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# CYBERSECURITY IN HEALTHCARE

PROTECTING PATIENT  
DATA AND TRUST

BY: YARA JAMHOUR







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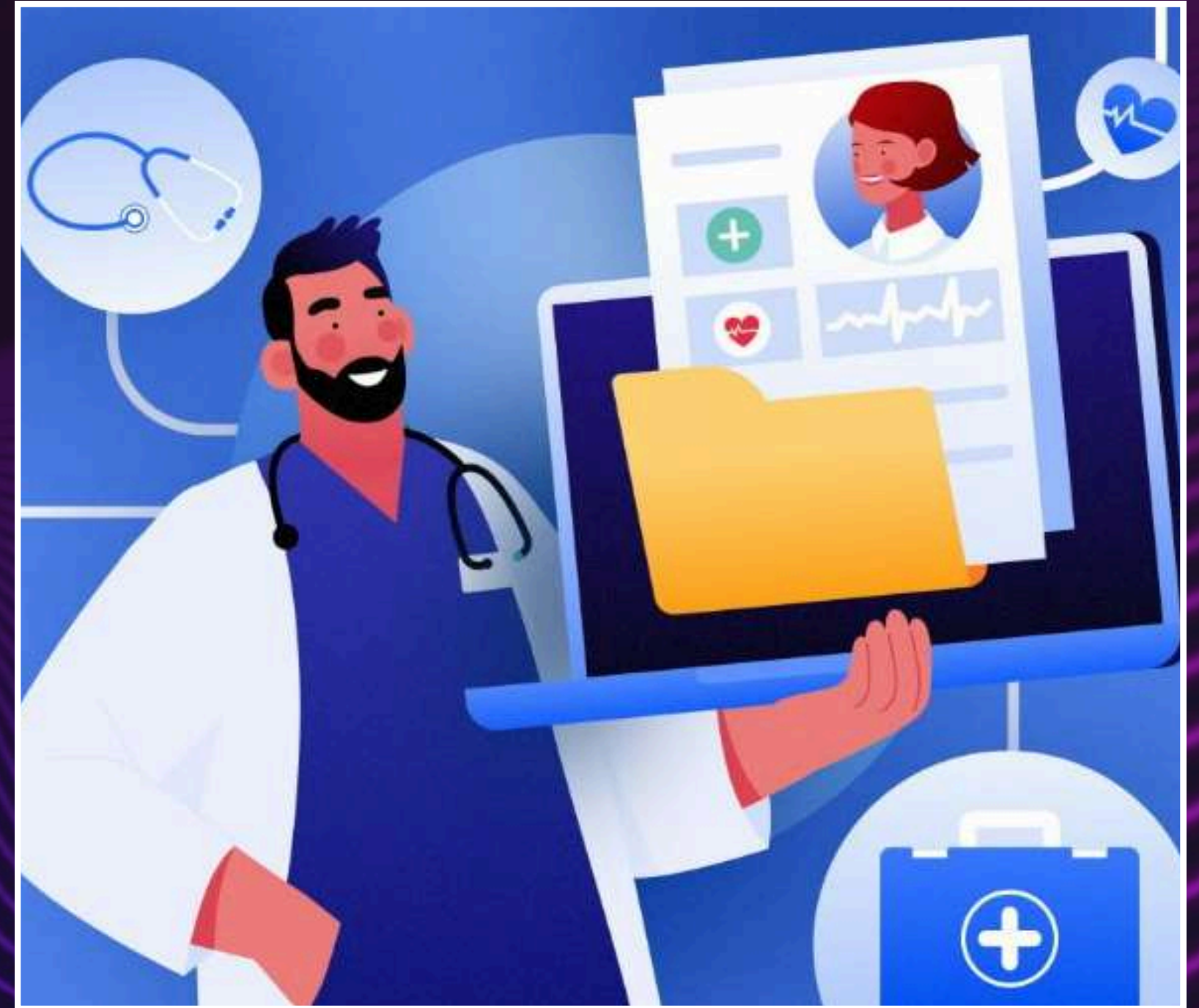
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# HEALTHCARE GOES DIGITAL

ELECTRONIC  
HEALTH RECORDS

TELEHEALTH  
COMMUNICATION

CLOUD STORAGE AND  
NETWORKED DEVICES



CONVENIENT.. BUT RISKY!!!

