

Designing for Behavior Change: A Human-Centered Approach to Research and Intervention

American Heart Association
Health Care by Food



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Designing for Behavior Change: A Human-Centered Approach to Research



1

Foundations of Human-Centered Design and Behavior Change

Understand the principles of Human-Centered Design and Systems Design, apply the COM-B model, and differentiate between systemic and individual interventions.



2

Mapping the Journey: A Human-Centered Approach to "Food is Medicine"

Apply journey mapping to reframe "Food is Medicine," focusing on user experiences and integrating insights into research.



3

Designing Targeted Interventions: Combining COM-B and Journey Mapping

Create nuanced behavior change strategies by merging COM-B and journey mapping, refining the "Food is Medicine" journey to enable critical behaviors



4

Personas in Action: Driving Insights for Behavior Change

Develop and apply personas within the COM-B and journey mapping frameworks to generate actionable insights that inform your research strategy.

The background of the slide features a repeating pattern of a heart with a torch inside, rendered in a lighter shade of red than the background.

Session 4:

Personas in Action: Driving Insights for Behavior Change

American Heart Association
Health Care by Food



Session 4 goal:

Develop and apply personas within the COM-B and journey mapping frameworks to generate actionable insights that inform your research strategy.

Designing for Behavior Change: A Human-Centered Approach to Research and Intervention

Learning Objectives:

1. Understand the human-centered design (HCD) tool of personas in prioritizing individual needs, experiences, and perspectives.
2. Develop and refine personas specific to your study and leverage them to generate actionable HCD insights that inform your research strategy and approach.
3. Practice applying personas within the journey mapping and COM-B frameworks to uncover nuances in participant needs and inform behavior change strategies.

Personas

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Goal

Examine and consider the needs, goals, and challenges of your target population from their perspective

Approach

Develop understanding and empathy for target population or segment by engaging with and articulating their circumstances, priorities, barriers, etc.

Personas

FINANCES

- INCOME: \$11,988/Y, \$999/M
- LIVES PAYCHECK-TO-PAYCHECK

OCCUPATION

- SERVICE WORKER IN RESTAURANT
- ENROLLED PART-TIME AT ACC
- CY
- FR

LIVING SITUATION

- LIV
- SO
- ON
- PL
- WH

FAMILY

- NO

CARE CONTINUITY

- NO
- WH
- US
- AS

RESOURCE USE

- DO
- RE
- SE

PHOTO: JEFF

FINANCES

- INCOME: \$16,212/Y, \$1351/M
- ON DISABILITY FOR PAST 4 YEARS

OCCUPATION

- FORMER MARKETING ASSOCIATE
- WORKS ODD JOBS WHEN SHE CAN TO SAVE UP MONEY FOR SECTION 8 HOUSING

FINANCES

- INCOME: \$15,654/Y, \$1305/M

OCCUPATION

- SEASONAL CONSTRUCTION WORK
- IN TIGHT TIMES, WORKS PART-TIME AT WALMART

LIVING SITUATION

- LIVES WITH HIS WIFE AND ONE OF THEIR THREE ADULT CHILDREN, AS WELL AS HIS WIFE'S BROTHER AND HIS FAMILY
- FAMILY UTILIZES LOCAL FOOD PANTRY
- TRYING TO GAIN US CITIZENSHIP, BUT PROCESS IS LONG, FINANCIALLY AND EMOTIONALLY TAXING

FAMILY

- LOTS OF FAMILY IN TEXAS, AND A SIZABLE CHUNK OF FAMILY AND FRIENDS IN AUSTIN

CARE CONTINUITY

- USES COMMUNITY CLINIC
- POOR COMPLIANCE WITH TREATMENT FOR CONGESTIVE HEART FAILURE DUE TO AFFORDABILITY OF SPECIFIC MEDICATIONS

RESOURCE USE

- SHARES CELL PHONE ACCESS WITH HIS WIFE
- SOMETIMES, HE ISN'T FULLY COMPENSATED FOR HIS CONSTRUCTION WORK BECAUSE OF HIS IMMIGRATION STATUS, SO HE TENDS TO NOT TRUST THE SYSTEM...INCLUDING COMMUNITY RESOURCES

PHOTO: SHODGEWAN (WIKIMEDIA)



PABLO
CONGESTIVE HEART FAILURE
"I'm worried my heart problem puts my family's future at risk."

