Cybersecurity and Community Health Centers: Vulnerabilities and Real World Recommendations

Demonstrating the Impact of Effective Interventions

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Introductions

- Robert Zimmerman, Founder & President, Health Tech Access Alliance, & Co-developer of QI EXPRESS
- Carol Loftur-Thun, Executive Director, Health Tech Access Alliance

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Takeaways From Today's Session

We hope you will gain:

1. Understanding of cybersecurity challenges faced by Small and Medium Businesses (SMBs) in healthcare
2. Knowledge of effective approaches to improving cybersecurity for SMBs
3. Insights about key factors in improving cybersecurity for SMBs

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Healthcare's Unique Challenges

- Networks are increasingly interconnected
- Network privileges extended to wide community
- Large number and type of remote devices
- Need for rapid access to critical data
- Clinicians continue to resist security

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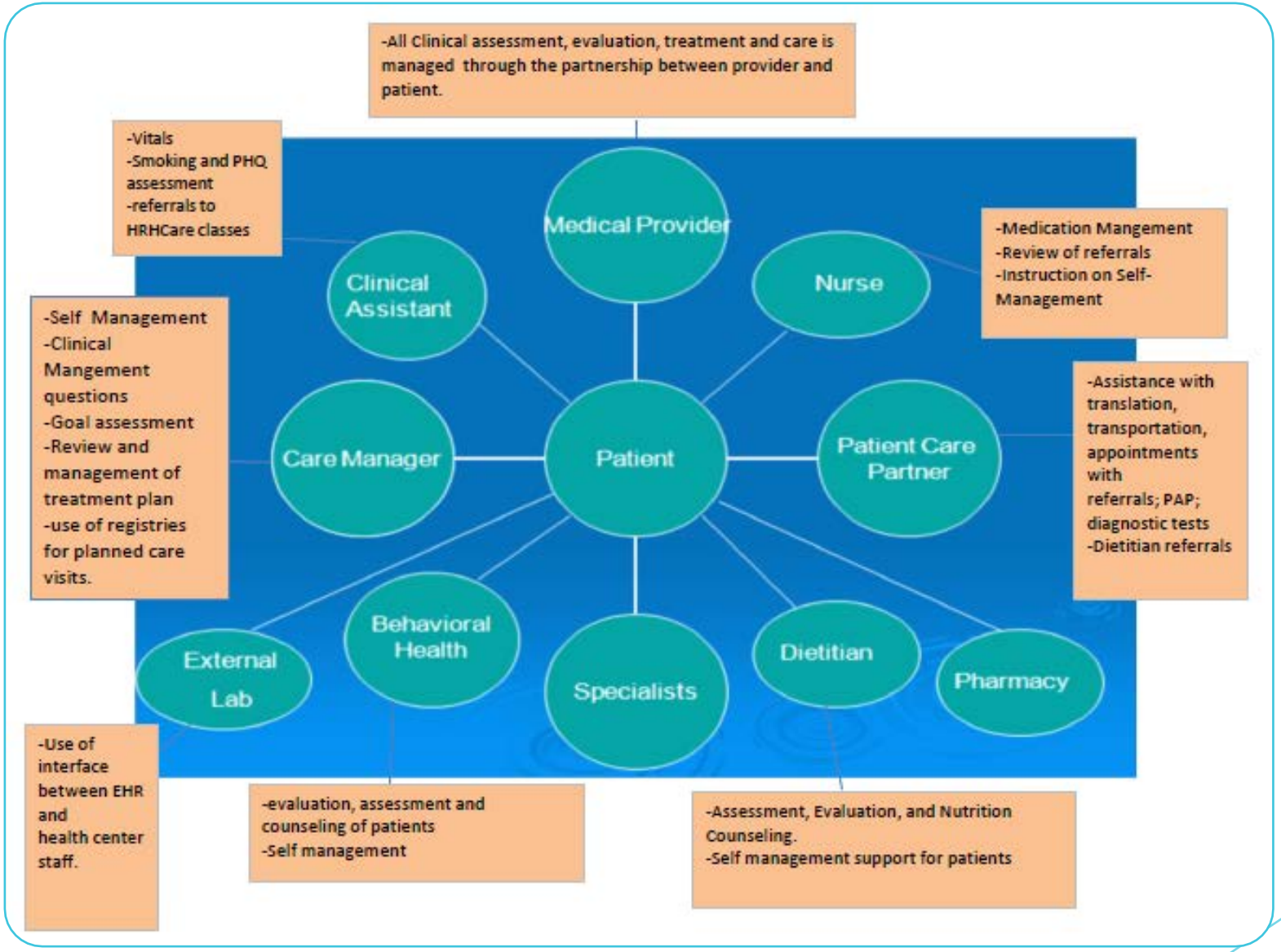
The Complex Health Environment



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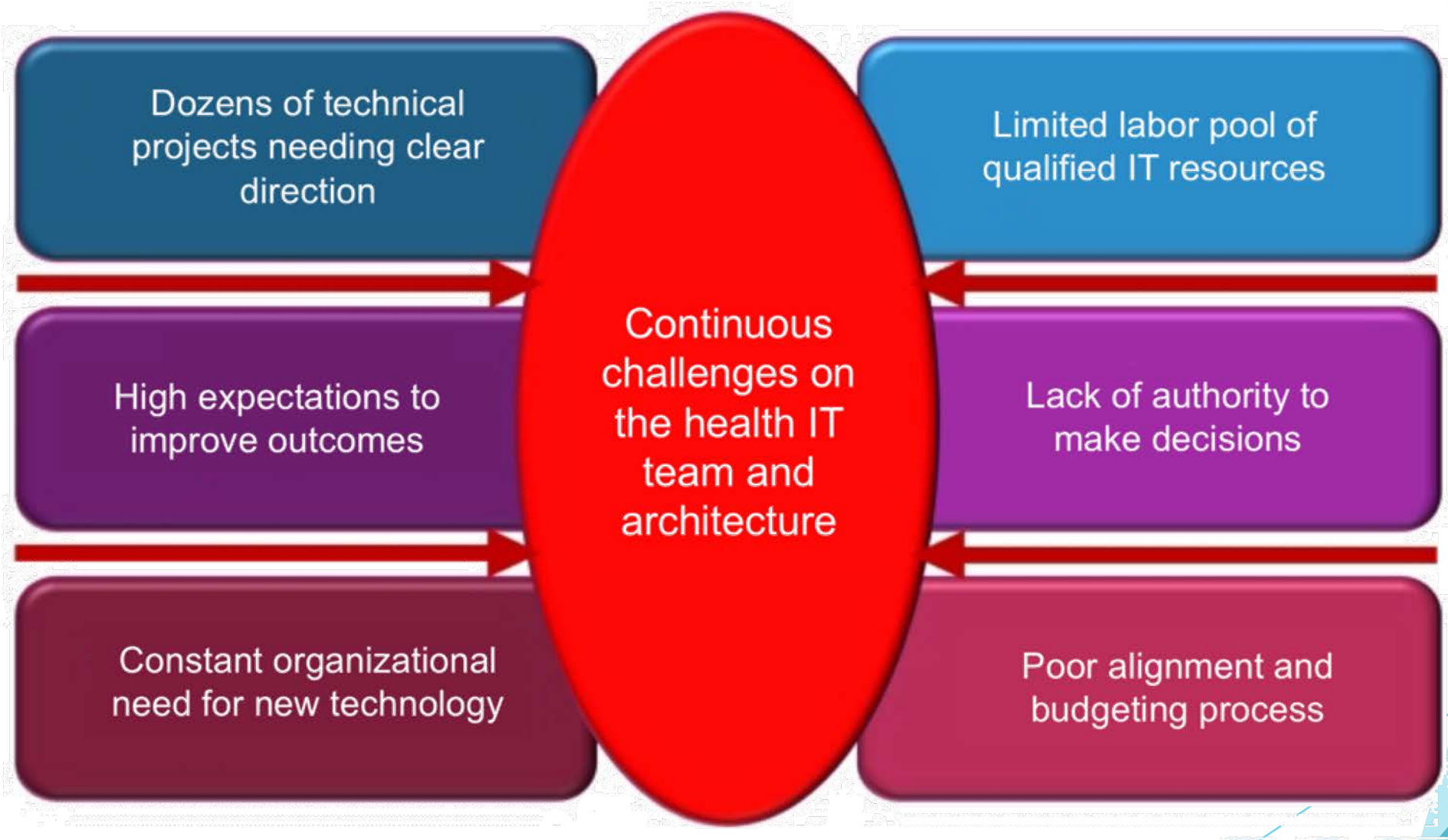
IT is Overwhelmed, Especially in Smaller Organizations



