CYBER SECURITY: Trends and Tips to Manage, Respond to, and Mitigate Risk

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WHAT'S NEW?
Current and Future Security Threats

THE NEW REALITY OF HEALTHCARE

COMPOSE
Inbox (6)
Starred
Please enter your Username and Password to login.
Username
Login
Protection
System Safety Compromised

- Ransomware
- Phishing
- Hacked Workstation
- FTP Server Misconfigured
- Website Breach
- Database Misconfigured
- Email Breach
- Malware Attack
- Stolen Laptop

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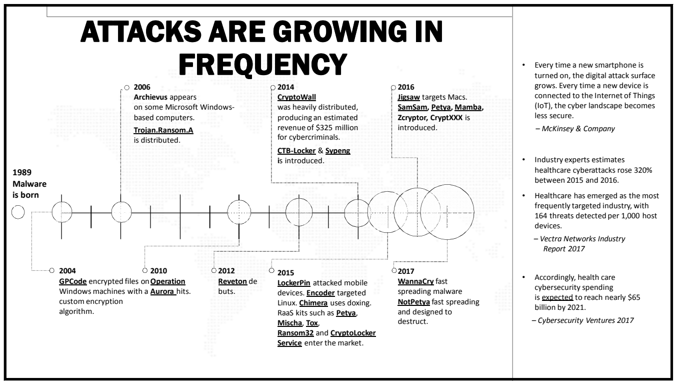


ATTACKS ARE GROWING IN FREQUENCY

1989
Malware
is born

2004
GPCode encrypted files on Windows machines with a custom encryption algorithm.

2006
Archievus appears on some Microsoft Windows-based computers.

Trojan.Ransom.A is distributed.

2010
Operation Aurora hits.

2012
Reveton de buts.

2014
CryptoWall was heavily distributed, producing an estimated revenue of $325 million for cybercriminals.

CTB-Locker & **Sypeng** is introduced.

2015
LockerPin attacked mobile devices. **Encoder** targeted Linux. **Chimera** uses doxing. RaaS kits such as **Petya**, **Mischa**, **Tox**, **Ransom32** and **CryptoLocker Service** enter the market.

2016
Jigsaw targets Macs. **SamSam**, **Petya**, **Mamba**, **Zcryptor, CryptXXX** is introduced.

2017
WannaCry fast spreading malware **NotPetya** fast spreading and designed to destruct.

- Every time a new smartphone is turned on, the digital attack surface grows. Every time a new device is connected to the Internet of Things (IoT), the cyber landscape becomes less secure.

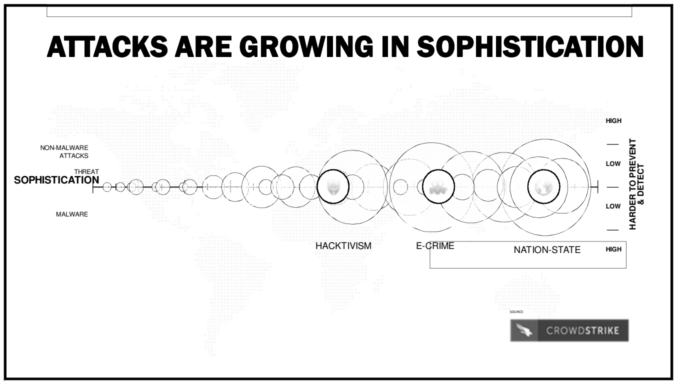
  – McKinsey & Company

- Industry experts estimates healthcare cyberattacks rose 320% between 2015 and 2016.
- Healthcare has emerged as the most frequently targeted industry, with 164 threats detected per 1,000 host devices.

  – Vectra Networks Industry Report 2017

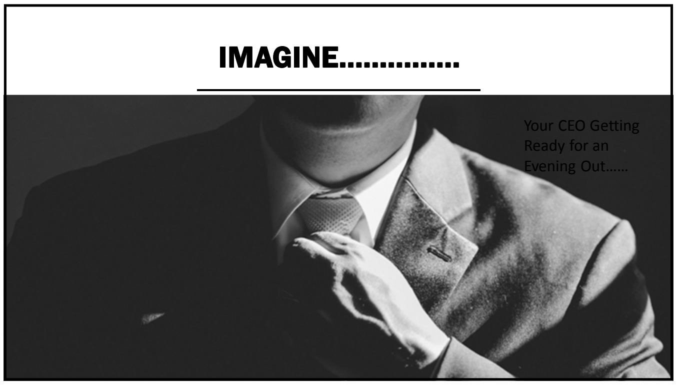
- Accordingly, health care cybersecurity spending is expected to reach nearly $65 billion by 2021.

