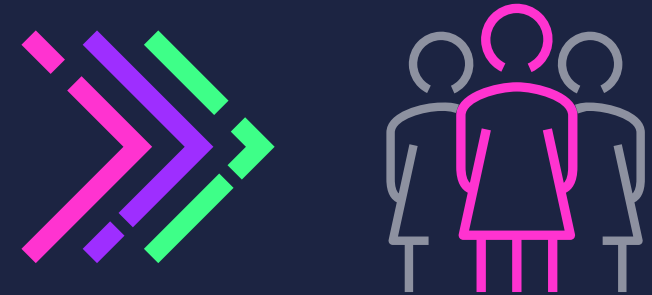


CAN YOU TRANSFORM ...

Women's Health?

How to improve prediction, diagnosis and treatment
to advance women's health outcomes?



**EIT Health will grant 2€ million
to the proposal offering the
most disruptive and cost-
effective, technology - driven
solutions providing specialized
care for women.**

- **Women are 1.5 times more likely** to develop adverse reactions to medication than men.
- **2 million women per year worldwide** are diagnosed with breast or cervical cancer this figure is expected to almost double by 2030.
- Cardiovascular disease, traditionally considered as a threat to men, is **the number one cause of death among women**, representing one third of all deaths among women.
- **Research shows that doctors have an implicit gender bias**, which adds up to women being dismissed on self-reported symptoms, stigmatized as being overly anxious, mislabeled as depressed.
- Discovery of differences in symptoms and reaction to treatment in certain conditions **has not been translated into big changes in clinical practice.**



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1. Background information

For decades women have been underrepresented or excluded from research. As a result, women's health issues have been overlooked and underserved. This has made being a woman a **real health risk factor**. For example, **women are 1.5 times more likely to develop adverse reactions to medication than men**, they are prescribed less pain medication even though they report more frequent and severe pain levels, and they have a significantly higher mortality rate after suffering from cardiovascular episodes.

Moreover, late detection, misdiagnosis and inadequate or non-existent treatment of diseases suffered by women render poor prognosis and therefore worse quality of life. It is estimated that in Europe women **spent almost 12 years of their life in ill health**. Consequently, it is important to consider women's health not only as **women's reproductive issues like fertility or pregnancy**, as it was done traditionally, but also the different conditions that have a **higher incidence in women** such as chronic and autoimmune diseases as well as **illnesses that present alternative symptomatology and prognosis to men's**, like cardiac arrest. Despite the historical indifference of the healthcare space towards women's health, recent regulatory activities and increased investment set the **global women's health market estimate for 2025 on \$50 billion**.

REPRODUCTIVE HEALTH

In 2015, **20.8% of mothers in Europe were 35 or older** and about **13.2% were**

DID YOU KNOW?

1 IN 4 WOMEN
say menopause
has significantly affected
their quality of life



33% OF WOMEN
with endometriosis were told
that the symptoms were
in their head



50% OF WOMEN
over 65 have some
form of disability



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1. Background information

considered obese, which are both risk factors for fertility problems and pregnancy complications. For example, it is estimated that around 2-5% of pregnant women in Europe and America suffer from preeclampsia (PE), a disorder characterized by hypertension and elevated protein levels in urine. PE is the leading cause for maternal, perinatal and neonatal mortality worldwide. What's more there are no up-to-date therapeutic interventions to treat or prevent PE other than removal of the placenta or to induce labour. Like in other reproductive health issues, prediction, prevention and early treatment are key to improve women's and infant's prognosis.

CONDITIONS THAT ARE MORE COMMON IN WOMEN

Some biological characteristics such as anatomy, concentration of sexual hormones and body fat index make certain diseases and conditions more common or exclusive to women, among them are breast and gynaecological cancers, autoimmune diseases and other chronic conditions like fibromyalgia. The burden of these diseases on women's wellbeing is significant. For example, it has been reported that **2 million women per year worldwide are diagnosed**

with breast or cervical cancer, this figure it's expected to almost double by 2030. Moreover, breast cancer is the leading cause of life years spent with disability in 119 countries whereas cervical cancer is the leading cause in 49. In addition, women experience several hormonal and physical changes during their lifetime. These changes come with their own set of health challenges, for example during and after menopause women have a larger risk of being diagnosed with osteoporosis.

GENERAL HEALTHCARE

Clinical research has been developed mostly in men until the 1990s, making clinical guidelines mostly based on male symptomology. Consequently, women have been underdiagnosed, dismissed and prescribed inadequate treatment when they don't show "normal" symptoms. For instance, **Cardiovascular disease, traditionally considered as a threat to men, is the number one cause of death among women, representing one third of all death among women.** Despite research indicating differences in signs and symptoms, women are still underdiagnosed due to gender differences. Such as, women being less likely to report atypical chest pain and being less likely to show anomalies using regular diagnostic tools like electrocardiographic stress testing.





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2. Opportunities

Even though women's healthcare was considered as a variation of men's healthcare and the need of specialized care outside of reproductive health was not recognized, recent research has shown that biological, cultural and socioeconomical differences between men and women influence the quality of healthcare. Acknowledgement of these differences has led to development of more sensitive detection methods, novel biomarkers, identification of unknown risk factors and new treatments. However most women's conditions are still considered medical "mysteries" in which most of the aspects are unknown, from what causes them to specific biomarkers and effective treatments.

On the other hand, social and cultural constructs regarding women's health have rendered certain topics embarrassing and not discussed with doctors, such as sexual health, urinary incontinence or severe pain in menstruation. This is partly why women learn to live with morbidities that affect their quality of life, as they dismiss their symptoms as normal consequences of the changes experienced during their lifetime.

Furthermore, research shows that doctors have an implicit gender bias, which adds up to women being dismissed on self-reported symptoms, stigmatized as being overly anxious, mislabelled as depressed or told their symptoms are all in their heads.

Interventions could be aimed at increasing awareness towards the existence of the healthcare gender bias, educate women on what are normal symptoms at different stages of their life and reduce the stigma in topics related with women's reproductive organs.





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3. Challenges

Despite recent inclusion of women in clinical trials, most preclinical and clinical trials are still performed mostly on men, which creates a huge gap in women's clinical data. What's more, **discovery of differences in symptoms and reaction to treatment in certain conditions has not been translated into big changes in clinical practice.** Women still get under-diagnosed or get diagnosed later and even after they get the right diagnosis, they are often under-treated.

In addition, biological changes experienced by women throughout their lives make the diagnosis and treatment of diseases more complex than it is for men, having to account for pregnancy and menopause related changes specifically. During and after these stages in women's lives, is when

women require closer monitoring and screening tools to prevent and manage a diverse range of conditions. It is in this type of intervention where women that have limited economical resources, women of older age and women that live in isolated areas, have difficulties accessing quality healthcare. The hope is that screening techniques become simpler and cheaper and that monitoring can be done seamlessly with less structural support.

SOLUTION

The solution must tackle an unmet need in 1 of the 3 areas



Reproductive health



Women dominant conditions



General healthcare



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**4. Possible areas of intervention**

The list of challenges is long, as well as the list of possible areas of intervention in Women's Health space. Among others, we would like to see solutions addressing the following topics:

REPRODUCTIVE HEALTH Pregnancy

Pre-term birth	Prevention	Pre-term birth can occur because of unavoidable risk factors such as being over 35 and suffering from pre-existing conditions. However there are some risk factors that are dependent on the mother's maternal health behaviours, including anxiety, depression, poor sleep and poor nutrition. EIT Health is looking for new approaches to detect and prevent stress-induce pre-term birth arising from the mother's lifestyle and/or socio-demographic factors.
	Early detection	There are several signs and symptoms that indicate when a woman is close to going into labour. However, by the time pregnant women recognise these symptoms it may be too late to use treatment to stop the labour process. To detect pre-term labour before is too late, EIT Health is looking for innovative devices that detect risk of pre-term birth.
High risk pregnancy	Monitoring	20% - 30% of pregnancies are considered high risk and those numbers are only expected to increase. This type of pregnancy requires more prenatal care, which means more hospital visits and more tests, which is time consuming and has an elevated cost. What's more, women in rural areas and with low-income may have difficulties following up with appointments. In order to make monitoring less of a time consuming and economic burden, EIT Health is looking for remote monitoring technological solutions that can decrease hospital visits.



