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Finding the "Silver Linings" of the Cyberattack
South Burlington Family Medicine

Leah Miller & Kathleen O'Hara
Family Medicine Rotation, November 2020

Problem Identification

The problem we chose to assess: Impact of UVM Health Network cyberattack and subsequent month-long network downtime on the S. Burlington Family Medicine providers and clinic staff.

What we addressed:
- Positive observations
- Potential learning opportunities, benefits
- Highlight strengths of team

Cyber Daily: European Consumers Sue Firms After Breaches | National Guard Helps Vermont Medical Center in Continuing Cyberattack Recovery

Officials Warn of Cyberattacks on Hospitals as Virus Cases Spike

Government officials warned that hackers were seeking to hold American hospitals' data hostage in exchange for ransom payments.

Officials say the hackers targeting American hospitals are affiliated with the same group that targeted a health network in a ransomware attack last month. Raphael Satter/Reuters

Patients of a Vermont Hospital Are Left 'in the Dark' After a Cyberattack

A wave of damaging attacks on hospitals upended the lives of patients with cancer and other ailments. "I have no idea what to do," one said.

The University of Vermont Medical Center in Burlington, Vt., was the victim of a cyberattack in late October. Elizabeth Frantz for The New York Times

Considerations for Public Health: Healthcare in the Digital Age
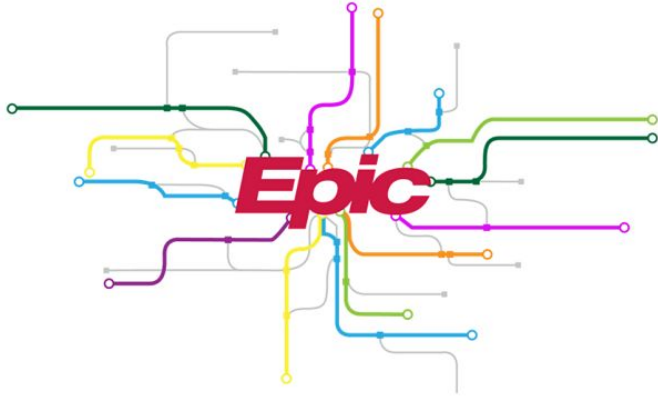
One systematic review found that North American healthcare providers spend an average of **16 minutes, 14 seconds using EMR per patient encounter.**[9]

- Healthcare industry, federal government have mandated transition to Electronic Medical Record (EMR) to improve patient care and safety in the last 2 decades
- Increasing healthcare tech platforms, modalities in the last decade: patient portals, mobile health technology, telehealth.
- Privacy, safety, HIPAA-protection
- **Cyberattacks will likely continue to be a problem ➜ Cybersecurity becomes a new healthcare priority, cost?**

Considerations for Public Health: Healthcare during the Pandemic

COVID-19 Pandemic has accelerated the transition to digital healthcare, telehealth. Providers must adapt rapidly.

CDC Recommendation to Healthcare Providers (Nov 2020): Minimize in-person clinical care, deliver care via virtual modalities whenever possible (e.g. virtual clinical visits via telehealth modalities; remote patient monitoring via online patient portal).

Healthcare workers are at particularly high risk of psychological impacts following unprecedented occupational stressors.

American Psychiatric Association, Vermont Department of Health: Healthcare workers are at higher-than-ever risk for stress, burnout, mental health problems as a result of the pandemic

Methodology

We sought to explore the healthcare workers' positive observations during this unique scenario. We created an anonymous, three-question survey inquiring about "silver linings" of the cyberattack. Questions included:

1. Respondent's clinical role: Provider, Nursing, Administrative/Other *(circle-one, multiple choice response)*
2. Two positive observations in clinical setting during the cyberattack network downtime *(write-in, free response)*
3. A practice, behavior, etc. that should continue following network restoration *(write-in, free response)*

Survey responses (qualitative data) ➡ Thematic Analysis[6] (extract overriding themes for survey free-response questions) ➡ Conclusions, recommendations

Survey Results

Ten participants completed the survey (4 providers, 4 nurses, 1 admin, 1 unspecified).

INTERPRETATION OF OBSERVATIONS & SILVER LININGS:

Face-to-face communication facilitates higher-quality interactions (provider-provider, provider-patient).

Communication promotes collaboration. Communicative team feels productive, cohesive.

EMR, virtual health can be burdensome and facilitate low-quality, impersonal interactions in healthcare (provider-provider, patient-provider)

COMMUNICATION

Improved communication facilitates teamwork and collaboration

OBSERVATIONS:

FACE-TO-FACE INTERACTIONS

EYE CONTACT

CLOSED-LOOP COMMUNICATION

FOCUSED, DIRECT CONVERSATION

PRIORITIZED

TEAMWORK

Teamwork promotes worker satisfaction and quality care

OBSERVATIONS:

CAMARADERIE

RECIPROCITY

HELPING BEHAVIOR

SHARED GOAL

PROBLEM SOLVING

PROCESS IMPROVEMENT

SATISFACTION

OBSERVATIONS:

APPRECIATING ONE ANOTHER

TEAM COHESIVENESS

REDUCED EMR TASKS, BURDENS

PATIENT-FOCUSED HEALTHCARE

FUTURE DOWNTIME PREPAREDNESS

THREE THEMES:
COMMUNICATION
TEAMWORK
SATISFACTION

"Leaving work at work."

"More conversation and collaboration, superior to communication via computer."

