HHS 405(d)
Aligning Health Care
Industry Security Approaches

Healthcare & Public Health
Sector Coordinating Council
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# 405(d) Spotlight Webinar Series

# Message from the 405(d) Team

The 405(d) Aligning Health Care Industry Security Practices initiative, along with the Health Industry Cybersecurity Practices: Managing Threats and Protecting Patients (HICP) publication and this engagement, are in partnership with the Healthcare & Public Health Sector Coordinating Council (HSCC).

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This webinar is for information purposes only and aims to broaden awareness and align healthcare security approaches. The topics chosen are developed by a different 405(d) task group member each iteration and do not reflect the views of HHS as a whole. All Task Group Members have been invited to contribute this webinar series.

# 405(d) Events and Announcements

- **December**
  - Happy Birthday HICP! December 28th
  - HC3 Private Sector Briefing: Supply Chain Risk Management- December 19th at 1pm EST – Email at HC3@hhs.gov

Email Us!
CISA405d@hhs.gov

- **January**
  - 405(d) and North Carolina Health and Human Services Cybersecurity Town Hall (1/22)

- **February**
  - Spotlight Webinar Featuring Greater New York Hospital Association: Date TBD

# Agenda

| Time | Topic | Speaker |
|---|---|---|
| *5 minutes* | Opening Remarks and Introductions | Julie Chua |
| *10 minutes* | Ransomware Overview | Julie Chua |
| *20 minutes* | HC3 Ransomware Threats | Greg Singleton |
| *15 Minutes* | Ransomware Resources | DHS- Kirsten Duncan, Kevin Dillon; H-ISAC-Errol Weiss; HHS-Julie Chua |
| *5 Minutes* | Q&A | All |
| *5 minutes* | 405(d) Closing | 405(d) Team |

# Presenters

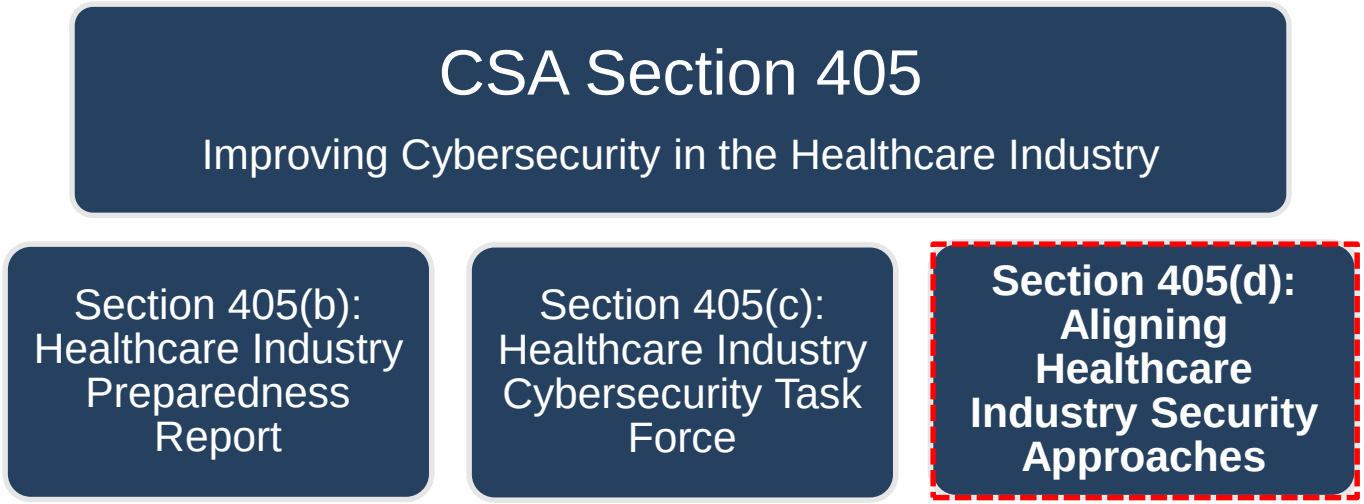
| | |
|---|---|
| **Julie Chua** | *Director, Governance, Risk, and Compliance*<br>*HHS Cybersecurity Program Office of Information Security*<br>*U.S. Department of Health and Human Services* |
| **Greg Singleton** | *Director, Health Sector Cybersecurity Coordination Center (HC3)*<br>*U.S. Department of Health and Human Services* |
| **Kirsten Duncan** | *Cybersecurity Division*<br>*Cybersecurity and Infrastructure Security Agency*<br>*U.S. Department of Homeland Security* |
| **Kevin Dillon** | *Stakeholder Engagement Division*<br>*Cybersecurity and Infrastructure Security Agency*<br>*U.S. Department of Homeland Security* |
| **Errol Weiss** | *Chief Security Officer*<br>*Health-ISAC (Health Information Sharing and Analysis Center)* |