  – Cybersecurity Ventures 2017



ATTACKS ARE GROWING IN SOPHISTICATION

SOURCE:
CROWDSTRIKE



IMAGINE……………

Your CEO Getting Ready for an Evening Out……

AN AFTER HOURS CALL....NEVER GOOD NEWS

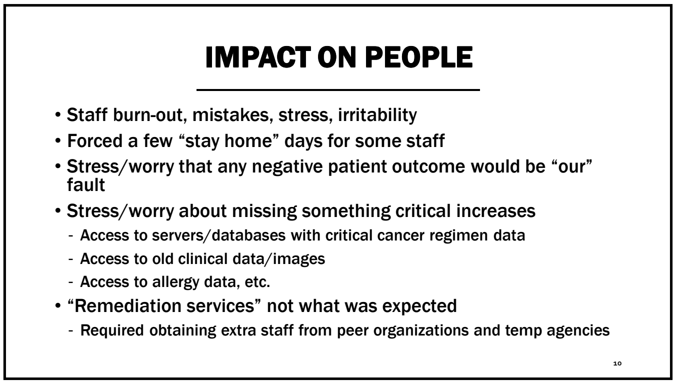
- Did you prepare?
- Do you know what impact looks like?
- Do you know how to respond?

WHAT IMPACT LOOKS LIKE

- Elective surgery and general appointments cancelled!
- Diversion
- A/R delays
- Payroll issues
- Two full weeks of downtime – enterprise-wide
- Opened Incident Command Center – 24/7
- Paper processing for nearly everything
- Younger staff were often clueless – “Thank God for older nurses!”
- Needed many “runners” to go everywhere (pick up lab orders, etc.)
- Confusion and inconsistency re: backloading of data/charges

WHAT IMPACT LOOKS LIKE

- “Downtime Boxes” were designed for 2-3 days
  - Ran out of forms and prescription pads
  - Used print shop for what they could
  - Old versions of paper order sets
- Phones initially impacted (on the same network)
  - Lost ACD/menu functionality for several days
- OR schedule reviewed for “elective” or “postpone-able” procedures
  - No PACS availability – access to images a challenge
- Business Continuity Devices – lost nearly all value after a couple of days
- IT directed to focus on payroll and materials mgmt.
  - You have to pay your staff and order your supplies
- EMR was never actually infected – but limited workstation access made it virtually unusable/inaccessible
  - Focused on a few workstations in order to maintain up to date census



IMPACT ON PEOPLE

- Staff burn-out, mistakes, stress, irritability
- Forced a few “stay home” days for some staff
- Stress/worry that any negative patient outcome would be “our” fault
- Stress/worry about missing something critical increases
  - Access to servers/databases with critical cancer regimen data
  - Access to old clinical data/images
  - Access to allergy data, etc.
- “Remediation services” not what was expected
  - Required obtaining extra staff from peer organizations and temp agencies

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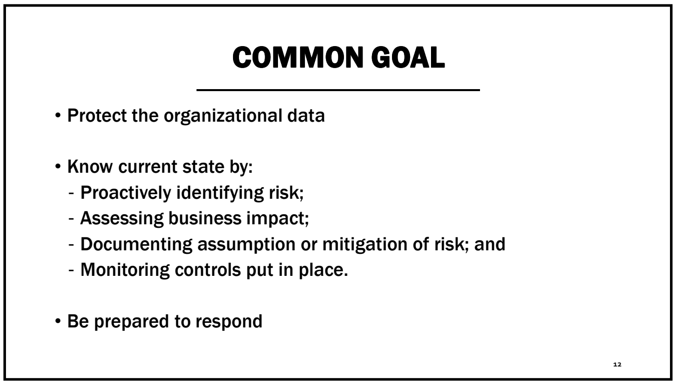
WHO’S JOB IS IT ANYWAY?
Overlapping roles of compliance and security in identifying and assessing security threats.