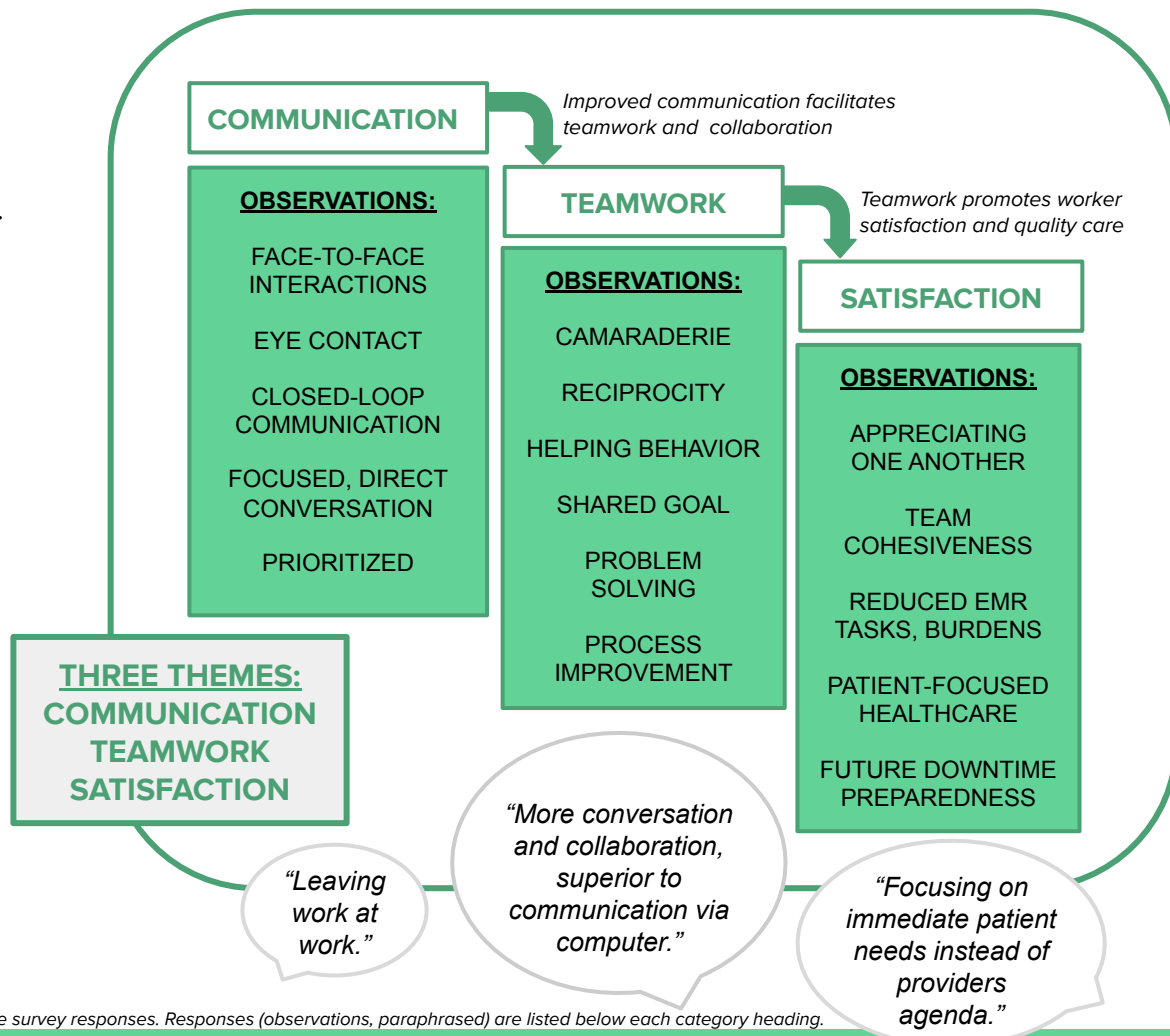*"Focusing on immediate patient needs instead of providers agenda."*

Figure 1. Qualitative analysis used to determine 3 overarching themes that describe survey responses. Responses (observations, paraphrased) are listed below each category heading.

Effectiveness & Limitations

- Reflecting on positive observations from cyberattack provides opportunity for improvement, learning, appreciation
- Reminder of the value of in-person, face-to-face communication in healthcare, despite transitions to digital platforms for delivering care
- Limited generalizability
  - Very specific circumstance of cyberattack/downtime at one outpatient family medicine clinic for short period of time
  - Small sample size, homogeneous population surveyed
    - 10 responses total
    - 80% providers, nurses; minimal participation from administrative staff
    - Minimal variety of medical specialties

Recommendations & Future Directions

- Effective communication and collaboration amongst staff was found to be the biggest "silver lining" of the cyberattack.
  - Face-to-face conversation should continue to be favored in the office rather than relying primarily on online communication (via MyChart, email, etc.)
- Patient-centered care was made a priority by focusing on the immediate needs of the patient, rather than the provider's agenda for each appointment.
- According to the National Academy of Medicine, main principles of effective team-based health care include:
  - **Shared goals**
  - **Clear roles**
  - **Mutual trust**
  - **Effective communication**
  - **Measurable processes and outcomes**
- The staff at South Burlington Family Medicine demonstrated **all of these principles** and really rose to the occasion to provide the best care possible for their patients during this difficult time. We encourage the staff to continue to exhibit these admirable qualities in their future work.

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