# Cybersecurity Act of 2015 (CSA): Legislative Basis

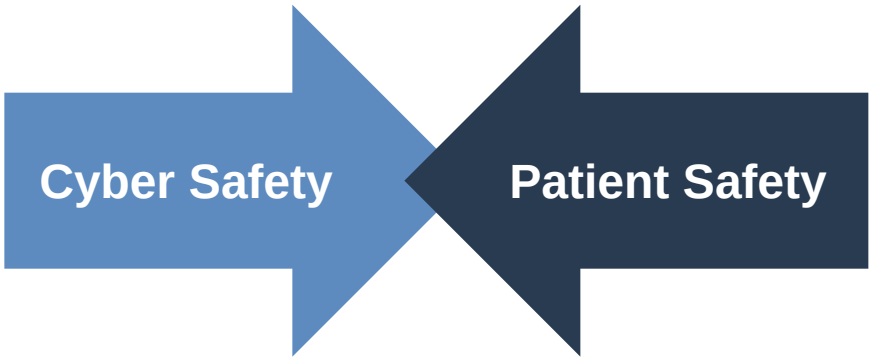
Under the auspices of the Cybersecurity Act of 2015 (CSA), Section 405(d), the U.S. Department of Health and Human Services (HHS) convened the CSA 405(d) public/private task group to enhance cybersecurity and align industry security practices.

The purpose of the 405(d) Spotlight Webinar is to continue the 405(d) mission and vision of “Aligning Health Industry Security Approaches” by discussing a common set of voluntary, consensus-based, and industry-led guidelines, best practices, methodologies, procedures, and processes that serve as a resource for cost-effectively reducing cybersecurity risks for a range of healthcare organizations.

This webinar series aims to align industry security practices by providing an information sharing platform for our public/private partnership. For more information on the 405(d) Program please email us at CISA405d@hhs.gov !



# Cyber Safety is Patient Safety




Cyber attacks in healthcare affect every aspect of an organization but most importantly they affect **patient safety.**

A single cyber attack has the potential to shut down care facilities, erase important patient health history, and put your patient's health and identity at risk.

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# Ransomware

# Ransomware

**Ransomware** is a type of malware (malicious software) distinct from other malware; its defining characteristic is that it attempts to deny access to a user's data, usually by encrypting the data with a key known only to the hacker who deployed the malware, until a ransom is paid. After the user's data is encrypted, the ransomware directs the user to pay the ransom to the hacker (usually in a cryptocurrency, such as Bitcoin) in order to receive a decryption key.

However, **paying a ransom does not guarantee that the hacker will unencrypt or unlock the stolen or locked data.**

Ransomware threats may incorporate tactics or techniques that are the same as or identical to other threats.

