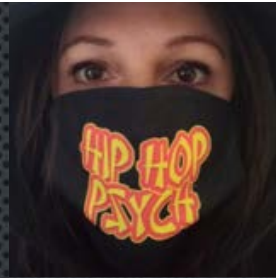


CYBERSECURITY
DIGITAL
MENTAL HEALTH

Dr Becky Inkster
www.beckyinkster.com
@Dr_Inkster

MY BACKGROUND

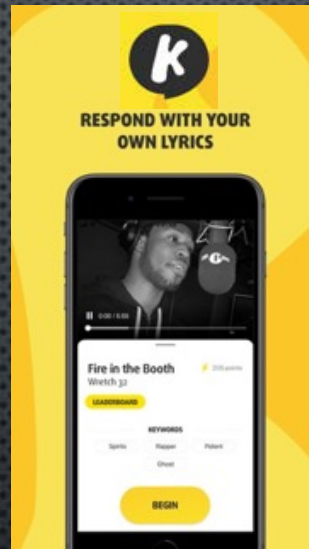


Mental Health/Neuroscience/Data Science
(Cambridge, Oxford, Toronto etc)

Past ~6 years (examples)

- *Lancet Digital Health* International Advisory Board
- The Alan Turing Institute
- Wysa chatbot
- Co-Chair, IEEE IC Program on Ethical Assurance of Data-Driven Technologies for Mental Healthcare
- Co-Editor, Special Issue: "Virtual Reality in Paediatrics", *Frontiers*
- *Book: Digital Ethics in Global Mental Health*
- Mental Health and Suicide Prevention, Facebook, Global Advisor

MY BACKGROUND



Creator:

- Digital Innovation in Mental Health (DIMH) conference
- Digital Mental Health Data Insights Group (DMH-DIG)
- FinHealthTech Consortium (FHTC)
- Building a Global Cybersecurity Culture in Digital Mental Health

CYBERSECURITY & MENTAL HEALTH



mHealth apps are now generating more user activity than other mobile device apps such as online banking
(Pew Research)

Personal health data is the most valuable form of data on the dark web - it's a bigger pay-out than credit cards
(Knight Ink)



Cybersecurity: A Critical Priority for Digital Mental Health

AUTHORS

Becky Inkster

AUTHOR ASSERTIONS

Conflict of Interest: No ▾

Public Data: Not applicable ▾

Preregistration: Not applicable ▾

Page: 1 of 9 Automatic Zoom

B. Inkster, v1.0 16.08.2021

Title: Cybersecurity: A Critical Priority for Digital Mental Health

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Abstract

There has been a surge in the supply and demand of digital mental health support services in recent times. There have also been high profile cyberattacks specifically targeting mental health and

<https://www.beckyinkster.com/cybersecurity>



#MoveFastFixThings

Latest Announcements

YOUTUBE SERIES COMING SOON - CYBERSECURITY IN DIGITAL MENTAL HEALTH

Have you heard about "Vastaamo"?

Go to

www.menti.com

Enter the code

59 51 39 5



Or use QR code

Hacked Finnish psychotherapy service provider declared bankrupt

Feb 2021

FINLAND / 15 FEBRUARY 2021

NEWS FROM FINLAND
HELSINKI TIMES

DOMESTIC

FINLAND'S LARGEST PSYCHOTHERAPY CENTRE WAS SUBJECTED TO DATA BREACHES AND BLACKMAIL.

IT DECLARED BANKRUPTCY ON 11 FEB 2021

THIS IS A WORRYING SHIFT IN CYBER CRIME TACTICS TOWARD BLACKMAILING PATIENTS DIRECTLY

"Hacker targeted some of society's most vulnerable – including children"

CYBERSECURITY & MENTAL HEALTH

- SALUSCARE, ON BEHALF OF ITS PATIENTS, HAS SUED AMAZON WEB SERVICES AND AN UNNAMED HACKER.
- ACCORDING TO THE LAWSUIT, AWS IS HOSTING HEALTHCARE DATA **ALLEGEDLY STOLEN FROM THE FLORIDA MENTAL HEALTH PROVIDER ON ITS PLATFORM,** WHICH MAY LIKELY BE PROMOTED FOR SALE ONLINE ON THE DARK WEB.

LATEST HEALTH DATA BREACHES NEWS

25th March 2021

Amazon Sued for Hosting Florida Provider's Stolen Healthcare Data

Florida-based SalusCare has sued Amazon Web Services for hosting healthcare data allegedly stolen from the Florida provider. The lawsuit aims to compel the data's release.



<https://healthitsecurity.com/news/amazon-sued-for-hosting-stolen-health-data-to-compel-its-release>



HEALTHCARE IT NEWS

QUESTION:

+ Can you share some of the details of the recent cyberattack on Boston Children's Hospital from the infamous hacker group known as Anonymous?



