Thank you for that kind introduction. I'd like to thank Senator Warren and Congressman Cummings for hosting me today.

I'm delighted to be here to discuss federal funding for research and development--a topic that has the potential to transform the lives of millions of Americans of all backgrounds--and clearly, to bring together liberal Democrats and conservative Republicans.

Before I offer a few general principles for how to think about federal research and development funding, let me start with an example that is close to my heart--and that is finding cures for the most common and serious health problems. This is a challenge that is important, it's urgent, and now there is great hope that it's doable.

It's important because every one of us has been touched by the devastating effects of problems like Alzheimer's disease, dementia, cancer, kidney disease, and Parkinson's. We know how debilitating they can be; how they absorb the energies of family members and caretakers; how they strain the finances of even well-off families.

From a fiscal as well as a human perspective, finding cures for these diseases is urgent. Former Senator Bob Kerrey and I chaired the Alzheimer’s Study Group for three years. We learned that over the next four decades, Americans will spend $20 *trillion* on Alzheimer's and other dementias. That is more than a year's GDP. And the taxpayers are on the hook for much of it--including an estimated 420 percent increase in costs to Medicare and 330 percent increase in costs to Medicaid. (These are, of course, just two programs.)

The federal funding for research to cure Alzheimer's is only a tiny fraction of the money it's *already* spending to treat Alzheimer's *every year*. The NIH spent $731 *million* on dementia research this year--less than one half of one percent of the $154 *billion* Medicare and Medicaid are spending to treat it in the same period.

Part of the reason for the imbalance is that NIH funding has been cut more than 20 percent in real terms since 2003, the end of the 5-year doubling of the NIH budget we achieved in the 1990s. Given the costs we know are coming, boosting research funding may be the most fiscally responsible step we can take.

The good news is, curing Alzheimer's and other major diseases appears more doable today than at any time in history. Thanks in no small part to basic research and development funded by the federal government, we are in a period of extraordinary breakthroughs in biology, genetics, computation, and materials. NIH in general and have Tom Insel in particular have shown real leadership with the BRAIN initiative. And today NIH is pioneering the development of things like immunotherapies, which are spurring patients' immune systems to attack diseases like cancer rather than relying on surgery, chemotherapy, or radiation.

To allow research funding to languish at a time of historic opportunity to save lives and save money takes a special kind of stupidity that is reserved for this city.

I should note as an exception to this criticism the great work of Chairman Upton, Congresswoman DeGette and their colleagues in the House, whose 21st Century Cures initiative is one of the most important and bipartisan efforts in Congress in recent years. I know that Senators Lamar Alexander and Ron Johnson also deserve a lot of credit for their support.

In addition to drastic increases in research funding--I've called for doubling the NIH budget--let me quickly offer two bold, big ideas about research and development at the federal level.

The first is research bonds. For large, very expensive projects with the potential to generate huge savings if they work, it is worth exploring issuing bonds to finance the research, which would then pay out some fraction of the savings. This would have the benefit of taking important projects off-budget and raising much larger sums of money than the federal government is likely to appropriate. We currently are developing this idea for brain research bonds with Garen Staglin and Pete Chiarelli at One Mind, as well as Professor Steve Hyman at the Broad Institute of MIT and Harvard. Congressmen Michael Burgess and Andy Harris in the House have proposed a version of this idea with the MIND Act for Alzheimer's research bonds.

Similar models could apply to large infrastructure investments, as Governors Mitch Daniels, John Kasich, Pete Wilson, Arnold Schwarzenegger, and Mike Leavitt have all demonstrated with innovative strategies for financing major roadways in their states.

(Philip Howard has argued that if we simply rationalized the absurdly bureaucratic review processes for infrastructure we could create 3 million more jobs with the same appropriation.)

Finally, for research and development that returns less obvious savings to the taxpayer but might nonetheless be worthwhile, I am a huge supporter of big prizes. Prizes are good for a couple of reasons: first, taxpayers don't pay a thing unless and until the goal is actually achieved, and they never pay more than the prize amount. Second, you get lots of competing strategies for solving the problem when you have multiple groups working independently to get the prize. This competition means you better results that are far more efficient than cost-plus contracting, and that you may end up with several working designs. I would radically reorient many of our efforts in space and transportation and procurement around prizes.

So, with that, I look forward to your questions.