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The Future of Science and Medicine

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American medicine and science is the best in the world. A lot of our success comes from the government's strong financial commitment to invest in the sciences. However, the driving force in American science is the talent and ingenuity of our students and trainees. The topics and projects listed below were pulled from current tax-payer funded grants. These projects, and many more, depend on your help. Please consider taking on these new and unique roles as a possible career, to help advance the horizons of medicine and science.

Energy Research.
Finding clean renewable energy is a task traditionally left for engineers and physicist. But, did you know that medical professionals are in high demand for these projects? The role of a medical student, or young doctor, is being called upon to research the health effects from these new energy sources. Currently, nuclear fusion's impact on the environment and on human health is largely unknown. We are just beginning to understand the possible risks associated with this technology, and its impact on the industrial scale.

Space Exploration Research.
Our current efforts to land on Mars require the contributions of our nation's best and brightest. Research into the long-term health effects, finding innovative ways to deliver healthcare in space, and develop novel technologies to combat the harsh cosmic environments, help push us closer to becoming the first interplanetary species. Researchers across the United States, including those at NYMC, are actively investigating these questions.

Robotics Research.
Reconnecting lost limbs through implanted circuitry can bring function back to paraplegics. Creating machine-enhanced humans requires bold new thinking to rescue those trapped within their own bodies. California researchers currently investigating these topics project that within the next 2 to 5 years we will be able to implant circuitry into the brains of patients, which bypasses the spinal cord and directly synapse with muscles in the extremities.

Cancer Research.
A polio-based cancer treatment at Duke University is currently being used to cure malignant gliomas. Thinking outside of conventional wisdom and taking action has led to the exciting news of using a polio-based virus to aggressively attack a previously incurable disease. The future resides in using similar tactics to retrain HIV and measles to hound and purge diseases instead of causing them.

Technology Innovation.
Visualizing a new future of medical imaging. We are currently on the verge of developing a fast, accurate, non-invasive, and novel form of imaging. Researchers at the University of

Pennsylvania are expected to deploy technology relying on near-infrared imaging to detect cancer, brain injuries, and evaluate organ function. The name is unimpressive (diffuse optical tomography), but the idea is brilliant and futuristic! Putting a device similar to a light bulb above a patient's head and being able to image their brain in seconds with an accuracy on par of a microscope.

These projects hold enormous potential to benefit humanity. Your ingenuity and enthusiasm are needed to help push these and other ambitious projects forwards. As Laurie Glimcher, M.D., president and CEO of Dana-Farber Cancer Institute, states: "as a scientist, if you're not willing to take big risks and try daring experiments, what is the point? The only kind of science I ever wanted to do was transformative science." This sentiment is what drives young medical professionals and trainees, like yourself, to change the world around you.