Engineering the Next Generation of Medicine

Andrew Greene, Ph.D.
Medical College of Wisconsin
Milwaukee, USA
“Nearly every hospitalization is a failure”

A hospitalization often represents an issue that should have been detected earlier.

* David Feinberg, CEO of the Geisinger Health System
Engineers can help solve this.

- precision medicine
- telemedicine
- remote care
- technology
- medical education

research, research, research!
“We can rebuild him. We have the technology. We can make him better than he was. Better, stronger, faster.”

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MEET BIONIC ARM MAN, USER OF THE WORLD'S MOST ADVANCED ARTIFICIAL ARM
Or you can just do it yourself.....
What were you doing in 7th grade?
Who is the doctor?
Who is the patient?
What happens if even the robot can’t operate?

Vitaliy Rayz, Ph.D.
UWM,MCW
Giant basilar artery aneurysm: image-based computational modeling

MRA: Imaging of the vasculature
MRI: Imaging of the thrombus
PC-MRI: Flow measurements
Computational Fluid Dynamics model
Flow streamlines in a giant cerebral aneurysm resulting from different surgical options

Occlusion of left vertebral artery

Occlusion of right vertebral artery
Stagnation Washout

Apical Configuration

Diaphragmatic Configuration

Anthony Prisco, Guilherme Garcia
Too Much Information: The Doctor’s Data Dilemma

By 2020, doctors will face 200x the amount of medical data and facts that a human could possibly process.¹

And it will get worse... The volume of medical data doubles every five years.²

81% of physicians can’t even spare 5 hours per month to keep up.³
Medical Education
Figure 3 Countries with a critical shortage of health service providers (doctors, nurses and midwives)

How can we engineer better medicines? What’s in those pills anyway?
What happens when the doctor is 40 million miles away?