



# Public Health, Ethics, and Autonomous Vehicles

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## Public health:

Autonomous vehicles, which could reduce traffic fatalities by up to 90% by eliminating accidents caused by human error—estimated to be 94% of fatalities—could save more than 29 000 lives per year in the United States alone.

Around the world, autonomous cars could save 10 million lives per decade, creating one of the most important public health advances of the 21st century.

# APPLYING PUBLIC HEALTH ETHICS:

balancing the freedom of private manufacturers to innovate with government's responsibility to protect public health.

## Public Health Issue:

- Healthy lifestyle: biking, walking
- Distract attention and funding for mass transit
- Issue of access: poor, disabled, rural

## Others:

insurance issues,  
product and tort liability issues  
issues pertaining to privacy and cybersecurity

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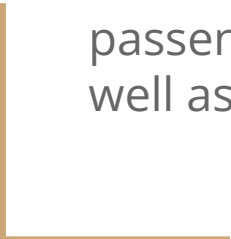
# Forced Choice Algorithms



Forced choices:

Rest on fundamental ethical assumption.

classic ethical conflicts between

- an individual's interest—that passengers arrive quickly, cheaply, and safely at their destination
  - community's interest—that roads be safe for all travelers, including passengers in both autonomous and driver-dependent vehicles, as well as bicyclists and pedestrians
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## For US drivers in real world

- sudden emergency doctrine and the unavoidable accident doctrine provide legal protection in some states
  - for reasonably prudent human drivers who make questionable choices under very limited and extenuating circumstances.
- empirical study of autonomous car ethics
  - 76% agreed that the most justified approach was the utilitarian approach in that the autonomous vehicle sacrificed its own passengers if that would result in saving more lives overall (n = 182; 95% confidence interval = 69, 82)
  - Purchasing: (scale = 1-100; median = 19;  $P < .001$ )



concerns for fairness, equity, and informed  
choice should lead to discussions

Bearing extra risk

Other innocent pedestrians

Informing the choice of vehicles

- (1) advocating transparent and collaborative discussion of public health issues related to autonomous vehicles, starting with the forced-choice algorithms under development by manufacturers;
- (2) expanding the public's awareness of the ideals of public health and ethical issues relevant to autonomous vehicles;
- (3) facilitating the inclusion of broad perspectives—including the historically disenfranchised—in the discussion of issues, including community input into when, where, and how autonomous vehicles are tested and deployed;
- (4) ensuring that rational, ethically justifiable regulations are developed consistently across states, codified by the appropriate government agency, funded appropriately, and implemented, monitored, and assessed effectively.

# Discussion Questions:

If you are the people in the line of trolley problem, will you willing to give up your life to allow more people to be saved?