# Cybersecurity Impact on the Healthcare Industry

**In the Headlines…**

"Three Hospitals in Alabama Divert Patients Due to Ransomware attack"

"Ransomware Hits 400 Dental Offices Across the US"

"Medical Practice to close in Wake of Ransomware Attack"

"Ransomware Attack Shuts Down Local Medical Practice- All Records Lost"

**18%**

percent increase in ransomware attacks on the Health Sector in 2019 compared to 2018

Healthcare ransomware attacks will increase

**x4 by 2020**

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# Ransomware in the HPH Sector
# HC3

# Ransomware vs. Healthcare Industry

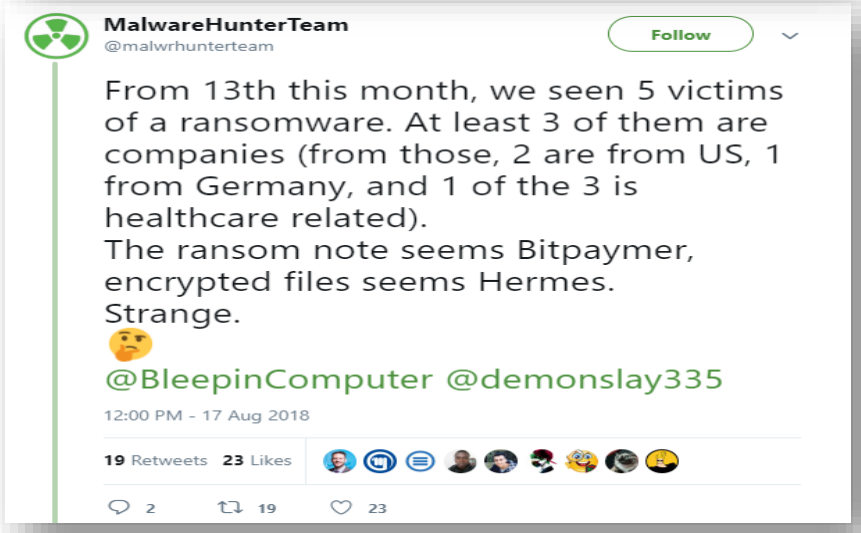
- **Ransomware is frequently used to target healthcare:**
  - Cylance Threat Report (May, 2018)
    - Ransomware attacks tripled in 2017
    - Healthcare was targeted more than any other industry
  - Solutionary Security Engineering Research Team (Q2, 2016)
    - 88% of all ransomware attacks target the healthcare industry
  - Herjavec Group 2017 Healthcare Cybersecurity Report
    - Ransomware attacks on the healthcare sector will quadruple by 2020
  - Kaspersky Cyber Pulse: The State of Cybersecurity in Healthcare (December, 2018)
    - 2018: One in four healthcare organizations successfully attacked by ransomware
  - McAfee Labs Threats Report: August 2019
    - 504 new threats per minute in Q1 2019; New ransomware up 118%
    - ~50% of all ransomware attacks in the last year targeted North America
- **Ransomware can cripple a healthcare provider, bringing operations to a halt**
  - Sept 20th – A hospital in Wyoming shut down some operations, postponed surgeries, diverted patients due to a ransomware attack.
  - As of this year, research indicates that there have been hospitals and direct patient care facilities that have closed permanently after being victims of ransomware attacks.

# Threats on our Radar: Ryuk

- Why the name “Ryuk”?
  - Fictional character in Japanese comic book series entitled Death Note
    - Shinigami (God of Death) – who invites human beings to death by dropping notes

- Ryuk Ransomware
    - First identified in 2018
    - Initially thought to be Hermes
  - Likely utilized by Russian criminal groups
  - Deliberately used against relatively big targets
  - Typically, 15 – 50 bitcoin (BTC) each (1 BTC = ~$8,723 as of November 2019)
  - $3.7M in BTC so far across 52 transactions
  - Used by various APTs and criminal group threat actors such as:
    - Grim Spider
    - TEMP.Mixmaster

Source: https://www.coindesk.com/price/bitcoin



# Threats on our Radar: Sodinokibi

- **Historical Aspect**:
  - First discovered by Cisco Talos research conducted in April 2019 by researchers
  - Also known as REvil and Sodin

