

## ARI-TEST: SET THE FOCUS ON THE USER EXPERIENCE IN THE DESIGN OF A SELF-SAMPLING DEVICE FOR HPV DETECTION IN WOMEN.

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**KEYWORDS | HPV DETECTION, CERVICAL CANCER, HEALTHCARE DESIGN, SELF-SAMPLING, PREVENTION**

**ABSTRACT** | Human Papillomavirus (HPV) is regarded as the main cause of Cervical Cancer (CC), affecting over 440 million people worldwide (UC Christus Healthcare Network, s.f.), diagnosing over 600 thousand women each year, from which half of them die (WHO, 2023). In Chile, this outlook worsens, where 70% of over a thousand women who are diagnosed yearly die (Urrutia, 2015).

It constitutes a global public problem, which has among its causes the inequality of access to healthcare services, refusal on the part of women to attend their gynecological check-ups, and other socioeconomic determinants (WHO, 2023) that complicate the situation. In the research, different critical interactions were raised, the most relevant is the lack of time and the discomfort generated by the PAP test (Papanicolaou) experience, which distances women from the examination and, therefore, the early detection as well. These diseases are asymptomatic and don't show obvious signs until they are in an advanced state and treatment becomes limited. However, its effects can be treated when detected in time.

This implies that we're facing a design problem that was not addressed as such. A healthcare and well-being concern that's affecting people's quality of life, so setting the view in the user's experience is something that wasn't being contemplated in these types of exams. The project proceeded considering the multiple aspects of the challenge but taking as priority those that directly influence the promotion of early detection.

The research started as an undergraduate thesis in 2022 at the School of Design of Pontificia Universidad Católica de Chile, and it is currently financed by the National Research and Development Agency, Chile's main funding state institution in research matters.

Ari-test eases vaginal self-sampling for HPV detection, allowing women to regain agency over their gynecological experience and self-care by granting the possibility of access to the exam in a simple way from the comfort and privacy of their homes.

The design process was approached from the iterative methodology of Health Design Thinking, which focuses on the real needs and behaviors of users instead of seeing them as patients defined by illness (Ku and Lupton, 2018). Including users in the process through co-designing tools and considering their gynecological experiences was crucial and challenged us to go beyond designing only for their bodies but working for and with them.

Different self-sampling devices from other parts of the world were reviewed and studied, suggesting a response to medical or laboratory perspectives instead of considering women's experiences. This concept became crucial for the development of the research, passing from a distant and invasive experience to a closer and easier one that promotes self-care, involving women with self-sampling, a technique that can help reach global targets of screening (WHO, 2023). In the following stages of the research, in collaboration with the CancerLab of Universidad Católica del Norte, the Ari-test device will be validated with 60 women from the Coquimbo region, Chile's territory with the highest CC indicators.