MALE
AGE 54
HISPANIC

FEMALE
AGE 38
WHITE

Luis

DESIGN IN OUR HEALTH



Age: 70

Condition(s): **pretty healthy**

Transportation:

Time at Chalmers:

A former biochemist from Cuba, Luis has an easygoing perspective on his health. He feels that he's relatively

“I don't want to have a heart attack some way at the clinic.”

Carmen

DESIGN IN OUR HEALTH



Age: 18

Condition(s): **healthy**

Transportation:

Time at Chalmers:

Born in Chalmers, a graduate of AISD schools and now pre-med at ACC, Carmen is a dedicated daughter,

“I have insomnia. It ends in me turning off the lights and I'm turning off the lights.”

Camila

DESIGN IN OUR HEALTH



Age: 43

Condition(s): **anxiety, sciatica**

Transportation: **walks everywhere**

Time at Chalmers: **7 years**

Camila is trying to make better choices for her health through diet and exercise. She also feels that there is a lot of stress in her community that should be managed through yoga, exercise, and other activities that connect people to each other. Family is very important to her. She is currently happy with her provider but is having a hard time getting a referral for a procedure to relieve her sciatic pain.

“I will just suffer through the pain and take medication since I can't get a referral for the surgery I need.”

“I wish there was a class or activity teaching us how to take care of the elderly, how to make them smile and be happy.”

Persona Worksheet

Use multiple copies of this worksheet to describe the differing perspectives of people participating in your study. This will help you to test your assumptions and reveal potential gaps in knowledge with respect to your participants' needs.

Insert an image that conveys who person is (eg, cartoon, illustration, stock photo)

DEMOGRAPHICS

Try to go beyond common demographics such as age, gender and zip code to describe factors such as occupation, marital status, living arrangements, income, etc.



PRIORITIES

What matters most to this person?



INDIVIDUAL. Describe the personal factors that lead to and impede healthy behaviors for this individual.

MOTIVATION

How might this person's priorities reinforce or compel new, healthy behaviors?



BARRIERS

How might this person's priorities pose barriers to new, healthy behaviors?



CONTEXT. Describe the things and people that support and prevent the adoption of healthy behaviors.

SUPPORT

What external forces or circumstances encourage the adoption of new, healthy behaviors? How is this person responding to those?



CHALLENGES

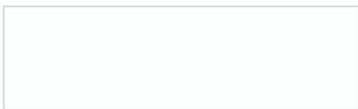
What external forces or circumstances discourage the adoption of new, healthy behaviors? How is this person responding to those?



FOOD. Describe this person's relationship with food, from intent to consumption.

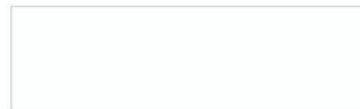
RELATIONSHIP

What is this person's relationship to food? What is their food heritage?



HABITS

What are this person's habits around purchasing and consuming food?



Persona FAQs

These are some common questions that your study teams might encounter when using the Persona worksheet. Should you have any additional questions, feel free to reach out to your design coach!

What exactly are personas and where did they come from?

A persona is a representation of a type of person included in your target population, who is characterized not only by demographic variables (e.g. age, gender, location) but also by their priorities, needs and goals. Personas originated from the field of user-centered design as a tool to humanize the design process and focus on the needs of users in order to develop more user-friendly products and services. Personas are now used across a variety of industries including healthcare and health services research as a way to develop more human-centered insights, interventions and solutions.

How are personas applicable to research studies?

Personas help to garner empathy for the people that you are trying to serve by considering the study intervention from their perspective. This can inform a variety of activities across the study including recruitment approaches (who might be missing?), a better understanding of the factors contributing to adherence, and the ability to tailor implementation strategies to the unique needs, abilities and preferences of different participants.

What are some examples from the peer-reviewed literature of how personas are used?

Personas have been used in a variety of ways by clinical and health services researchers to identify their participants' core needs and design tailored solutions that are centered around the human experience. Below are just a few examples from studies in the peer-reviewed literature that have leveraged the use of personas across different populations.

Tailoring of a digital health solution for frail elderly and people with multiple chronic conditions ([Bhattacharyya et al., 2019](#))

Need finding and solution generation for caregivers of older adults ([Termglinchan et al., 2022](#))

Development and tailoring of patient education in pediatric setting ([Cheng et al., 2022](#))

What if we don't have direct contact with our participants?

