

A Demographic Exploration of Whole Body Donors at the Alpert Medical School of Brown University

BREANNA JEDRZEJEWSKI, MPH, MD'17; DALE RITTER, PhD

ABSTRACT

OBJECTIVE: To examine and characterize the occupational histories of individuals who donated their whole bodies to the Anatomical Gift Program at Warren Alpert Medical School (AMS) from the academic years 2003–2004 to 2013–2014.

DESIGN AND METHODS: A retrospective chart review of 491 individuals who donated their whole bodies to Alpert Medical School was conducted upon IRB approval from Brown University. Demographic, social, and occupational histories were abstracted for analysis and review. There were no interventions. Descriptive statistics, Student T-test and Difference in Proportions Test were used to characterize information abstracted from donor applications to the Anatomical Gift Program.

PRIMARY RESULTS: From academic years 2003-2004 to 2013-2014, 491 individuals donated their bodies to the Anatomical Gift Program. Donors were split equally by gender (female = 52%; male = 48%). The median age of donors was 82 years; the vast majority self-identified as white (98%). The majority of donors came from occupations involved with industry (23%) or office work, hospitality and retail (24%). Of the 491 body donors, 2 were physicians (0.4%).

PRINCIPAL CONCLUSIONS: Our data demonstrate that in the past decade, physicians have made few contributions to AMS. This remains in concert with current literature showing a lack of physician whole body donors. Future research must explore physician attitudes towards whole body donation.

INTRODUCTION

The desire to contribute to a common good through the advancement of medicine is a cornerstone of many physicians' journeys. Interestingly, this same desire accounts for 80–90% of whole body donors' primary motivation for gifting their body to an anatomy program.^{1,2,3,4}

Whole body donation appears to be an extension of the physician's ethical commitment to facilitate the donation of blood, bone marrow, and viable organs. However, physicians remain underrepresented in the whole body

donor population, despite having directly benefited from the donation of others' bodies towards their own medical training. One study surveying a cohort of newly-registered future body donors noted that the group consisted of few individuals who worked in healthcare and did not include physicians.⁴

Existing literature suggests that dissection may decrease a medical student's willingness to donate his or her own body or the bodies of their loved ones as year of medical study increases.^{5,6} While some might think that clinical experience may modulate this disinclination towards body donation over time and perhaps even reverse it, the dearth of physicians recorded in the occupational histories of the donors may suggest otherwise.⁷ The issue of physician privilege of knowledge arises from the paradox created by doctors being expected to promote body donation for the benefit of medical science and their own careers, yet vastly underrepresenting themselves in the donor cohort.

Inspired to learn more about how physicians are represented within Brown University's whole body donation cohort and ultimately increase whole body donation, this study sought to learn more about the demographics of its body donors by examining and characterizing the occupational histories of individuals who donated their whole bodies to the Anatomical Gift Program at Warren Alpert Medical School within the past decade.

METHODS

A retrospective chart review of 491 individuals who donated their whole bodies to Brown University's Anatomical Gift Program was conducted; all donors whose gift went into effect within the academic calendar from 2003–2004 to 2013–2014 were included in the study. The cohort of donors in this study included donors whose bodies were dissected, donors who were deemed unfit for dissection, and donors who were in storage awaiting dissection. Demographic and clinical information was collected for analysis and review using SPSS (Version 20). Descriptive statistics, Student T-test, and Difference in Proportions Test were used to characterize donors' demographic information. This study took place at The Warren Alpert Medical School of Brown University in Providence, RI, and received IRB approval prior to commencement of data collection.