# HPV

Human Papillomavirus

# CC

Cervical Cancer

Research project since 2022

Worldwide

# half

of the women diagnosed  
with cervical cancer each year

**die**

WHO, 2022

HPV affects over

# 440

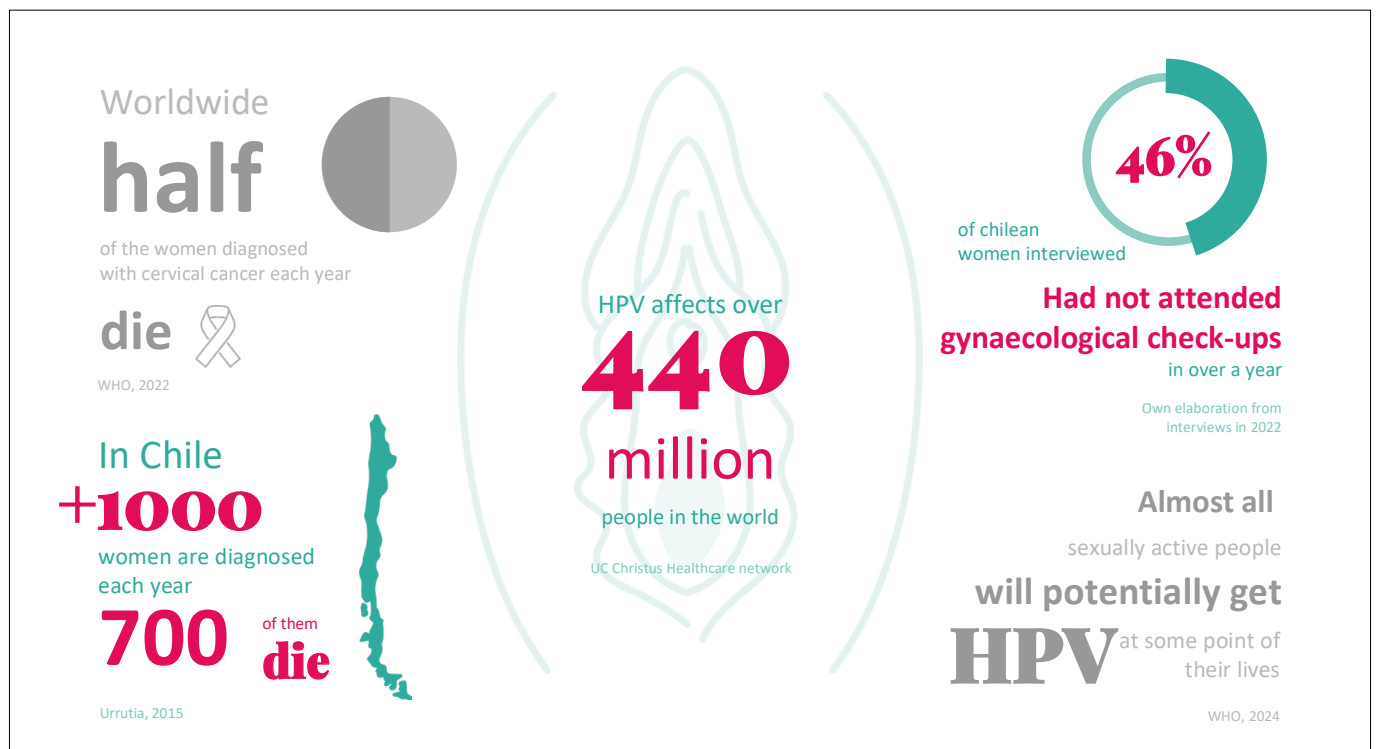
million

people in the world

UC Christus Healthcare network

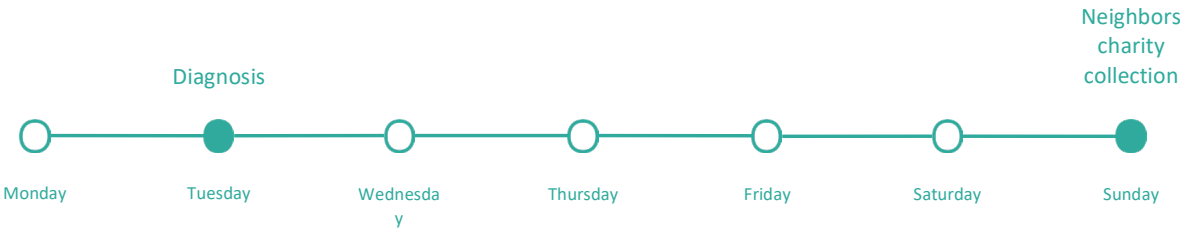
Almost all  
sexually active people  
will potentially get  
**HPV** at some point of  
their lives