COMMON GOAL

- Protect the organizational data
- Know current state by:
  - Proactively identifying risk;
  - Assessing business impact;
  - Documenting assumption or mitigation of risk; and
  - Monitoring controls put in place.
- Be prepared to respond

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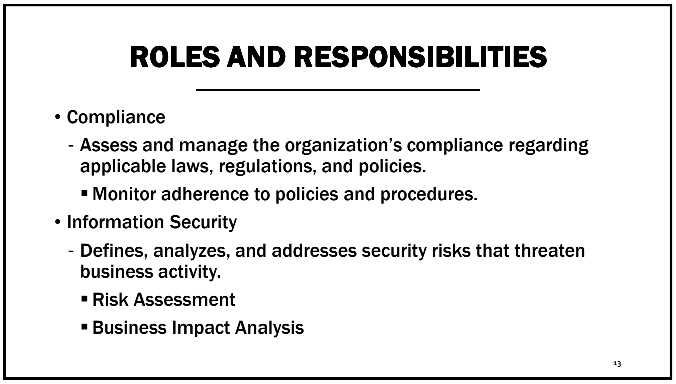
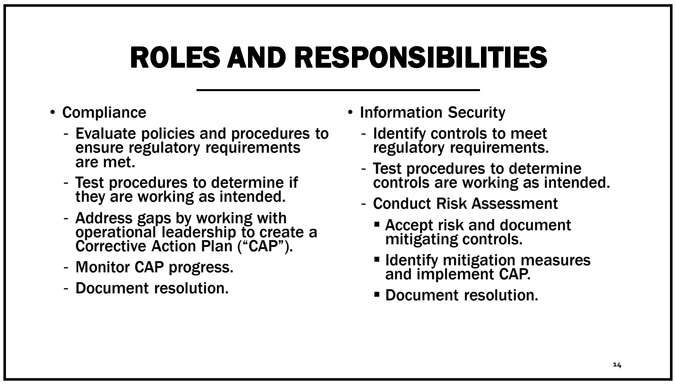


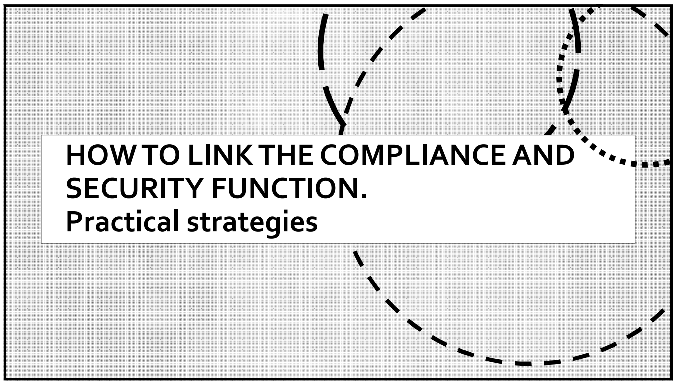
ROLES AND RESPONSIBILITIES

- Compliance
  - Assess and manage the organization’s compliance regarding applicable laws, regulations, and policies.
    - Monitor adherence to policies and procedures.
- Information Security
  - Defines, analyzes, and addresses security risks that threaten business activity.
    - Risk Assessment
    - Business Impact Analysis



ROLES AND RESPONSIBILITIES

- Compliance
  - Evaluate policies and procedures to ensure regulatory requirements are met.
  - Test procedures to determine if they are working as intended.
  - Address gaps by working with operational leadership to create a Corrective Action Plan (“CAP”).
  - Monitor CAP progress.
  - Document resolution.
- Information Security
  - Identify controls to meet regulatory requirements.
  - Test procedures to determine controls are working as intended.
  - Conduct Risk Assessment
    - Accept risk and document mitigating controls.
    - Identify mitigation measures and implement CAP.
    - Document resolution.

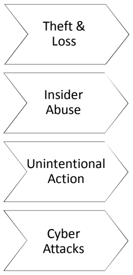


HOW TO LINK THE COMPLIANCE AND SECURITY FUNCTION.
Practical strategies

OVERSIGHT RESPONSIBILITY

- Reporting Structure.
  - Information Security report to Compliance, CEO, or Board.
  - Routine Board Reporting and Education.
- Compliance Committee includes ISO.
- Enterprise Risk Management Committee includes Compliance and ISO.

BOARD REPORTING



Theft & Loss: Nearly half of all breaches involve some form of theft or loss of a device not properly protected or paper.