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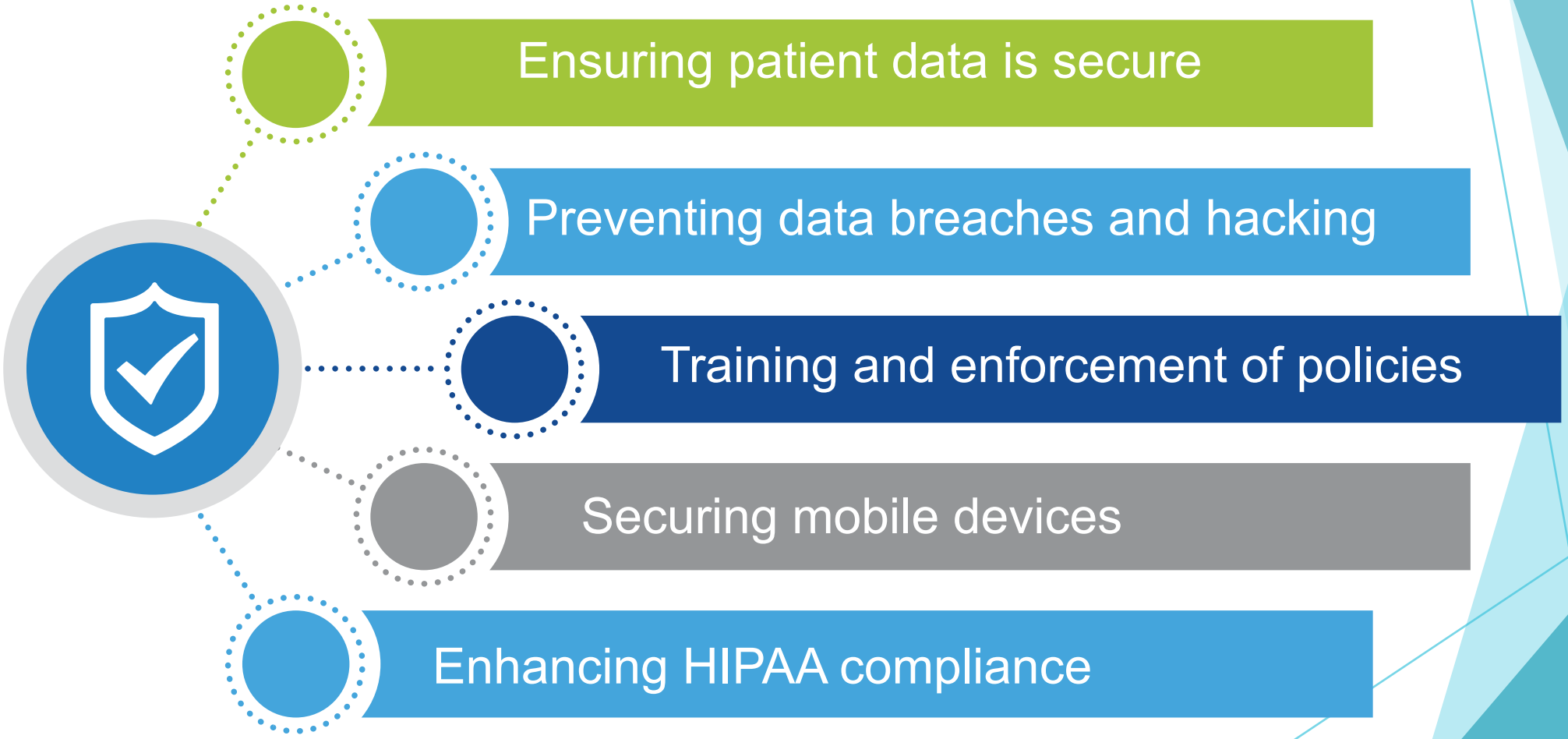
Top IT Critical Security Challenges



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Healthcare Trends Driving Change

- Telehealth
- Home health care
- Precision medicine
- Digital health
- Blockchain
- Big Data/Analytics
- Value-Based Care

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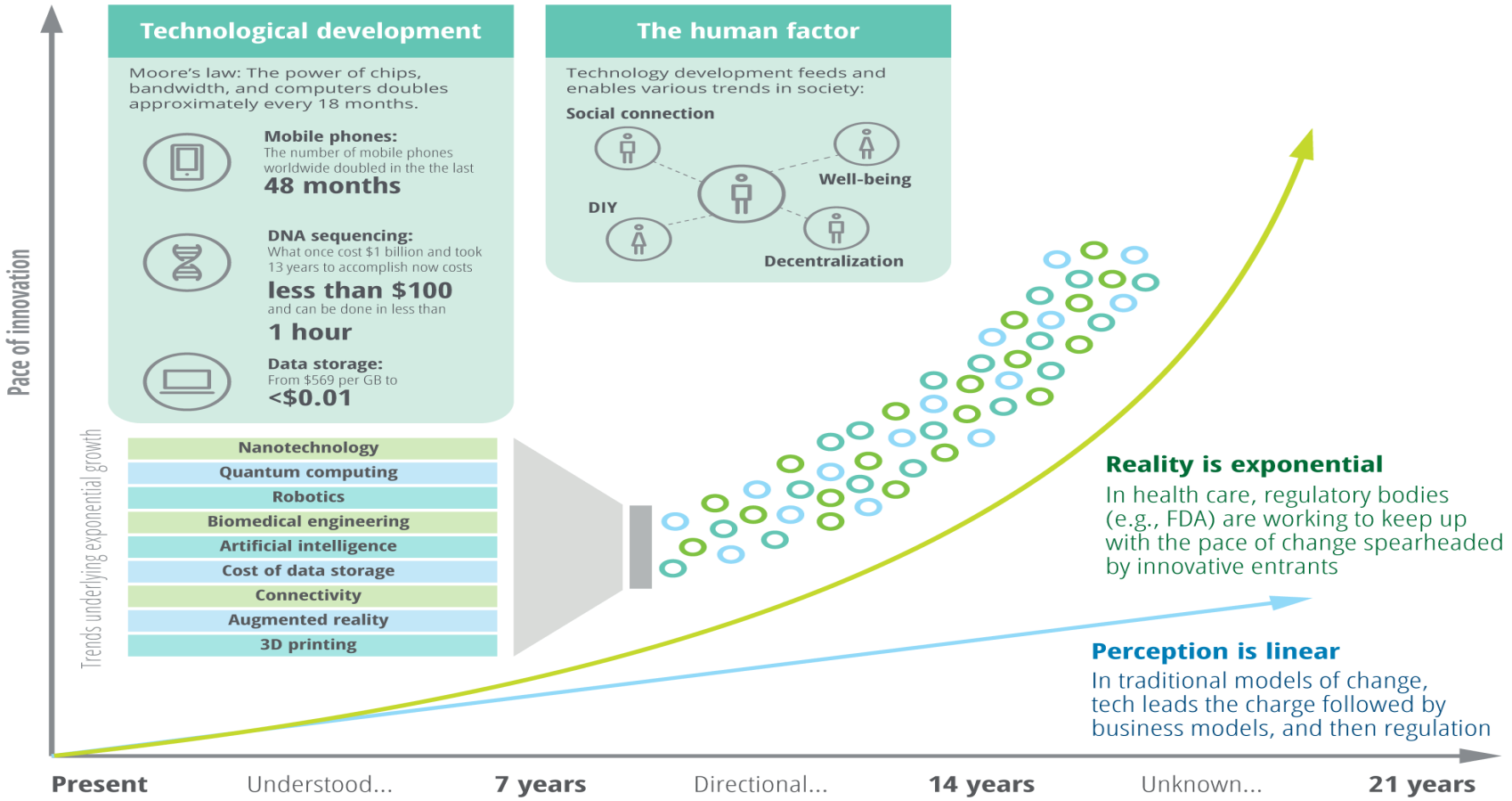
Pace of Change is Accelerating

FIGURE 1

Exponential change will accelerate the pace of disruption



Note: All dollar amounts are given in US dollars.

Source: Deloitte analysis.