If you don't have direct contact with your participants, engage your community partners or whoever is closely interacting with your target population to complete the personas. If you feel confident that you know a certain persona well enough to complete a worksheet, then make sure that you validate your assumptions with your community partners. If you do have direct contact with your participants but aren't set up to collect behavioral information about them, consider integrating approaches like in-depth interviews, focus groups and open-ended survey questions that help you better understand and design solutions for your population.



Overwhelmed Olivia



Widowed William



Esme and Ali

Persona Worksheet

Overwhelmed Olivia



DEMOGRAPHICS

age, gender, occupation, marital status, living arrangements, income, location, etc.

37yo pregnant Latina woman caring for her older mother, her husband, and her three kids who all live with her in a multi-generational household. Employed as a nurse, Olivia lives comfortably in a diverse, urban up-and-coming neighborhood.

PRIORITIES

What matters most to this person?

- Getting through the week
- Caring for everyone else

INDIVIDUAL

MOTIVATION

How might this person's priorities reinforce or compel new, healthy behaviors?

- Being healthy/energetic enough to pursue her career while caring for everyone in her family
- Supporting her mom and husband to be healthy and keeping them out of the doctor's office

BARRIERS

How might this person's priorities pose barriers to new, healthy behaviors?

- Competing priorities
- Not enough time in the day to attend to all the demands
- People pleaser who avoids conflict

CONTEXT

SUPPORT

What external forces or circumstances encourage the adoption of new, healthy behaviors? How is this person responding to those?

- A long-term family medicine physician who cares for her, her husband, and children and knows them all well
- Part of a working mothers WhatsApp social support group

CHALLENGES

What external forces or circumstances discourage the adoption of new, healthy behaviors? How is this person responding to those?

- Shortage of time often means cheap takeout, ready-made, or easy-to-prepare meals
- She defers to her children's unhealthy dietary preferences
- Worries about her mother's judgment

FOOD

RELATIONSHIP

What is this person's relationship to food? What is their food heritage?

- Food is a family affair and intrinsically tied to the family's Latino identity
- Gets advice from family on recipes and what to eat

HABITS

What are this person's habits around purchasing and consuming food?

- It's all about what takes the least amount of time
- Food that is a crowd pleaser to accommodate multiple preferences
- Makes big batches of food to ensure leftovers

Persona Worksheet

Widowed
William



DEMOGRAPHICS

age, gender, occupation, marital status, living arrangements, income, location, etc.

William, a 73yo African-American male who has been retired for a decade, and widowed for 2 years. Recently diagnosed with heart failure, he lives alone on Social Security and modest retirement savings. His kids live nearby with their families.

PRIORITIES

What matters most to this person?

Independent living - not needing to rely on others for daily support

INDIVIDUAL

MOTIVATION

How might this person's priorities reinforce or compel new, healthy behaviors?

- Wants to maintain independence
- Wants to be healthy and present for his children and grandchildren

BARRIERS

How might this person's priorities pose barriers to new, healthy behaviors?

- Grieving the loss of his wife. Food is both a refuge from and a trigger to that grieving.
- An unaccomplished cook, since his wife cooked for him most of his life. Only knows a few recipes.

CONTEXT

SUPPORT

What external forces or circumstances encourage the adoption of new, healthy behaviors? How is this person responding to those?

- Eats meals with his children frequently
- On a Medicare Advantage plan, which includes healthy eating support

CHALLENGES

What external forces or circumstances discourage the adoption of new, healthy behaviors? How is this person responding to those?

- Used to do the grocery shopping for 2 from a list prepared by his wife, now shops for himself only
- Often resorts to buying and eating what is convenient, even if he knows it's unhealthy.

FOOD

RELATIONSHIP

What is this person's relationship to food? What is their food heritage?

- Food should taste good, and the best tasting food has the flavors he grew up on.
- Grew up on Southern cuisine, which bring him a lot of comfort.

HABITS

What are this person's habits around purchasing and consuming food?

- Sometimes will skip meals to avoid the hassle of cooking, and then subsequently binge something comforting.

Persona Worksheet

Esme and Ali



DEMOGRAPHICS

age, gender, occupation, marital status, living arrangements, income, location, etc.

Esme and Ali, a newlywed couple in their late 20s dated long-distance and have now moved in together. One is diabetic and the other was recently diagnosed as pre-hypertensive. They are early in their careers, live in a rented apartment in a mid-sized town with no family nearby.

