AREA	#	AGE
Triradiate complex		
Sacrum lateral elements to arches		
Sacrum auricular surface to lateral		
Sacrum fused lateral elements and arches to centra		
S1 to S2		
S3, S4, and S5		
Sacrum 1st and 2nd alae		
Sacrum 3rd through 5th alae		
Medial clavicle		
Humerus greater and lesser tubercles to head		
Humerus medial epiphysis to diaphysis		
Humerus distal epiphysis to diaphysis		
Proximal radius		
Distal radius		
Proximal ulna		
Distal ulna		
Femur head to diaphysis		
Femur greater trochanter to diaphysis		
Femur lesser trochanter to diaphysis		
Distal femur		
Proximal tibia		
Distal tibia		
Proximal fibula		
Distal fibula		
Metacarpal epiphyses		
Calcaneal epiphyses		
Metatarsal epiphyses		

MEASUREMENT	#	Inc	Age
Occipital lateral length			
Occipital basilar SL length			
Occipital basilar width			
Temporal petrous length			
Temporal petrous width			
Mandible body length			
Mandible body width			
Oblique length			
Scapula length			
Scapula width			
Scapula spine length			
Iliac length			

MEASUREMENT	#	Inc	Age
Iliac width			
Pubic length			
Ischial length			
Clavicle length			
Humerus length			
Distal humerus width			
Radius length			
Ulna length			
Femur length			
Distal femur width			
Tibia length			
Fibula length			





DENTAL INVENTORY			
TEETH	MAX	MAND	UNK
Deciduous in Crypt			
Deciduous Loose			
Permanent in Crypt			
Permanent Loose			
Tooth Fragment			
Medical Replacement			

UBELAKER (1989)	
STAGE	AGE

LYSELL ET AL (1962)					
PRIMARY MAXILLARY					
Tooth	i1	i2	c1	m1	m2
P/A					
Age					
PRIMARY MANDIBULAR					
Tooth	i1	i2	c1	m1	m2
P/A					
Age					

Observe London Atlas stages and associated ages. Use teeth from the left side when possible. If the right side is used, mark the stage box with an asterisk (*). If neither side is usable, mark the stage box and age box each with a dash (-).

LONDON ATLAS					
PRIMARY MAXILLARY					
Tooth	i1	i2	c1	m1	m2
Stage					
Age					
PRIMARY MANDIBULAR					
Tooth	i1	i2	c1	m1	m2
Stage					
Age					

LONDON ATLAS								
PERMANENT MAXILLARY								
Tooth	I1	I2	C1	PM1	PM2	M1	M2	M3
Stage								
Age								
PERMANENT MANDIBULAR								
Tooth	I1	I2	C1	PM1	PM2	M1	M2	M3
Stage								
Age								

AGE DETERMINATION RESULTS				
Assessment Type	**Mean Age**	**Associate Age Range**	**Element/Tooth Used**	**Age Group**
Fusion				
Osteometrics				
Dental				

Supervisor:_____ Date:_____

UWM-CRM - Skeletal Pathology and Trauma Form - Infant

Project #:_____ Site #:_____ Project Name:_____

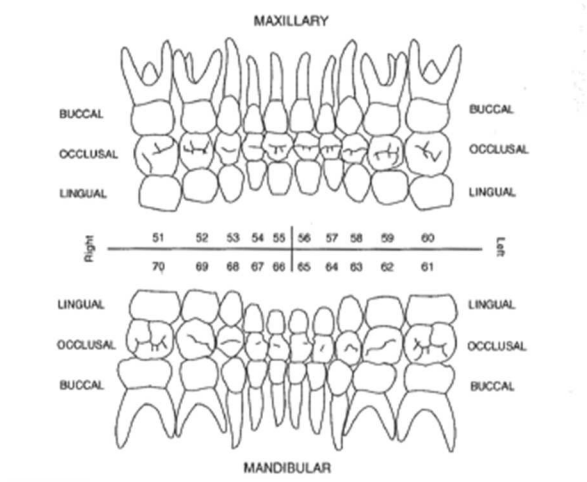
Analyst:_____ Date Started:_____ Date Completed:_____

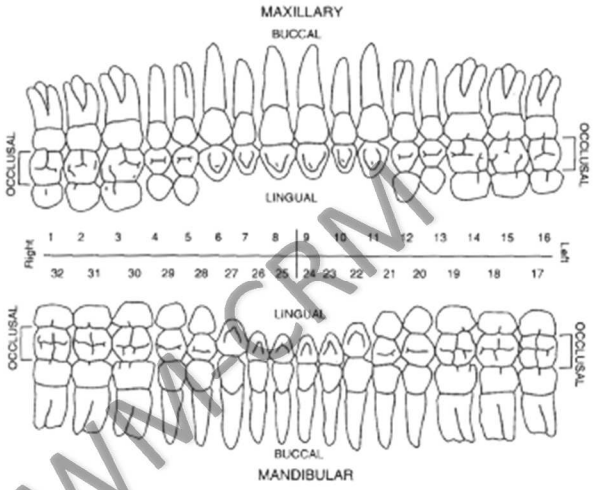
Lot No:_____

Assoc. HR Lots: _____

Record presence/absence of visible conditions and use key number to indicate location on the skeletal outline.

CONDITION	P	A	KEY #
Multietiological			
Exocranial lesion			1
Endocranial lesion			2
Porotic hyperostosis			3
Cribra orbitalia			4
Ankylosis			5
Other:			6
Congenital			
Wormian bones			7
Palatine torus			8
Mandibular torus			9
Metopic suture			10
Vertebral shifting			11
Spina bifida			12
Spina bifida occulta			13
Other:			14
General Dysplasia			
Incomplete fusion			15
Irregular fusion			16
Other:			17
Joints			
Eburnation			18
Degeneration			19
Osteophytic Lipping			20
Other:			21
Tumors			
Osteoma			22
Neoplasm			23
Other:			24
Infection			
Periostitis			25
Osteomyelitis			26
Other:			27
Trauma			
Exostosis			28
Schmorl's nodes			29
Healed fracture			30
Perimortem fracture			31
Other:			32
Medical			
Amputation			33
Trepanation			34
Craniotomy			35
Other:			36





CONDITION	P	A	KEY #
Congenital			
Extra cusp			37
Peg tooth			38
Supernumerary tooth			39
Impaction			40
Rotation			41
Crowding			42
Diastema			43
Other:			44

CONDITION	P	A	KEY #
Disease			
Calculus			45
Caries			46
Periodontitis			47
Abscess			48
Remodeled alveolus			49
Enamel hypoplasia			50
Other:			51

