OMB No. 0925-0001 and 0925-0002 (Rev. 10/2021 Approved Through 09/30/2024)

**BIOGRAPHICAL SKETCH**

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Callahan, Katharine

eRA COMMONS USER NAME (credential, e.g., agency login): kpresscallahan

POSITION TITLE: Member

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

| INSTITUTION AND LOCATION | DEGREE (if applicable) | END DATE MM/YYYY | FIELD OF STUDY |
|---|---|---|---|
| Princeton University | AB | 06/2011 | Evolutionary Biology |
| Johns Hopkins University School of Medicine | MD | 06/2016 | Medicine |
| NewYork-Presbyterian Morgan Stanley Children's Hospital | Resident | 07/2019 | Pediatric Resident |
| The Children's Hospital of Philadelphia | Fellow | 07/2023 | Neonatology Fellow |
| University of Pennsylvania | MSME | 07/2023 | Medical Ethics |
| University of Pennsylvania | Postdoctoral | 07/2023 | Ethical, Legal, and Social Implications (ELSI) of Genetics/Genomics |

## A. Personal Statement

My research focuses on how neonatologists and parents use genetic information to make medical decisions and conceptualize patients' futures. This work emerges at the intersection of my training as a neonatologist and ethicist and my longstanding interest in the integration of genetic information into complex medical practice. During medical school, I completed projects to incorporate genetics into child psychiatry and medical school education. In residency, I began to explore the limitations of genetic prognostication through the lens of Down syndrome in partnership with Rachel Adams, parent of a child with Down syndrome. Through my neonatology training, I have witnessed firsthand both the benefits and potential confusion and harms that can result from genetic testing in this context. My recent work lays the groundwork for the proposed research by documenting risks of inadequately supported genetic testing for neonates. Under the mentorship of Chris Feudtner and Steven Joffe, I conducted a split sample psychological experiment demonstrating that neonatologists applied genetic findings, including uncertain genetic findings or those heralding neurodevelopmental impairment, in biased and problematic ways. I also conducted a mixed methods national survey revealing that neonatologists need more support in using genetic tests and counseling families about results.

The proposed work brings together and expands upon my prior work. Through its completion, I will transition from identifying shortcomings of genetic medicine to creating solutions. I am well poised to complete this research given my experience and training as both a neonatologist and ethicist and position in a rich clinical environment with expert mentors. While I have a strong track record of academic productivity and ingenuity, I require additional training to accomplish my long-term goal of becoming an independent ELSI investigator. The proposed training will advance my understanding of genomic medicine and skills in qualitative and simulation methodologies, positioning me as a national leader in neonatal ELSI research.

Projects that I would like to highlight include:

T32 HG009496 The Penn Postdoctoral Training Program in the Ethical, Legal and Social Implications of Genetics and Genomics, PI: Steven Joffe, Role: Trainee 07/2020-07/2023

Marshall Klaus Neonatal-Perinatal Research Award, American Academy of Pediatrics. Title: Parent-Important Outcomes Measures in Bronchopulmonary Dysplasia, PI: Katharine Press Callahan. Role: PI 07/2022-07/2024.

Publications:

1. **Callahan KP,** Flibotte J, Skraban C, Wild KT, Joffe S, Munson D, Feudtner C. Influence of Genetic Information on Neonatologists' Decisions: A Psychological Experiment. Pediatrics. 2022 Mar 1;149(3) PubMed Central PMCID: PMC8892772.
2. **Callahan KP,** Flibotte J, Skraban C, Wild KT, Joffe S, Munson D, Feudtner C. How neonatologists use genetic testing: findings from a national survey. J Perinatol. 2022 Feb;42(2):260-261. PubMed Central PMCID: PMC8825701.
3. **Callahan KP,** Mueller R, Flibotte J, et al. Measures of Utility Among Studies of Genomic Medicine for Critically Ill Infants: A Systematic Review. JAMA Network Open. 2022. Aug;5(8):e2225980. PubMed Central PMCID: PMC9366540
4. **Callahan KP,** Adams R. Contextualizing Future Health: A Parent and Resident Discuss Down Syndrome. Pediatrics. 2020 Jan;145(1) PubMed PMID: 31801852.