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Community Health Centers (CHCs)

- 1 in 5 Americans covered by Medicaid, over 75 million people
- About 1,400 CHCs across the U.S. provide care in underserved rural & urban locations
- CHCs provide essential services in the aftermath of emergencies & disasters, as well as primary & specialty care, behavioral health, & substance abuse treatment
- Healthcare is 1 of 15 Emergency Support Functions, identified in the National Response Framework (NSF) as ESF #8

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Compliance & Security Poorly Incentivized

- Oversight of HIPAA HITECH regulations:
  - OCR audits were extremely limited
  - Hamstrung by policy disagreements & need to show success
- CMS failed to conduct minimal Meaningful Use documentation reviews
  - Left program to promote adoption of Electronic Health Records (EHR) open to abuse & misuse of federal funds
- Real failure was lack of incentives to truly prepare for cyber & other threats
  - HTAA has found most small to medium healthcare organizations are ill prepared for cyber threats, emergencies & disasters
  - Accenture study recently showed only 14% of healthcare SMBs are prepared

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Compliance is Not Security

- SMBs & CHCs focused on compliance, not security
  - Compliance beginning to be incentivized through increased CMS/OCR audits & fines
- Security still typically a “Check the Box” exercise at best
  - Even though security protects patients from serious risks
- Individual patient risks include:
  - Theft of medical & personal identities
  - Medical histories & records compromised when stolen & used by strangers
  - Medical devices potentially hackable if connected = IoT
  - Critically needed, life-saving equipment unavailable or compromised during ransomware attacks or medical device hacks
  - Clinical outcomes can be seriously impacted

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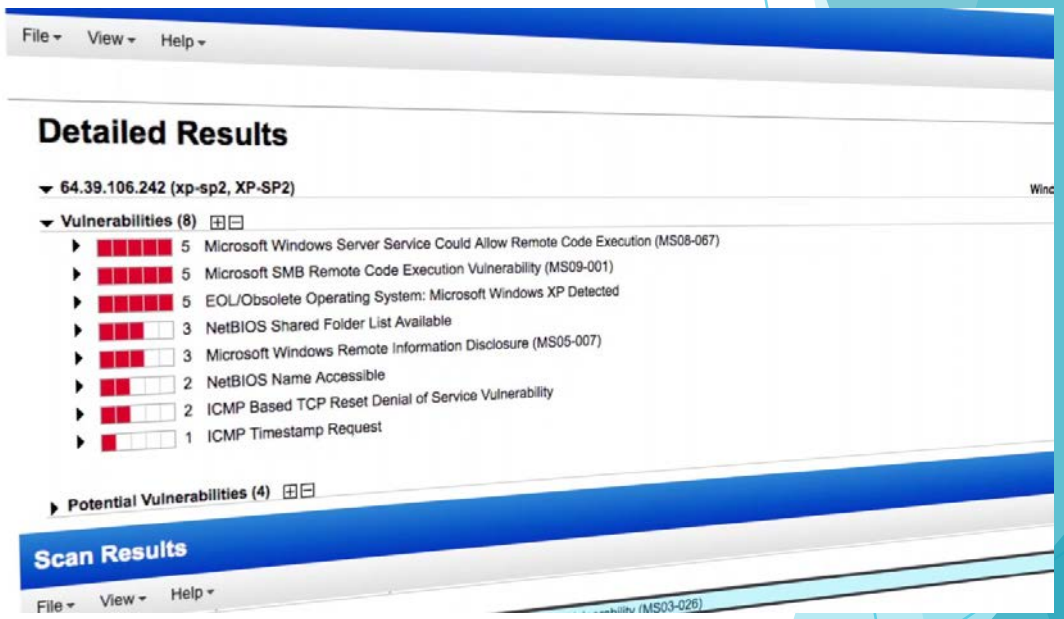
The State of Security in Community Health Centers (CHCs)

- HTAA:
  - Conducted study of Data & Cyber Security Readiness for 45 CHCs from multiple states
  - CHCs studied ranged in size from single location organization centers with 10,000 or fewer patients up to large organizations with 10 – 15 locations serving 80,000 or more patients
  - Performed vulnerability scans across networks 7 devices as part of Security Risk Assessments (SRAs)
  - Provided reports and remediation coaching for CHCs



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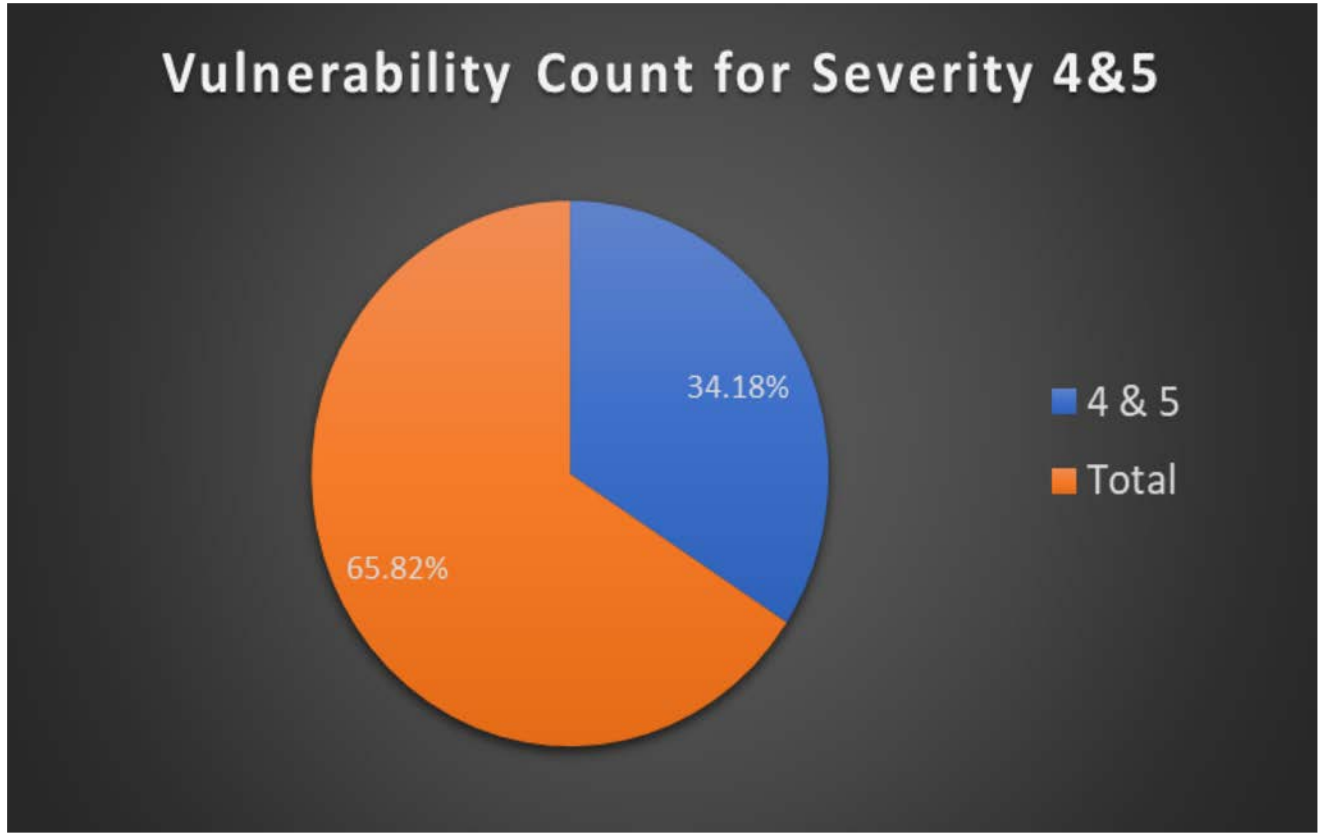
Most CHCs Still Have Major Security Vulnerabilities



- Average # of vulnerabilities identified = 5,000+
- For larger organizations, # of vulnerabilities = 10,000 or more
- 1/3 of these were critical, high priority 4 & 5 level vulnerabilities