CONDITION	P	A	KEY #
Wear			
Attrition			52
Pipe notch			53
Artificial abrasion			54
Other:			55
Medical			
Bridge			56
Dentures			57
Filling			58

Notes:

Supervisor:_____ Date:_____

UWM-CRM - Skeletal Taphonomy Form - Infant

Project #:_____ Site #:_____ Project Name:_____

Analyst:_____ Date Started:_____ Date Completed:_____

Lot No: _____

Assoc. HR Lots: _____

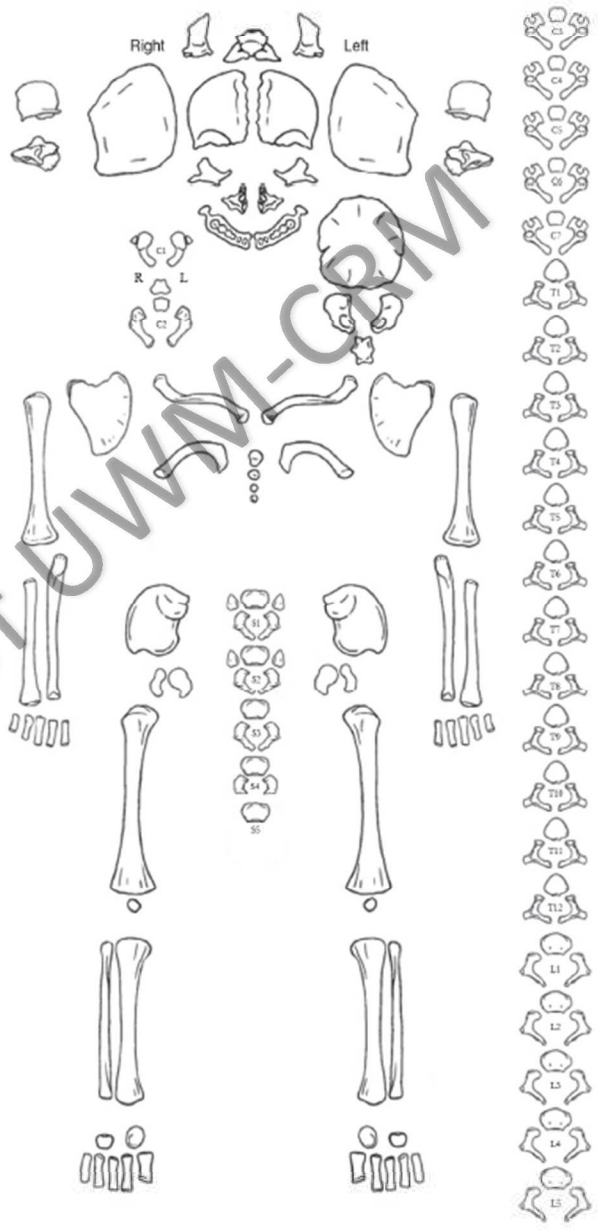
_____

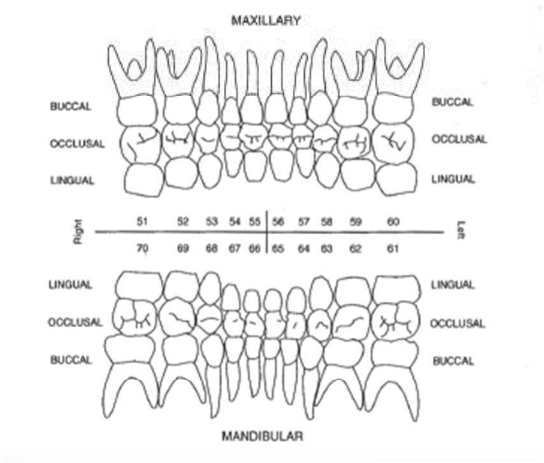
Record presence/absence of visible conditions and use key number to indicate location on the skeletal outline.

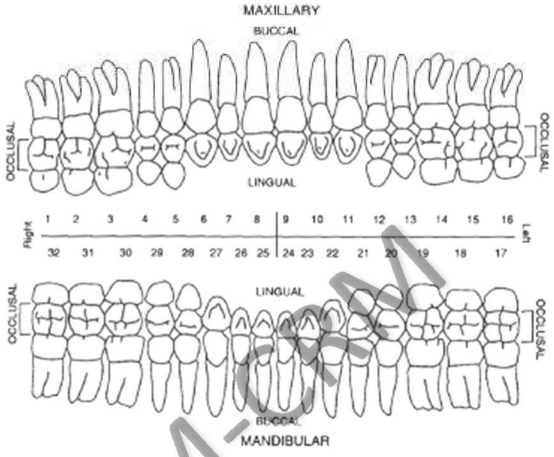
CONDITION	P	A	KEY #
Adherents			
Adipocere			59
Hair			60
Matrix			61
Metal			62
Organic tissue			63
Roots			64
Textile			65
Wood			66
Other:			67

CONDITION	P	A	KEY #
Chemical and Physical			
Chemical erosion			68
Cracking			69
Cut marks			70
Gnaw marks			71
Excavation damage			72
Postmortem damage			73
Peeling			74
Severing cuts			75
Stains			76
Root etching			77
Weathering			78
Other:			79

CONDITION	P	A	KEY #
Curatorial			
Bleached			80
Dry brushed			81
Washed			82
Water screened			83
Other:			84







CONDITION	P	A	KEY #
Adherents			
Adipocere			59
Hair			60
Matrix			61
Metal			62
Organic tissue			63
Roots			64
Textile			65
Wood			66
Other:			67

CONDITION	P	A	KEY #
Chemical and Physical			
Chemical erosion			68
Cracking			69
Cut marks			70
Gnaw marks			71
Excavation damage			72
Postmortem damage			73
Peeling			74
Severing cuts			75
Stains			76
Root etching			77
Weathering			78
Other:			79

CONDITION	P	A	KEY #
Curatorial			
Bleached			80
Dry brushed			81
Washed			82
Water screened			83
Other:			84