MORE VIDEOS

Daniel Nigrin, MD**CIO, Boston Children's Hospital**

Weight Loss and Cosmetic Surgery

“Many patients will be **extremely anxious** about just what information has been stolen, and **how it might be used in the future.**”

My LDN News ▶ West London News ▶ Fulham

Claims London patients 'living in fear' that before and after pics have been stolen from plastic surgery clinic computers

It's after hackers targeted Transform Hospital Group's branches based in Fulham and Marylebone

SHARE     COMMENTS

By **Owen Sheppard** Local Democracy Reporter
19:41, 7 APR 2021 | **UPDATED** 11:52, 9 APR 2021

NEWS

<https://www.mylondon.news/news/west-london-news/london-patients-living-fear-before-20339587>

Exploiting Application Programming Interfaces (APIs)

- APIs DEFINE HOW APPS CAN COMMUNICATE WITH OTHER APPS AND SYSTEMS
- THIS FORM OF COMMUNICATION NOW ACCOUNTS FOR MORE THAN **83% OF ALL INTERNET TRAFFIC**.²⁹
- MALICIOUS API TRAFFIC IS GROWING FASTER THAN NON-MALICIOUS API CALLS (E.G., SALT SECURITY CUSTOMER DATA SHOWED THAT API CALLS GREW 51% WHEREAS **MALICIOUS TRAFFIC GREW 211%**³⁰)
- WHILE APIs PLAY A CRUCIAL ROLE IN SUPPORTING **HEALTH IT INTEROPERABILITY** (I.E., ALLOWING MULTIPLE DATA SOURCES TO BECOME TRANSFERABLE) AND **HELP PROVIDERS GIVE BETTER CARE**³⁵, MUCH MORE RESEARCH IS NEEDED, ESPECIALLY AS TO THE SECURITY OF FAST HEALTHCARE INTEROPERABILITY RESOURCES (FHIR) STANDARDS AND COMPLIANT APPLICATIONS, AND POTENTIAL **FHIR API VULNERABILITIES**.³⁶⁻³⁸



According to Mobius MD, there are over 100,000 mHealth apps available in major app stores. In 2019, smartphone activity surpassed online schoolwork or educational content. The COVID-19 pandemic is pushing more patients to their family physician and mental health providers, shifting their attention to the

ALL THAT WE LET IN:
HACKING 30 MOBILE HEALTH APPS
AND APIS

“ALL MOBILE HEALTH APPS WERE VULNERABLE TO API ATTACKS”

Feb 2021

- **THE LARGEST UNVEILING OF VULNERABILITIES IN TELEMEDICINE APIS**
- ‘RECOVERING HACKER’ ALISSA KNIGHT PARTNERED WITH MOBILE SECURITY COMPANY APPROOV TO HACK 30 MOBILE HEALTH APPS TO HIGHLIGHT THE THREATS THEY FACE THROUGH APPLICATION PROGRAM INTERFACES (APIS).*
- **THE 30 APPS COLLECTIVELY EXPOSE 23 MILLION MOBILE HEALTH USERS TO ATTACKS**

Keynote: Alissa Knight

WATCH HER KEYNOTE TALK



DIMH2021

Digital Innovation in Mental Health

Cybersecurity in Digital Mental Health

Live Panel: Recorded 5 August 2021



DIMH2021: Interview with Vanessa Pegueros, Chief Trust & Security Officer, OneLogin

YouTube Search

DIMH2021 Cybersecurity, Data Protection, Law & Ethn
Becky Inkster - 2 / 18

1 DIMH2021: Alissa Knight Keynote Speaker
Becky Inkster
1:05:10

2 Victim Support Finland helping victims / Vastaamo...
Rikosuhrigälyvystys - RIKU
7:55

3 DIMH2021: How Criminals Can Steal Data Without...
Becky Inkster
12:07

4 DIMH2021: Interview with Vanessa Pegueros, Chief...
Becky Inkster
31:27

5 DIMH2021: The XRSI Medical Privacy and Safety...
Becky Inkster
10:41

6 DIMH2021: What are hackers

7 5 Years Living Off Grid

Victim Support Finland helping victims / Vastaamo case

WHO IS IMPACTED BY A BREACH?

- **USER & THOSE CLOSE TO THEM;** FUTURE USERS DISTRUST PROVIDERS (OMIT INFO AT ASSESSMENTS ETC.)
- **EMPLOYEES** (DATA STOLEN TOO; BREACH STRESSFUL WORK ENVIRONMENT; EMPLOYEE MISSTEP; DISGRUNTLED EMPLOYEE, LEGAL ACTION AGAINST SOMEONE ETC.)

9 MAY 2021 / INFOSEC

The Apperta Data Breach Fiasco

The Apperta Foundation, a non-profit organization originally created by NHS England and funded by taxpayer money, seems to be embroiled in a very public data breach fiasco of their own making. In a classic case of 'shoot the messenger' they are threatening the individual who first notified them of the breach with legal action.

“The Apperta Foundation allegedly kept public repos full **confidential data on Github**, freely available for anyone to download (e.g., **databases, source code, usernames, passwords and API keys**)”

Source: <https://www.secjuice.com/apperta-data-breach-fiasco/>

WHO IS IMPACTED BY A BREACH?

PROVIDERS/THIRD PARTIES:

- PROSECUTION, FINE OR IMPRISONMENT (E.G., CONCEALING THE SECURITY FAILINGS 'COVER-UP') ETC
- BANKRUPTCY, VICTIM COMPENSATION PAYABLE DUE TO THE HACKING, ORDERED TO PAY AN ADMINISTRATIVE FINE ETC
- REPUTATIONAL DAMAGE; DAMAGE TRUST
- CYBERCRIMINALS ARE INCREASINGLY TARGETING SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs)
- EVEN SECURITY TRAINING FOR EMPLOYEES DOESN'T GUARANTEE IMPROVEMENTS IN SECURITY AWARENESS AT THE ORGANIZATIONAL LEVEL OR IN REAL-WORLD ATTACK SITUATIONS.

Thinking about Privacy by Design from the onset; breach response plans; cybersecurity budgets, insurance etc.

Cybersecurity in Digital Mental Health



Alissa Knight, Knight Ink



Dr. Becky Inkster, Cambridge University

A HISTORIC
CONVERSATION
A STEP CHANGE
IN CYBERSECURITY
IN MENTAL
HEALTH

Find Out More:

www.beckyinkster.com/cybersecurity

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THE
WORLD'S
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Also attending this event: