Transforming prostate cancer detection

STOCKHOLM3

The challenges of misdiagnosis

In the EU, prostate cancer is the most frequently diagnosed cancer among men^[6] and kills approximately 100,000 men each year.

The PSA test can be unreliable, providing false positives that result in men being subjected to unnecessary invasive biopsies, causing anxiety, health risks and side effects,^[7] as well as increasing the burden on healthcare services. At the same time, it can give false negatives, missing early detection opportunities in more aggressive forms of the disease.^[1]^[2]

Men who have their prostate cancer diagnosed at a later stage have a lower chance of survival.^[4] Therefore, chances of survival are reduced as a result of false negatives and late detection.

"PSA is not a perfect test. It has a low sensitivity and a low specificity. It gives us the wrong answer half of the time that we use it." – **Dr Martin Bergman**

Transforming prostate cancer detection

The Stockholm3 blood test, a revolutionary prostate cancer test, has changed the way prostate cancer is detected.

Stockholm3 can detect cancer earlier than the PSA test, meaning treatment can start sooner. Data from a recent clinical validation study suggests the Stockholm3 test doubles the number of aggressive cancers that are identified, whilst also reducing the number of unnecessary biopsies by 50%.^[5]

This has significant benefits for patients, with associated improvements in quality of life, as well as significantly reducing healthcare costs.^[5]

Stockholm3 **doubles** the number of aggressive cancers that are identified, compared to PSA^[5]

Trials, validation and scalability

After rigorous clinical trials and validation, the Stockholm3 test is being rolled out across Europe, and is already available in Sweden, Finland, Norway and Denmark.

Stockholm3 is currently working with two of the largest labs in Europe, as well as labs in the US and Canada, to launch the test in more countries across the world.

Launching Stockholm3 globally provides the opportunity to potentially reduce the number of men unnecessarily undergoing biopsy and treatment and identify aggressive cancers earlier, boosting survival rates and significantly reducing healthcare costs.

Stockholm3 is available in Sweden Finland, Norway and Denmark

spotlight_

The Stockholm3 story

Professor Henrik Grönberg has been working with cancer patients for 30 years. During this time, he has seen many patients misdiagnosed using the current clinical standard, the PSA test. His experience led Henrik to develop a solution to this unmet healthcare challenge, with an innovative new diagnostic blood test – Stockholm3.

Currently, a blood test is used to detect an increased level of PSA, which can indicate prostate cancer. However, the PSA test can be unreliable, meaning that aggressive forms of prostate cancer can go undetected, thus missing the opportunity for effective early treatment.^{[11][2]} In addition, many patients with high PSA do not have clinically significant prostate cancer, meaning they undergo unnecessary biopsies, which are associated with side effects and complications.^{[11][2]}

While working as a professor at Karolinska Institutet, Stockholm, Henrik and his team explored new ways of analysing blood to produce a more accurate prostate cancer risk score. They developed the Stockholm3 blood test, which analyses five protein markers and over 100 genetic markers, along with clinical data, to accurately predict the risk of aggressive prostate cancer, providing an informative indication about whether a biopsy is needed.

EIT Health identified Stockholm3 as a solution with potential to improve the accuracy of prostate cancer diagnosis for men across Europe and around the world. Stockholm3 has now been evaluated in trials amongst almost 60,000 men – creating one of the largest prostate cancer diagnosis datasets.^[8] Stockholm3 is available in Sweden, Finland, Norway and Denmark, with plans to launch across the rest of Europe and the world.

"The support from EIT Health has enabled us to take the test to patients faster, and that's the value. Without the support from EIT Health we would not be where we are today." – Ola Steinberg, Co-Founder Stockholm3



 Prostate Cancer UK. (2014). PSA test. [online] Available at: https://prostatecanceruk.org/prostate-information/ prostate-tests/psa-test [Accessed Dec. 2019]

. [2] NHS. Prostate cancer – PSA testing, [online] Available at: https://www.nhs.uk/conditions/prostate-cancer/ psa-testing/ [Accessed Dec. 2019]

[3] European Commission. (2017). Epidemiology of prostate cancer in Europe. [online] Available at: https:// ec.europa.eu/jrc/en/publication/epidemiology-prostate-cancer-europe (Accessed Dec. 2019).
[4] Cancer Research UK. (2015). Prostate cancer survival statistics. [online] Available at: https://www.

(a) cancerresearchuk org/health-professional/cancer-statistics/statistics-by-cancer-type/prostate-cancer/ survival#heading-Three [Accessed Dec. 2019].

[5] Bergman M, et al. M\u00e4n som vill testa sig f\u00f6r prostatacancer – en strukturerad modell L\u00e4kartidningen; 115: FCDT, October 2018

[6] Ferlay, J., Colombet, M., Soerjomataram, I., Dyba, T., Randi, G., Bettio, M., Gavin, A., Visser, O. and Bray, F. (2018). Cancer incidence and mortality patterns in Europe. Estimates for 40 countries and 25 major cancers in 2018. European Journal of Cancer, 103, pp.356–387.

[7] NHS. Prostate cancer – Should I have a PSA test [online] Available at: https://www.nhs.uk/conditions/prostatecancer/should-i-have-psa-test/ [Accessed Dec. 2019]

[8] Grönberg H, et al. Prostate cancer screening in men aged 50-69 years (STHLM3): a prospective populationbased diagnostic study. Lancet Oncol. 2015 Dec;16(16):1667-76. doi: 10.1016/S1470-2045(15)00361-7. Epub 2015 Nov 10. PubMed PMID: 26565502.