Notes: _____

_____

_____

_____

_____

Supervisor: _____ Date: _____

UWM-CRM - Human Skeletal Inventory Record - Infant

Project #:_____ Site #:_____ Project Name:_____

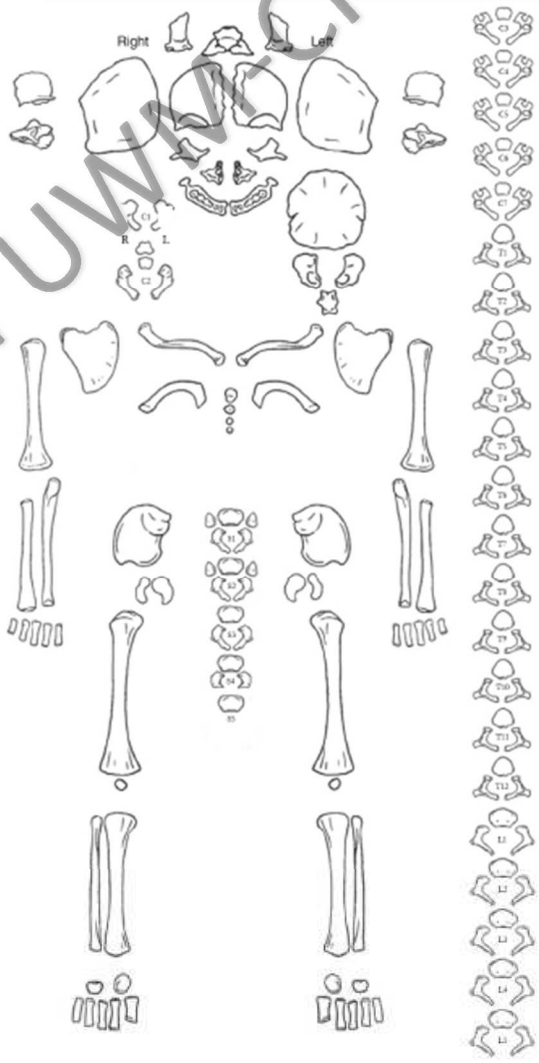
Analyst:_____ Date Started:_____ Date Completed:_____

Lot No: _____

Assoc. HR Lots: _____

ELEMENT	RIGHT	LEFT	UNK
Complete Occipital			
Lateral			
Basilar			
Squamous Occ			
Complete Temporal			
Petrous			
Squamous Temp			
Complete Sphenoid			
Body			
Greater Wings			
Frontal			
Parietal			
Maxilla			
Nasal			
Ethmoid			
Vomer			
Palatine			
Zygomatic			
Mandible			
Misc. Flat Cranial			
C1 Vertebra			
C2 Vertebra			
C3-L5 Bodies			
C3-L5 Neural Arches			
C3-L5 Complete			
Hyoid body, alae			
Clavicle			
Scapula			
Sternum			
Ribs			
Illium			
Ischium			
Pubis			
Sacrum, Lateral Elements			
Sacrum, Neural Arches			
Sacrum, Centra			
Humerus			
Radius			
Ulna			

ELEMENT	RIGHT	LEFT	UNK
Femur			
Patella			
Tibia			
Fibula			
Carpals			
Metacarpals			
Hand Phalanges			
Tarsals			
Metatarsals			
Foot Phalanges			
Mixed hand/foot			



Miscellaneous Fragments: bone that is too fragmented to be confidently assigned to any particular element (larger than 6mm)

# of misc. fragments: _____

____ No extra elements present in burial

or

____ Extra elements present in burial

____ Elements assigned to new lot

New Lot #:_____

____ Elements remain with this lot

Labeled:_____

Notes:

Supervisor:_____ Date:_____

Appendix C: Burial Lot Numbers

Ind	Indeterminate age: Either 1) unmeasurable or 2) multiple age categories fell within the estimated age range
Peri	Perinatal: Estimated age between 32 fetal weeks and 1.9 postnatal weeks
Fetal	Estimated age below 32 fetal weeks
Infant	Estimated age greater than or equal to 2 postnatal weeks
Osteo Age	Age estimated from osteometric methods
Dental Age	Age estimated from dental development
Attributed Age	Summary age based on dental age when available. Osteometric age substituted when dental age was indeterminate.
Personal Items **Clothing** **Inclusions** **Safety Pins**	Presence (P) or absence (A) of material culture categories recovered from each burial