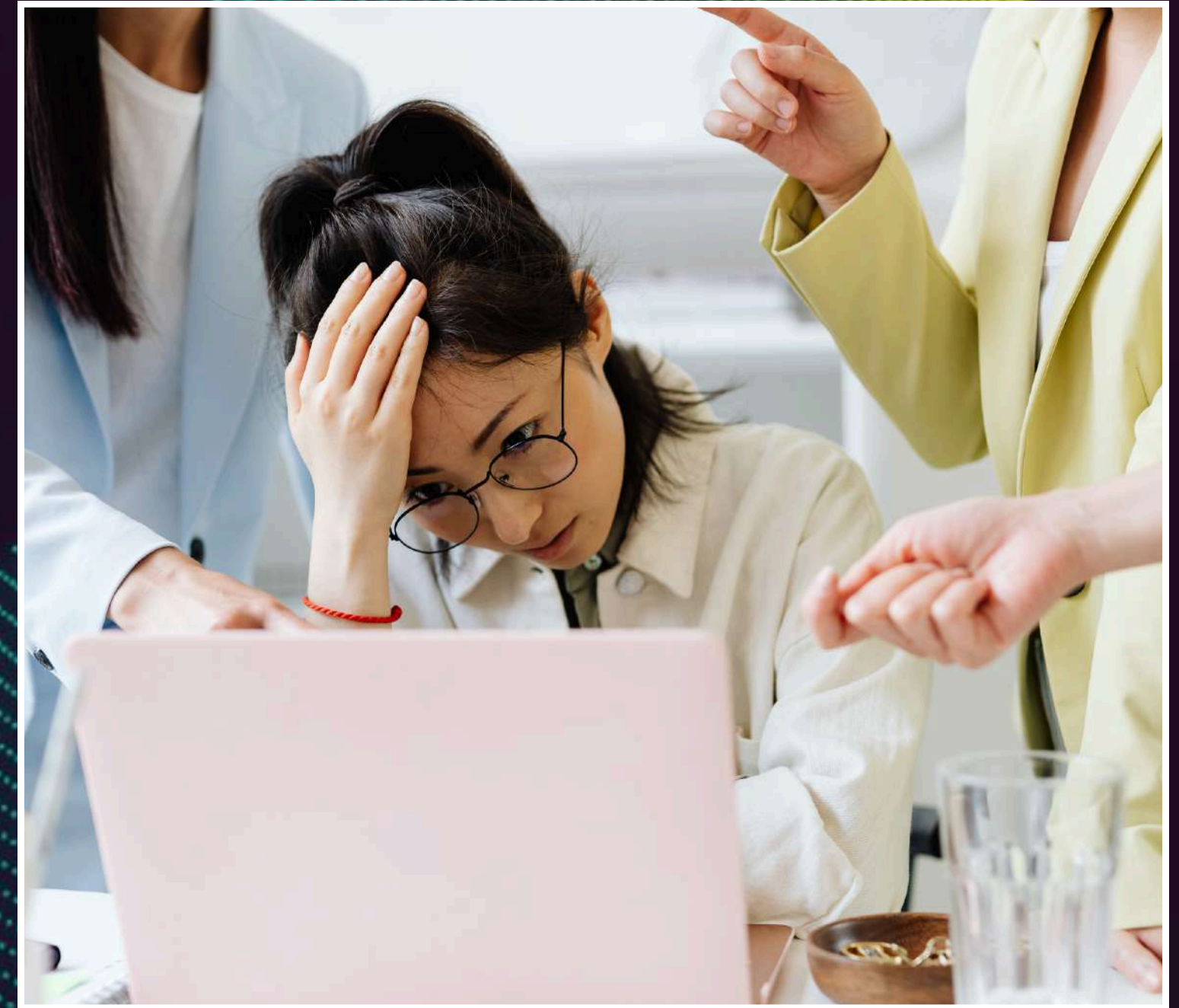




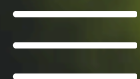
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# WHY CYBERSECURITY MATTERS