- **Key Identifiers and things to know about Sodinokibi**:
  - Strain of ransomware that has similarities with GandCrab; possibly same operators
  - Utilized by GOLD SOUTHFIELD threat group (Secureworks)
  - Named “The Crown Prince of Ransomware”
  - Does not impact Commonwealth of Independent States (CIS) or Syria
  - Upgraded versions of Sodinokibi have already been released in the wild
  - New TTP – compromising MSP
  - Ransoms observed within Sodinokibi attacks: $1,500 - $2,500 in Bitcoin per instance

- **Technical capabilities of Sodinokibi**:
  - Encrypt non-whitelisted files/folders on local storage devices and network shares
  - Terminate blacklisted processes prior to encryption to eliminate resource conflicts
  - Wipe the contents of blacklisted folders
  - Can perform exfiltration on basic host information


# Sodinokibi: How does a Managed Service Provider (MSP) attack occur?

- Ransomware attack on Managed Service Provider (MSP) serves as mass attack vector
  - Step 1: Managed Service Provider is compromised by attackers and ransomware is inserted in communications pipe with clients
  - Step 2: Managed Service Provider transmits and receives data with clients, including ransomware
  - Step 3: Ransomware compromises clients; Their files are inaccessible

# How to Protect yourself from Ransomware: Mitigation

## Enterprise Defense

- Do not open suspicious or unexpected links or attachments in emails
- Hover over hyperlinks in emails to verify they are going to the anticipated site
- Alert your IT staff if you have any concerns about the legitimacy of any email, attachment, or link
- Be aware of malicious actors attempting to impersonate legitimate staff, and check the email sender name against the sender's email address
- Use unique strong passwords or pass-phrases for all accounts as well as multi-factor authentication
- Do not provide personal or organizational information unless you are certain of the requestor's identity
- Take advantage of available cybersecurity awareness training
- Ensure all data and systems critical to enterprise operations are regularly backed up at appropriate intervals
- Secure data back ups in accessible locations, and ensure the applicable restoration /operational status is conducive to a reasonable time frame to alleviate delayed network productivity.

## Managed Service Providers (MSP's)

- Only allow authentication to remote access software from inside the provider's network
- Continuous monitoring and logging should be used to monitor connections to MSP
- Maintain clear and updated picture of what is "normal" on your network
- Use two-factor authentication on remote administration tools and Virtual Private Network (VPN) tunnels rather than remote desktop protocols (RDPs)
- Block inbound network traffic from Tor exit nodes and outbound traffic to Pastebin
- Utilize Endpoint Detection and Response (EDR) to detect Powershell running unusual processes

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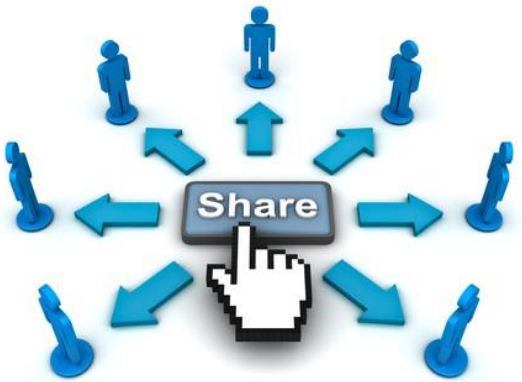
# Resources

# H-ISAC Industry Perspective

- Sharing best practices for ransomware prevention
  - Training & Awareness
  - Hardened defenses
- Health Industry Cybersecurity Practices (HICP)
- Sharing Indicators of Compromise
  - Provides early warning and protection for the HPH community
- Sharing Incident Information
  - Community awareness
  - Drives development of new strategies at the sector level