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
4001	Peri	Ind	Peri	A	A	A	A
6000	Ind	Infant	Infant	P	P	A	P
6001	Peri	Ind	Peri	A	A	A	A
6002	Peri	Infant	Infant	A	A	A	P
6004	Peri	Ind	Peri	A	A	A	A
6005	Peri	Infant	Infant	A	P	P	P
6006	Fetal	Ind	Fetal	A	A	A	A
6008	Peri	Ind	Peri	A	A	A	A
6009	Peri	Ind	Peri	A	A	A	P
6013	Peri	Infant	Infant	A	P	A	P
6015	Fetal	Ind	Fetal	A	A	A	A
6016	Fetal	Ind	Fetal	A	A	A	A
6018	Fetal	Ind	Fetal	A	A	A	A
6019	Peri	Ind	Peri	A	A	A	P
6020	Fetal	Ind	Fetal	A	P	A	P
6021	Peri	Peri	Peri	A	A	A	A
6022	Peri	Ind	Peri	A	A	A	A
6023	Peri	Ind	Peri	A	A	A	A
6025	Fetal	Ind	Fetal	A	A	A	A
6026	Peri	Peri	Peri	A	P	P	A
6028	Peri	Ind	Peri	A	A	A	A
6030	Peri	Infant	Infant	A	A	A	A
6032	Peri	Ind	Peri	A	A	A	A
6033	Fetal	Infant	Infant	A	A	A	P
6034	Peri	Infant	Infant	A	P	A	P
6035	Ind	Infant	Infant	A	A	P	P
6036	Fetal	Ind	Fetal	A	A	A	A
6037	Fetal	Ind	Fetal	A	A	A	A
6038	Fetal	Ind	Fetal	A	A	A	A
6039	Peri	Ind	Peri	A	A	A	P
6040	Peri	Ind	Peri	A	P	A	P
6041	Fetal	Ind	Fetal	A	A	A	A
6042	Peri	Ind	Peri	A	A	A	A
6043	Fetal	Ind	Fetal	A	A	A	A
6044	Fetal	Ind	Fetal	A	A	A	P
6045	Fetal	Ind	Fetal	A	A	A	P
6046	Peri	Ind	Peri	A	A	A	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
6047	Peri	Ind	Peri	A	A	A	A
6048	Peri	Infant	Infant	A	A	A	A
6049	Fetal	Ind	Fetal	A	A	A	A
6050	Peri	Infant	Infant	A	P	A	A
6053	Peri	Infant	Infant	A	P	A	P
6054	Peri	Infant	Infant	A	P	A	P
6055	Peri	Peri	Peri	A	A	A	A
6056	Peri	Infant	Infant	A	A	A	A
6057	Peri	Ind	Peri	A	P	A	P
6058	Peri	Ind	Peri	A	P	A	P
6059	Peri	Infant	Infant	A	A	P	A
6060	Fetal	Ind	Fetal	A	A	A	A
6062	Peri	Peri	Peri	A	A	A	P
6063	Peri	Infant	Infant	A	A	A	P
6064	Peri	Peri	Peri	A	P	A	A
6065	Peri	Peri	Peri	A	A	A	P
6066	Peri	Ind	Peri	A	A	A	A
6067	Peri	Peri	Peri	A	P	A	P
6068	Peri	Infant	Infant	A	A	A	A
6069	Peri	Peri	Peri	A	A	A	P
6070	Peri	Infant	Infant	A	P	A	P
6073	Peri	Infant	Infant	A	P	A	P
6074	Peri	Infant	Infant	A	P	A	P
6075	Peri	Fetal	Fetal	A	A	A	A
6076	Peri	Infant	Infant	A	P	A	P
6078	Peri	Infant	Infant	A	P	A	P
6079	Peri	Ind	Peri	A	P	A	P
6080	Infant	Infant	Infant	A	P	A	P
6082	Peri	Peri	Peri	A	P	A	P
6085	Peri	Ind	Peri	A	A	A	A
6086	Peri	Peri	Peri	A	A	A	A
6088	Ind	Infant	Infant	A	A	A	P
6089	Ind	Infant	Infant	A	A	A	P
6090	Peri	Peri	Peri	A	P	P	A
6091	Fetal	Ind	Fetal	A	P	A	A
6093	Ind	Peri	Peri	A	P	A	P
6094	Peri	Ind	Peri	A	A	A	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
6095	Peri	Ind	Peri	A	A	A	A
6096	Peri	Ind	Peri	A	A	A	A
6097	Peri	Infant	Infant	A	P	A	P
6099	Peri	Fetal	Fetal	A	A	A	A
6103	Fetal	Ind	Fetal	A	A	A	A
6104	Fetal	Peri	Peri	A	A	A	A
6105	Peri	Peri	Peri	A	P	A	P
6106	Peri	Fetal	Fetal	A	P	A	A
6108	Peri	Ind	Peri	A	A	A	A
6113	Peri	Ind	Peri	A	A	A	A
6115	Peri	Ind	Peri	A	A	A	P
6116	Peri	Infant	Infant	A	P	A	A
6117	Ind	Infant	Infant	A	A	P	P
6119	Peri	Ind	Peri	A	A	A	P
6123	Ind	Peri	Peri	A	A	A	P
6126	Peri	Infant	Infant	A	A	A	A
6127	Infant	Infant	Infant	A	A	A	A
6128	Peri	Infant	Infant	A	A	A	A
6129	Ind	Infant	Infant	A	P	P	P
6130	Peri	Infant	Infant	A	P	A	A
6131	Peri	Infant	Infant	A	A	A	A
6132	Peri	Ind	Peri	A	A	A	A
6133	Peri	Peri	Peri	A	A	A	A
6134	Peri	Ind	Peri	A	A	A	A
6135	Peri	Fetal	Fetal	A	A	A	A
6136	Peri	Peri	Peri	A	A	A	A
6137	Fetal	Ind	Fetal	A	A	P	A
6139	Peri	Infant	Infant	A	P	A	P
6141	Peri	Infant	Infant	A	P	P	P
6142	Ind	Peri	Peri	A	A	A	P
6143	Fetal	Ind	Fetal	A	A	P	A
6145	Fetal	Ind	Fetal	A	A	A	A
6146	Ind	Infant	Infant	A	P	A	P
6147	Peri	Ind	Peri	A	A	A	A
6150	Peri	Ind	Peri	A	A	A	P
6154	Peri	Infant	Infant	A	P	A	P
6157	Ind	Infant	Infant	A	P	A	P

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
6158	Peri	Peri	Peri	A	A	A	A
9001	Peri	Ind	Peri	A	A	A	A
9004	Peri	Ind	Peri	A	A	A	A
9006	Peri	Peri	Peri	A	A	A	A
9007	Peri	Ind	Peri	A	P	A	A
9008	Peri	Ind	Peri	A	A	A	P
9009	Ind	Infant	Infant	A	P	A	P
9016	Ind	Infant	Infant	A	A	A	P
9018	Peri	Infant	Infant	A	P	A	P
9020	Fetal	Ind	Fetal	A	A	A	A
9023	Peri	Peri	Peri	A	P	A	P
9024	Ind	Peri	Peri	A	P	A	P
9026	Peri	Ind	Peri	A	A	A	P
9027	Peri	Ind	Peri	A	A	A	P
9035	Ind	Infant	Infant	A	P	A	P
9036	Peri	Ind	Peri	A	A	A	A
9039	Peri	Ind	Peri	A	A	A	P
9040	Fetal	Ind	Fetal	A	A	A	A
9041	Fetal	Ind	Fetal	A	A	A	A
9043	Ind	Infant	Infant	A	A	A	A
9044	Ind	Infant	Infant	A	P	A	P
9046	Ind	Peri	Peri	A	A	A	A
9047	Ind	Infant	Infant	A	A	A	P
9057	Peri	Ind	Peri	A	A	A	A
9058	Peri	Ind	Peri	A	P	A	A
9060	Peri	Peri	Peri	A	A	A	A
9061	Ind	Infant	Infant	A	A	A	A
9063	Fetal	Ind	Fetal	A	A	A	A
9064	Peri	Ind	Peri	A	A	A	A
9066	Peri	Peri	Peri	A	A	A	P
9067	Peri	Peri	Peri	A	A	A	A
9069	Ind	Infant	Infant	A	P	A	P
9071	Fetal	Ind	Fetal	A	A	A	A
9073	Peri	Peri	Peri	A	P	A	P
9080	Peri	Infant	Infant	A	A	A	P
9081	Ind	Infant	Infant	A	P	A	A
9082	Peri	Infant	Infant	A	P	A	P