**4. Possible areas of intervention****REPRODUCTIVE HEALTH** Pregnancy

Post-partum depression (PPD)	Early detection	Despite post-partum depression (PPD) being a common condition, 1 in 7 new mothers suffer from it, awareness of the condition is low both in pregnant women and within their support system. Moreover, there exists a social stigma relating to depression after pregnancy which makes it less likely for women to express how they are feeling. Early intervention is key to reduce incidences of the disease and to prevent serious long-term side effects on the baby. EIT Health is looking for a new holistic approach that helps increase awareness, reduces stigma and detects PPD early.
Pelvic floor & urological conditions	Prevention	Labour produces great stress in the pelvic floor muscles which causes conditions like urinary incontinence and vaginal prolapse. There are certain lifestyle interventions that women can do in order to reduce the risk of damaging their pelvic floor, such as following a healthy diet to avoid constipation and strengthening their muscles by doing Kegel exercises. Although all this reduces their risk, there are certain cases in which it cannot be successfully prevented. EIT Health is looking for new ways to improve current preventive methods and to assess the risk of suffering from vaginal prolapse and urinary incontinence so preventive measures can be taken.
	Treatment	Current treatments available are Kegel exercises, pessaries in women with vaginal prolapse and finally, in the most severe cases, surgery. These methods have limited effectiveness and various side effects. To improve the rates of success in treatments, EIT Health is looking for new non-invasive ways to treat pelvic floor disorders, as well as solutions that will increase efficacy and decrease side effects of current methods.





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4. Possible areas of intervention

REPRODUCTIVE HEALTH Fertility

Conception	As the age at which women start trying to have children increases, even women without any major fertility issues will have less chances to conceive, adding anxiety and stress to the process which only hinders their chances of success. In order to optimize and accelerate conception, EIT Health is looking for easy to use, accurate advances that will help women increase their chances to conceive.
Treatment	Sometimes women do not get the specialized care that they require and end up going through treatments that are not very successful. The treatments that are available focus on increasing the chances of pregnancy by mechanisms like overstimulating the ovaries. However they do not try treating the underlying condition that may be causing infertility. To increase the success rate of infertility treatments, EIT Health is looking for new pathways to offer women more personalized treatment.
Endometriosis	Symptoms are very often mistaken to be from many other common conditions; there is no simple test that can be carried out to accurately detect endometriosis. Consequently, doctors make a diagnosis an average of 7.5 years after the patient's first medical examination, currently the only method available for its confirmation is via observation of the uterus using laparoscopic surgery. In order to make diagnosis easier and faster, EIT Health is looking for new non-invasive methods that can provide definite endometriosis diagnosis.



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**4. Possible areas of intervention****REPRODUCTIVE HEALTH Menopause**

General symptoms	Quality of life	Although menopause is a natural process, there are plenty of uncomfortable symptoms that are a burden to quality of life, such as hot flashes and anxiety. What's more, menopause increases women's likelihood for developing certain conditions like cardiovascular problems. EIT Health is looking for an innovative product or service that support women with the challenges and social stigmas that surround menopause.
Osteoporosis	Prevention	Bone thinning is a natural process that starts after the mid-20s and cannot be completely stopped. Research has shown that lifestyle choices, like nutrition and exercise, during childhood and early adulthood can significantly increase peak bone mass and therefore reduces risk of fractures later in life. EIT Health is looking for innovative approaches to create awareness and support lifestyle intervention; solutions must be attractive enough to ensure population engagement.
	Diagnosis	Often one of the first symptoms of osteoporosis is a fracture, screening women for risk of fractures is key in order to prevent them. Currently the parameter used for screening is bone mineral density. However, it is not an accurate enough measurement as there are other factors that affect bone quality. In fact, many women with high bone density still fracture their bones and some women with low bone density may not need to be concerned; this can end up in women being overtreated. To prevent fractures and overmedication, EIT Health is looking for screening tools that identify new biomarkers that correlate better with risk of fracture.



**4. Possible areas of intervention****CONDITIONS THAT ARE MORE COMMON IN WOMEN**

Gynaecological and breast Cancers	Prevention	To maximize chance of survival treatment must start as early as possible when the cancer is less advance and treatment is more effective and less aggressive. Unfortunately, often patients do not have any symptoms until the cancer has progressed. To improve gynaecological and breast cancer survival rates, EIT Health is looking for new, simple, accurate, non-invasive and cheap ways to detect key biomarkers and risk factors in asymptomatic patients, so larger numbers of women are screened.
	Quality of life	Patients suffer from several physical and emotional side effects during and after treatment. EIT Health is looking for improved digital solutions that will help patients manage their symptoms and receive support.
Autoimmune disease	Early diagnosis	Symptoms are often vague, sometimes not intimately related to a specific disorder, and largely self-reported. Moreover, there is no single test that can diagnose most autoimmune diseases and a combination of different tests after examination of signs and symptoms is required to get a diagnosis. This makes the process very long and arduous for patients who consequently often suffer from mental health disorders such as anxiety and depression. EIT Health is looking for new ways of faster and more accurate diagnosis for different autoimmune diseases.
	Quality of life	Autoimmune diseases have no known cure and most of the treatments have significant side-effects, this combined with the progressive deterioration of their bodies due to the disease, significantly dampers the patient's quality of life. EIT Health is looking for new pathways for patients to manage their symptoms, improve monitoring and support lifestyle intervention.





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4. Possible areas of intervention

GENERAL HEALTHCARE

Diagnosis	Often women present signs and symptoms that are considered atypical, because of this diagnosis is delayed, having negative consequences on their prognosis. What's more, due to the "rarity" of the symptoms, they are sometimes diagnosed as having a psychosomatic origin. In order to prevent the dismissal of women's symptomatology, EIT Health is looking for new methods to support doctors in providing specialized diagnosis for women.
Treatment	Lack of parity in clinical trial research, especially in the early stages of clinical trials where the safety of medications is tested, has rendered women more likely to suffer from side effects. EIT Health is looking for pathways to create specialized guidelines on the use of medication on women, in order for the amount of side effects to decrease.

THE MAIN REQUIREMENTS



Fit with EU
healthcare models



Demonstrate
value



Have impact in
solving unmet need



A useable and
inclusive solution



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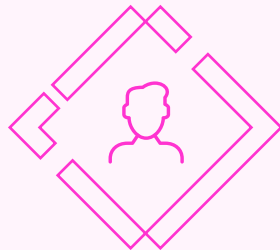


5. Why is EIT Health addressing this problem?

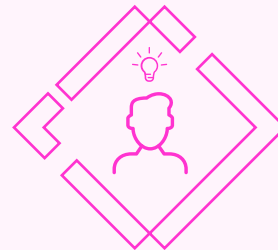
Over the last few years the need for specialized care for women has been recognized by governments and private institutions. This increase in awareness, new breakthroughs in research and the limited amount of new technologies currently applied in the field make women's health a segment of untapped potential for innovation. Addressing this topic with the Wild Card challenge holds the promise of solving at least one of women's multiple unmet needs.



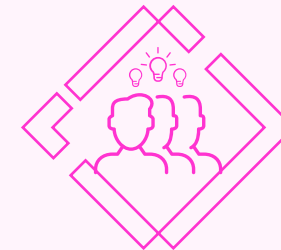
WHO CAN PARTICIPATE?



Individuals with expertise /
interest in women's health



Individuals with a
proposed solution



Teams of 2-3 people
with a proposed solution

All applicants must be in the EU or in Horizon 2020 associated countries.



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