WHO, 2024



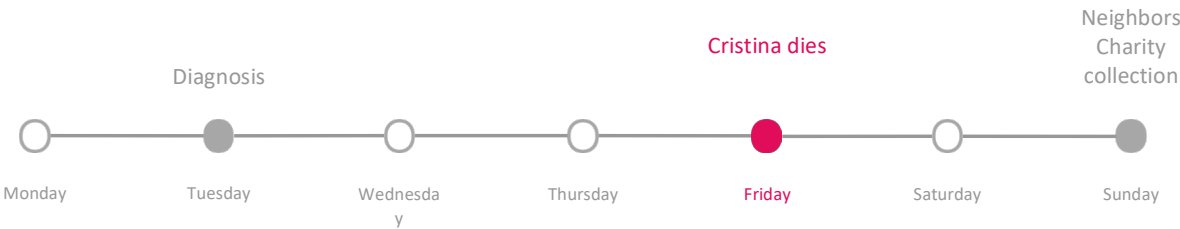
Cristina

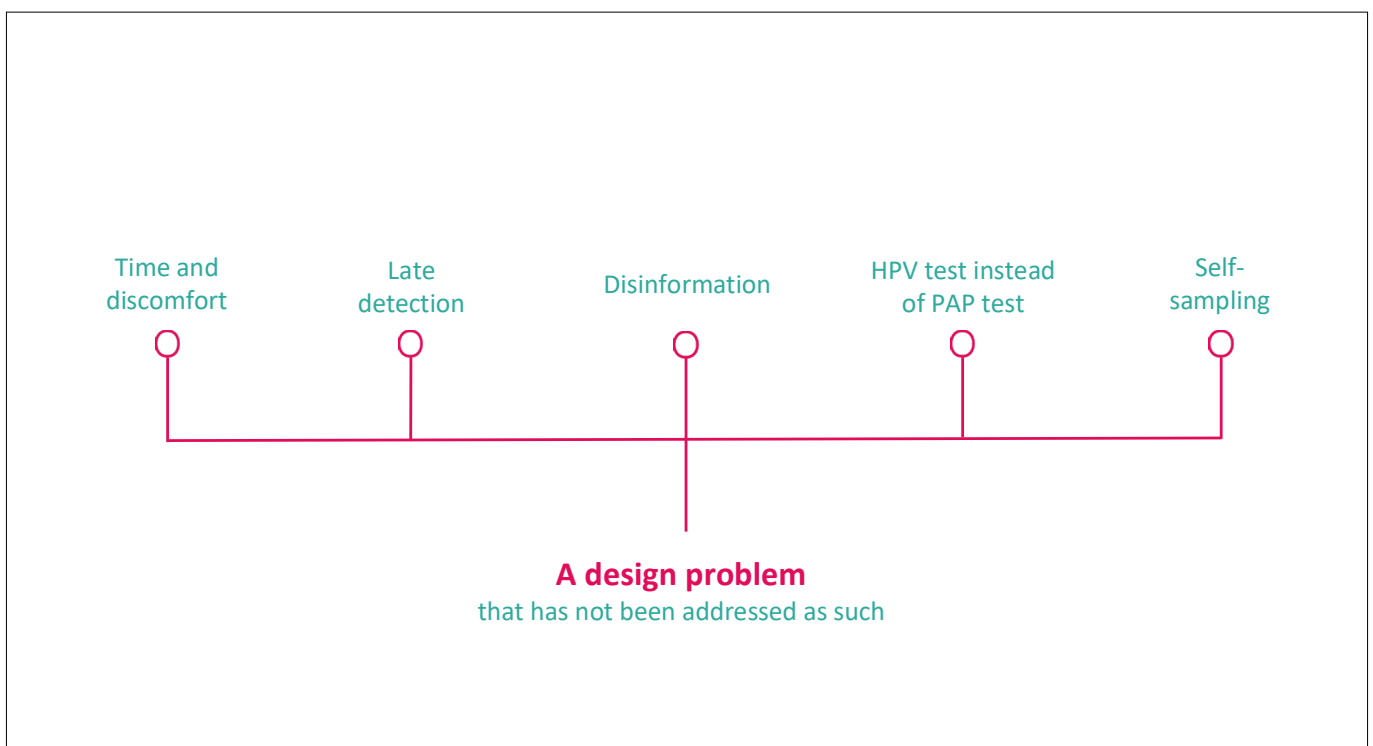