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
9083	Ind	Infant	Infant	A	P	A	P
9084	Ind	Infant	Infant	A	P	A	P
9085	Ind	Infant	Infant	A	P	A	P
9086	Peri	Ind	Peri	A	A	A	P
9087	Peri	Infant	Infant	A	A	A	P
9091	Ind	Infant	Infant	A	P	A	A
9093	Ind	Infant	Infant	A	P	A	A
9094	Peri	Peri	Peri	A	P	A	P
9095	Peri	Peri	Peri	A	A	A	A
9096	Infant	Infant	Infant	A	A	A	A
9097	Peri	Peri	Peri	A	P	A	P
9099	Peri	Infant	Infant	A	P	A	P
9102	Peri	Infant	Infant	A	A	A	A
9103	Peri	Ind	Peri	A	A	A	A
9104	Peri	Ind	Peri	A	P	A	A
9105	Peri	Infant	Infant	A	P	A	A
9106	Ind	Infant	Infant	A	P	A	A
9108	Peri	Fetal	Fetal	A	A	A	A
9109	Ind	Peri	Peri	A	P	A	P
9110	Peri	Peri	Peri	A	A	A	A
9111	Peri	Ind	Peri	A	A	A	P
9113	Peri	Peri	Peri	A	A	A	A
9115	Ind	Infant	Infant	A	P	A	A
9116	Ind	Infant	Infant	A	P	A	A
9119	Peri	Peri	Peri	A	P	A	P
9120	Peri	Peri	Peri	P	P	P	P
9125	Peri	Peri	Peri	A	A	A	A
9126	Fetal	Ind	Fetal	A	P	P	P
9127	Peri	Infant	Infant	A	A	A	P
9128	Peri	Infant	Infant	A	P	A	A
9131	Fetal	Ind	Fetal	A	A	A	P
9140	Peri	Ind	Peri	A	P	A	P
9141	Ind	Infant	Infant	A	A	A	P
9142	Peri	Ind	Peri	A	A	A	A
9144	Ind	Peri	Peri	A	A	A	A
9146	Peri	Ind	Peri	A	A	A	A
9147	Peri	Peri	Peri	A	A	A	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
9148	Peri	Infant	Infant	A	A	A	A
9149	Peri	Peri	Peri	A	P	A	A
9150	Peri	Peri	Peri	A	A	A	P
9152	Peri	Ind	Peri	A	A	A	A
9153	Peri	Peri	Peri	A	A	A	A
9156	Peri	Ind	Peri	A	A	A	A
9158	Peri	Ind	Peri	A	A	A	P
9159	Peri	Ind	Peri	A	A	A	A
9160	Ind	Infant	Infant	A	A	A	A
9161	Fetal	Ind	Fetal	A	A	A	A
9162	Ind	Infant	Infant	A	P	A	P
9164	Peri	Infant	Infant	A	P	A	P
9165	Fetal	Ind	Fetal	A	A	A	A
9167	Peri	Ind	Peri	A	P	A	P
9170	Peri	Infant	Infant	A	P	A	P
9173	Ind	Infant	Infant	A	P	A	P
9175	Ind	Infant	Infant	A	P	A	P
9178	Peri	Infant	Infant	A	P	A	P
9183	Ind	Infant	Infant	A	P	A	A
9184	Peri	Ind	Peri	A	P	A	P
9185	Peri	Ind	Peri	A	P	A	P
9186	Peri	Infant	Infant	A	P	A	P
9189	Peri	Infant	Infant	A	A	A	A
9190	Peri	Peri	Peri	A	P	A	P
9194	Peri	Peri	Peri	A	A	A	P
9195	Peri	Ind	Peri	A	A	A	P
9202	Peri	Infant	Infant	A	A	A	P
9203	Peri	Infant	Infant	A	A	A	P
9206	Peri	Ind	Peri	A	A	A	P
9325	Peri	Infant	Infant	A	P	A	A
9341	Ind	Infant	Infant	A	P	A	P
9377	Ind	Infant	Infant	A	P	A	P
9378	Peri	Ind	Peri	A	P	A	P
9379	Ind	Infant	Infant	A	A	A	P
9380	Fetal	Ind	Fetal	A	A	A	A
9385	Peri	Peri	Peri	A	A	A	A
9386	Peri	Ind	Peri	A	A	A	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
9387	Peri	Infant	Infant	A	P	A	P
9394	Peri	Ind	Peri	A	A	A	A
9402	Ind	Infant	Infant	A	P	A	P
9405	Peri	Ind	Peri	A	P	A	A
9408	Fetal	Ind	Fetal	A	A	A	A
9410	Fetal	Ind	Fetal	A	A	A	A
9412	Ind	Infant	Infant	A	A	A	P
9413	Peri	Ind	Peri	A	A	A	A
9415	Ind	Infant	Infant	A	P	A	P
9416	Ind	Peri	Peri	A	A	A	P
9417	Peri	Ind	Peri	A	A	P	A
9418	Peri	Ind	Peri	A	A	A	A
9419	Peri	Peri	Peri	A	A	A	A
9421	Fetal	Ind	Fetal	A	A	A	A
9422	Peri	Infant	Infant	A	A	A	P
9423	Peri	Ind	Peri	A	A	P	A
9427	Peri	Ind	Peri	A	A	A	A
9429	Peri	Infant	Infant	A	A	A	P
10002	Peri	Ind	Peri	A	P	P	P
10003	Fetal	Ind	Fetal	A	A	A	A
10006	Peri	Peri	Peri	A	P	P	A
10007	Peri	Infant	Infant	P	P	A	P
10008	Peri	Peri	Peri	A	A	A	A
10014	Ind	Infant	Infant	A	A	P	A
10017	Ind	Infant	Infant	A	P	P	A
10018	Fetal	Fetal	Fetal	A	P	P	P
10019	Infant	Fetal	Fetal	A	P	A	P
10020	Fetal	Ind	Fetal	A	P	P	P
10021	Ind	Fetal	Fetal	A	A	A	A
10025	Peri	Ind	Peri	A	P	A	P
10027	Ind	Infant	Infant	A	P	A	P
10028	Ind	Fetal	Fetal	A	P	A	P
10029	Peri	Fetal	Fetal	A	A	A	A
10031	Peri	Peri	Peri	A	A	A	A
10033	Infant	Infant	Infant	A	P	A	A
10034	Ind	Infant	Infant	P	P	P	A
10036	Peri	Infant	Infant	A	A	A	P

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
10037	Peri	Peri	Peri	A	A	A	A
10038	Ind	Infant	Infant	P	A	P	A
10039	Peri	Infant	Infant	A	P	A	A
10040	Ind	Infant	Infant	A	A	A	A
10043	Ind	Infant	Infant	P	P	A	A
10044	Ind	Infant	Infant	A	A	A	P
10045	Peri	Peri	Peri	A	P	P	P
10046	Ind	Infant	Infant	A	A	A	A
10047	Infant	Peri	Peri	A	P	A	P
10048	Fetal	Ind	Fetal	A	A	P	A
10050	Fetal	Fetal	Fetal	A	A	A	A
10051	Ind	Infant	Infant	A	P	A	P
10052	Ind	Infant	Infant	A	P	A	P
10053	Peri	Infant	Infant	A	P	A	P
10054	Peri	Infant	Infant	A	A	A	P
10055	Infant	Infant	Infant	A	P	P	P
10058	Peri	Ind	Peri	A	A	A	A
10059	Infant	Infant	Infant	A	P	A	P
10061	Peri	Peri	Peri	A	A	A	P
10063	Ind	Fetal	Fetal	A	A	A	A
10064	Infant	Infant	Infant	A	P	A	P
10065	Fetal	Fetal	Fetal	A	A	P	P
10069	Infant	Infant	Infant	A	P	A	P
10070	Peri	Peri	Peri	A	A	A	P
10071	Peri	Fetal	Fetal	A	A	A	A
10075	Peri	Infant	Infant	A	A	P	P
10076	Peri	Infant	Infant	A	P	A	A
10077	Infant	Infant	Infant	A	P	A	P
10079	Fetal	Ind	Fetal	A	A	P	A
10082	Ind	Infant	Infant	A	P	A	P
10084	Peri	Fetal	Fetal	A	A	A	A
10085	Peri	Infant	Infant	A	A	A	P
10086	Peri	Infant	Infant	A	P	P	P
10087	Peri	Infant	Infant	A	P	A	A
10106	Peri	Peri	Peri	A	A	A	A
10107	Peri	Infant	Infant	A	A	A	P
10108	Ind	Infant	Infant	A	P	A	P