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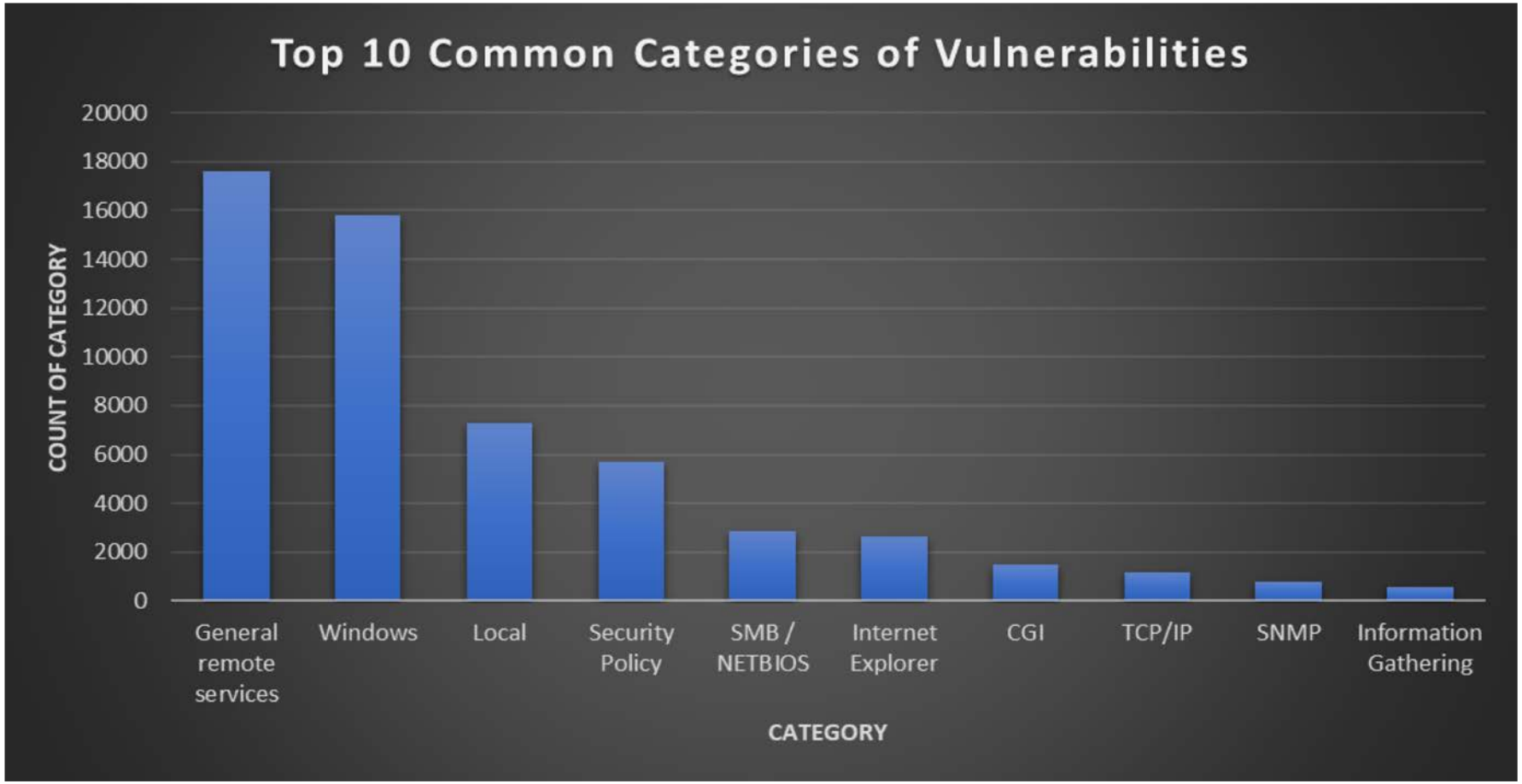
Common Vulnerabilities Across CHCs



- Patches and updates to Windows & other software are common vulnerabilities, even though these are fairly easily remedied issues

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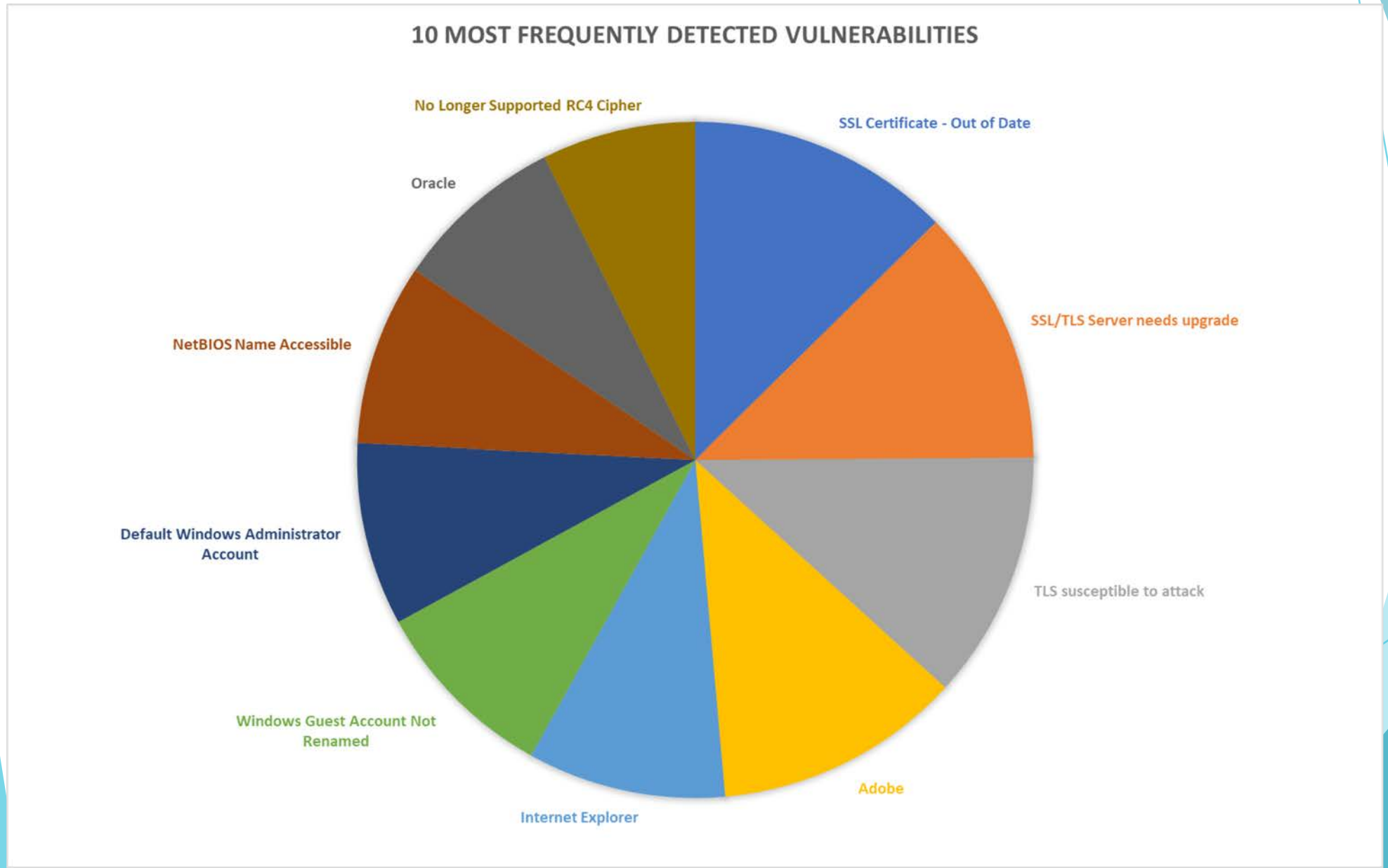
Basic Data Security Practices Would Help