PRIORITIES

What matters most to these people?

Having a family, achieving their career goals, saving money for a home to call their own

INDIVIDUAL

MOTIVATION

How might this person's priorities reinforce or compel new, healthy behaviors?

- Contributing to their financial future
- Being healthy enough to have children and eventually being energetic parents

BARRIERS

How might this person's priorities pose barriers to new, healthy behaviors?

- Different cultural upbringings mean they have a limited shared food history
- Want to save money but still working out their new financial situation.

CONTEXT

SUPPORT

What external forces or circumstances encourage the adoption of new, healthy behaviors? How is this person responding to those?

- Part of a very social community where eating out is a common social draw
- Though they feel overwhelmed by their health challenges, they are eager to support each other

CHALLENGES

What external forces or circumstances discourage the adoption of new, healthy behaviors? How is this person responding to those?

- Transitioning to living together
- Aspirations to divide housework but still not quite there
- While Esme does most meal planning, both are unskilled cooks - and it's unclear who will take the lead

FOOD

RELATIONSHIP

What are these people's relationship to food? What is their food heritage?

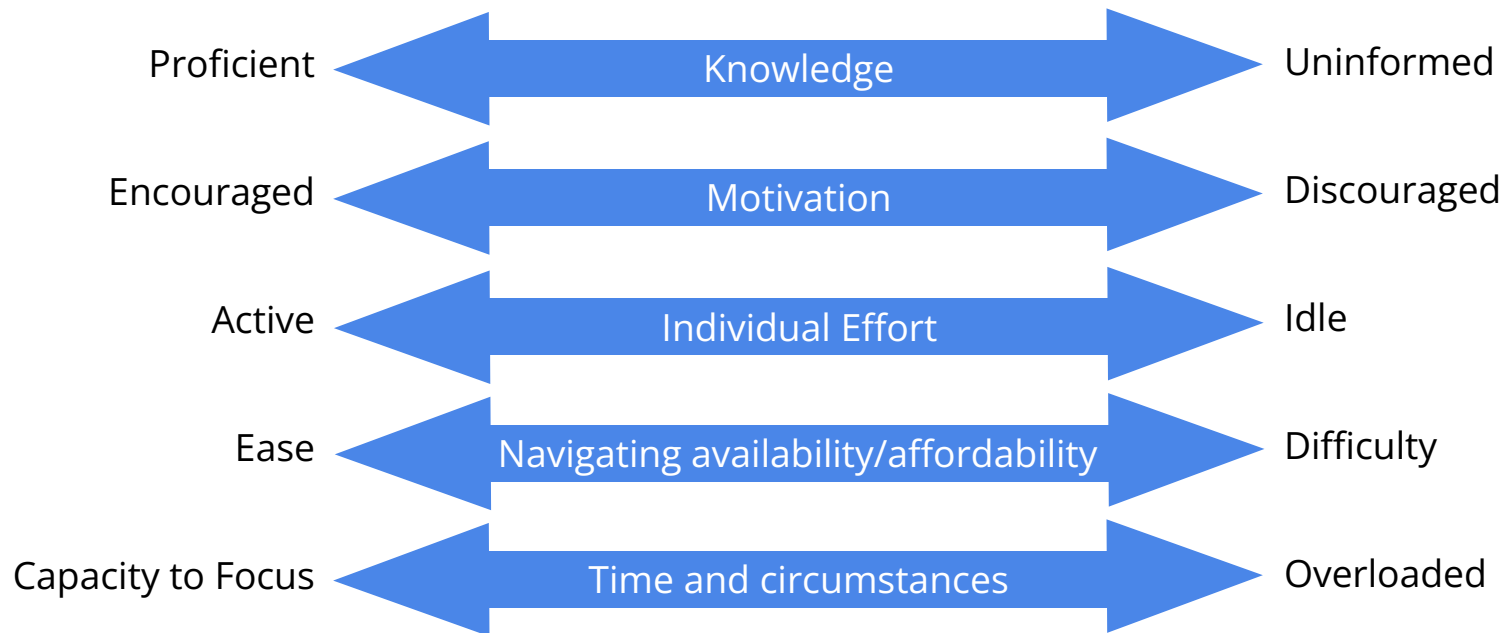
- They like to eat out. They take pictures of their meals to share on social media
- Food is associated with friends and fun.