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
10109	Peri	Infant	Infant	A	P	A	P
10110	Fetal	Ind	Fetal	A	A	A	A
10111	Peri	Peri	Peri	A	A	A	A
10112	Fetal	Ind	Fetal	A	P	A	P
10115	Peri	Infant	Infant	A	P	A	P
10116	Peri	Infant	Infant	A	A	A	A
10117	Peri	Fetal	Fetal	A	A	A	P
10118	Peri	Peri	Peri	A	A	A	A
10120	Peri	Fetal	Fetal	A	A	A	A
10121	Peri	Fetal	Fetal	A	A	A	P
10122	Peri	Infant	Infant	A	A	A	A
10123	Peri	Ind	Peri	A	A	A	A
10124	Fetal	Fetal	Fetal	A	P	P	P
10125	Peri	Peri	Peri	A	A	A	P
10126	Peri	Peri	Peri	A	A	A	A
10127	Ind	Infant	Infant	A	A	A	A
10128	Ind	Infant	Infant	A	P	P	P
10130	Peri	Infant	Infant	A	P	P	P
10133	Peri	Infant	Infant	A	P	P	A
10134	Peri	Fetal	Fetal	A	A	A	A
10136	Peri	Infant	Infant	A	A	A	A
10138	Peri	Peri	Peri	A	A	P	A
10140	Ind	Infant	Infant	A	P	P	P
10141	Ind	Peri	Peri	A	A	A	A
10142	Peri	Ind	Peri	A	P	P	P
10143	Ind	Infant	Infant	A	A	P	A
10144	Peri	Peri	Peri	A	A	A	A
10145	Peri	Peri	Peri	A	P	A	P
10147	Peri	Infant	Infant	A	A	A	A
10148	Fetal	Fetal	Fetal	A	A	P	A
10149	Infant	Infant	Infant	A	A	P	P
10151	Peri	Fetal	Fetal	A	A	P	P
10152	Infant	Infant	Infant	A	P	A	P
10153	Peri	Peri	Peri	A	A	P	P
10156	Infant	Infant	Infant	A	A	A	P
10157	Fetal	Ind	Fetal	A	A	A	P
10158	Fetal	Peri	Peri	A	A	A	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
10159	Fetal	Ind	Fetal	A	A	A	A
10160	Fetal	Ind	Fetal	A	P	A	P
10161	Infant	Infant	Infant	A	P	A	P
10162	Peri	Infant	Infant	A	P	A	A
10164	Peri	Ind	Peri	A	P	P	P
10165	Peri	Infant	Infant	A	A	A	A
10166	Fetal	Ind	Fetal	A	A	A	A
10167	Fetal	Ind	Fetal	A	A	P	A
10168	Peri	Peri	Peri	A	A	P	A
10170	Fetal	Fetal	Fetal	A	A	P	P
10171	Fetal	Ind	Fetal	A	A	P	P
10174	Peri	Fetal	Fetal	A	A	A	A
10175	Infant	Ind	Infant	A	A	A	A
10176	Peri	Infant	Infant	A	A	A	A
10177	Peri	Fetal	Fetal	A	A	A	A
10178	Peri	Peri	Peri	A	A	A	A
10179	Fetal	Fetal	Fetal	A	A	A	A
10180	Peri	Fetal	Fetal	A	A	A	A
10181	Peri	Peri	Peri	A	A	A	P
10182	Fetal	Ind	Fetal	A	A	A	P
10183	Peri	Infant	Infant	A	A	A	P
10184	Fetal	Ind	Fetal	A	P	P	A
10185	Fetal	Fetal	Fetal	A	A	A	A
10186	Peri	Peri	Peri	A	A	A	A
10187	Fetal	Peri	Peri	A	P	A	P
10188	Fetal	Ind	Fetal	A	P	P	A
10189	Peri	Peri	Peri	A	A	A	A
10190	Fetal	Ind	Fetal	A	A	A	A
10191	Fetal	Fetal	Fetal	A	A	P	A
10193	Peri	Peri	Peri	A	A	A	A
10194	Fetal	Ind	Fetal	A	A	A	A
10195	Peri	Infant	Infant	A	A	A	A
10196	Infant	Infant	Infant	A	A	A	P
10198	Peri	Peri	Peri	A	A	A	A
10199	Infant	Infant	Infant	A	A	A	A
10200	Peri	Peri	Peri	A	A	A	A
10202	Peri	Peri	Peri	A	A	P	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
10203	Peri	Fetal	Fetal	A	A	A	A
10204	Fetal	Fetal	Fetal	P	P	P	P
10206	Peri	Infant	Infant	A	P	P	P
10207	Ind	Infant	Infant	A	A	P	A
10208	Peri	Infant	Infant	A	A	A	A
10209	Peri	Peri	Peri	A	A	A	P
10217	Peri	Infant	Infant	A	A	A	P
10218	Peri	Infant	Infant	A	P	A	P
10221	Peri	Peri	Peri	P	A	A	A
10222	Peri	Infant	Infant	A	A	A	A
10223	Peri	Fetal	Fetal	A	P	A	A
10225	Peri	Peri	Peri	A	A	A	P
10226	Peri	Infant	Infant	A	A	A	A
10227	Infant	Infant	Infant	A	P	A	A
10228	Infant	Infant	Infant	A	A	P	A
10230	Peri	Fetal	Fetal	A	P	P	P
10231	Infant	Infant	Infant	A	P	A	P
10232	Peri	Fetal	Fetal	A	A	A	A
10233	Infant	Infant	Infant	A	A	P	P
10235	Peri	Infant	Infant	A	A	A	A
10238	Peri	Infant	Infant	A	A	P	P
10239	Peri	Peri	Peri	A	A	A	A
10240	Peri	Fetal	Fetal	A	A	A	A
10241	Peri	Peri	Peri	A	A	A	A
10242	Peri	Ind	Peri	A	P	A	P
10244	Ind	Peri	Peri	A	P	P	P
10245	Peri	Infant	Infant	A	P	A	A
10246	Peri	Peri	Peri	A	P	P	P
10247	Peri	Fetal	Fetal	A	P	A	P
10262	Peri	Peri	Peri	A	A	A	A
10263	Ind	Peri	Peri	A	P	A	P
10264	Ind	Infant	Infant	A	A	A	A
10265	Ind	Infant	Infant	A	P	A	P
10266	Ind	Infant	Infant	A	P	A	P
10268	Fetal	Ind	Fetal	A	P	P	A
10269	Fetal	Ind	Fetal	A	P	P	A
10272	Infant	Infant	Infant	A	P	A	P