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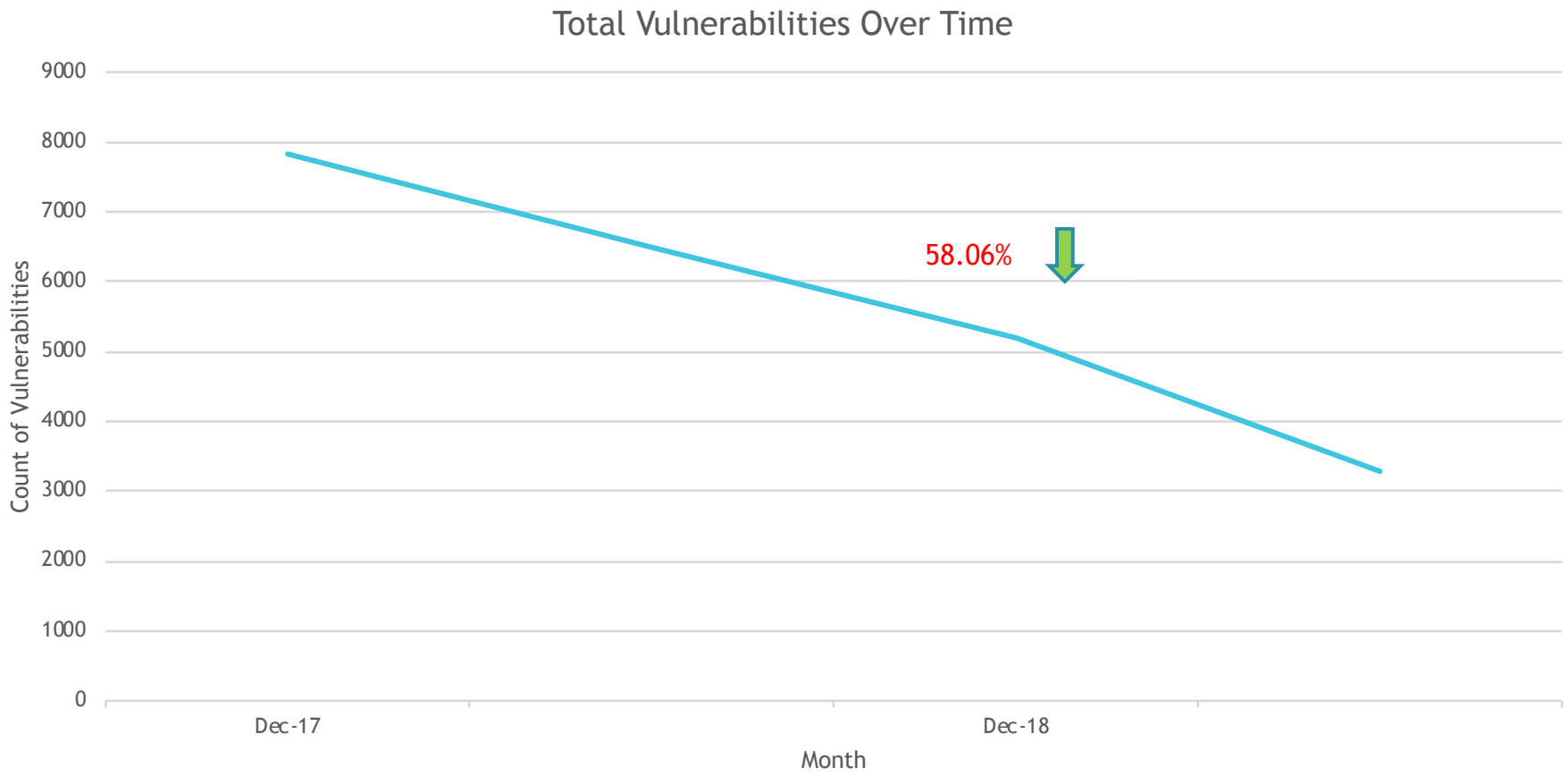
With Effective Assessment & Remediation, one CHC saw 58+% Drop In Vulnerabilities in under 2 years



Dec-2017	Sep-2018	Dec-2018	Jul-2019
7828	6477	5191	3283

This line graph illustrates the decline in total count of vulnerabilities from 2017-2019. Over the years from December 2017 to July 2019, the vulnerabilities reduced by 58.06%.

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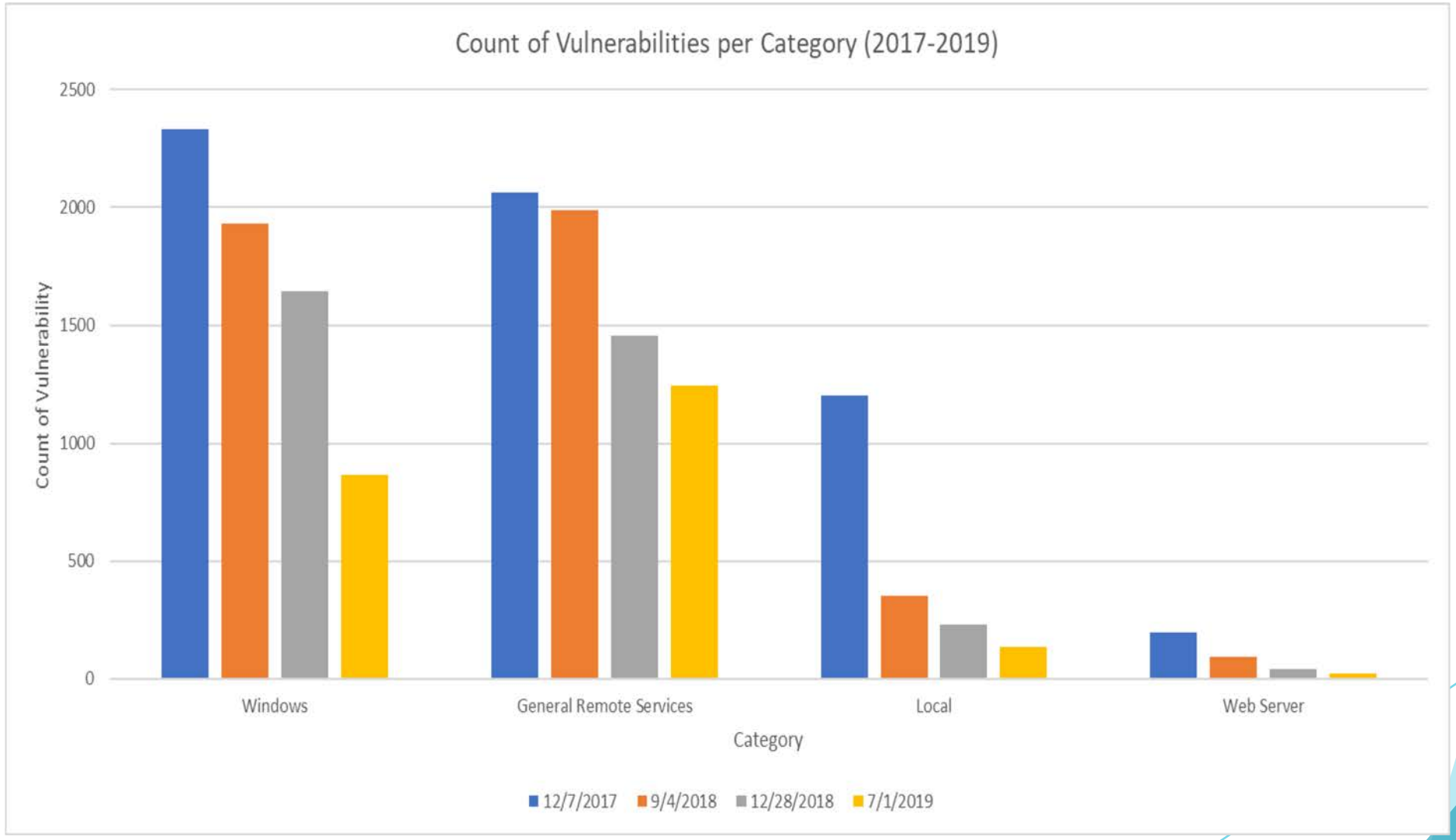
Common Vulnerability Categories Dropped in ½ or More For Same CHC



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Top Excuses for Ignoring Cybersecurity

- I’m too Little
- It’s too Complicated
- It’s too Expensive
- We don’t Have the Time
- Compliance is Enough
- 3rd Party Providers Do it for Me

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Healthcare is #1 Target for Cyber Crime (FBI)

- Ransomware attacks up 400% in 2018
- HIMSS 2017 survey found ¾ of healthcare executives reported significant security incident in last 12 months
- Only 31% of victimized organizations discover data breaches internally
- Average time threat groups were on victim's network = 205 days
- Why?
  - Healthcare organizations—especially SMBs—continue to deploy outdated software & technology
  - Security efforts typically reactive, not proactive

Figure 1: U.S. Healthcare Data Breaches

https://www.esentire.com/blog/healthcare-industry-growing-target-for-cybercriminals/