Figure 1. Donors by Gender

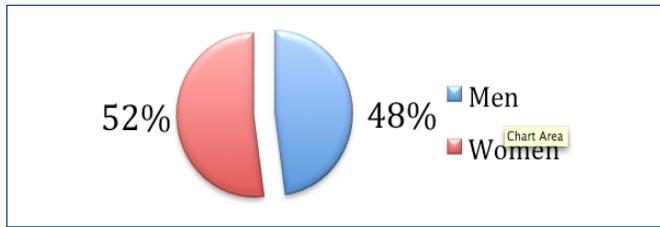


Figure 2. Donor Ethnicity

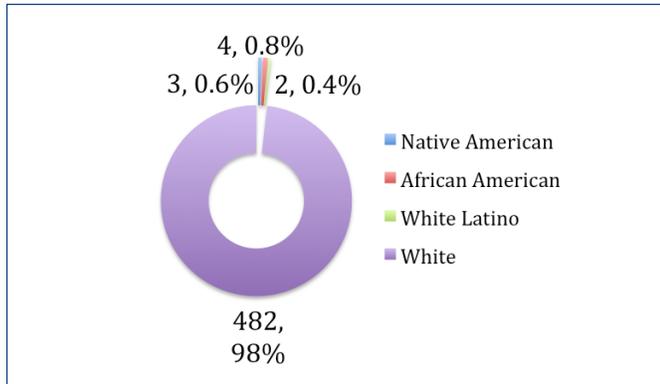


Figure 3. Donors by Civil Status and Request to Return Remains

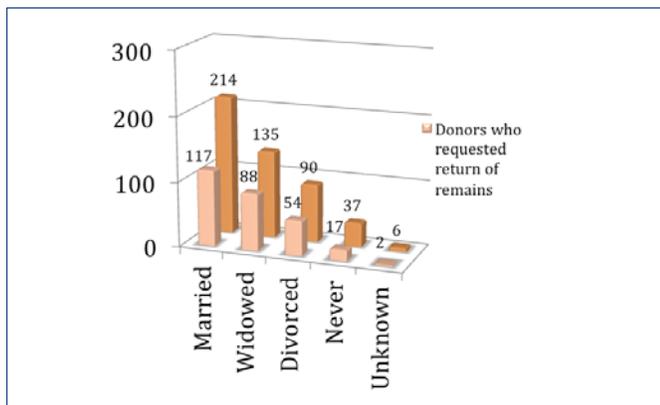
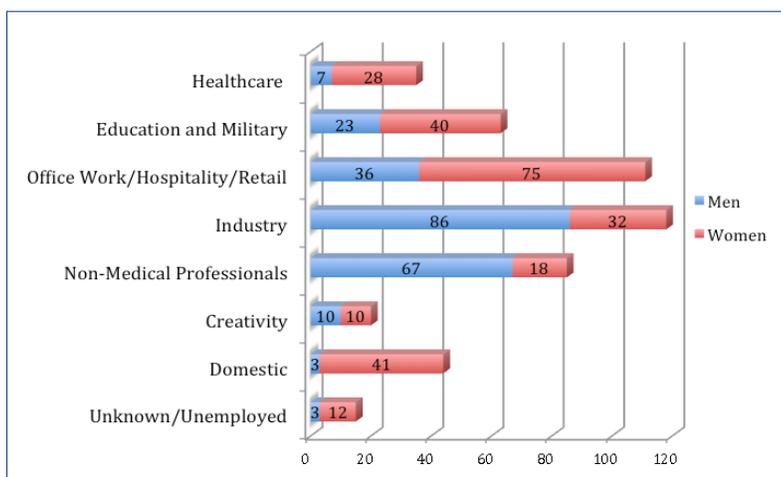


Figure 4. Donors by Occupational History



RESULTS

In the past decade, 491 individuals donated their bodies to the Anatomical Gift Program. Gender breakdown of donors was 52% female and 48% male with a median age of 82 years (range 40-104 years) (Figure 1). Nearly all donors identified themselves as white (98%), with the remainder comprising of African American (0.8%), Native American (0.6%), and white Latino (0.4%) (Figure 2). Civil status of the donors was: 67% married, 45% widowed, 29% divorced, 11% never married, and 2% undisclosed (Figure 3).

The median time elapsed between donor consent and death was 4 years (range 0-40 years). Over half of the total donor population requested the return of cremated remains to their families (57%); whether the donor was married or not did not seem to influence whether or not remains were requested to be returned (alpha = 0.05). Only 2 physicians (0.4%) were among the 491 individuals who gifted their bodies to Brown University's Anatomical Gift Program in the last decade. The largest contribution of whole body donation came from working class individuals representing industry (23%); and office work, hospitality, and retail (24%). Males made up the majority of donors from the industry group (86%) while women represented the majority of workers from office work, hospitality and retail group (75%). Donors from healthcare occupations accounted for 7% of all donor occupations with a gender breakdown of 7% males and 28% females. Nurses contributed most towards donations from healthcare occupations comprising almost half of all donors from the healthcare industry (49%) (Figure 4).

