Autonomous Vehicles:
Developing a Public Health Research Agenda
to Frame the Future of Transportation Policy

Travis J. Crayton and Benjamin Mason Meier, JD, LLM, PhD

ABSTRACT

Recent advancements in autonomous vehicle technology have led to projections that fully autonomous vehicles could define the transportation network within the coming years. In preparation for this disruptive innovation in transportation technology, transportation scholars have started to assess the potential impacts of autonomous vehicles, and transportation policymakers have started to formulate policy recommendations and regulatory guidance concerning their deployment. However, there has been little analysis of the public health implications arising from the widespread adoption of fully autonomous vehicles. We examine these prospective public health impacts—both benefits and harms to individual and population health—and analyze how they can be considered in the development of public health law. In this manuscript, we discuss the evolving relationship between technological innovations in transportation and public health, conceptualize automated transportation as a disruptive technology necessitating a public health law response, and define a research agenda to examine the public health implications of autonomous vehicle policy, as seen through existing evidence on road casualties, environmental health, aging populations, non-communicable disease, land use, and labor markets. We conclude that such a public health research agenda would provide a basis to frame autonomous vehicle policies that best support the public's health, realize the United Nations Sustainable Development Goals to ensure healthy lives and create sustainable cities, and provide a basis for public health participation in transportation policy and law reforms.

RESEARCH AGENDA

- Road casualty prevention
- Environmental health protection
- Healthy aging promotion
- Non-communicable disease reduction
- Land use regulation
- Labor market disruption

HIGHLIGHTS

- AVs will have consequences across determinants of health.
- Consideration of the public health impacts of AVs has thus far been limited.
- Defining a research agenda to examine public health impacts of AVs is necessary.
- This agenda provides a basis for public health participation in AV policymaking.

THE UNIVERSITY
of NORTH CAROLINA
at CHAPEL HILL

CONTACT

Travis J. Crayton
crayton@unc.edu

Benjamin Mason Meier
meierb@email.unc.edu
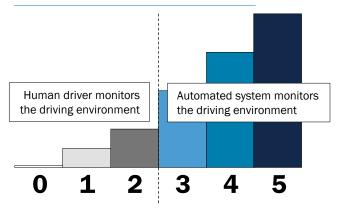
Autonomous Vehicles:
Developing a Public Health Research Agenda to Frame the Future of Transportation Policy

Travis J. Crayton and Benjamin Mason Meier, JD, LLM, PhD

HISTORY

- Transportation & health have longstanding linkages
- Previous transportation innovations have also impacted health in profound ways
  - Horses & horsecars
  - Electric streetcars
  - Automobiles

SAE LEVELS OF AUTOMATION

| Human driver monitors the driving environment | Automated system monitors the driving environment |

0 1 2 3 4 5

TYPES OF POLICIES

- Zoning
- Licensing
- Privacy
- Costs
- Liability

KEY CONSIDERATIONS

- How can public health & transportation decision-making be better integrated than in the past?
- What opportunities exist to improve existing challenges in public health as automated technologies are adopted?

KEY CONSIDERATIONS

- How will public health be impacted along the spectrum of automation?
- What adoption strategies best support public health?

KEY CONSIDERATIONS

- What policies are necessary to promote public health & advance UN Sustainable Development Goals?
- How can public health actors engage with policy areas to affect policy adoption in these areas?

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

CONTACT

Travis J. Crayton
crayton@unc.edu

Benjamin Mason Meier
meierb@email.unc.edu