# HUMAN-CENTERED DESIGN IN HEALTHCARE

#### InnovationX

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# DISCLAIMER:

The perspectives offered in this presentation are my own and are not reflective of Health and Human Services in any fashion or manner

# A LITTLE BACKGROUND

- Cal Poly San Luis Obispo, Liberal Arts and Engineering Studies - Design Studies Concentration
- Focus: How can we create more meaningful ways of being through design?
- Approach: Value-add human-centered designer operating collaboratively within multiple project streams





# HOST OFFICE

# INNOVATION

InnovationX is an office working to **tackle wicked problems** within the space of healthcare.

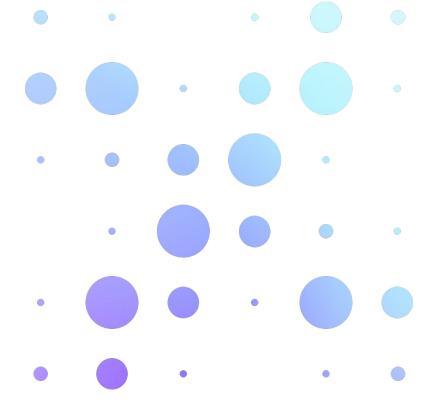
### Methods:

- Data-driven Innovation
- Human-centered design
- Collaborations and partnerships



### Fellows in Office

- Caroline Fong (Civic Digital Fellow),
   Harvard
- Atherv Gole (Civic Digital Fellow), UCSB
- Ella Kim (Civic Digital Fellow), UW
- Ghelatia Araia (ORISE Fellow), NYU
- Daniel Desautels (ORISE Fellow), Emory
- Kathleen Carroll (US Digital Corps)
- Trey Gordner (US Digital Corps)





# WHAT I WORKED ON



Infection-Associated Chronic Illness: Dashboard



KidneyX: K-12 Design Challenge



OCAIO: Utilization of AI During COVID





# Consider the Following Scenario:

# K-12 Design Challenge

### **Design Challenges:**

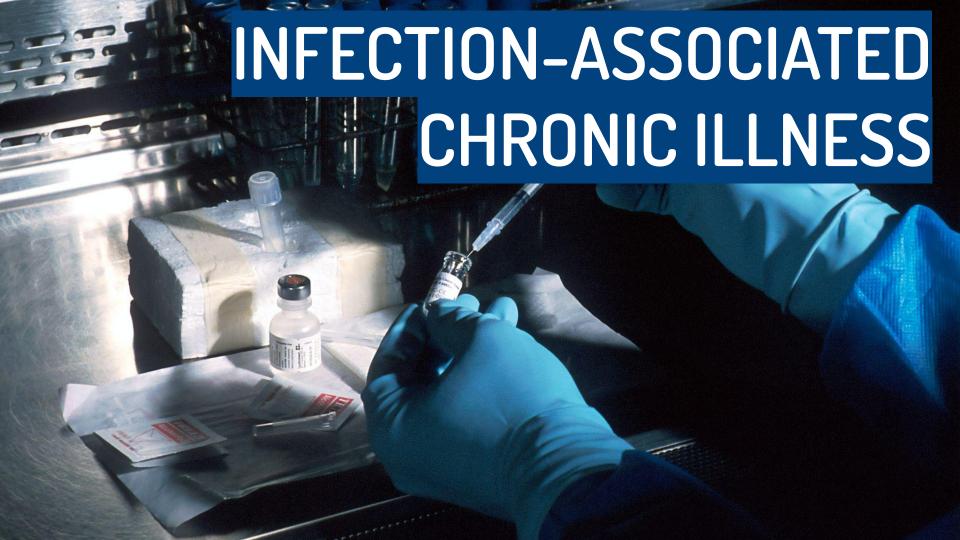
- One of InnovationX's most powerful tools is the creation of a design challenge
- Inspire action through the power and prestige of HHS

### **Conceptualization:**

- A Design Challenge for K-12 students to develop interventions in the educational space
- Students designing for their peers with chronic kidney disease

