



Why Securing Medical Devices Leads to Better Care

Vidya Murthy,
VP of Operations
medcrypt

TODAY, MEDICAL DEVICE
CUSTOMERS DEMAND
PROACTIVE SECURITY.

IT USED TO BE ACCEPTABLE FOR
MANUFACTURER TO REACT WHEN
CYBERSECURITY ISSUES WERE
REPORTED.



HOSPITALS DON'T
WANT TO—AND
CAN'T—SECURE
SOMETHING AS
COMPLICATED AS A
LINEAR
ACCELERATOR.



PATIENTS SIMPLY CAN'T
SECURE THEIR MEDICAL
DEVICES.



THREAT LANDSCAPE

Individual Hackers

- Script kiddies
- Fame, curiosity
- Target: computers

Cyber Criminals

- Underground economy
- Stealth, sophistication
- Target: financial gain

Nations & Activists

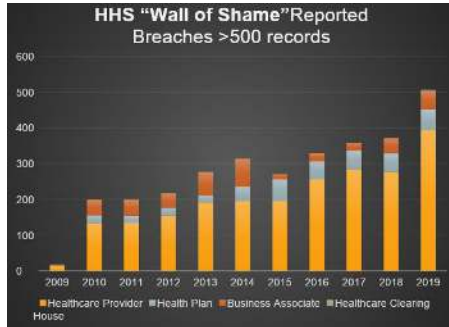
- Cyber defense & offense
- Espionage, sabotage
- Societies, economies

Hackers for Hire

- Separation of skill and motive
- Organized, skilled

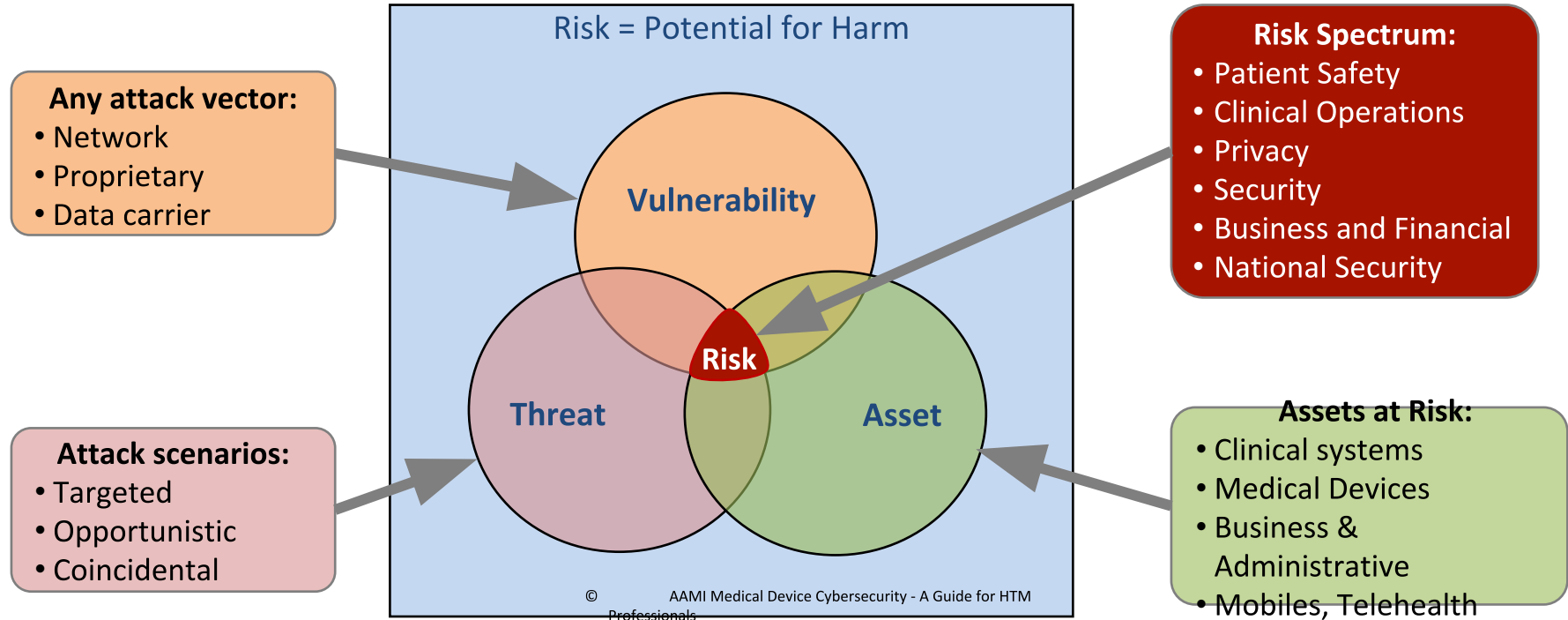
If Cybercrime were a country, it would be the 12th largest economy