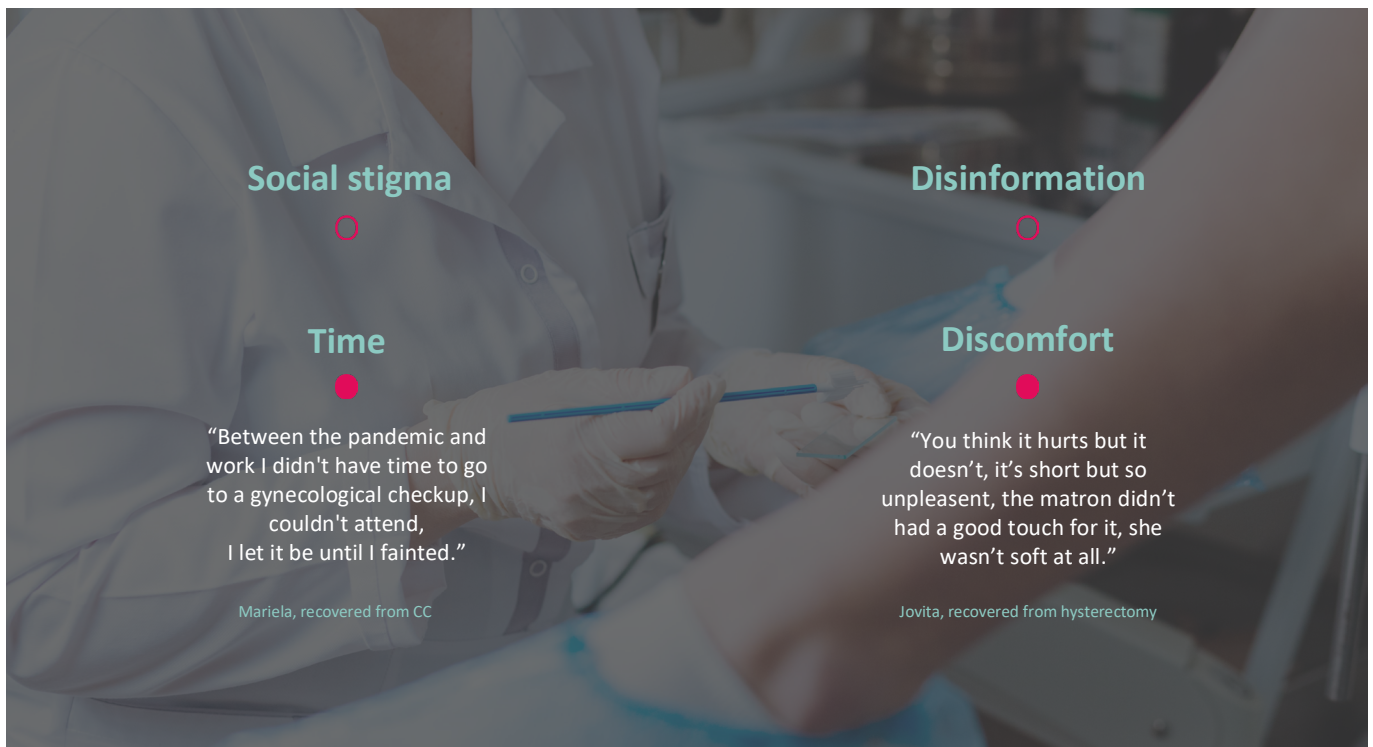
38, Ovalle, Chile  
Cervix Cancer, stage 4