## B. Positions, Scientific Appointments and Honors

### Positions and Scientific Appointments

| | |
|---|---|
| 2022- | Founder, Multidisciplinary Neonatal Ethics Forum, Hospital of the University of Pennsylvania |
| 2022 - | Member, Hospital of the University of Pennsylvania Ethics Committee |
| 2022 - | Genomic Focus Group Member, Children's Hospitals Neonatal Consortium |
| 2021 - | Member, NHGRI Inter-Society Coordinating Committee for Practitioner Education in Genomics |
| 2021 - | Co-Director, Neonatal Trainee Ethics Interest Group, American Academy of Pediatrics |
| 2021 - | Fellow Leader, Neonatal Bereavement Committee, Children’s Hospital of Philadelphia |
| 2020 - | Co-Founder, Multidisciplinary Neonatal Ethics Forum, Children’s Hospital of Philadelphia |
| 2020 - | Member, Children’s Hospital of Philadelphia Ethics Committee |
| 2018 - 2019 | Co-Founder, Parents as Educators, Columbia University |
| 2017 - 2019 | Resident Member, NYPresbyterian Children's Hospital Ethics Committee |
| 2016 - 2019 | Resident Member, NYPresbyterian Children's Hospital Bereavement Committee |

### Honors

| | |
|---|---|
| 2022 | Marshall Klaus Clinical Research Award |
| 2022 | Scholar Program Awardee, NHGRI Inter-Society Coordinating Committee for Practitioner Education in Genomics |
| 2020 | Neonatology Fellows Research Fund Recipient, The Children's Hospital of Philadelphia |
| 2020 | Travel Grant, Women in Neonatology (AAP Section) |
| 2020 | Travel Grant, Eastern Society for Pediatric Research |
| 2019 | Distinguished Research in Clinical Science, New York-Presbyterian Morgan Stanley Children's Hospital |
| 2019 | Edward Curnen Prize for Compassion and Humanity in Medicine, New York-Presbyterian Morgan Stanley Children's Hospital |
| 2016 | Alpha Omega Alpha, Johns Hopkins University School of Medicine |
| 2016 | Helen and Harold Harrison Prize for Outstanding Proficiency in Pediatrics, Johns Hopkins University School of Medicine |
| 2011 | Phi Beta Kappa, Princeton University |

## C. Contribution to Science

1. **Ethical Implications of Genetic Information in the Neonatal Intensive Care Unit:** The neonatal intensive care unit (NICU) has been a launch point for genomic medicine, yet in some cases our ability to

do testing has surpassed our ability to use the results meaningfully and ethically in clinical practice. I have experimentally demonstrated clinician biases that lead to the misapplication of genetic findings and have examined the same biases from the parent perspective. I have also shown that neonatologists frequently interpret genetic findings without sufficient genetics support. Most recently, I outline gaps in our current conceptualization of utility in neonatal genomic research. Together, this work calls for caution and support as neonatologists increasingly use genetic testing, and use increasingly complex genetic tests, in clinical practice.

a. **Callahan KP,** Mueller R, Flibotte J, et al. Measures of Utility Among Studies of Genomic Medicine for Critically Ill Infants: A Systematic Review. JAMA Network Open. 2022. Aug;5(8):e2225980. PubMed Central PMCID: PMC9366540
b. **Callahan KP,** Flibotte J, Skraban C, Wild KT, Joffe S, Munson D, Feudtner C. Influence of Genetic Information on Neonatologists' Decisions: A Psychological Experiment. Pediatrics. 2022 Mar 1;149(3) PubMed Central PMCID: PMC8892772.
c. **Callahan KP,** Flibotte J, Skraban C, Wild KT, Joffe S, Munson D, Feudtner C. How neonatologists use genetic testing: findings from a national survey. J Perinatol. 2022 Feb;42(2):260-261. PubMed Central PMCID: PMC8825701.
d. **Callahan KP,** Feudtner C. Genetic Testing Is Messier in Practice than in Theory: Lessons from Neonatology. Am J Bioeth. 2022 Feb;22(2):37-39. PubMed Central PMCID: PMC8936853.