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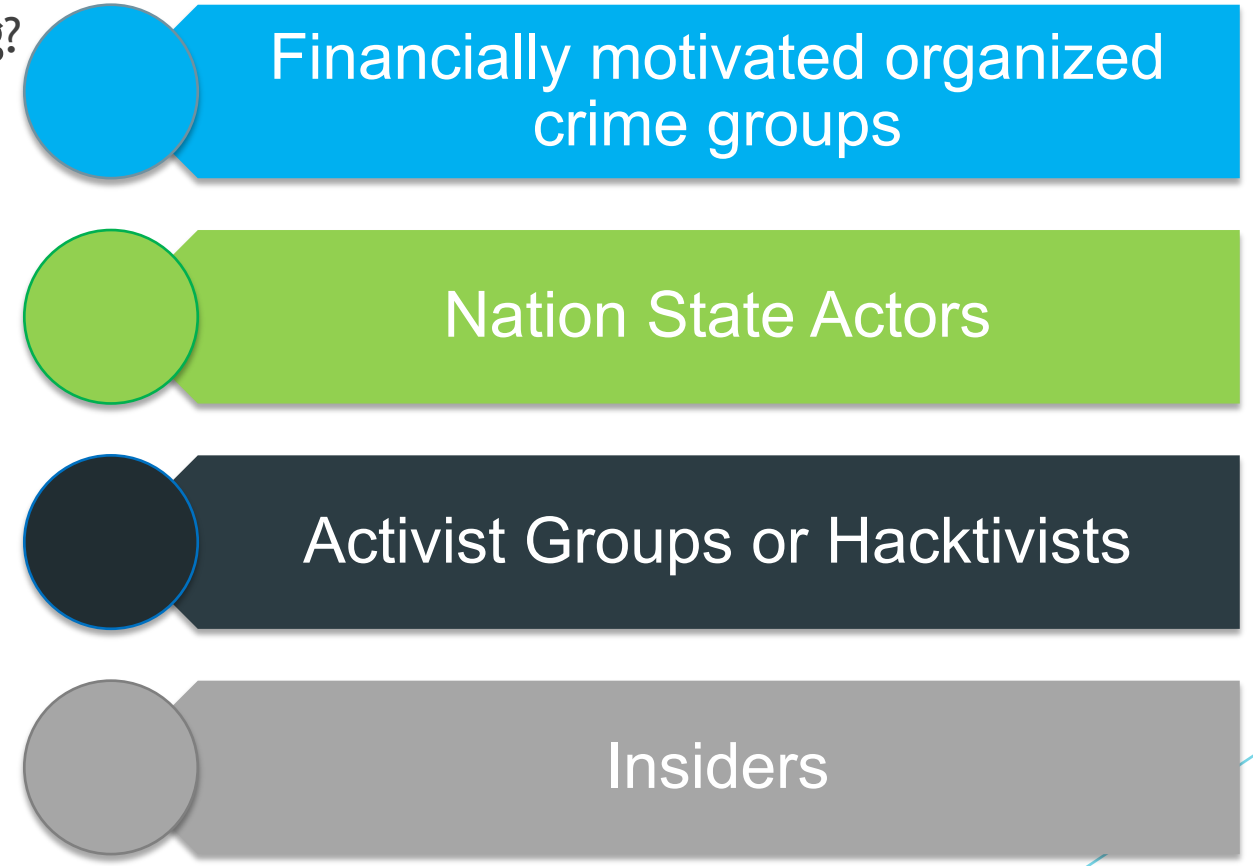
Smaller Healthcare Organizations Have Become Prime Targets for Attacks

- **Who is attacking?**



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Common Cybersecurity Risks

- Third Party Vulnerabilities
- Theft or Loss of Portable Devices
- Phishing Attacks
- Malware Attacks
- Email Hacks

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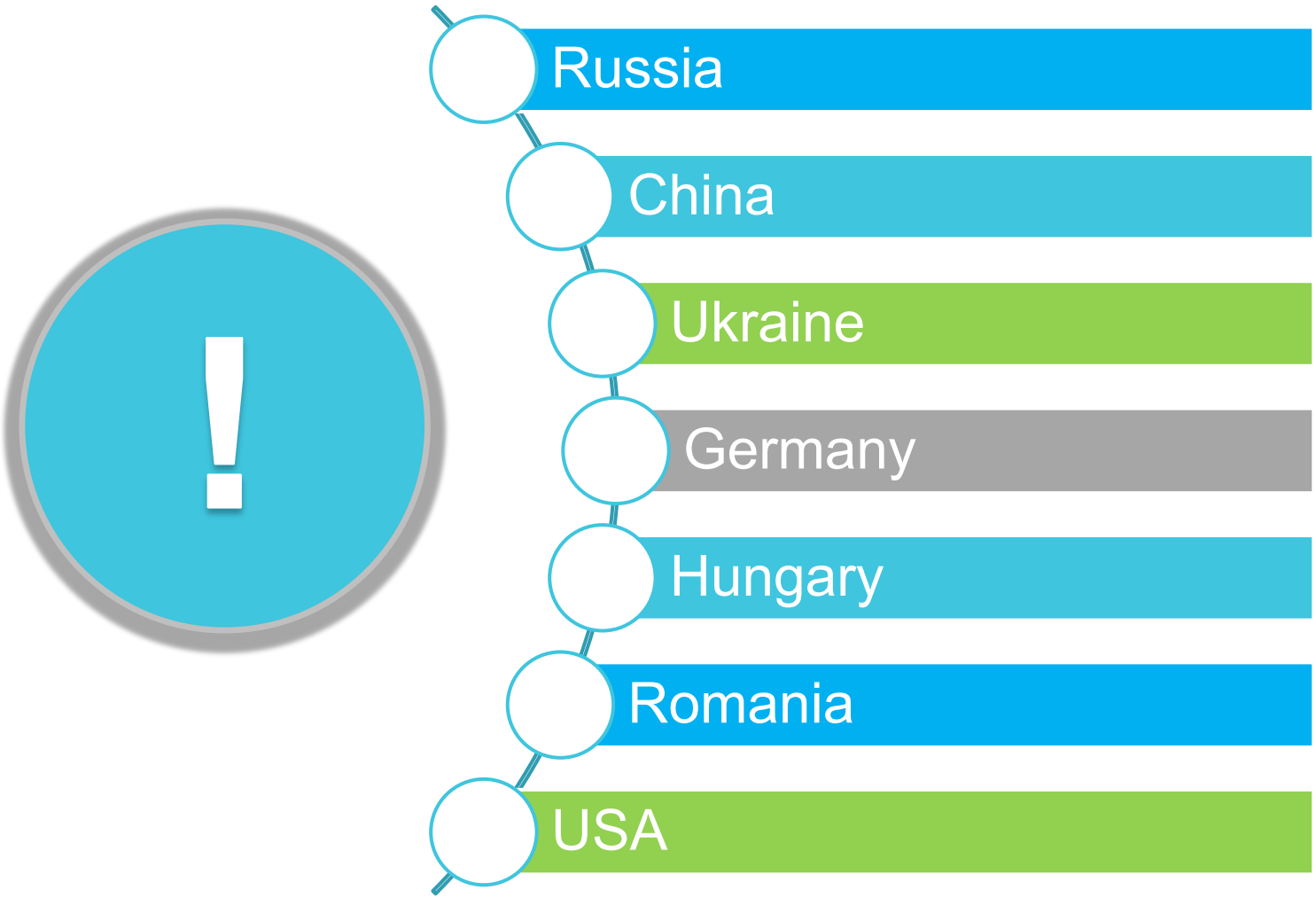
Top Countries for Cyber Criminals



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Advanced Persistent Threat Actors From China – Why?

- Gather Protected Health Information (PHI) for espionage missions
- Focus on data describing medical procedures & processes
  - Healthcare operations
  - Medical device R & D
  - Pharmaceutical research
  - Intellectual Property (IP)
- Assist healthcare industries in other nation states
- Identify diagnosis, treatments and protocols that may help China's aging population

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How Lucrative is Stolen PHI?