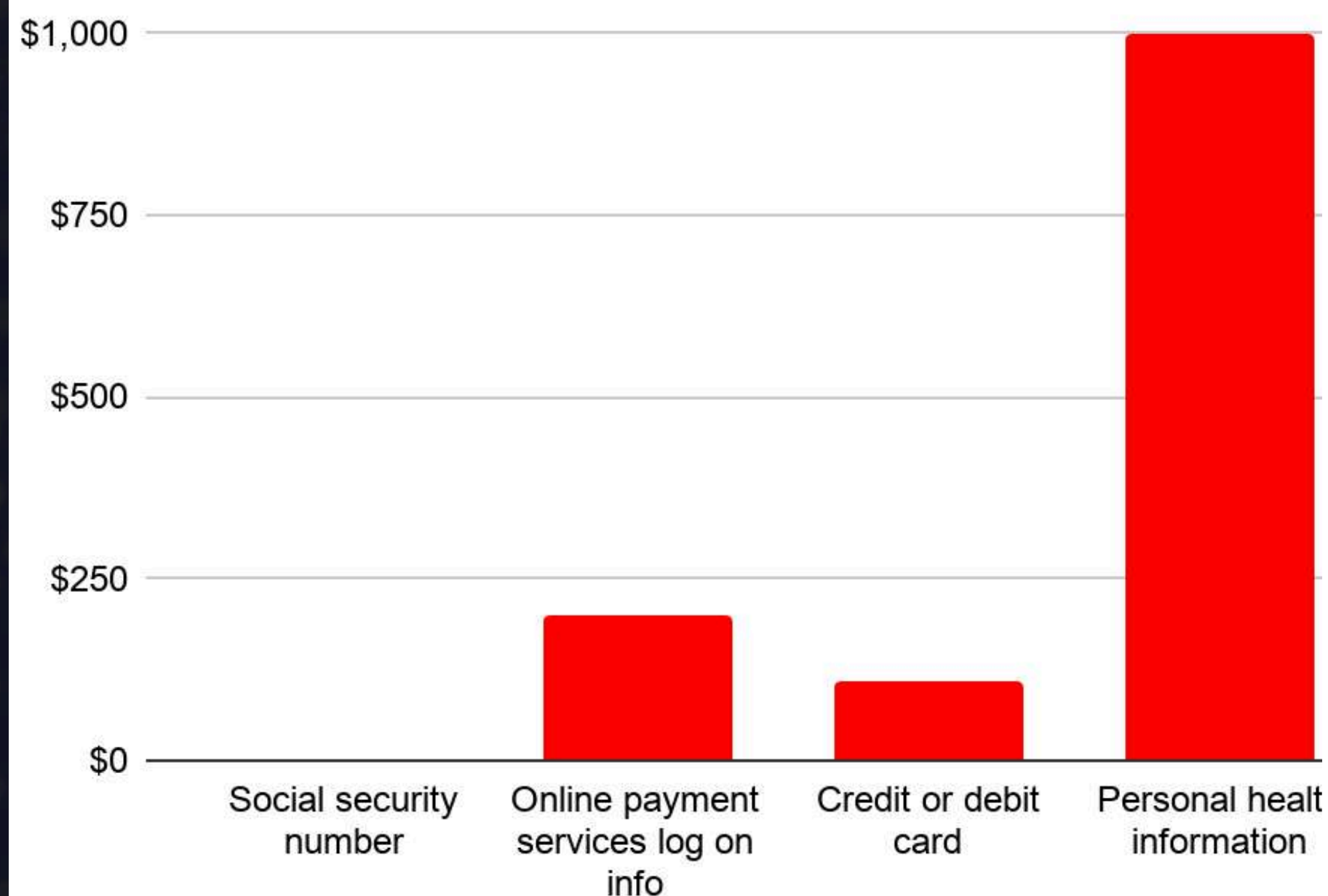
- Databreaches affect patient health & safety
- Care delays & medical decision interruptions
- Not just financial, but life impacting consequences







Price of personal information on the black market



# WHY TARGET HEALTHCARE?

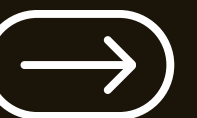
- Highest value on black market
- Contains full identity + insurance data
- Information cannot be easily replaced



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# LAWS & ETHICAL RESPONSIBILITY

- HIPAA requires strong data protection
- Confidentiality is a core medical value
- Trust must extend to digital systems





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# COMMON CYBER THREATS



**RANSOMWARE**

**PHISHING AND  
CREDENTIAL THEFT**

**UNAUTHORIZED ACCESS /  
DATA MANIPULATION**



Bank of America

Dear account holder,

There has been a recent login to your bank account from a new device:

