IMPLANTING MICROCHIPS: INNOVATIVE IDEA OR HEADING DOWN A DANGEROUS PATH?

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Microchip implants are typically shaped like small cylinders

Contain a small microchip that is a ‘bio-safe epoxy resin’

There is a micro copper antenna wire coil encased in borosilicate glass

No battery or power source as they are field powered

Biometric implants are inert until they come with the field produced by a reader device.

Implants communicate over a magnetic field
Getting ’Chipped’ Makes You a cyborg

- The implant is the size of a piece of rice
- Most small implants utilize Near Field Communication (NFC)
- This technology is what is in our contactless credit cards
- We may be familiar with ApplePay or Google Wallet—both use NFC
- Three Square Market Employee Use
- Swedish Commuter Rail
What Implants Can Do

- Computer Login
- Subway
- Payments
- Tracking
- Enter Building
- And much more
- The Claims
- The Hacks
RFID Technology & Bluetooth

- Low frequency: 124 and 134 kHz
- High frequency: 13.56 MHz
- UHF (Ultra-High Frequency): 800-915 MHz
- Bluetooth low energy - 2.4 GHz fast frequency hopper
Hacking Wireless Implants

Berkeley Developed wireless link for Abiomed’s first artificial heart back in 2000

Remotely hacking a pacemaker, artificial heart

Targeted malware prohibits a hospital from communicating with implants

Modern implants rely on wireless diagnostics

What’s next...
Locate Bluetooth Implants Demo

- Direction: Find all nearby BT and BLE devices
Apply

- Do your research before getting a microchip implant including reading the terms of service
- Remember that you want to update all firmware and software on any device
- Just because something is considered secure today...it may not be tomorrow
- Know the security of protocols your microchip is using and the vulnerabilities you may be opening yourself up to
QUESTIONS...