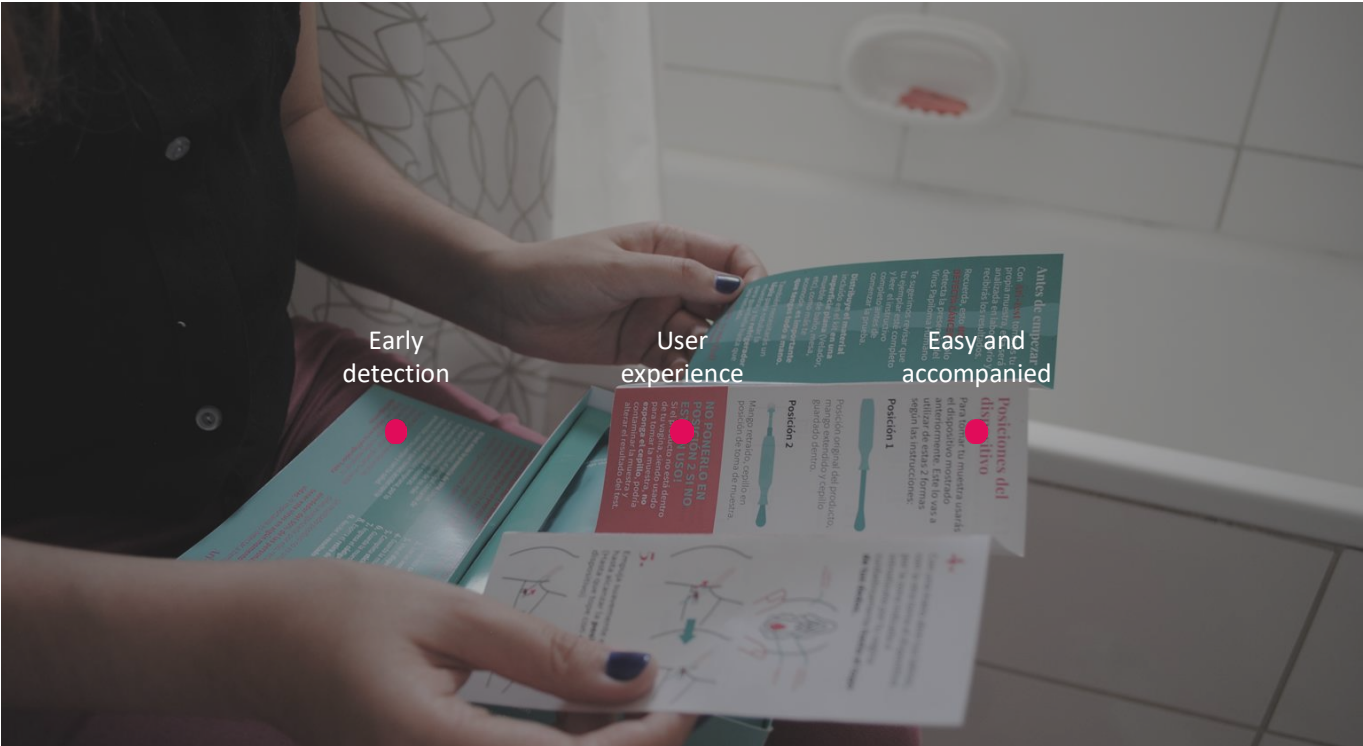


Cristina

38, Ovalle, Chile  
Cervix Cancer, stage 4





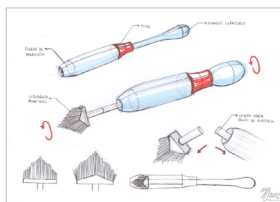
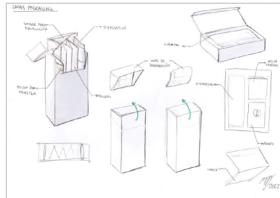


Share knowledge and experiences

Involve women in the design process

Gain ownership over preventive healthcare

Keep focus on the user experience



Multiple aspects of  
the challenge



Multiple areas  
of development



Self-sampling device  
and interaction



Packaging, instructions  
and more

## Understanding the challenge through the design process

Connecting through the  
right language

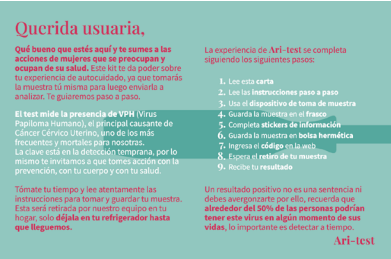
Translate a distant medical  
experience into an ownership  
of the gynecological  
healthcare experience

