Engaged Data and Community Health

2022-2023

The Honors College
UNIVERSITY OF HOUSTON

Hewlett Packard Enterprise
Data Science Institute
University of Houston

Engagement and Transformation

Mathematical rigor is a necessary part of community health research, service, and education. That same rigor, however, becomes abstract and irrelevant when we make research into a game about applying jargon and mathematical formalism to the world. A more careful approach to what we do in data science, fortunately, can highlight the dynamics of our communities, and identify the opportunities for meaningful transformation, without losing the rigor. Engaged Data and Community Health emerged as a collaboration between the Honors College, the Community Health Worker Initiative (CHWI), the Hewlett-Packard Enterprise Data Science Institute (HPE-DSI), and Honors in Community Health (HICH) with the shared goal of engaging with transformation in communities through a better approach to data.

The CHWI has been motivated since its inception in 2016 by the conviction that transformative community health practices could already be found in the everyday activities of community health workers (CHWs). Just as a humanities student might tell a story about everyday life to get at a deeper truth, the CHWs understand on an individual level what is broken in the healthcare system and strive for a deeper and more humane truth when they advocate for better individual and family health outcomes. Engaged Data Science (EDS) is what we call that struggle to find the right mathematical formalisms for the individually meaningful transformations of lived experience, and it is also what we call the new office inside the HPE-DSI that functions as an essential partner for all our activities.

Honors in Community Health (HICH) started as the undergraduate partner for the CHWI but has grown into its own force. We knew that undergraduates across the University wanted more community health engagement opportunities. HICH provides those opportunities but has developed organically into a student-led innovation lab and undergraduate research powerhouse.

We had an exceptional year, and we're proud to present some of the highlights. But it is only the first of many to come, as the infrastructure we have put in place will allow work to flourish across disciplines and throughout our rich and varied community partnerships.

Sincerely,

Dan Price
Director, CHWI & Data & Society
Honors College
University of Houston

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Executive Summary

Below, this report captures a brief but transformative moment in time during the 2022-2023 year, and provides an overview of the various activities of Engaged Data and Community Health which incorporates the Community Health Worker Initiative (CHWI), Engaged Data Science (EDS), and Honors in Community Health (HICH). First we begin by introducing our mission, dedication to quality improvement, and our leadership and partners. (pp. 2-5)

Second, we review activities from CHWI who began an encompassing and institutionally approved study of the operational effectiveness of community health workers in the community called Trust and Learn. Our research activities have been used to increase research capacity by funding CHWs to perform community work while we gather data about how to optimize CHW activities, especially in addressing health inequities. (pp. 6-7)

Next, we present a set of curricular and co-curricular programs offered through EDS, including the Data and Society minor degree, the Data, Society and Justice program, and the Pharis summer research fellowship. EDS programs offer undergraduate students opportunities to work with interdisciplinary peer and mentor groups to develop data projects on important social issues facing Houston communities.   (pp. 8-9)

Finally, we present our partnership with our registered student organization, Honors in Community Health (HICH), where we engage students through data analysis, project development, and provide opportunities for them to become CHWs and to create their own community health projects. (pp. 10-11) Additionally, we have two pages that focus on the accomplishments of our undergraduates throughout the 2022-2023 year. (pp. 12-13)

Mission

The Engaged Data and Community Health projects are unified around a central mission of re-orienting the role universities play in supporting undergraduate students and local communities. Our approach is grounded by a commitment to build projects that center the voices of the people we serve, support individual flourishing, and make honest use of data to communicate ongoing transformations.

Responsive Engagement Projects

The fundamental units of our work are projects led by the community members, CHWs, undergraduate students, and community organizations we serve. Our role as educators, researchers, and community partners is not to ingest data, identify deficits, and replicate interventions. To be effective, each project must be oriented around exisiting community strengths and be responsive to its shared goals. Our strength as an organization is in developing supportive structures that create space for diverse interdisciplinary teams to build these projects.

Individual Pathways

Our commitment to responsive engagement informs our view that the fundamental unit of success is growth along individual pathways rather than aggregate outcomes. For the community members we serve what matters is our impact on their daily lives, not an abstract reduction of their relative risk score. For our undergraduate students, what matters is whether they had an experience that advanced their goals and supported their long-term aspirations, not the degree to which their understandings reflect our own. Our innovation rests in our ability to create communication feedback loops that allow us to better understand our impact on individual goals and continuously adjust our practice.
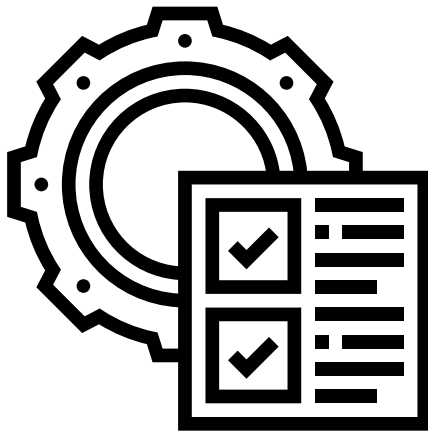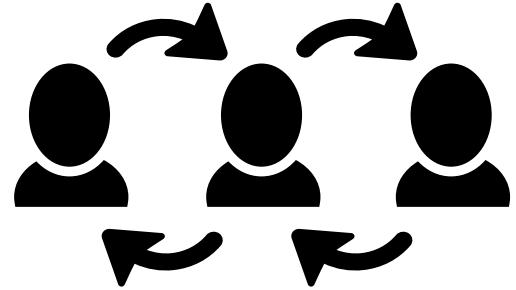
Making Transformation Visible

The inherent challenge in our commitment to individual pathways is how to understand change on a broader scale. We know that addressing systemic issues is only possible if individual trajectories can be contextualized within social and environmental structures. The goal is to make shared community transformations visible without resorting to simple aggregation that obscures lived experiences. Our opportunity as an interdisciplinary team is to apply new approaches to data science to this challenge and develop new models for university engagement with our students and communities.

Quality Improvement

Feedback Loops

Feedback loops are an important component of our project based learning and grounded theory approaches. They give us the space to have continuous and active conversations with students and CHWs on what worked and did not work for our projects/programs/activities. They also give staff and faculty space to redirect focus back to the mission and provide any additional training. Data collected from feedback loops is used to improve processes that do not add value to the students or CHWs.
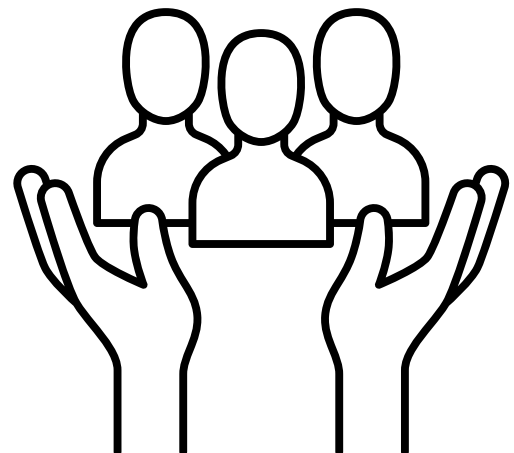
Student Assessments

At the beginning of each semester, our students are asked to form goals for the activities/courses they are enrolled in. At the end of each semester, students are asked to evaluate whether the course/activity helped them meet their goals and what impact their participation in our Initiative had in their long term trajectories. This has been helpful in evaluating whether our students feel like our activities (CHW and undergraduate) do have a direct impact on their lives.

Community Impact

Our community impact is evaluated through the health education CHWs deliver and the resources that they are able to coordinate for members of their communities. We focus on the trajectory of community members by evaluating whether the CHW played a role in helping them meet their goals and overcome negative social drivers of health. Evaluating the efficacy of our community impact takes an interdisciplinary role that connects data science and community health.

Leadership and Partners

Daniel Price, PhD
Associate Clinical Professor at the Honors College
Director of UH CHWI
Director of Data and Society
HICH Advisor

Cindy Paz
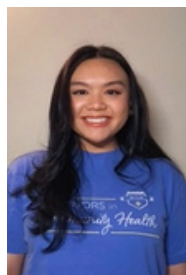CHWI Program Director
CHW Instructor
HICH Advisor

Andrew Kapral, PhD
Engaged Data Science Director
Data and Society Instructor
HICH Advisor

Olivia Tran
HICH Co-Director

Tammy Tran
HICH Co-Director

Our core partnership is supported by:

The Honors College
UNIVERSITY OF **HOUSTON**

**Hewlett Packard Enterprise
Data Science Institute**
University of Houston

Individual programs are supported by additional internal and external funders:
Outreach Strategists, City of Houston, Rockefeller Foundation, Bread of Life, UT Tyler, Texas Department of State Health Services, Baylor College of Medicine, Radiant, Immunization Partnership, American Heart Association, National Institute of Standards and Technology, Digital Research Commons - UH Libraries, Elizabeth D. Rockwell Center on Ethics and Leadership

Overview of the CHWI

The University of Houston Community Health Worker Initiative (UHCHWI) has taken the lead in building community capacity through a network of community health workers (CHWs), undergraduates, faculty, and staff committed to trust and advocacy. Our long-term goals are to build community trust and increase advocacy efforts by training community members to become CHWs, provide continued training and support to CHWs, increase CHW opportunities for meaningful employment, and expand into new areas of service. By Fall 2022, the CHW Training Center at the Honors College of the University of Houston has certified over 463 new CHWs, which makes it one of the largest in the state and country.

The training center enables:
  - Undergraduate Community Engagement   - CHW-Powered Projects
  - Interdisciplinary Research   - Health Conferences;
  - Health Education in the Community   - Continuing Education Units;
  - Community Health Worker Certification Course;

The CHWI has received over $1,528,000.00 in external funding over the last 12 months, encompassing a broad range of work with Community Health Workers (CHWs) as outreach specialists and service navigators over the next two years. These activities are organized under a research umbrella called Trust & Learn, which has some elements controlled by the IRB and some developed independently as program research. The overall mission is to create a responsive and trusted space of interaction where individual strengths, goals, and specific circumstances are recognized and allowed to frame the engagement between the individual and the CHW. Data from the encounters is collected with an eye toward creating greater visibility into the process and the best ways to improve the interactions. Focus is placed on removing barriers, moving toward long-term goals, and integrating resources appropriately into the larger trajectories of people's lives.

CHWI Activities

All the activities are integrated into a single overarching and integrative data approach that allows UH researchers to better understand the difficulties individuals and families are facing and to fashion longer-term and more effective strategies for better community health. CHWs are currently deployed through hubs in four different parts of Houston, but the process is modular and can be expanded to include new sites, existing CHWs working with partnering agencies, training activities and shared data practices.

Community Stories and Care Coordination

The CHWI has systematically collected community stories of goals, barriers, and strategies, and it has been using that commitment to better data practices and more consistent strengths-based community work as the basis for expanding its work.

Equitable Vaccine Access with Bread of Life

The Rockefeller Foundation funded the partnership between CHWI and Bread of Life that allowed the hiring of 17 CHWs at Bread of Life. These CHWs facilitated 2,068 vaccines throughout the cities of Houston and Pasadena, hosting 16 events, and enrolling 159 individuals in care coordination and collecting a total of 467 stories about the barriers faced and strategies employed by struggling individuals in those communities.

City of Houston - Efficacy of CHW Reseach and Vaccine Education

On August 2022, UHCHWI received grant from the City of Houston from CDC's National Initiative to Address COVID-19 Health Disparities Among Populations at High-Risk and Underserved, Including Racial and Ethnic Minority Populations and Rural Communities. The innovation of the model rests in the conceptual insistence on strengths-based response to individual health needs, coordinated data tracking and analysis across organizations, and financial stability through distributed funding and tasks across embedded CHWs to leverage scope and scale.

Building Strong Brains Together with UT Tyler

The Building Strong Brains Together Project is an extension of the CHW Initiative of the Trust and Learn Program at the University of Houston and is a program that empowers Community Health Workers. This empowerment comes through the didactic theories and methods that teach them how to succor parents and families of toddlers in a home-based stressful environment.

>1000 Community Members Reached | 135 New CHWs | >10 Programs | >30 Projects | 506 CEUs Delivered

18 CEUs Created | 22 Staffed CHWs | 9 Partnerships | 15 Student Workers | >500 Stories Collected

Overview of EDS

The Engaged Data Science (EDS) program at the Hewlett Packard Enterprise Data Science Institute (HPE DSI) was founded in fall 2019 to expand opportunities for students at the University of Houston to work on data science projects that authentically use real-world data to examine issues relevant to local communities. Importantly, EDS focuses on broadening participation beyond those academic disciplines traditionally associated with data science and emphasizes activities that bring together diverse groups of students to work on self-directed data projects. EDS partners with academic departments and offices across the University of Houston to create a portfolio of programs open to students in all UH colleges.
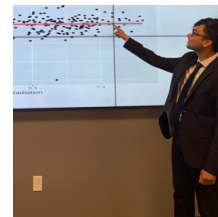
Many of these programs are situated within the University of Houston (UH) Honors College as part of its broader network of Engaged Data and Community Health activities, including those offered by the Community Health Workers Initiative (CHWI) and Honors in Community Health (HICH) student organization. Integrating EDS supported programs into this network amplifies the impact of our work by connecting our resources and expertise in data science research, educational design, and program evaluation with CHWI's deep expertise in responsive community engagement and HICH's broad pool of talented and committed students. Because of its interdisciplinary nature and role as a center of excellence in undergraduate teaching and learning, the Honors College is uniquely positioned within UH to house this network, which is fundamentally focused on using project-based and experiential learning to support students along individualized educational pathways.

During 2022, EDS supported programs offered more than 200 extended duration learning experiences to undergraduates students at UH. Brief summaries of major EDS activities are provided below.

EDS Activities

Data and Society Minor Degree Program

Since it launched during fall 2020, the Data and Society minor has attracted undergraduate students from across UH to participate in discussion and project-based courses focused on using an humanities lens to examine the social impact of data science. During 2022, enrollment in Data and Society courses reach more 120 students from six different colleges with 17 different majors.
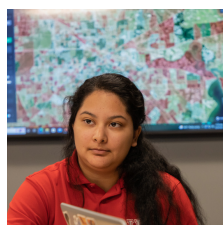
George "Trey" Pharis III Fellowship

During summer 2022, fourteen undergraduate students received a $6000 award to complete a 10-week full-time research experience. With support from faculty and staff mentors, students developed data projects on local issues connected to social determinants of health including education, healthcare access, food insecurity, and the criminal legal system.

Data, Society and Justice

During 2022, the the program received a grant from the Digital Research Commons (UH Library) to conduct an oral history project for women going reentry following incarceration. During October 2022, this program also hosted the Healing Justice conference at the UH Honors College with support from the Elizabeth D. Rockwell Center for Ethics and Leadership (Hobby School).

Data Analytics in Student Hands (DASH)

Data Analytics in Student Hands (DASH) connects undergraduate students with opportunities to work on technically oriented data projects in support of local community-based organizations. During 2022, the scope of the project was expanded to begin to develop tools for use by a non-profit (Restoring Justice) that provides holistic indigent defense services in Houston.

