

## A83 An Introduction to a Skeletal Series for Forensic Anthropology Research and Training

*Christine M. Pink, PhD\**, Western Michigan University Homer Stryker MD School of Medicine, Kalamazoo, MI 49008-1284; *Erica R. Christensen, MS*, Western Michigan University, Kalamazoo, MI 49007; *Laura K. Scheid, MS*, Western Michigan University, Portage, MI 49007; *Jered B. Cornelison, PhD*, Western Michigan University Homer Stryker MD School of Medicine, Kalamazoo, MI 49008

**Learning Overview:** Attendees will gain an appreciation of the Skeletal Series as a newly available documented skeletal collection for research and training. The history of the series as well as the demographic profile, pathologies and trauma, and other institutional resources are outlined. After attending this presentation, attendees will be familiar with the Skeletal Series as a valuable resource for support of skeletal research.

**Impact on the Forensic Science Community:** This presentation will impact the forensic science community by introducing the Skeletal Series, a valuable new addition to a limited group of modern documented skeletal collections. The Skeletal Series provides a new opportunity for forensic practitioners to train, research, develop methods, and validate existing methods. The Skeletal Series will continue to grow and diversify in terms of demography, pathologies, and trauma representation, making it an invaluable resource to the discipline.

This presentation introduces the Western Michigan University Homer Stryker MD School of Medicine (WMed) Skeletal Series, a new documented skeletal collection. The skeletal series consists of individuals that donated their bodies to support research and education, and forensic samples retained during postmortem examination at the Office of the Medical Examiner and Forensic Services. The Body Donation Program started in 2014 primarily to support medical education at WMed. From 2014 through 2019, a total of 222 people have donated their bodies to the program. There are several options for donation, and Forever Skeletal Donors consent to have their skeletal remains curated at WMed for future research and education. At the end of September 2020, a total of 102 donors have elected to become part of the skeletal series. Forty-three cadavers are still in use for anatomical instruction, and 59 are cleaned and maintained in the skeletal series. The age range represented in the skeletal series is 0–97 years, with most donors between 40–89 years of age at death. There are currently 17 (28.8%) females and 42 (71.2%) males in the series. Information on both ancestry and race are also requested from donors. Self-reported ancestry is broken down by continent: 2 (3.4%) African; 1 (1.7%) African and European; 2 (3.4%) American Indian; 2 (3.4%) American Indian and European; 1 (1.7%) Asian Indian; 44 (74.6%) European; 1 (1.7%) Mexican; and 6 (10.2%) Unknown. Self-reported race is comprised of 2 (3.4%) American Indian; 1 (1.7%) Asian Indian; 2 (3.4%) Black, 1 (1.7%) Hispanic; 50 (84.7%) White; 1 (1.7%) White and Black; and 2 (3.4%) Unknown.

At present, the program limits donations to individuals that have registered themselves in advance. There are 557 registered body donors, and 226 (40.6%) have selected the skeletal series as their final disposition. The registered donors are comprised of 125 (55.3%) females, 100 (44.2%) males, and 1 (0.004%) person who declined to report sex. The birth years for registered donors span 1924 to 1990, and the race and ancestry profiles are approximately the same as current donors.

Lifestyle and medical histories, including medical records, are available for most individuals in the skeletal series. These records often include antemortem radiographic and Computed Tomography (CT) images as well as postmortem radiography. Up to 58 metadata variables are also available for query in the donor records. Starting in 2021, information on an additional 30 variables will be collected. A wide variety of pathological conditions and traumatic injuries are represented in the skeletal series. These include osteoarthritis, erosive arthropathies, scoliosis, neoplastic diseases, acute and healed blunt trauma, high-velocity projectile trauma, and surgical interventions, including joint replacements and surgical implants.

In addition to skeletal material from body donors, the WMed Skeletal Series also includes retained skeletal samples from over 50 forensic cases. Infants to older adults are represented in the forensic subset of the skeletal series. These specimens comprise examples of blunt force, sharp force, and high-velocity projectile trauma from the perimortem interval and in various stages of healing. The majority of traumatic injuries are well documented. They present an excellent opportunity for training and for comparison to, and validation of, trauma studies.

The WMed Skeletal Series includes the skeletal remains of body donors and prosecuted forensic samples. The diverse and well-documented nature of the skeletal series makes it optimal for supporting research and training. This presentation offers an overview of the resources available at WMed, as well as the process for soliciting access to the skeletal series.

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### Documented Skeletal Series, Trauma, Methods