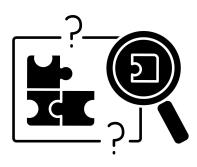




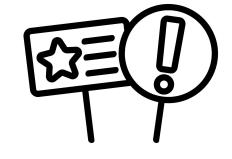


# 7.7-23 MILLION AMERICANS HAVE DEVELOPED LONG-COVID

## WHY IS INNOVATION NEEDED?



It's an area where science hasn't yet been able to meet people's immediate needs



It's a highly contentious space



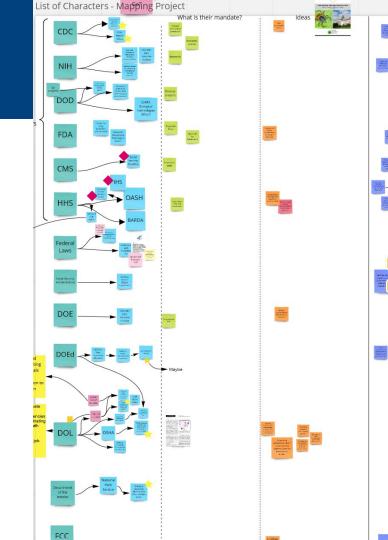
It's a growing problem



# **PROCESS**

# FEDERAL RESEARCH

- What opportunity areas exist for the federal government to make positive action?
- Desk Research + Interviews
- How might these opportunity areas overlap with previously established recommendations?





# INTERVIEWING SUBJECT-MATTER EXPERTS

1

Why are healthcare providers refusing treatment to patients?

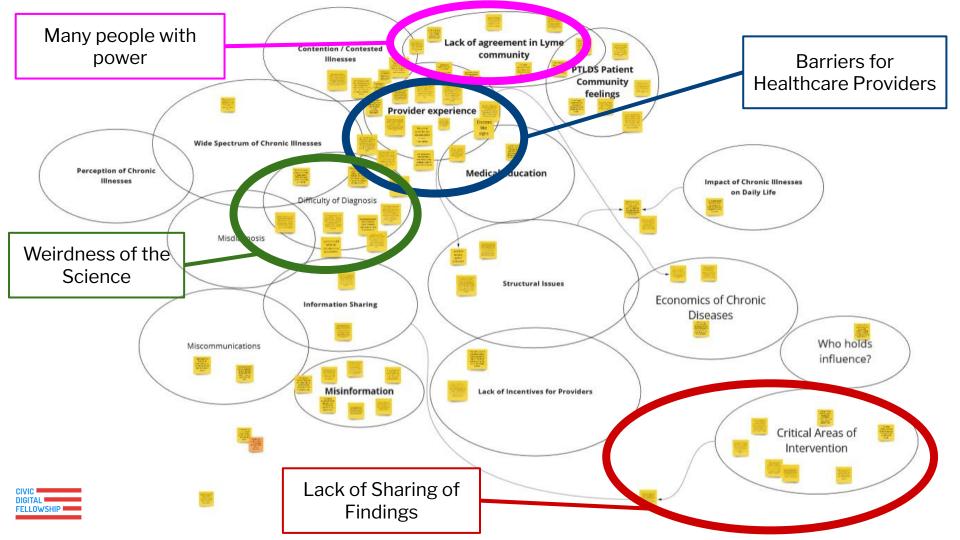
2

Why is this space so contentious

3

What is hampering
Health and Human
Services for conducting
decisive action?





# PROBLEM DEFINITION

"How might we provide quick and easy to understand federal agency progress in the infection-associated chronic illness space to hold agencies accountable and share out updates to the public?"