HABITS

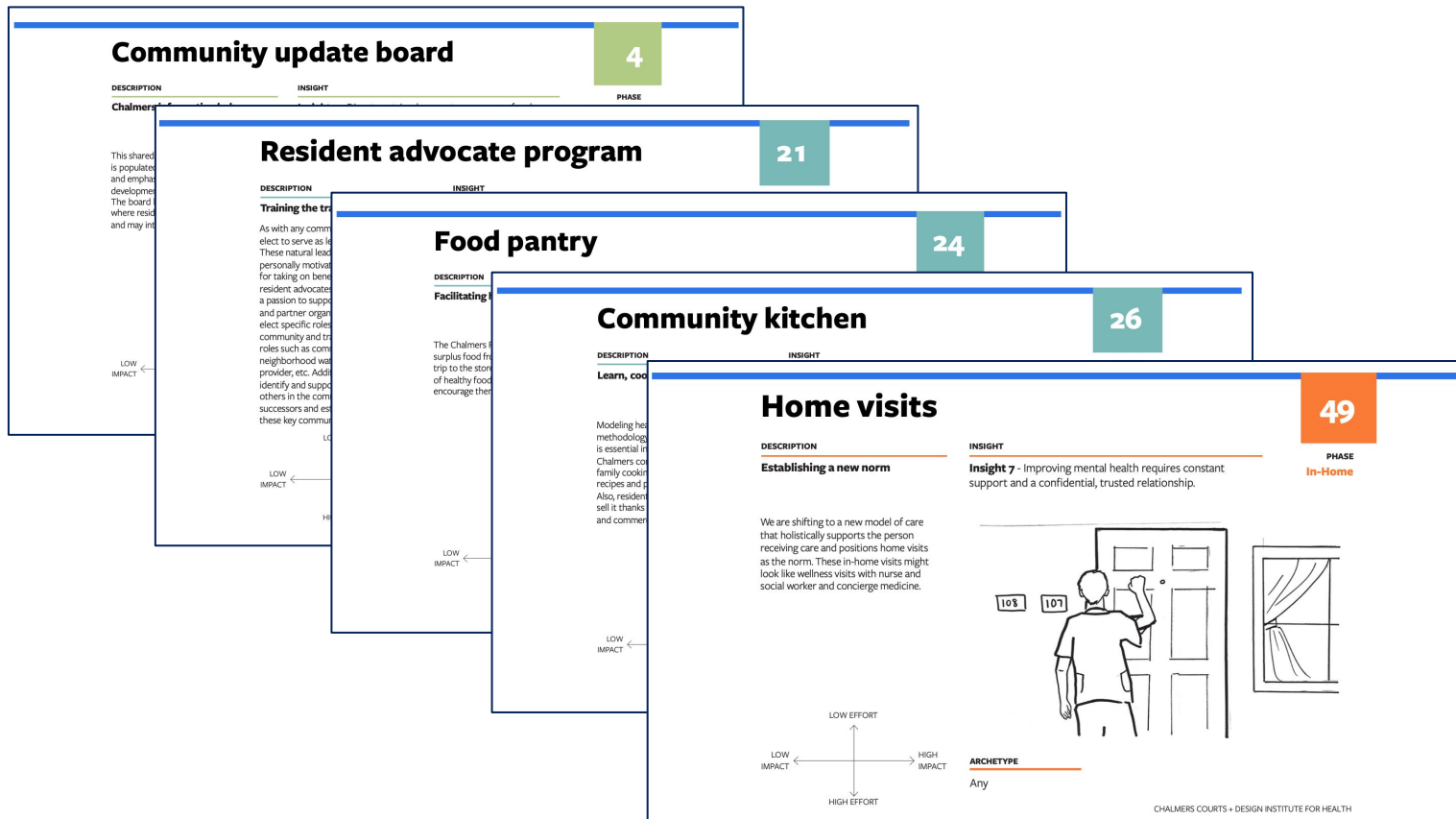
What are this person's habits around purchasing and consuming food?