SSN	**$1**
Credit Card	**$5**
Medical Information	**$ 50**
Packaged PII Data	**$ 100 +**

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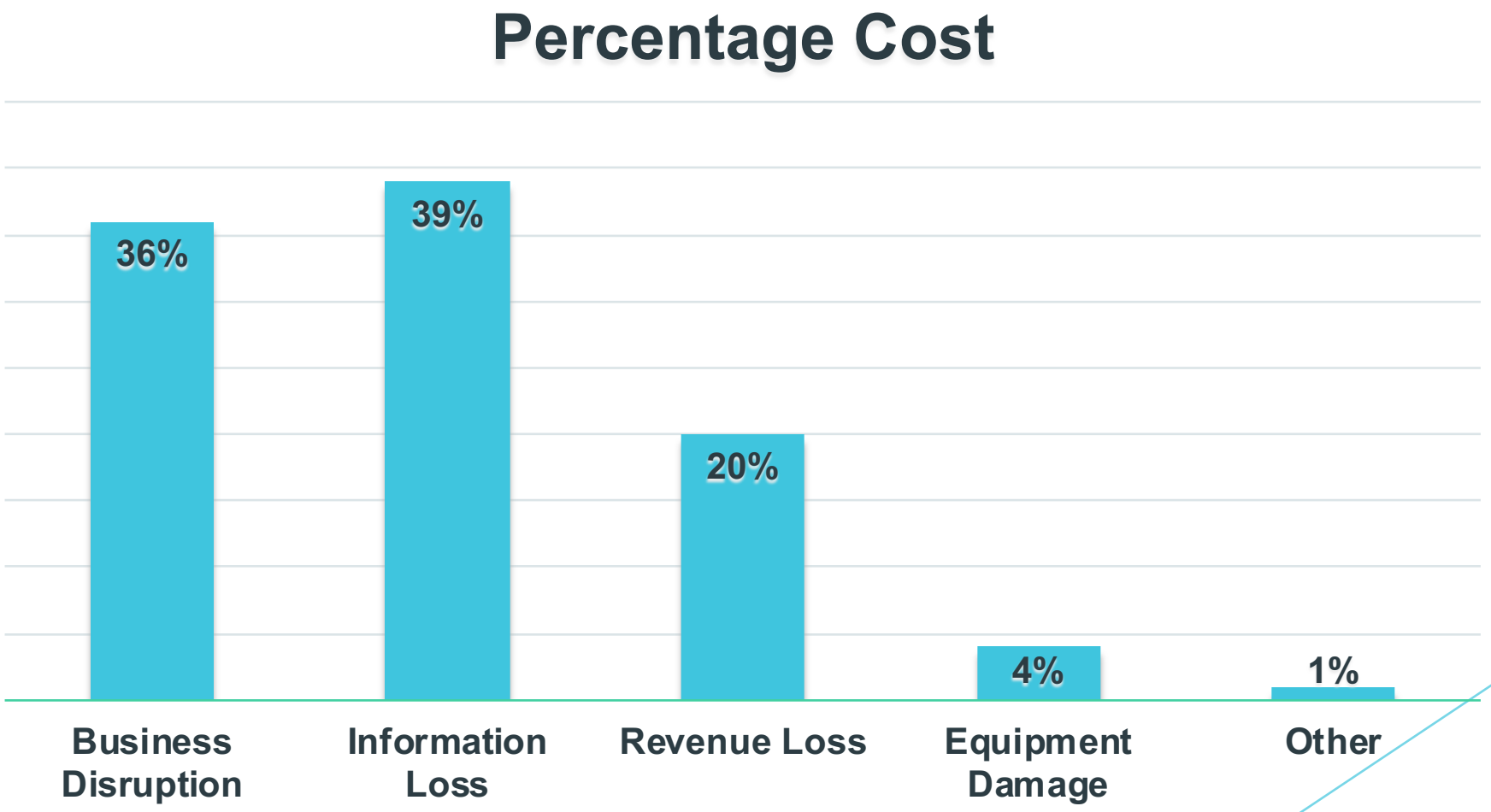
Cost of a Data Breach

- Recent acquisition or new solution increases potential cost



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Preventing a Costly Data Breach

- **Be Proactive**

- ✓ Employee training and awareness
- ✓ Implement and enforce policies
- ✓ Implement patches timely
- ✓ Utilize anti-virus and anti-malware solutions
- ✓ Manage the use of privileged accounts
- ✓ Segment systems and limit access
- ✓ Disable macro scripts from files transmitted over emails
- ✓ Back up data and test integrity of back-up
- ✓ Secure backups
- ✓ Implement and test contingency plans

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Administrative & Physical Safeguards are Key

- Conduct a Security Risk Analysis (SRA) with Independent Agency
- Implement a Risk Management Plan
- Have a Sanction Policy
- Review safeguards periodically
- Assign responsibility to at least one individual with necessary training
- Develop & Implement an Incident Response & Reporting Plan
- Develop & Implement a Data Backup Plan
- Develop & Implement a Disaster Recovery Plan
- Develop & Implement an Emergency Mode Operation Plan
- Evaluate Contingency Plans
- Develop & Execute Business Associate Agreements

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Physical Safeguards: What Each Healthcare SMB Should Be Doing

- **Facility Access and Control**: Limit physical access to secure area where records kept, while ensuring authorized access
  - Most CHCs and SMBs are already doing a good job on this
  - Used to physical security precautions

- **Workstation and Device Security**: Policies and procedures to specify proper use of and access to devices and media with PHI.
  - Transfer
  - Removal
  - Disposal
  - Reuse of devices with PHI

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The Way Forward for CHCs & SMBs: 4 Pillars

- Understanding the Cybersecurity Risks Today
- Planning for a Changing Environment
- Investing in Technology & Security
- Training to Close the Skills Gap

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Key Findings From Our Work with 200+ CHCs

Need for Training:

- Trend towards outsourcing IT & Security functions with little corresponding training/investment in internal capacity
  - Limited/no oversight of Managed Service Providers (MSPs) & IT Services
  - Little to no formal vendor management
  - When MSPs & IT Services vendors conduct Security Risk Assessments (SRAs) becomes "Fox Watching the Hen House"

Need to Engage Leadership:

- From boards to CEOs, very little understanding of cybersecurity
  - 50% of FQHC boards required to be from communities served
- IT rarely has seat at table with top executives & decision-makers
- As older leaders transition out, new generation of leaders starting to focus on cybersecurity = positive trend

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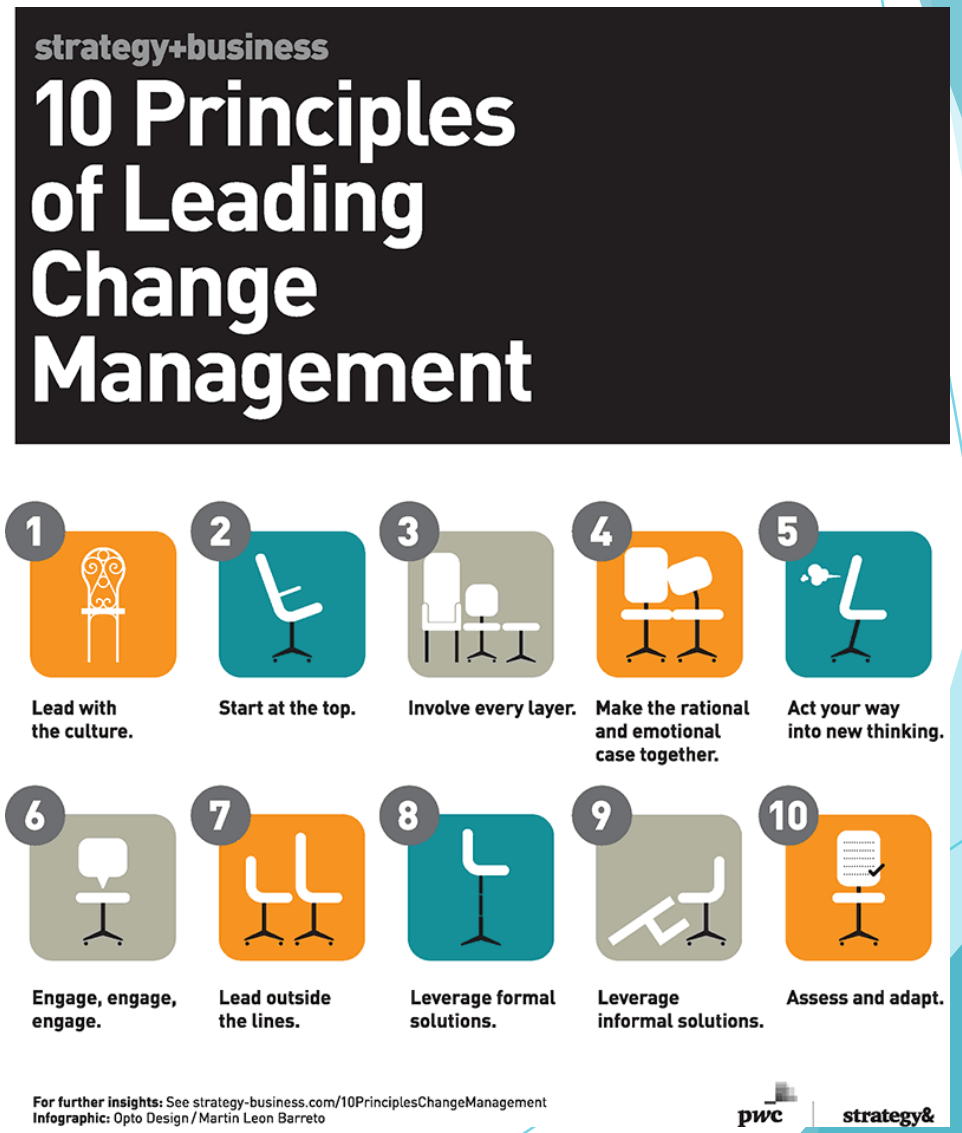
Cybersecurity is About Change Management

- Effective Cybersecurity = 80% People/Processes + 20% Tech
- Typically under appreciated = the “People” component
- Leadership & Training are the keys to effective Change Management
- Change Management is about:
  - Emotional Intelligence
  - Communication
  - Culture



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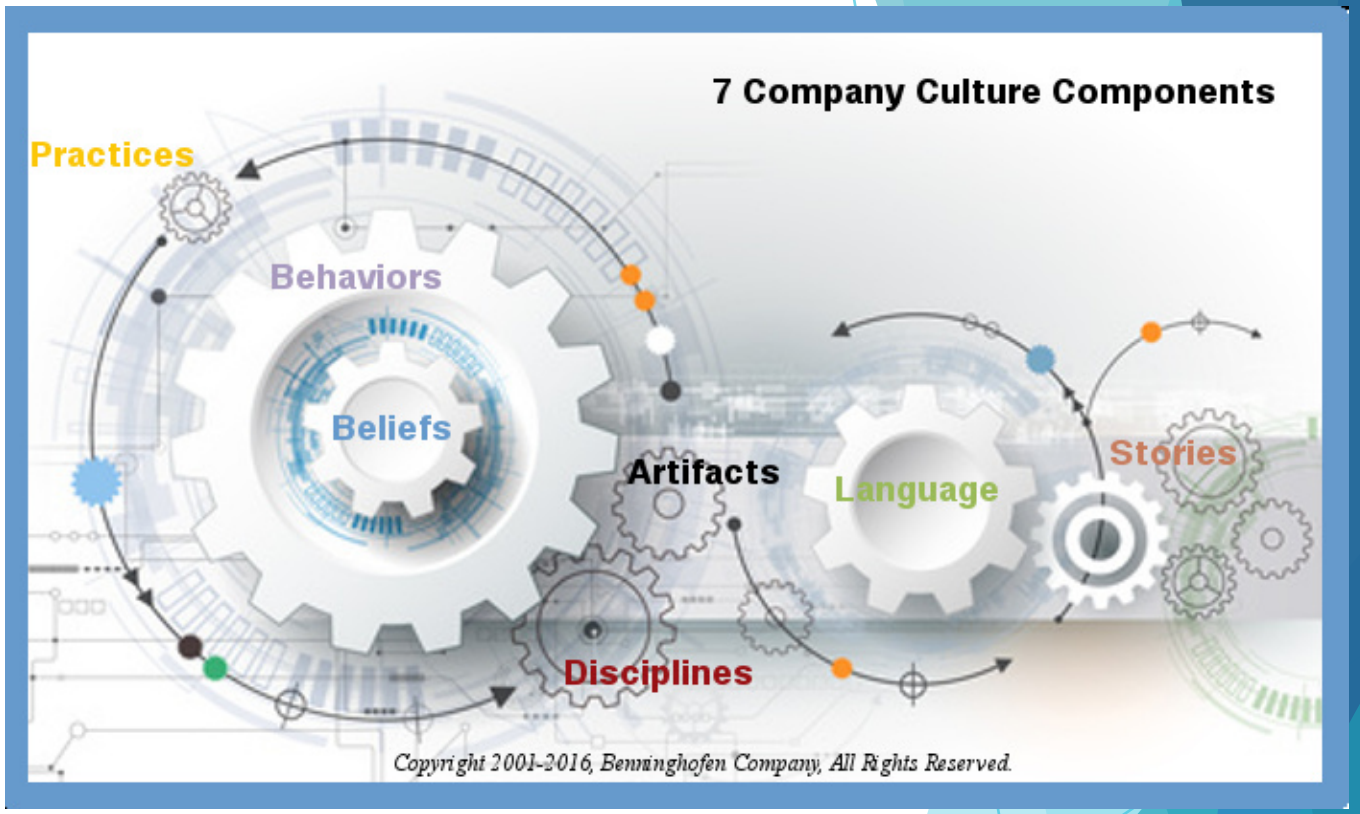
Culture is Key:

- Understanding the Culture is Key
- Speak the Language
- Understand the Values & Norms
- Need to Communicate Risks & Urgency Clearly
- Tailor Solutions to Culture of Organization
- Make Cybersecurity Solutions Simple to Increase Adoption
  - Not tech driven
  - People driven
  - Address cultural, emotional & rational factors



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Organizational Change: Not Just What's Visible

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Engage Leadership in Cybersecurity: We Need More Cybersecurity Evangelists

- Adopt Strengths-Based Approach
  - Coaching – Powerful Questions, Positivity, People are Capable
- Build Trust
  - Active Listening
  - Empathy
- Build Awareness
  - Sense of Urgency
- Build Confidence
  - Set Realistic Goals-80/20
  - Empower with Realistic Solutions

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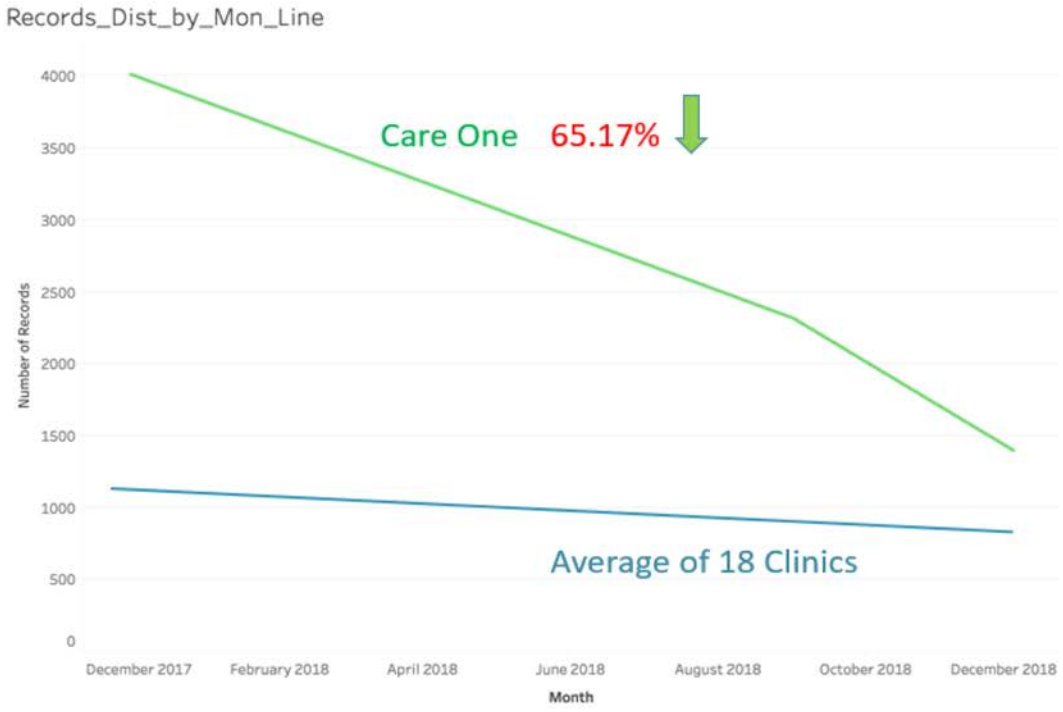
Can This Approach Combining Tech, Training & Soft Skills Really Work for SMBs & CHCs? YES

Monitoring and Remediation Makes a Difference
Example Clinic: Care One



QIXPRESS

December 2017	September 2018	December 2018
4,017	2,319	1,399

Compared to Dec 2017, Risk were reduced by 65.17% in Dec 2018.

Healthcare Cyber Security Vulnerabilities Scan Analysis

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Get Our Slides

- Send your contact info—name, title, email & phone number—to Carlos Navarro:
- carlos@htaalliance.org

- And we will send you our presentation

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Q & A

- What is your experience?
- What questions do you have for us?

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