IP address: 192.168.0.1

Location: Miami, Florida

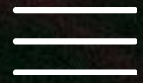
**4 new transactions have been made with this account since your last login.**

**If this was not you, please reset your password immediately with this link:**

<https://trust.ameribank7.com/reset-password>

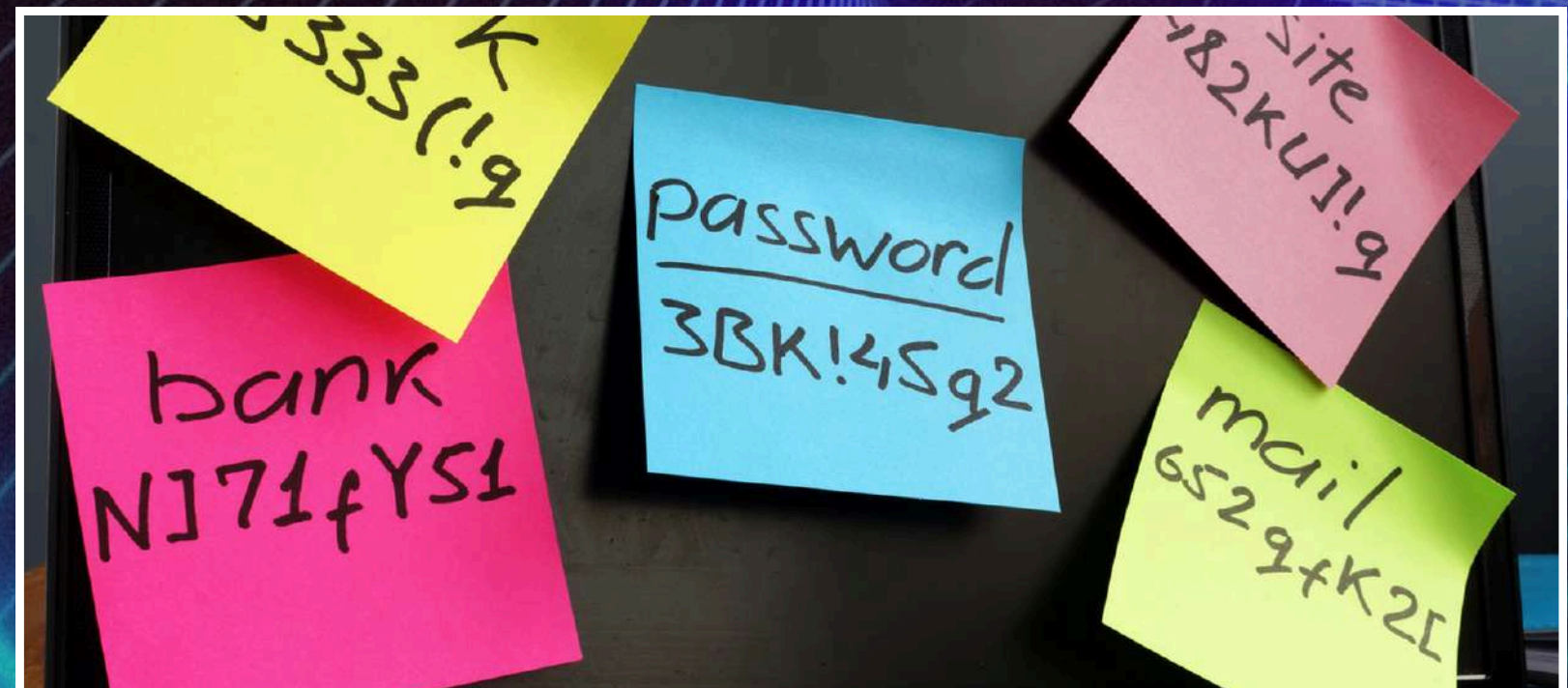
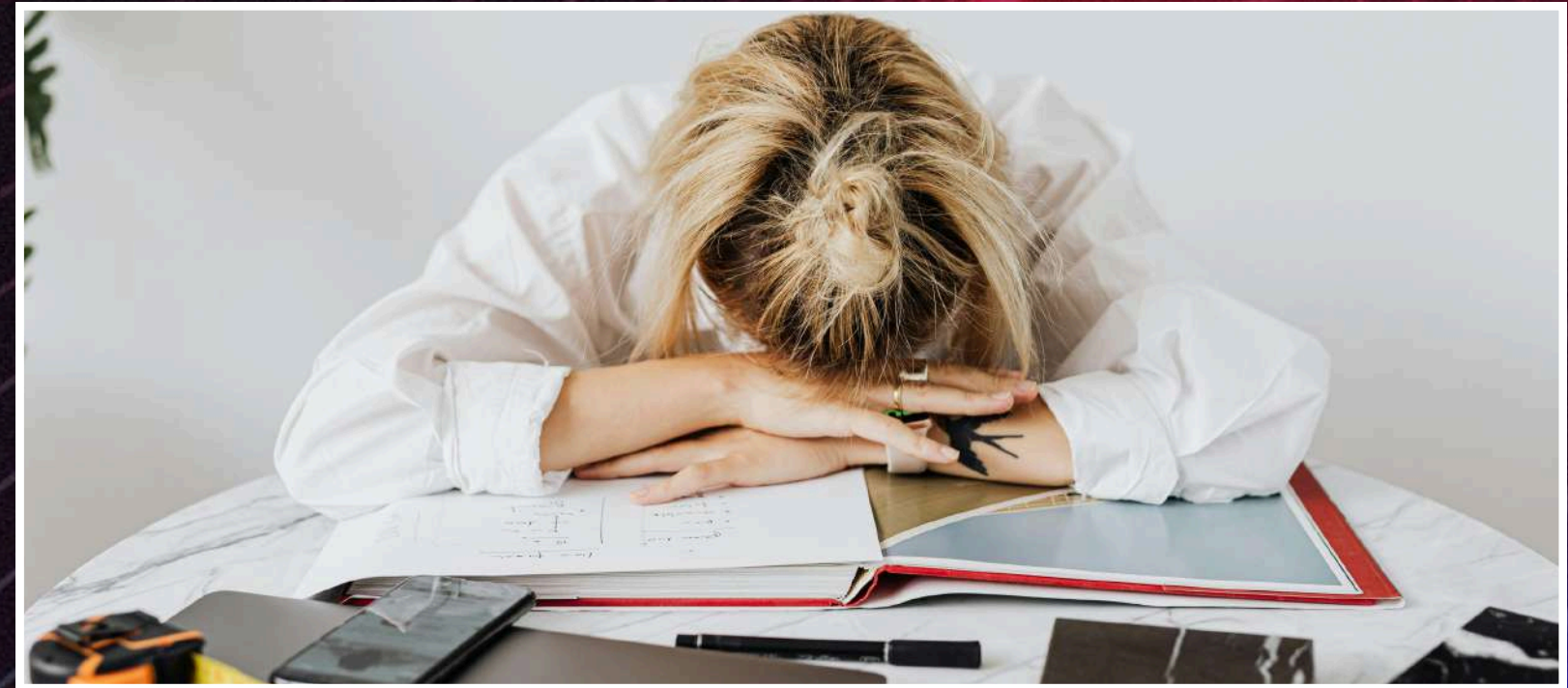