- When they were dating, they frequently ate out together and enjoyed exploring new restaurants
- They treasure and reminisce about their unique food experiences

Thematic differentiators



Case Study



Personas + Journey



Clinician
interaction



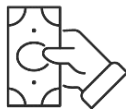
Prescription
by provider



Food and meal
planning



Food selection



Purchase



Acquisition



Preparation



Consumption

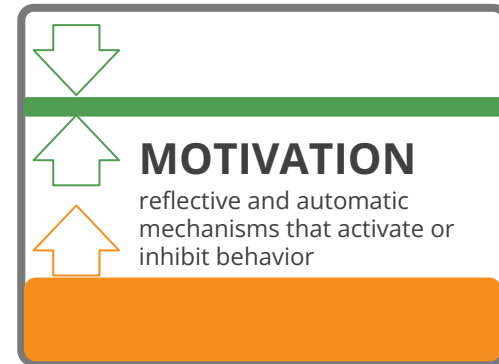
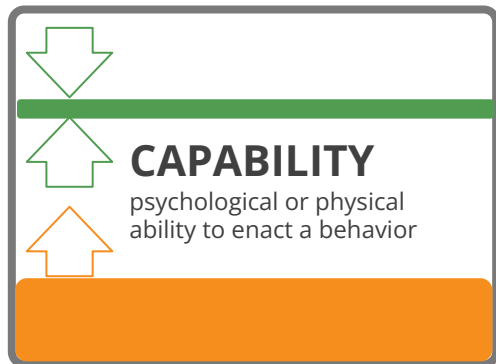


Health
Outcomes

For each given persona, how would they approach each journey stage?
What would be similar or different across each of them?



Personas + COM-B



For each given persona, how will you address their capability, opportunity, and motivation?



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Foundations of Human-Centered Design and Behavior Change

Understand the principles of Human-Centered Design and Systems Design, apply the COM-B model, and differentiate between systemic and individual interventions.

2

Mapping the Journey: A Human-Centered Approach to "Food is Medicine"

Apply journey mapping to reframe "Food is Medicine," focusing on user experiences and integrating insights into research.

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Recap

Health conditions
Demographics
Socioeconomic status

Beliefs
Values
Biases
Experiences
Feelings
Needs



Additional questions and guidance



Stacey Chang



Natalie Privett, PhD

Human-Centered Design Task Force



Stacey Chang is a designer of new creative solutions to age-old dilemmas in health. He focuses on building complex adaptive systems that can respond to the dynamic challenge of producing health in human society, and currently advises a broad array of efforts seeking to build more sustainable, equitable, and effective models. Prior to founding New Origin

Studio, Stacey served as the Founding and Executive Director of the Design Institute for Health at the University of Texas at Austin. The Design Institute was a first-of-its-kind institution, dedicated to creating systemic human-centered solutions in clinical and community contexts.

Embedded as an integrated part of an operating health system and a medical education and training program, the Institute considered topics as broad as the design of products and services, the built environment, integration of social and medical interventions, the structure and strategy of national health systems, and new models for societal health at a global scale.

Before his academic tenure, Stacey served as the Managing Director of the Healthcare practice at IDEO, the global design and innovation firm. Clients included governments, research institutions, hospitals, pharma, insurance, medtech, and all the upstarts trying to rewrite the script, in both established and emerging markets.

Stacey presents frequently and is widely published, including in the New England Journal of Medicine, NEJM Catalyst, Harvard Business Review, and Politico. He has served as a TEDMED Editorial Advisory Board member, a Thought Leader for NEJM Catalyst, an Eisenhower Fellow, and an advisor to the Global Delivery arm of the Bill and Melinda Gates Foundation. He holds degrees in engineering from MIT and Stanford.

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Natalie Privett PhD leans into messy challenges and complex systems. She leverages deep expertise in systems theory, design, and health systems to reframe tenacious problems and design transformational action to advance health. Across her professional roles, Natalie has advanced systemic opportunities at every

level of health and care while also training future health systems change agents, from physicians to policy makers to designers.

Before joining New Origin Studio, Natalie was Director of Systems Design at the Design Institute for Health at the Dell Medical School at the University of Texas at Austin, a first-of-its kind academic institution dedicated to developing and applying creative design approaches to solving complex large-scale health system challenges. Concurrently, she also launched and taught in the Masters of Arts in Design in Health. Prior to University of Texas, Natalie served as Lead System Design Engineer and Assistant Professor of Health Systems Design & Global Health at the Mount Sinai Health System and Icahn School of Medicine at Mount Sinai in New York City. She was also previously Assistant Professor at New York University's Wagner Graduate School of Public Service.

Natalie has a MS and PhD in Management Science & Engineering from Stanford University and a BS in Industrial Engineering from Texas A&M University. She was a Global Health Research Fellow at the MIT-Zaragoza Logistics Center.