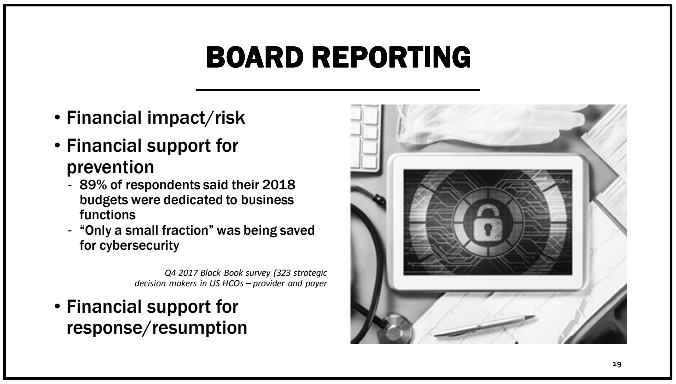
Insider Abuse: Breaches in healthcare continue to be carried out by knowledgeable insiders for identity theft, tax fraud, and financial fraud.

Unintentional Action: Breaches caused by mistakes or unintentional actions such as improper mailings, errant emails, or facsimiles are still prevalent.

Cyber Attacks: Majority of large breaches reported in 2017 involved some form of hacking and represented nearly 99% of the records compromised.

BOARD REPORTING

- Cybercrime will cost businesses over $2 trillion by 2019
- Trends in cybercrime all make cyber-criminals more effective
  - Cybercrime-as-a-service model gives less technically-savvy criminals access
  - Dark web marketplaces make “monetizing” stolen data as easy as buying on Amazon
  - Cybercriminals are adopting tactics previously only used by nation-state attackers



BOARD REPORTING

- Financial impact/risk
- Financial support for prevention
  - 89% of respondents said their 2018 budgets were dedicated to business functions
  - “Only a small fraction” was being saved for cybersecurity

Q4 2017 Black Book survey (323 strategic decision makers in US HCOs – provider and payer

- Financial support for response/resumption

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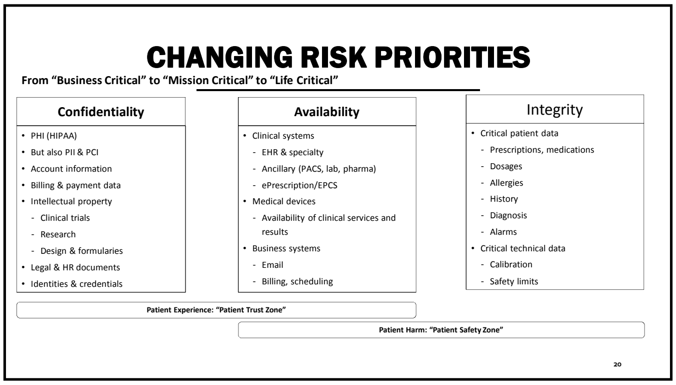

CHANGING RISK PRIORITIES

From “Business Critical” to “Mission Critical” to “Life Critical”

Confidentiality

- PHI (HIPAA)
- But also PII & PCI
- Account information
- Billing & payment data
- Intellectual property
  - Clinical trials
  - Research
  - Design & formularies
- Legal & HR documents
- Identities & credentials

Availability

- Clinical systems
  - EHR & specialty
  - Ancillary (PACS, lab, pharma)
  - ePrescription/EPCS
- Medical devices
  - Availability of clinical services and results
- Business systems
  - Email
  - Billing, scheduling

Integrity

- Critical patient data
  - Prescriptions, medications
  - Dosages
  - Allergies
  - History
  - Diagnosis
  - Alarms
- Critical technical data
  - Calibration
  - Safety limits

Patient Experience: “Patient Trust Zone”

Patient Harm: “Patient Safety Zone”

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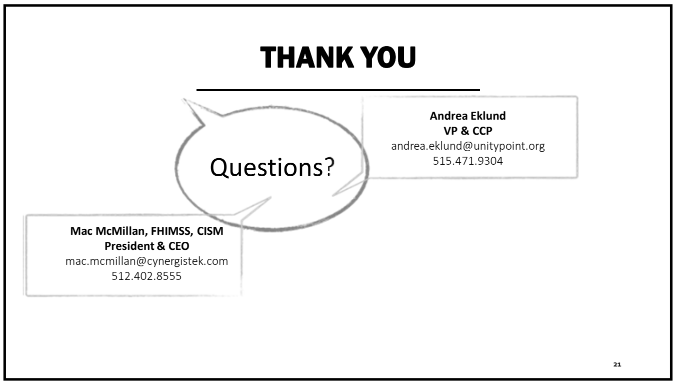

THANK YOU

Questions?

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