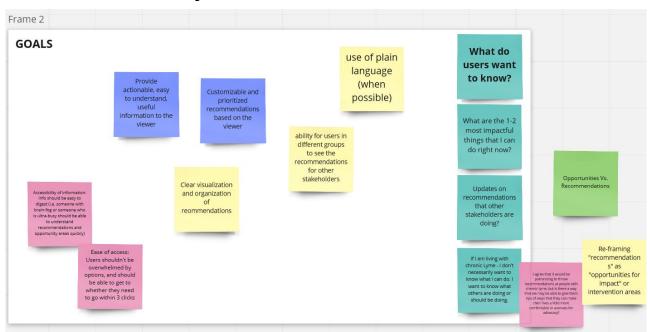
# REFRAMING

### NEW APPROACH

We have interviews, and a matrix of recommendations/opportunity areas, but how synthesize these findings for maximum efficacy?

### New Steps:

- UX Principles
- User flow diagram





### **UX PRINCIPLES**



- Dashboard that provides a high-level snapshot
- Accessible to the public, particularly those living with chronic illnesses who might experience brain fog, etc.

Promotes interagency accountability

- Holds agencies accountable using strategic priorities and goals
- Allows an agency to track their progress over time or in relation to other agencies

Internal and external facing

 Able to be used between agencies, but also can be accessed by the public to view updates



### Recommendation

Stakeholders

Patient Experience

Federal Agency best thought to fit for recommendation

create clinical and public education programs surrounding Lyme and tick-borne diseases to prevent infections by particular ticks.

Develop employee

education modules

surrounding Lyme and

other tick-borne infections

for professions forced to

work in higher-risk tick

exposure settings in

endemic and non-endemic

Create early childhood

education modules

around Lyme, focused

on developing safe

outdoor habits with the

aim of prevention in

early life.

Create a Lyme and coinfection symptom database that can be used to help doctors discern whether a set of symptoms may be Lymerelated, in order to increase Lyme testing.

Develop a medical

protocol following an

initial Lyme exposure,

including monitoring

and recommendations

on follow-up

appointments.

Develop a protocol following a known tick exposure that doesn't rely on the presence of symptoms that may lay dormant

Develop educational resources to help a diverse range of HCPs (e.g., therapists, ER doctors, insurance

advocates, etc.).

what to do right after a tick

Create a simple and clear campaign and slogan (e.g., "Stop, drop, and roll" and "call before you dig") to help with awareness of

Develop pediatric Lyme disease and coinfection symptom educational resources for healthcare providers doubles with

progr navi commun experts w intereste experienc help indi

Create

Develop a p preemptive offer proa commu updates, diagnost health sign the HCPs (e.

save an app

confirm

Create a saves p records, s prescrip

results. forms i location them by

# PROTOTYPE

Recommendations				Stakeholders							Patient Exp. Stage						Federal Agency										Govt. Framework Tracking		
Recommendation	~	Patient 4	Provider •	मञ्जास्मेत्वार Indust	Foderal Governme	State, Local, Tribal	Medical School / + Itinuing Educat	Besearch Institution	Drivate Company	MGO +	Dravention 4	niegnosis +	Troatment	Manging Lyme	- Sin	~ \{\time{2}	Î •	HIN V	<b>d</b> +	poeq.	ŭ E -	₽ →	noo	uoE ▼	o v	ř.	W. V		
Implement multi-agency, ecologically-based One Health efforts on tick-borne diseases promoting research and enhanced vector surveillance to identify and validate integrated tick management in keystone wildlife hosts, particularly white-tailed deer, and the sustainable management of their populations.										1					ı													1.3, 5.3	
Minimize the public health threat of Lyme disease and other tickborne diseases through special funding for integrated tick management, disruption of tick biological processes contributing to pathogen transmission, and the support of publicprivate partnerships to develop and promote area-wide tick control strategies.																												5.2, 5.3	
Provide funding to support CDC-directed expanded tick surveillance and promoting the development and implementation of best practices for integrated tick management capturing human tick bite events, and streamlining education, training, and coordination amongst relevant Federal, state, and local agencies.																												1.3, 5.1, 5.2	, 5.3
Fund research aimed at characterizing the full clinical spectrum, clinical manifestations, and potential complications of human monocytic ehrlichlosis (HME) and human																													