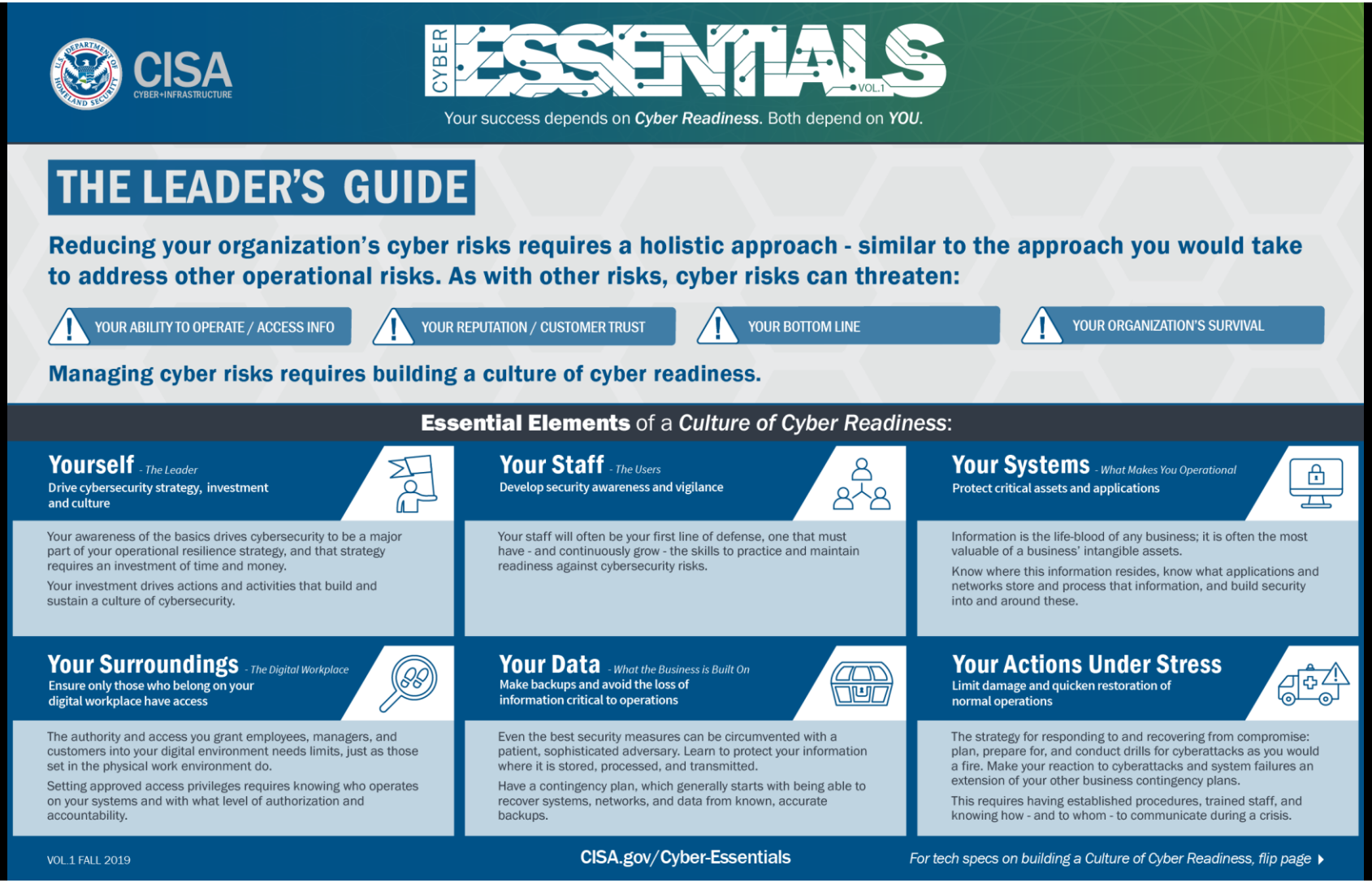



https://h-isac.org/

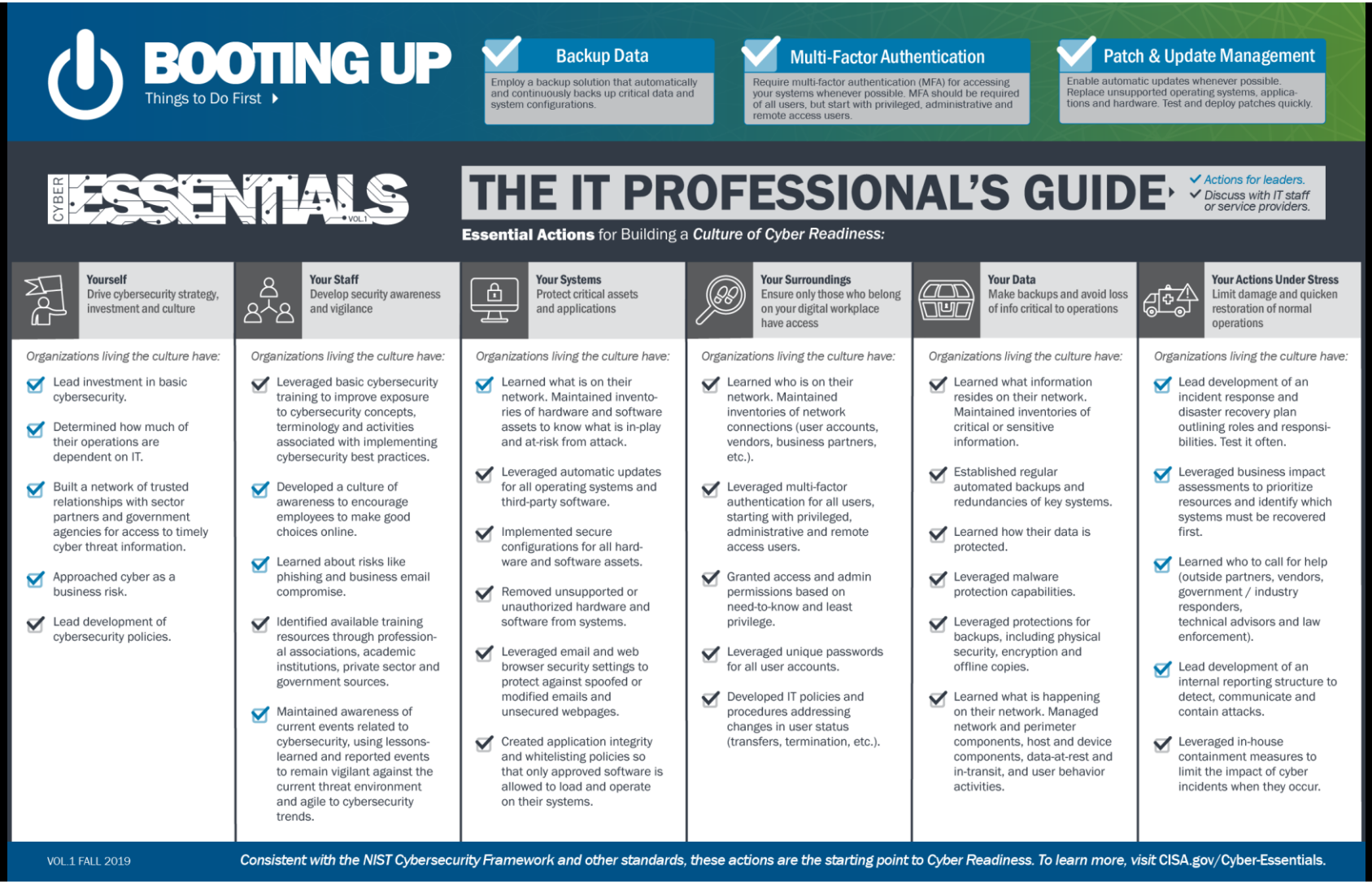
# DHS Resources

- https://www.cisa.gov
- https://www.us-cert.gov/Ransomware
- https://www.us-cert.gov/sites/default/files/2019-08/CISA_Insights-Ransomware_Outbreak_S508C.pdf
- https://www.cisa.gov/cyber-essentials
- https://www.us-cert.gov/report
- https://www.dhs.gov/be-cyber-smart