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
10273	Fetal	Fetal	Fetal	A	A	A	A
10275	Peri	Infant	Infant	A	P	A	P
10277	Peri	Peri	Peri	A	P	A	A
10288	Peri	Fetal	Fetal	A	P	A	A
10289	Peri	Infant	Infant	A	P	P	P
10290	Peri	Infant	Infant	A	A	A	P
10393	Peri	Ind	Peri	A	A	P	A
10403	Peri	Infant	Infant	A	P	A	P
10405	Infant	Infant	Infant	A	P	A	P
10424	Peri	Infant	Infant	A	P	A	P
10431	Ind	Infant	Infant	A	P	P	P
10432	Peri	Peri	Peri	A	A	P	A
10442	Peri	Fetal	Fetal	A	A	P	A
10489	Peri	Peri	Peri	P	A	A	A
10490	Peri	Infant	Infant	A	A	A	A
10491	Fetal	Ind	Fetal	A	A	A	A
10492	Fetal	Fetal	Fetal	A	A	A	P
10493	Ind	Infant	Infant	A	P	A	P
10494	Peri	Infant	Infant	A	A	P	P
10496	Peri	Fetal	Fetal	A	A	A	A
10497	Infant	Infant	Infant	A	P	A	A
10498	Fetal	Ind	Fetal	A	P	P	P
10499	Fetal	Fetal	Fetal	A	A	A	A
10501	Peri	Peri	Peri	P	A	A	P
10502	Peri	Infant	Infant	A	A	A	A
10503	Peri	Fetal	Fetal	A	A	A	A
10504	Peri	Infant	Infant	A	P	A	P
10505	Infant	Infant	Infant	A	P	A	P
10506	Infant	Infant	Infant	A	P	A	P
10507	Fetal	Ind	Fetal	A	A	A	A
10510	Peri	Peri	Peri	A	A	A	A
10513	Peri	Peri	Peri	A	A	A	A
10531	Peri	Peri	Peri	A	A	A	A
10543	Fetal	Infant	Infant	A	A	P	A
10544	Peri	Peri	Peri	A	A	A	A
10545	Peri	Peri	Peri	A	P	A	A
10546	Peri	Fetal	Fetal	A	A	A	A

Lot #	Osteo age	Dental age	Attributed age	Personal item	Clothing	Inclusions	Safety pins
10548	Peri	Peri	Peri	A	P	P	P
10592	Peri	Peri	Peri	P	P	P	P
10593	Peri	Infant	Infant	A	A	A	P
10595	Fetal	Ind	Fetal	A	A	A	A
10596	Fetal	Fetal	Fetal	A	P	P	P
10614	Peri	Peri	Peri	A	A	P	P
10616	Fetal	Fetal	Fetal	A	A	P	A
10618	Peri	Peri	Peri	A	A	A	P
10631	Fetal	Ind	Fetal	A	A	A	A
10638	Ind	Peri	Peri	A	A	A	A
10717	Ind	Infant	Infant	A	P	A	P
10726	Fetal	Fetal	Fetal	A	A	A	A

Curriculum Vitae

B Charles

EDUCATION

PhD in Anthropology May 2019
University of Wisconsin-Milwaukee
Dissertation: *"Buried...like a human being" at the Milwaukee County Poor Farm Cemetery: A Bioarchaeological Approach to Defining Fetal and Infant Personhood through Biological Development, Historical Discourse, and Diapering*
Advisor: Patricia Richards, Ph.D.

Master of Science in Forensic Anthropology May 2013
Boston University School of Medicine
Thesis: *A Geometric Morphometric Analysis of the Human Ossa Coxae for Sex Estimation*
Advisor: Jonathan Bethard, Ph.D.

Bachelor of Arts in Anthropology May 2010
University of Wisconsin-Milwaukee
Areas of Concentration: Archaeology, Forensic Sciences, Women's Studies

TEACHING AND ADMINISTRATIVE EXPERIENCE

LGBT Studies Instructor
Department of Sociology, University of Wisconsin-Milwaukee **Fall 2018 - Spring 2019**
Developed syllabus for online Introduction to LGBT Studies course
Introduced queer theory, LGBTQ+ history, intersectionality, and seminal readings to undergraduates
Moderated online participation of 40-50 students each semester using D2L and Canvas platforms
Graded coursework and provided feedback to students and university
Participated on the UWM LGBT Studies Program Advisory Board
Coordinated course communication with Visiting Scholar

Anatomy and Physiology Teaching Assistant Fall 2018 - Spring 2019
Department of Biological Sciences, University of Wisconsin-Milwaukee
Grader for multiple sections of Anatomy and Physiology
Compiled grades from Top Hat, Canvas, and McGraw-Hill Connect learning platforms

Journal Editor Sept 2017 - July 2018
Department of Anthropology, University of Wisconsin-Milwaukee
Editor of *Field Notes* academic journal for graduate research
Organized and peer reviewed research articles and book review submissions

Biological Anthropology Teaching Assistant Fall 2013 - Spring 2015
Department of Anthropology, University of Wisconsin-Milwaukee
Organized and taught laboratory sections of Anthro 301-*Human Evolution and Variation*
Presented course materials and oversaw lab activities
Incorporated lecture content into lesson plans and study guides
Graded weekly lab activities, reading quizzes, and exams

PROFESSIONAL EXPERIENCE

Archaeology Lab Technician and Burial Monitor Sept 2016 - Aug 2018
UWM-Cultural Resources Management, Milwaukee, WI
Monitored and recorded ground-disturbing activities within burial sites
Performed pedestrian surveys, shovel testing, and probe surveys

Worked in communication with heavy machinery operators and contractors
Prepared weekly project summaries and technical reports
Analyzed prehistoric human remains recovered during monitoring projects near Lake Koshkonong, WI
Cleaned, analyzed, and determined MNI for disturbed, commingled human remains recovered during monitoring at the Milwaukee County Institutional Grounds