# LIVE DEMO

### DASHBOARD NAME



I am looking for recommendations



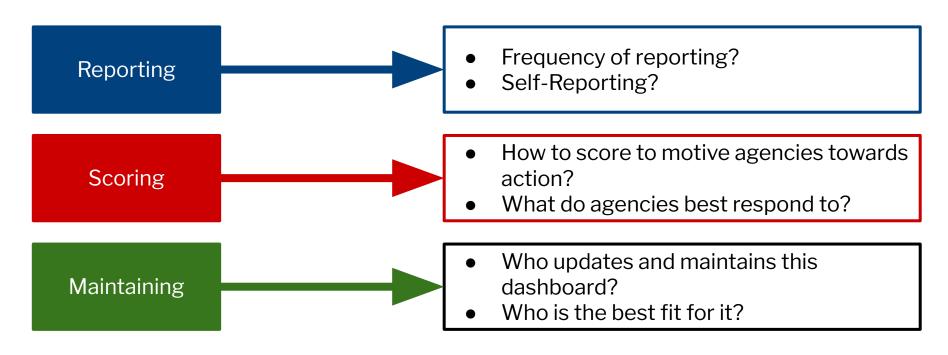
Select Federal Agency

about

Select Chronic Illness



# **NEXT STEPS**







# LESSONS LEARNED

- Systemic change takes a lot of time and effort.
- How to navigate politics while innovating
- Fed Govt. is just a bunch of people **trying to do the best** they can to help those that need it in very **messy and chaotic situations**.
- **Collaboration** is key



### THANK YOU!

- Kristen Honey Executive Director of InnovationX
- Ben Eloff Director, Innovation Management
- INSI Cloud Communications Team
- Greg Singleton Chief Artificial Intelligence Officer, HHS
- Sanja Basaric Al Program Lead, Office of the Chief Al Officier, HHS
- Leith States Chief Medical Officer, Office of the Assistant Secretary of Health (OASH)
- OASH Office Staff



And of course, my fellow amazing and inspiring Fellows!

# THANK YOU! :) QUESTIONS?



### Resources

- Photo by <u>Matteo Vistocco</u> on <u>Unsplash</u>
- Photo by <u>National Cancer Institute</u> on <u>Unsplash</u>
- Photo by Markus Spiske: https://www.pexels.com/photo/coronavirus-statistics-on-screen-3970333/
- Photo by National Cancer Institute on Unsplash
- Photo by PhotoMIX Company from Pexels: https://www.pexels.com/photo/person-holding-black-tube-1001897/
- Photo by National Cancer Institute on Unsplash
- Photo by <u>Jackson Simmer</u> on <u>Unsplash</u>
- Photo by Alex Green from Pexels: https://www.pexels.com/photo/cute-ethnic-child-taking-care-of-ill-grandmother-resting-in-bed-5692694/
- Photo by Max Fischer: <a href="https://www.pexels.com/photo/girl-with-hand-on-chin-5212366/">https://www.pexels.com/photo/girl-with-hand-on-chin-5212366/</a>
- Photo by MART PRODUCTION: https://www.pexels.com/photo/technology-computer-health-medical-7088523/



# SLIDE TITLE



WHY PARTNER?



Here is a caption for this screenshot.

(gifs of scrolling websites are ok!)



#### Introduction:

- Who I am
  - Jaxon
  - Cal Poly SLO, LAES
- Where I worked at for the summer
  - HHS, InnovationX Office
    - What it's mission is
    - How it achieves its goals

#### Signpost of projects covering:

- Infection-Associated Chronic Illness
  - Dashboard
  - KidneyX
    - K-12 Challenge
  - OCAIO
- Usage of AI during COVID pandemic

#### Infection-Associated Chronic Illness Dashboard:

- Problem Space
  - Initial Idea of Approach
    - Addendum report to LymeX report
    - Federal Mapping Chart
  - Interviews with SMEs (withhold names and identifying materials)
    - Challenges with recruiting participants with chronic illnesses
  - Reframing/Pivot to Mapping Chart