DISCUSSION

Despite the significant role anatomical dissection plays in their educational training, physicians comprised a very minor portion of whole body donors who contributed to Brown's Anatomical Gift Program in the last decade. Physicians comprise 0.2% of the US population (and 0.3% of the Rhode Island population), a statistic that appears to make the 0.4% physician composition of the body donors in the study seem appropriate on a population level.⁸ However, physicians have a higher stake in whole body donation than the general population as it inherently impacts their medical education and practice.

The external validity of the data from this single center study is supported by similar results from previously published studies demonstrating that there is a lack of physician whole body donation.^{1,2,4,6} The general trend of few documented physician whole body donors in the literature challenges the idea that decreased demand for whole body donors in certain geographic locations may partially explain the lack of physician donors. Furthermore, an underrepresentation of physician participation in other

donation pathways with universally high demand, such as blood donation, emphasizes the need to re-examine physicians' relationship to all aspects of medical donation as they represent a substantial potential donor pool.⁹

Hopefully, our results will provoke further discussion and reflection among medical students and physicians about how their values and views of dissection align with their willingness to donate. Perhaps some physicians feel that they have already fulfilled the urge to advance medicine through the choice of their careers and thus lack this strong motivating factor cited by previous donor while others have had a bad experience with anatomy dissection during training that deters them from the idea of potentially participating in the future as a donor.^{10,11} More research must be conducted to further understand the complexities of the physician's relationship to whole body donation (and other types of donation) not only as an institution to support but also a deeply personal decision of whether or not to take part in this long-established cornerstone of medical education.

Acknowledgments

Alpert Medical School of Brown University Summer Assistantship

Disclaimer

The views expressed herein are those of the authors and do not necessarily reflect the views of Brown University.

References

1. Cornwall J, Perry GF, Louw G, Stringer MD. "Who donates their body to science? An international, multicenter, prospective study." *Anatomy Science Education* 2012 April 16. 5(4): 208-16.
2. Fennell S, Jones DG. "The bequest of human bodies for dissection: a case study in the Otago Medical School." *New Zealand Medical Journal*. 1992 Nov 25; 105(946): 472-4.
3. McClea K, Stringer MD. "Why do potential body donors decide against donating?" *New Zealand Medical Journal*. 2013 June 28; 126 (1377): 51-8.
4. McClea K, Stringer MD. "The profile of body donors at the Otago School of Medical Sciences—has it changed?" *New Zealand Medical Journal*. 2010 April 9; 123(1312): 9-17.
5. Alexander M, et al. "Attitudes of Australian chiropractic students toward whole body donation: A cross-sectional study." *Anatomy Science Education*. 2013 July 16 [Epub ahead of print].
6. Aneja PS. "Body donation: a dilemma among doctors." *Journal of Evolution of Medical and Dental Sciences*. 2013 April 17; 2(16): 2585.
7. Green C, et al. "Attitudes of the medical profession to whole body and organ donation." *Surgeon*. 2013 August 7. [Epub ahead of print]
8. *Rhode Island Physician Workforce Profile*. 2013 State Physician Workforce Data Book. AAMC.
9. Kanner WA, Jeffus S, Wehrli G. "An Academic-Based Hospital Donor Site: Do Physicians Donate Blood?" *Annals of Clinical and Laboratory Science*. Autumn 2009; 39(4): 339-344.
10. Cahill KC, Ettarh RR. "Attitudes to cadaveric organ donation in Irish preclinical medical students." *Anatomy Science Education*. 2011 Jul-Aug; 4(4): 195-9.
11. Jung H. "Reluctance to donate organs: a survey among medical students." *Transplant Proc*. 2013 May; 45(4): 1303-4.

Authors

Breanna Jedrzejewski, MPH, MD'17; Warren Alpert Medical School of Brown University, Providence, RI.

Dale Ritter, PhD, Evolutionary Biology, Brown University, Providence, RI.

Correspondence

Breanna Jedrzejewski
Box G-9460 Providence, RI 02912
818-325-5737
breanna_jedrzejewski@brown.edu