Research Assistant **Sept 2017 - June 2018**
Department of Anthropology, University of Wisconsin-Milwaukee
Position funded through Research Growth Initiative Award 101X357 from the UWM Graduate school, awarded July 2017
Developed juvenile skeletal analysis manual of standardized laboratory practices for inventory, age estimation, and documentation of pathology and taphonomy
Analyzed juvenile human remains from Milwaukee County Poor Farm Cemetery
Trained and supervised juvenile osteological analysis team
Incorporated excavation records, material culture analysis, and osteological analysis into summarized reports for each burial and contributed to weekly project progress reports

Skeletal Analyst **Spring 2016**
UWM-Cultural Resources Management, Milwaukee, WI
Analyzed the human skeletal remains of subadults excavated from historic Second Ward Cemetery in Milwaukee, WI
Assessed individuals for age, pathology, trauma, and taphonomy
Inventoried and packaged remains following project protocol

Skeletal Analyst **May 2014 - Sept 2014**
Historic Resources Management Services, Milwaukee, WI
Analyzed the human skeletal remains of subadults excavated from Milwaukee County Poor Farm Cemetery
Assessed individuals for age, pathology, trauma, and taphonomy
Inventoried and packaged remains following project protocol
Assisted in analysis of remains from commingled contexts

Burial Excavator and Skeletal Analyst **July 2013 - Aug 2013**
Historic Resources Management Services, Milwaukee, WI
Excavated single adult burials from Milwaukee County Poor Farm Cemetery
Cleaned and stabilized remains in wet lab setting
Fine sorted subadult burials after laboratory flotation process
Patricia Richards, Ph.D., principal investigator

Research Assistant **Fall 2012**
Boston University School of Medicine
Proofread book chapters prior to publication of *Manual of Forensic Taphonomy of Forensic Taphonomy* under supervision of James Pokines, Ph.D.
Compiled journal articles and other publications

FIELD AND LABORATORY EXPERIENCE

Infant Cemetery Bioarchaeological Field School **June – Aug 2016**
University College London, Astypalaia, Greece
Planned and excavated infant skeletal remains from pot burials under supervision of Simon Hillson, Ph.D.
Identified skeletal elements and dentition from burials and aided in photographic documentation of remains
Practiced preservation techniques on bones prior to and after excavation

Forensic Anthropology Internship **July 2012**
Knoxville Regional Forensic Center, Knoxville, TN
Worked under the supervision of Dr. Murray K. Marks
Processed unclaimed bodies in varying states of decomposition for collection of skeletal remains
Observed autopsies under Dr. Darinka Mileusnic

Roman Necropolis Bioarchaeological Field School **May – June 2012**
Ecomuseu de Cap de Cavalleria, Menorca, Spain
Participated in the excavation of a cist tomb at a Roman necropolis
Distinguished between primary and secondary burials of multiple individuals within the burial assemblage
Analyzed and documented skeletal remains in laboratory

Presented final project on taphonomic factors that affected the condition of skeletal remains at the necropolis

Undergraduate Research Opportunity Program February 2009 – May 2010
University of WI-Milwaukee, Milwaukee, WI
Documented and packaged skeletal remains from Milwaukee County Poor Farm Cemetery
Applied methods of archival consistent with project protocol for adult and subadult human remains
Undergraduate Independent study supervised by Patricia Richards, Ph.D.

Zooarchaeology Study Abroad Course June 2009
University of WI-Milwaukee, Huanchaco, Peru
Undergraduate lab-based field school with emphasis on Moche culture and zooarchaeology in the North Coast region of Peru, led by Jean Hudson, Ph.D.
Sorted, identified, catalogued, and bagged faunal remains from coastal archaeological sites

CONFERENCE PRESENTATIONS

Charles, B, Eric Burant, and Patricia Richards. (January 2018) *Limbus infantum: shrouds, safety pins, and the materiality of personhood in juvenile burials at the Milwaukee County Poor Farm Cemetery*. Symposium: "The red shoes: toward a materialized relationship between the living and the dead", Society for Historical Archaeology Conference on Historical and Underwater Archaeology, New Orleans

Charles, B. (January 2017) *Medical practices and teaching specimens: a review of skeletal modifications associated with medical intervention and the educational use of human remains, with application to subadult individuals from the Milwaukee County Poor Farm Cemetery.* Symposium: "Bookends: what we've learned in the twenty-two years separating archaeological excavations of the Milwaukee County Poor Farm Cemetery", Society for Historical Archaeology Conference on Historical and Underwater Archaeology, Fort Worth, TX

Charles, B. (October 2016) *The dividing line: a proposal to distinguish between prenatal and full-term remains through dental development and the neonatal line among individuals recovered from the MCPFC.* Midwest Archaeological Conference, Iowa City, IA.

Charles, B and E. Epstein. (November 2015) *Perinates in the Poor Farm Cemetery: establishment of postnatal status through dental development and the neonatal line.* Midwest Archaeological Conference, Milwaukee, WI.

Charles, B and E. Epstein. (October 2015) *A pilot study on perinatal age estimation using dental development and the neonatal line.* Midwest Bioarchaeology and Forensic Anthropology Conference, Chicago, IL.

Charles, B and E. Epstein. (April 2015) *An expansion of deciduous tooth formation stages for age assessment among Poor Farm subadults*. Symposium: "People that no one had use for, had nothing to give to, no place to offer: The Milwaukee County Institution Grounds Poor Farm Cemetery," Society for American Archaeology, San Francisco, CA.

Epstein, E, B. Charles, and B. Drew. (April 2015) *Investigating neonatal line revealed in broken teeth as means of determining stillborn versus live births among juveniles recovered from the Milwaukee County Institution Grounds (MCIG) Cemetery*. Symposium: "People that no one had use for, had nothing to give to, no place to offer: The Milwaukee County Institution Grounds Poor Farm Cemetery," Society for American Archaeology, San Francisco, CA.

Charles, B. (February 2014) *A geometric morphometric analysis of the human innominate for sex determination.* ASU Student Colloquium, University of WI-Milwaukee, Milwaukee, WI.

CERTIFICATIONS

State-approved Human Remains Analyst: Wisconsin State Historical Society, November 2016-present
State-approved Human Burial Excavator: Wisconsin State Historical Society, November 2016-present

MEMBERSHIPS

Register of Professional Archaeologists
Society for Historical Archaeology

COMPUTER PROFICIENCIES

FORDISC 3.0, MorphoJ, Adobe InDesign, Microsoft Excel, SPSS, R