2. **Supporting Families through Difficult Decisions in NICU:** Parents are often confronted with difficult decisions in the NICU and neonatologists must support them with insufficient prognostic information. My work in family support highlights the value of multidisciplinary care. I also worked with Rachel Adams, the parent of a child with Down syndrome, to write about the importance of neonatologists understanding future health in the broader context of life. Parent support is improved when neonatologists can imagine patients' multi-dimensional futures, acknowledge uncertainty, and thoughtfully communicate this information to parents.

a. **Callahan KP**, Adams R. Contextualizing Future Health: A Parent and Resident Discuss Down Syndrome. Pediatrics. 2020 Jan;145(1) PubMed PMID: 31801852.
b. **Callahan K**, Steinwurtzel R, Brumarie L, Schechter S, Parravicini E. Early palliative care reduces stress in parents of neonates with congenital heart disease: validation of the "Baby, Attachment, Comfort Interventions". J Perinatol. 2019 Dec;39(12):1640-1647. PubMed PMID: 31488903.

3. **Integrating Genetics into Complex Medical Practice**: As genetic understanding deepens and genetic testing is more widely available, non-geneticist physicians require enhanced education. I have done work to enhance genetic education for medical students and facilitate genetic referrals from child psychiatrists. Through fellowship, I have worked with clinical geneticists on case reports and a literature review that highlight the importance of interdisciplinary genetic education. My selection as a Scholar in the NHGRI Inter-Society Coordinating Committee for Practitioner Education in Genomics has opened a new avenue for creating genetic educational material.

a. Strong A and **Callahan KP**, Guo R, Ron H, Zackai EH. X-Autosome translocations: X-inactivation and effect on phenotype. Clin Dysmorphol. 2021 Oct 1;30(4):186-188. PubMed PMID: 34148988.
b. Priestley JRC, Alharbi H, **Callahan KP**, Guzman H, Payan-Walters I, Smith L, Ficicioglu C, Ganetzky RD, Ahrens-Nicklas RC. The Importance of Succinylacetone: Tyrosinemia Type I Presenting with Hyperinsulinism and Multiorgan Failure Following Normal Newborn Screening. Int J Neonatal Screen. 2020 Jun;6(2) PubMed Central PMCID: PMC7422996.
c. **Press KR**, Bodurtha J. Milestones for medical students completing a clinical genetics elective. Genet Med. 2017 Feb;19(2):236-239. PubMed PMID: 27584909.
d. **Press KR,** Wieczorek L, Hoover-Fong J, Bodurtha J, Taylor L. Overview: referrals for genetic evaluation from child psychiatrists. Child Adolesc Psychiatry Ment Health. 2016;10:7. PubMed Central PMCID: PMC4809034.

4. **Interdisciplinary Ethics Education and Clinical Support**. As I gain expertise in both neonatology and clinical ethics, I increasingly support interdisciplinary ethics education and the clinical application medical ethics, both locally and nationally. I founded/co-founded interdisciplinary ethics forums at both the Children's Hospital of Philadelphia and Hospital of the University of Pennsylvania and co-lead a "pink flags" initiative to address moral distress among NICU clinicians. I also co-direct the national Neonatal Trainee Ethics Interest Group through the American Academy of Pediatrics. I founded an ethics curriculum for neonatology fellows at the Children's Hospital of Philadelphia. Reflecting national recognition of these endeavors, I share lessons from my interdisciplinary clinical ethics work through an in-press commentary on clinician distress with cutting-edge therapies and presentation on the Neonatal Trainee Ethics Interest Group.

    a. **Callahan KP,** Taha D, Dewitt A, Munson D, Behringer K, Feudtner C. Clinician Distress with Treatments at the Frontier of Mortality. J Pediatr. 2022 Sept. [Epub ahead of print]. PMC Journal – In Process.
    b. Kukora S, **Callahan KP**, Lyle A, Rent S. Ethics Education Reimagined: A Novel Peer-to-Peer Learning Approach amongst Fellow and Early Career Neonatologists. Oral presentation at American Society of Bioethics Ethics & Humanities Educators in the Health Professions Affinity Group Meeting 2022; Portland, OR.

Complete List of Published Work in My Bibliography:
https://www.ncbi.nlm.nih.gov/myncbi/katharine.callahan.1/bibliography/public/