

Postdoctoral Fellowship in Predictive Analytics Using Simulated and Real-World Driving Data to Reduce Crash Risk

Join a groundbreaking Phase III NIH-funded randomized controlled trial using cutting-edge simulated driving tools, cognitive assessments, mobile app-based driving tracking, and real-world crash data to revolutionize how we train young drivers. This is the largest and most comprehensive study of driver education since 1983, designed to reduce crash risk in the highest-risk group on the road: newly licensed teen drivers. Motor vehicle crashes are the major source of unintentional injury in adolescents, and failures to anticipate and respond to hazards are responsible for most of these crashes.

As a Postdoctoral Fellow, you will lead the development of predictive models of crash risk, exploring how innovative online and in-person driver training, simulated driving assessments, and neurocognitive traits shape driving outcomes. You will generate evidence to transform clinical care, driver training policy, and injury prevention strategies. This is an exceptional opportunity to conduct translational, high-impact research at the intersection of developmental science, data science, and public health, in partnership with world-leading researchers and a highly collaborative team.

We are seeking a data-driven and intellectually curious postdoc with experience and expertise in analyzing large multi-modal datasets to:

- Analyze rich, multi-modal data from a 1,000-participant RCT on driver training and adolescent crash risk.
- Build predictive models integrating simulated virtual driving assessments, cognitive and psychosocial measures, phone-based behavior tracking, and real-world driving outcomes.
- Examine how training type, personality traits, executive function, and risk profiles affect licensure and crash trajectories.
- Lead and contribute to manuscripts and conference presentations.
- Translate findings into real-world clinical and policy impact.

The fellow will join the Neuroscience of Driving (NoD) team at the Annenberg Public Policy Center of the University of Pennsylvania (APPC) and the Center for Injury Research and Prevention at the Children's Hospital of Philadelphia (CHOP), in a jointly supervised project funded by the National Institute of Child Health and Human Development (NICHD). The fellow will be fully integrated into a multidisciplinary team of experts in pediatrics, developmental psychology, adolescent risk, cognitive neuroscience, data science, and epidemiology.

At a policy level, the fellow will be intimately involved in and lead research that directly informs changes in young driver policies and adolescent preventive care. At a foundational science level, the fellow will have the opportunity to advance the science of simulated driving broadly

conceived as both a training and assessment mechanism for novice drivers. The fellow will be part of the post-doctoral program at APPC, with an associated appointment at CHOP.

Principal Investigators:

1. Dan Romer, PhD, Research Director, Annenberg Public Policy Center, University of Pennsylvania
2. Elizabeth Walshe, PhD, Assistant Professor, Department of Pediatrics, Perelman School of Medicine, University of Pennsylvania; Center for Injury Research and Prevention, CHOP
3. Flaura Koplin Winston, MD, PhD, Distinguished Chair, Department of Pediatrics, University of Pennsylvania; Director, CIRP at CHOP; Member, National Academy of Medicine

About the DRIVER Study

The Driver Education Research (DRIVER) Study is a multi-year, NIH-funded randomized controlled trial led by Drs. Winston, Walshe, and Romer ([ClinicalTrials.gov NCT06413927](https://clinicaltrials.gov/ct2/show/study/NCT06413927)). The study is enrolling 1,000 adolescents in Pennsylvania during their learner permit phase to compare the effectiveness of different training interventions.

Participants complete baseline assessments—including a virtual driving assessment (VDA), on-road behavior tracking, psychosocial surveys, and cognitive tasks—and are followed monthly for six months post-licensure to assess crash and citation outcomes. This platform enables robust investigation into the neurobehavioral and contextual factors contributing to crash risk during the high-risk early licensure period.

Key study features:

- Three training conditions: (1) usual practice (supervised at-home driving), (2) online simulated hazard training, and (3) behind-the-wheel instruction
- Validated in-person simulated driving assessments at pre- and post-training
- In-depth baseline data: executive function, attention, personality, behavioral traits, eye tracking, and potential for electronic health record linkage
- Passive mobile phone-based driving-behavior tracking through six months post-licensure
- Builds on prior implementation and validation of the VDA in over 10,000 novice drivers in CHOP adolescent primary care settings.

This high-dimensional dataset offers rare analytic opportunities to evaluate both individual-level training effects and broader clinical and policy applications of driving assessment and intervention.

Who Should Apply

This is a rare opportunity to contribute to a landmark trial with the potential to reshape adolescent driver training nationwide. You will help answer critical questions at the intersection of neuroscience, public health, and policy—while gaining hands-on experience in predictive analytics, clinical implementation, and multidisciplinary collaboration.

Required Qualifications:

- PhD in biostatistics, epidemiology, public health, psychology, neuroscience, data science, computer science, or a related field
- Experience working with large and/or longitudinal datasets
- Proficiency with statistical software (R, Python, Stata, or equivalent)
- Strong statistical modeling and/or machine learning skills
- Excellent written and verbal communication skills

Preferred Attributes:

- Interest in translational research or developmental risk
- Background in behavioral predictors, neurodevelopment, adolescent health, or injury prevention
- Demonstrated productivity through peer-reviewed publications and collaborative research

Please note: the University of Pennsylvania limits post-doctoral appointments to five years in total, including prior postdoc experience. The initial fellowship appointment will be one year, renewable for up to three years, contingent upon funding, performance, and cumulative years of post-doc experience. The fellow will work closely with the PIs to analyze data from the RCT and CHOP primary care implementations, with ample opportunity to lead first-authored publications.

Pay and Benefits

First-year fellows will receive a stipend in line with the University of Pennsylvania's minimum stipend amounts found at <https://almanac.upenn.edu/articles/fiscal-year-2026-minimum-stipend-levels-for-postdoctoral-researchers> based on years of experience, currently \$67,000 for first year post-docs. A relocation allowance of up to \$1,000 for domestic relocations and up to \$2,000 for international relocations is available to offset pre-approved, receipt-documented relocation expenses, and APPC will reimburse up to \$2,000 in travel to conferences to present APPC research. Post-docs are eligible for health, dental, and vision insurance under the University of Pennsylvania's plans outlined here: <https://www.hr.upenn.edu/PennHR/benefits-compensation/postdoctoral-researchers-and-fellows>. A co-insurance payment will be deducted from monthly stipend payments based on the insurance plans selected. APPC provides a subsidy for the co-insurance cost for dependents (details available upon request).

Earliest start date: February 2026

Applications including a CV and letter of interest can be sent to: appc-apply@appc.upenn.edu. Questions about the position can be directed to dan.romer@appc.upenn.edu