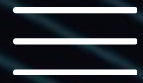
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# HUMAN ERROR

- Overworked staff —> Risky shortcuts
- Weak passwords or clicking malicious links
- Training is essential & required







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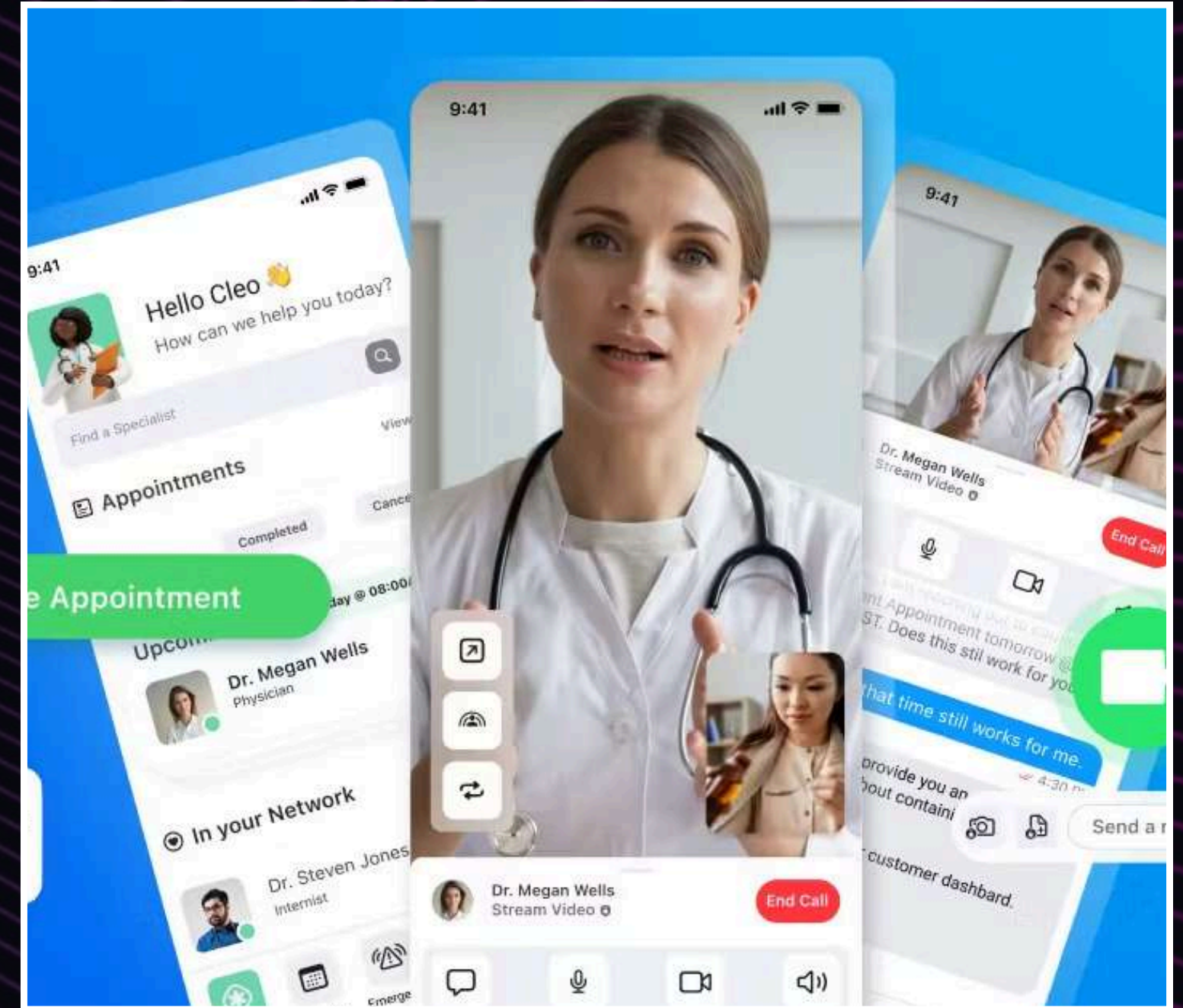
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# TELEHEALTH VULNERABILITIES