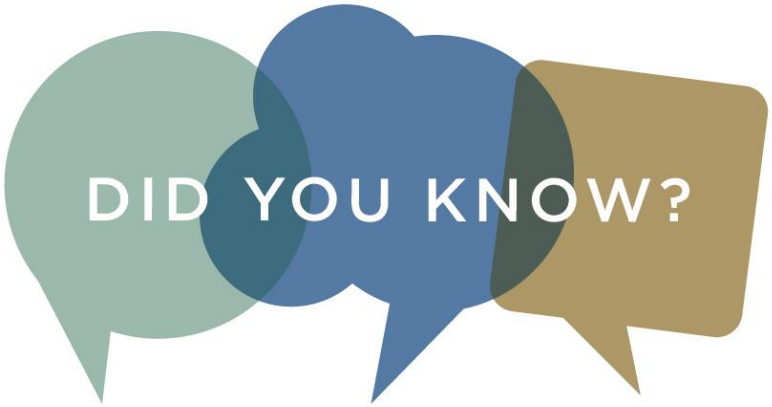
# DHS Resources



# DHS Resources

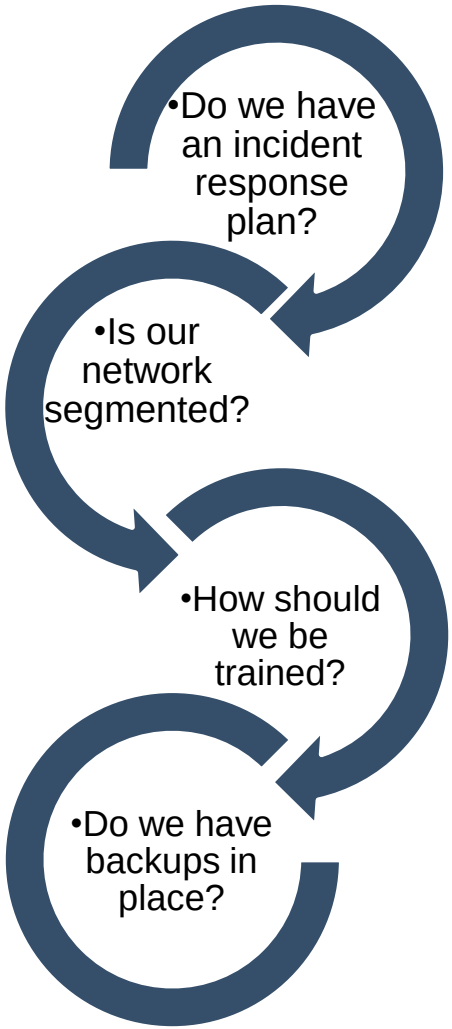


# Ransomware - What You Can Do




- Most Ransomware attacks begin in email phishing attacks asking you to click or open an attachment
- Always follow the correct Email Phishing tips and double check the email sender's credentials prior to opening attachments