Food Insecurity in Houston's Third Ward

During summer 2022, EDS partnered with the Emancipation Economic Development Council (EEDC) and the Tillman J. Fertitta Family College of Medicine to support two undergraduate students, Mielad Ziaee (left) and Vivienne "Vi" Pham, to conduct a community-based participatory research project examining communication across food distribution networks.

200+ Semester Experiencnes **55 Declared Minors** **18 URD Presenations** **16 Student Employees**

14 Research Fellows **30+ Projects** **9 Partnerships** **7 National Conference Presentations**

Honors in Community Health

Honors in Community Health (HICH) started as an initiative through the Community Health Workers Initiative (CHWI) with the purpose of bringing together university students and residents of public housing through shared community health projects. The mission quickly expanded beyond public housing, and now includes partnerships and participants from across the Houston area, including immigrant and refugee communities. Many of the undergraduate projects began in the 160-hour Community Health Worker (CHW) certification courses. Students that were initially working with the CHWI founded the Honors in Community Health (HICH) registered student organization to house and expand on the projects that were originated in the CHW class.

To this day, HICH seeks to build healthy communities through a multidisciplinary approach to overcoming barriers for underserved populations. This collaborative, student-led organization uses its understanding of the social determinants of health to explore multiple types of service: community engagement, advocacy, and research. HICH provides all students at the University of Houston the opportunity to design, implement, and lead a wide variety of community health projects. Through support from the Honors College, Hewlett Packard Enterprise Data Science Institute, and the UH CHWI, HICH members are given the opportunity to pursue projects that best suit their interests, values, and goals.

General Body Membership
- **178 HICH Members**
- **17 Fall Distinguished Members**
- **17 Spring Distinguished Members**

2022-2023 Year Composition
- Freshman: 29%
- Sophomore: 23%
- Junior: 24%
- Senior: 24%
- Graduating Seniors: 13

HICH Activities

Better Respiratory Education and Assistance Targeting Houston's Elementary (BREATHE)

BREATHE serves to build capacity through engaged learning, so that asthmatic children can take charge of their own health outcomes. This year, 30 undergraduate volunteers supported the expansion of BREATHE to two classrooms at Bruce Elementary, consisting of 24 students, the largest cohort ever achieved.

Creative Care

The Creative Care project is dedicated to providing a safe space for the children to be themselves and gain the tools needed to deal with their life stressors. This year, Creative Care strengthened their relationship with the YMCA at Cuney Homes. 33 undergraduate student volunteers hosted weekly sessions that were consistently attended by 10-20 children from the community.

Project Engaging Encouraging Rising Students (PEERS)

PEERS pairs high school students and the University of Houston undergraduates to create long-lasting, effective, and engaging community projects that are meaningful and relevant. This year, 35 PEERS mentors and volunteers worked with East Early College High School to integrate the program into the school's capstone curriculum and support 47 students, which allowed for the most participation and engagement that the program has seen yet.

Responsive Resourcing

Responsive Resourcing conducted resource matching sessions with CHWs to help them find the right tools for their clients and participated in resource distribution events at Bread of Life. The team of 17 volunteers also hosted workshops for undergraduates to learn more about key public health issues impacting the hubs that CHWs work in.

Wildlife and Environmental Advocacy and Relief (WEAR)

WEAR aims to foster meaningful community engagement and encourage members to connect with their environment. This year, WEAR received funding from CHWI that allowed 20 undergraduate volunteers to work closely with the Fifth Ward Earth Clinic to improve community outreach efforts at local events and establish the Stewards of Sustainability program at McReynolds Middle School.

Operation Fusion

Operation Fusion blends culture and health through education and empowerment to allow students to define their identity and set their personal health goals. 23 undergraduate volunteers led sessions each Friday about personal health and cultural identity to a classroom of 25 students. This year was the second year of Operation Fusion, and the project continued to receive support from the Albert Schweitzer Houston-Galveston Fellowship.