- Unsecured apps
- Personal devices
- Cloud exposure







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# CLOUD & THIRD PARTY RISK



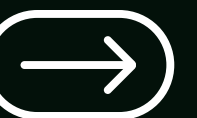
Vendor Dependency



Shared responsibility



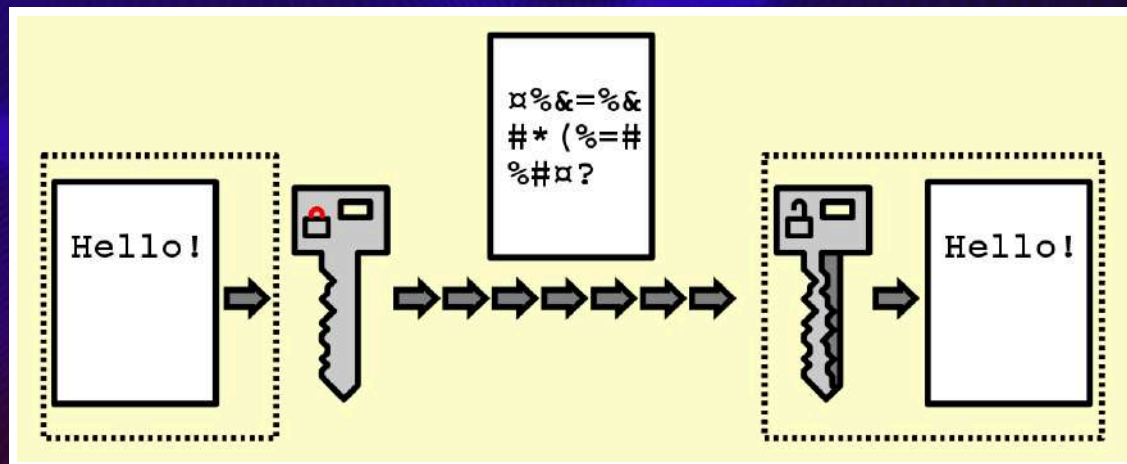
Attack surface increases





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# TECHNICAL SAFEGUARDS



ENCRYPTION



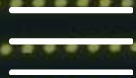
ACCESS CONTROL



MULTI-FACTOR AUTHENTICATION







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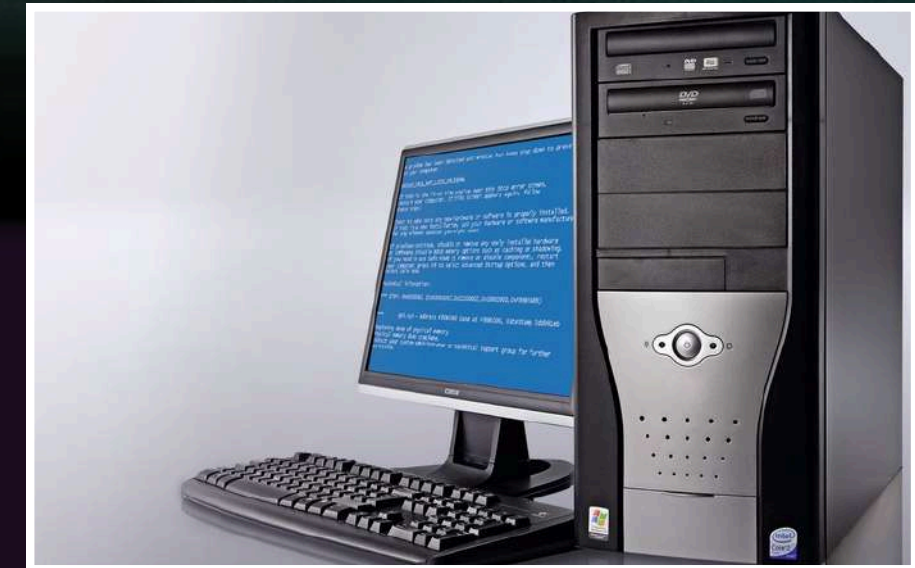
# EHR VULNERABILITIES



STORE EVERYTHING



POSSIBLE DATA ALTERATIONS



OUTDATED SOFTWARE





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# VULNERABLE MEDICAL DEVICES