**What to ask your IT Professionals:**

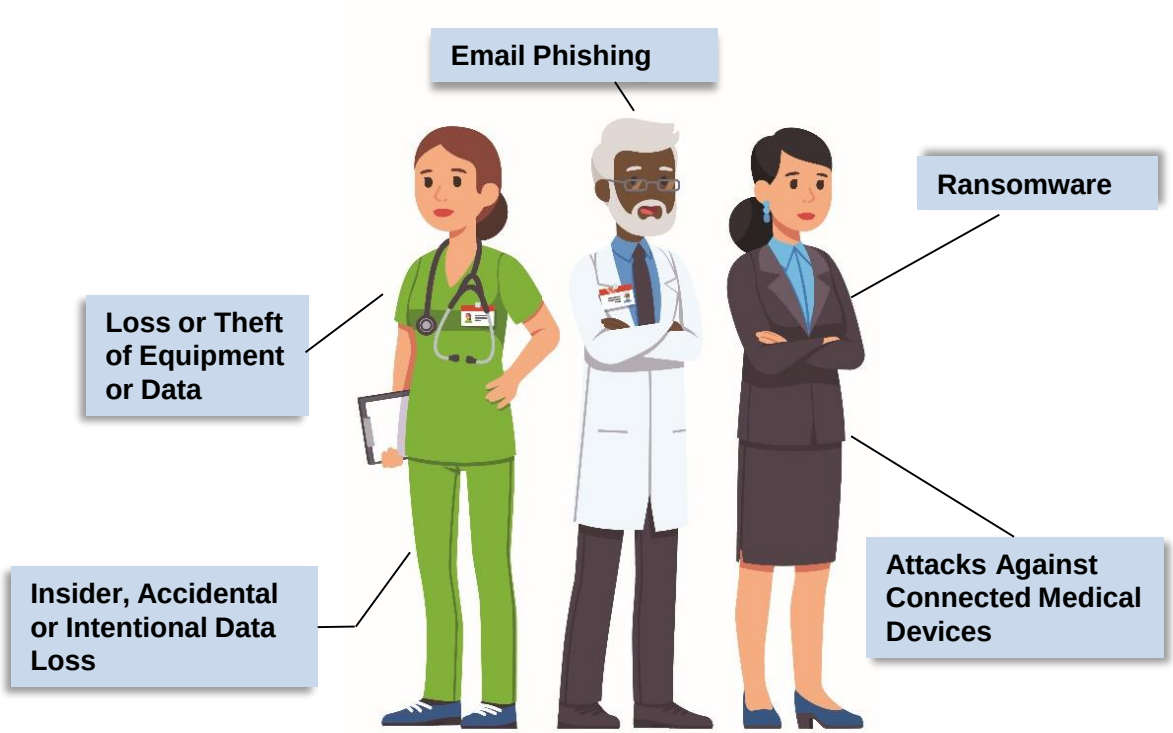


# HHS Resources

**Health Industry Cybersecurity Practices (HICP): Managing Threats and Protecting Patients**

After significant analysis of the current cybersecurity issues facing the healthcare industry, the 405(d) Task Group agreed on the development of three HICP components—a **main document** and **two technical volumes**, and a robust appendix of **resources and templates**

## The Five Main Threats in Cybersecurity



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# Questions

# Closing

For more cybersecurity information and best practices, be sure to check out the 405(d) publication titled:

***Health Industry Cybersecurity Practices: Managing Threats and Protecting Patients (HICP)***

The publication details the top five threats facing the healthcare industry and the top 10 practices to mitigate. Read the entire publication on our website: www.phe.gov/405d.

***Next 405(d) Spotlight Webinar:***

***February 2020; Date and time to be released later this month***

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# Thank you for joining us!

Visit us at: www.phe.gov/405d

Contact us at: CISA405d@hhs.gov

# Helpful Links

**HHS 405(d)**

*Health Industry Cybersecurity Practices: Managing Threats and Protecting Patients (HICP)*

**HHS HC3**

HC3 Sodinokibi Ransomware Whitepaper

HC3 Briefing: Ransomware Threat to State and Local Governments

**DHS**

https://www.cisa.gov
https://www.us-cert.gov/Ransomware
https://www.us-cert.gov/sites/default/files/2019-08/CISA_Insights-Ransomware_Outbreak_S508C.pdf
https://www.cisa.gov/cyber-essentials
https://www.us-cert.gov/report
https://www.dhs.gov/be-cyber-smart