Looking at what  
they already do

Medical requirements  
meet users experiences



Iteration process



Co-design

Sharing and  
co-creating



Interaction

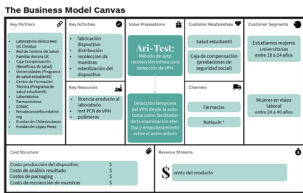
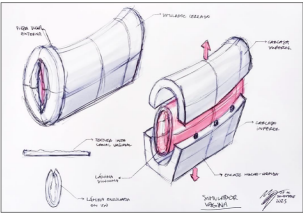
Dearest user  
vs patient



Involve

Testing and  
re-designing

Keep the focus on the users' experiences



Prototyping and  
manufacturing



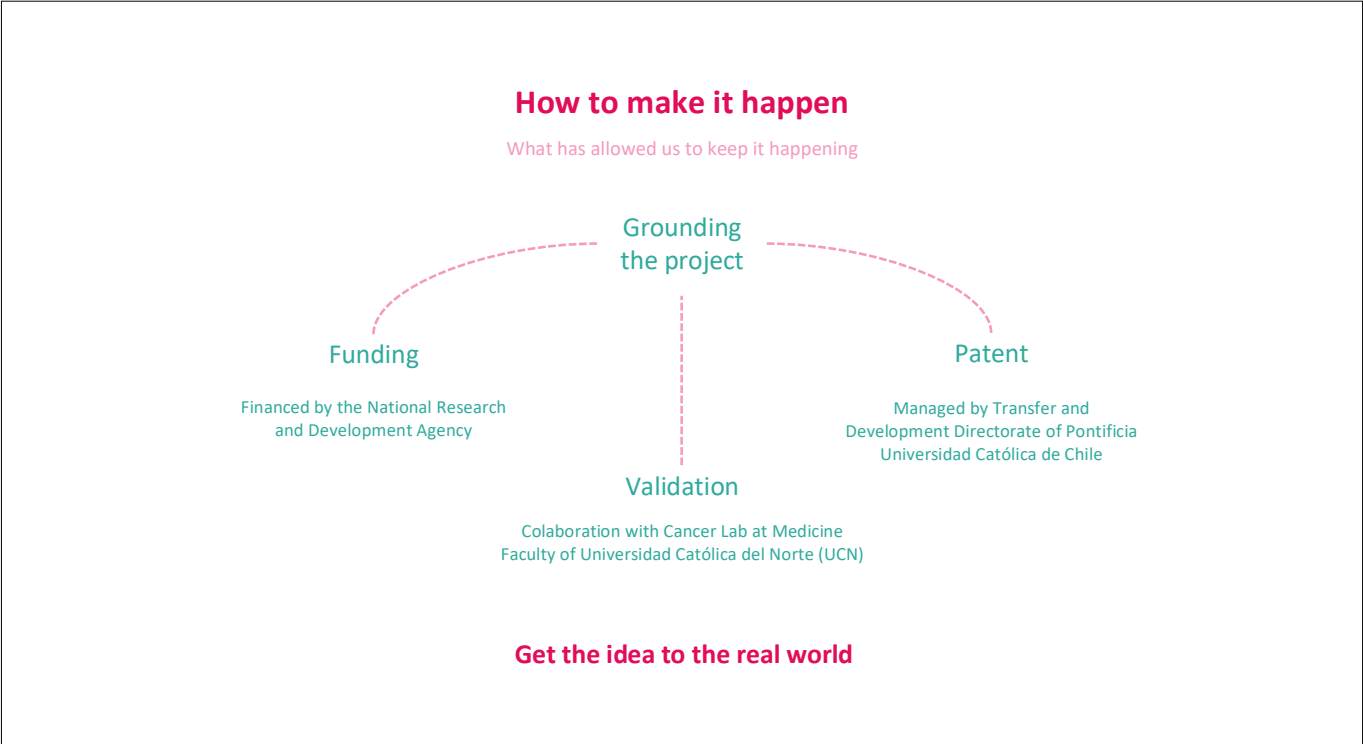
Service and  
experience



Testing  
simulator



Interdisciplinary  
team



Testing the early versions of Ari-test in the nursing school simulation classroom in 2022