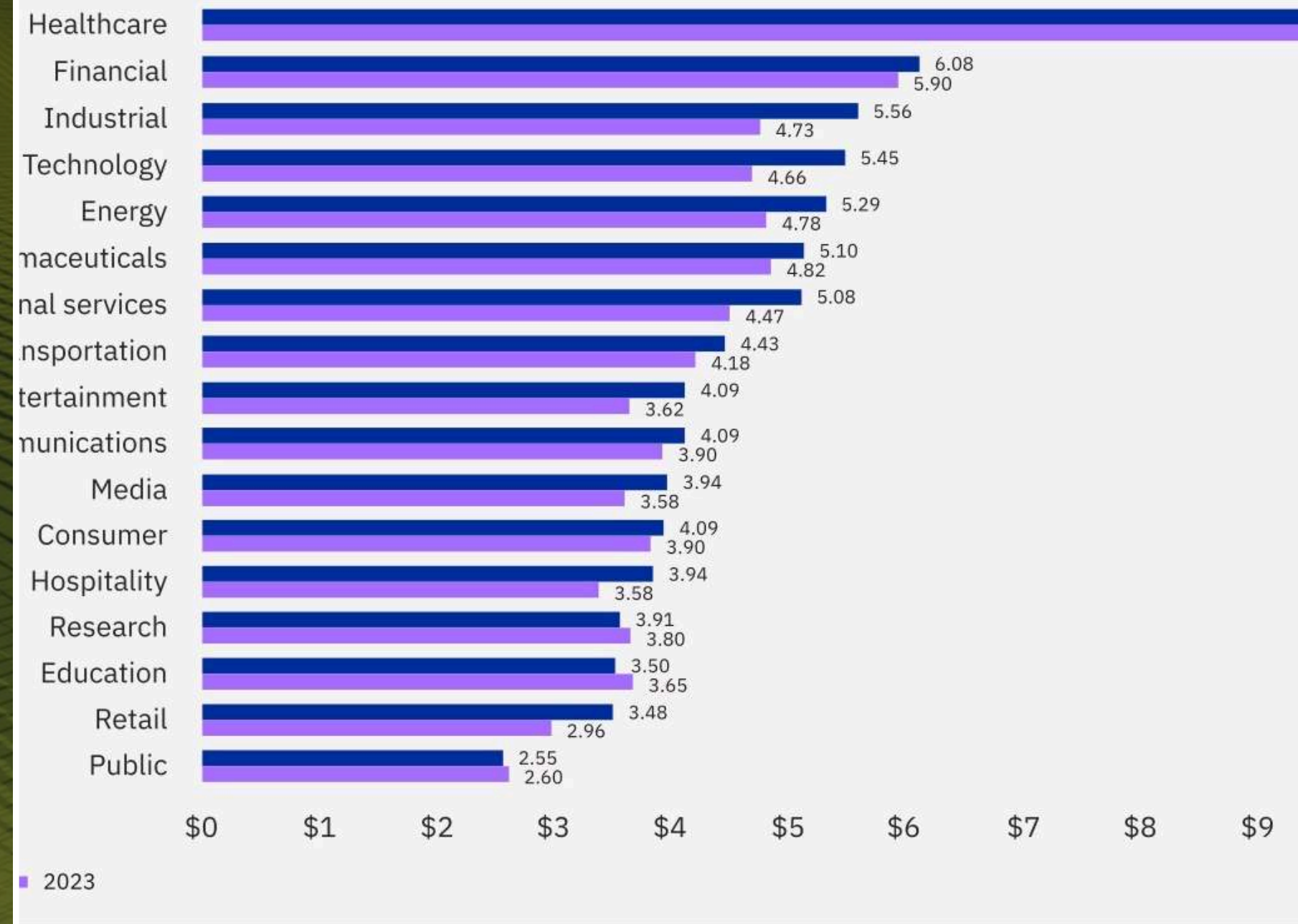
- Older devices lack protection
- FDA warns of cyber risk
- Difficult to upgrade







data breach by industry



Values in USD millions

# REAL-WORLD IMPACT

**\$10M AVG BREACH COST  
(HIGHEST INDUSTRY)**

**SURGERIES MAY BE  
DELAYED**

**LOSS OF TRUST**







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# BARRIERS TO ADOPTION



**BUDGET LIMITS & TECHNOLOGY  
GAPS**

IM



**TIME PRESSURE**







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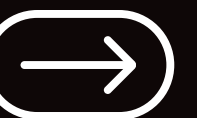
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# ROLE OF PATIENTS

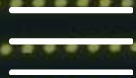
**SECURE  
PASSWORDS!!**

**DEVICE  
RESPONSIBILITY**

**AWARENESS  
MATTERS**







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# FUTURE SOLUTIONS



BLOCKCHAIN



AI THREAT DETECTION



BETTER TRAINING POLICIES





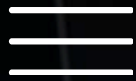
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# CONCLUSION

- **CYBERSECURITY = PATIENT SAFETY**
- **SHARED RESPONSIBILITY**
- **CONTINUOUS IMPROVEMENT**





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## SOURCES

[HTTPS://WWW.CYNANCE.CO/THE-STOLEN-HEALTH-DATA-MARKET/](https://www.cynance.co/the-stolen-health-data-market/)

[HTTPS://WWW.VANTA.COM/RESOURCES/DEVELOP-HIPAA-COMPLIANT-SOFTWARE](https://www.vanta.com/resources/develop-hipaa-compliant-software)

[HTTPS://INFO.LSE.AC.UK/STAFF/DIVISIONS/DTS/SERVICES/INFOSEC/RANSOMWARE-ATTACKS](https://info.lse.ac.uk/staff/divisions/dts/services/infosec/ransomware-attacks)

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# THANK YOU