YOU HAVE TO ASSUME ANY DEVICE WILL OPERATE IN A HOSTILE ENVIRONMENT



- Use of tools, automation, and services:
 - ~1m malware variants a year (2008) to ~1m a day since 2015
- Our advances and challenges are their opportunity:
 - From IoT, Cryptocurrency, AI/ML, to COVID-19
- Attacks are increasingly sophisticated, well orchestrated, and targeted:
 - Phishing, BEC, IoT DDoS, ransomware, crypto mining, supply chain
- Growing gap between cybersecurity investment and economic losses:
 - Investment: ~\$100b, few % growth. Losses ~\$1t, growing by multiples

PATIENT SAFETY IS AT THE CENTER OF EVERYTHING



NOW, BUYERS REQUIRE
SECURITY BE BUILT IN.



MAYO
CLINIC



Cleveland Clinic



KAISER PERMANENTE®



Cedars Sinai
Health System



HOSPITALS WILL NO LONGER TOLERATE REACTIVE SECURITY.

“Devices that are clinically sufficient are
not immune from needing to meet
cybersecurity requirements.”

-Mayo Clinic

MANUFACTURERS ARE ALL-IN ON DELIVERING PROACTIVE SECURITY.

“At future events – like @Defcon – we encourage manufacturers to increase engagement with the cyber research community through device demos and our #wehearhackers event. This demonstrates a company’s commitment to cyber principles: Trustworthiness. Transparency. Resilience.”

— FDA Commissioner, Scott Gottlieb, M.D. (@SGottliebMD) January 29, 2019



#We  Hackers

THE FDA EXPECTS PROACTIVE SECURITY

LACK OF SECURITY IS DELAYING MARKET LAUNCH

THE FDA'S MUST-HAVE PRODUCT FEATURES



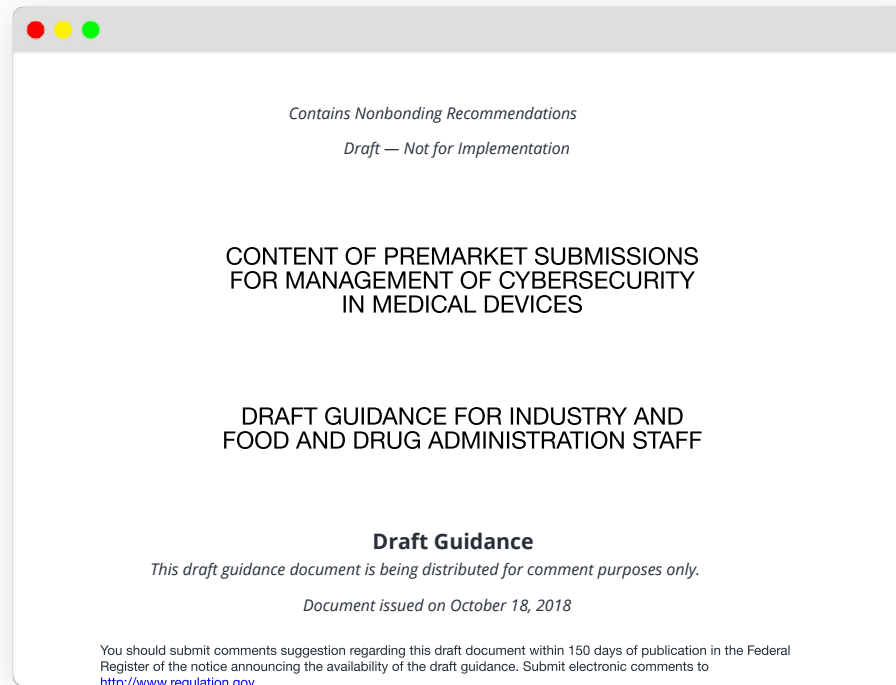
Cryptography



Behavior Monitoring



Vulnerability Tracking



What the Pandemic Taught Us

- Crisis requires compromise (what is the higher risk?), e.g., HIPAA enforcement discretion
- In an emergency, cybersecurity takes the back seat (WFH, telehealth, remote monitoring, infrastructure surge)
- Telehealth is here to stay: We will be moving more care as well as more critical care out of the hospital

Future

- Cybersecurity is patient safety.
- Proactively securing devices is the only way to get ahead of the security debt
- The economics of security are compelling

Questions?

medcrypt.com/whitepapers

vidya@medcrypt.com