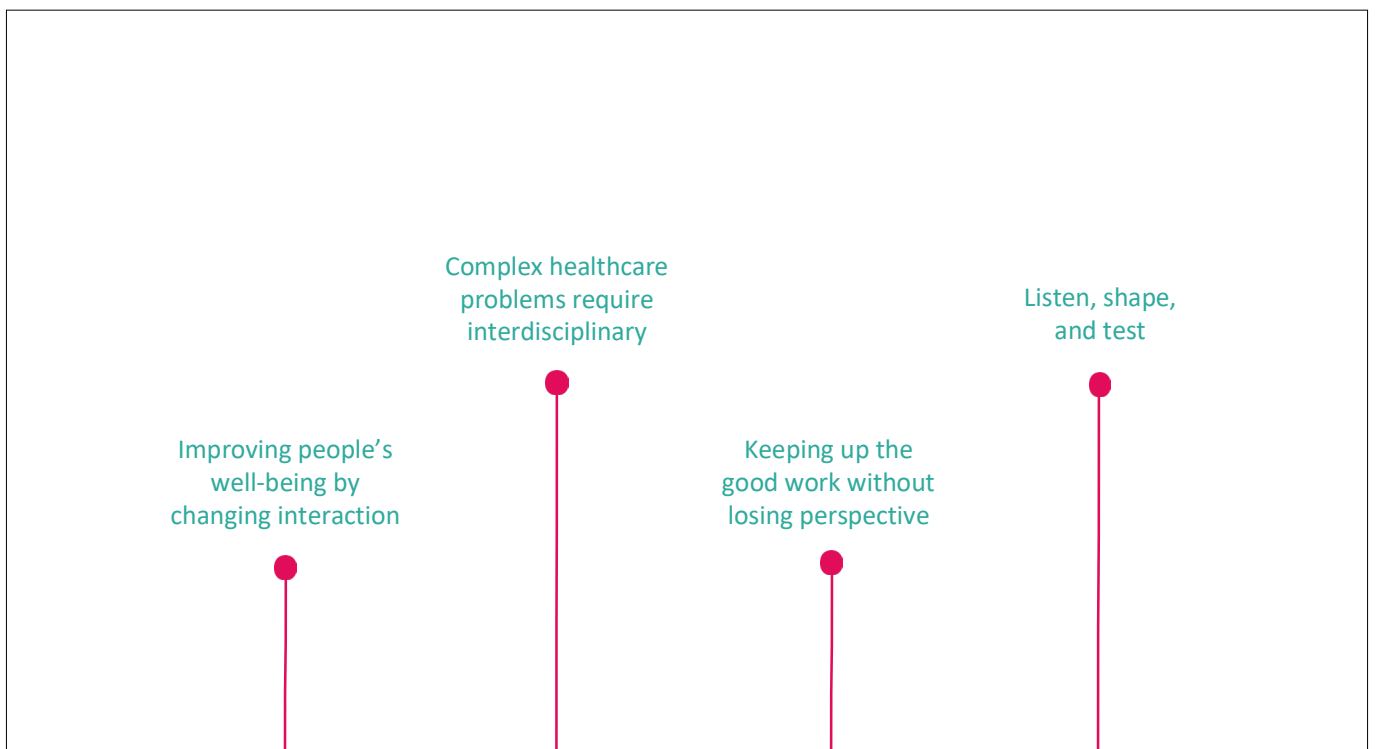
**Get the idea to the real world**

Validation alliances

Visit to UCN for collaborative alliance in 2024

**100 women of Coquimbo region are going to test Ari-test this year**

The area most affected by HPV and CC in the country





# P/REFERENCES OF DESIGN

**This contribution was presented at Cumulus Budapest 2024: P/References of Design conference, hosted by the Moholy-Nagy University of Art and Design Budapest, Hungary between May 15-17, 2024.**

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