>1000 Community Members Reached	158 undergraduate volunteers	6 Projects
5,700 service hours	42 Project Heads	6 Partnerships

Undergraduate Student Involvement

During 2022, our programs involved students in more than 350 long-term experiences including semester-long courses and certification programs, faculty-mentored research and program evaluation projects, and student-led community health and education programs. Additional information for these programs is provided in our annual reports.

Program	Description	Student Impact
CHW Training Center	A 160-hour state approved community health worker certification program	136 CHWs Certified (55 UH students)
Data and Society Minor	A 15-credit hour interdisciplinary and project-based minor degree program.	Declared Minors: 55 CY 22 Course Enrollment: ~120
Honors in Community Health (HICH)	A registered student organization that develops and implements student-led community health and education projects.	178 active members
Project Engagement Encouraging Rising Students (PEERS)	A HICH project-based near-peer mentoring program that connects UH undergraduates with local high school students.	40 UG students 47 High School Students
Responsive Resourcing	A HICH project that supports CHW care coordination activities by researching local resources to match client needs	17 students
Pharis Fellowship	A 10-week, full-time summer research fellowship program for undergradaute students.	14 students
CHWI Data Analysis Team	An internal evaluation project focused on quality improvement for CHW care coordination activities	5 students
CHW-Powered Projects	A capstone competition that funded implementation of community projects developed by CHW teams.	8 Students
Data, Society, and Justice	A collection of faculty-mentored data projects on a range of topics.	7 Students
Data Analytics in Student Hands	A collection of faculty-mentored data projects on a range of topics.	11 Students

2022 Student Highlights

We are privileged to work with an outstanding group of undergraduate students each year. Across all of our programs, our approach to working with undergraduate students is to step back without stepping away. Students in our programs are expected to take ownership over their projects. Our responsibility is to create structures of support that allow students to experience success on their own terms. Below are examples of the work our students completed during the past year. Additional information about these student accomplishments is provided in our annual reports.

- During the 2022-23 academic year, Honors in Community Health members performed more than 5000 hours of service across six community health and education projects.
- Eighteen undergraduate students presented research completed through our programs at the most recent Undergraduate Research Day.
- Student leaders presented HICH as model for co-curricular learning at the Honors Education at Research University Conference hosted by the UH Honors College during June 2022.
- Tammy Tran. Thai Tran, Vyshnavi Davuluri & Zeba Bhanji completed year-long community health service projects through the Albert Schweitzer Fellowship program.
- Melody Tran, Haley Romaine, Amy Bui & Gabby Kostecki received awards through the UH Center for Student Involvement.
- Minh Ngoc Nguyen received a Provost's Undergraduate Research Scholarship during fall 2022 to conduct research on the treatment of pregnant inmates within Texas correctional facilities.
- Zeba Bhanji & Kristen Harris presented a poster on the BREATHE program at the American Public Health Association Annual Meeting during November 2022.
- Mielad Ziaee & Vivienne Pham presented their project on communication within food distribution networks to the Emancipation Economic Development Council.
- Mielad Ziaee presented his 2022 Pharis Fellowship research project at the National Collegiate Research Conference hosted by Harvard University during January 2023.
- Olivia Tran completed a program evaluation for the Albert Schweitzer Fellowship of Houston and Galveston as part of a capstone course for her Honors in Biomedical Sciences degree program.
- Student leaders for the Operation Fusion program presented their project at the Texas Educator's Academies Collaborative for Health Professions - Southeast (TEACH-S) Education Symposium during May 2022.
- Eight undergraduate students participated in the CHW-Powered Project competition and received funding to implement community projects designed during CHW certification courses. The CHW-Powered Project competition distributed $20,000 during summer 2022.
- Five students participated in Digital Carceral Bodies, a project funded by the UH Libraries to collect oral histories from formerly incarcerated women during reentry.

TRANSFORM
ENGAGE
STUDENTS
COMMUNITY
RESEARCH
DATA

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