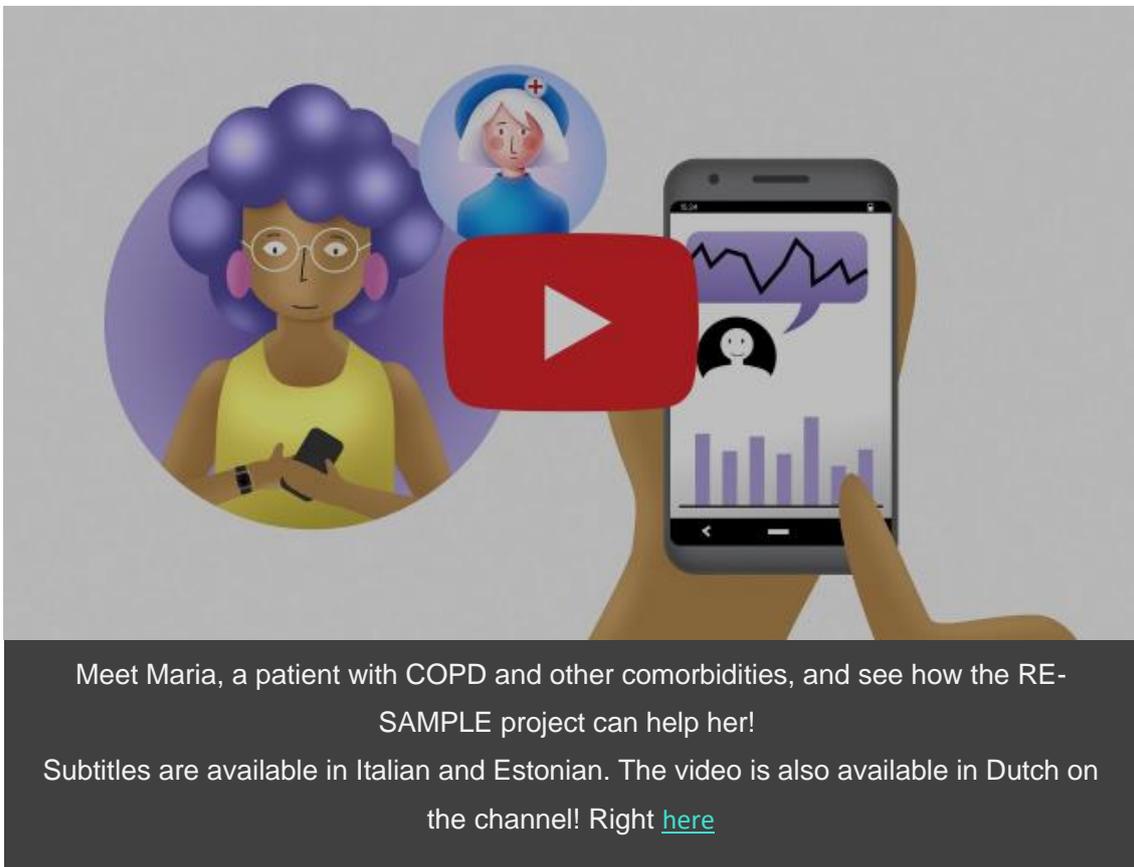*Newsletter N.2, February 2022*

Dear reader,

For this second edition, the RE-SAMPLE project has moved forward! We will present you one of our consortium members, introduce to you the project in video and bring you with us on the RE-SAMPLE journey!

RE-SAMPLE video

Meet Maria, a patient with COPD and other comorbidities, and see how the RE-SAMPLE project can help her!
Subtitles are available in Italian and Estonian. The video is also available in Dutch on the channel! Right here

What is COPD?

Chronic Obstructive Pulmonary Disease (COPD) is a common, progressive lung condition with a high impact on quality of life and life expectancy. It was ranked as the third leading cause of death worldwide by the World Health Organisation (WHO) in 2019.

COPD causes persistent and progressive respiratory symptoms, including difficulty in breathing, cough and/or phlegm production. The disease results from long-term exposure to harmful gases and particles combined with individual factors, including events which influence lung growth in childhood and genetics.

Early diagnosis and treatment, including smoking cessation support, is needed to slow the progression of symptoms and reduce flare-ups. This is the part where the RE-SAMPLE project kicks in, aiming to:

- increase the understanding of COPD and co-existing morbidities
- identify multimorbid exacerbations
- establish evidence of effective interventions for chronic disease management
- develop tailored referral to a multidisciplinary, adaptative eHealth programme for COPD patients with comorbidities.

Want to know more about COPD? Two recorded sessions on the topic are available on the RE-SAMPLE Youtube Channel. Follow the links to the first and the second video!

Presentation of the University of Twente

The University of Twente (UT) is the coordinating Partner of the RE-SAMPLE project. It is a young, entrepreneurial, technical research university with over 3200 scientists and professionals conducting pioneering research on nanotechnology, IT, biomedical technology, but also governance studies, psychology and geoinformation / earth observation sciences. This research ultimately combines scientific excellence with a sharp eye for economic and societal impact: the UT is highly successful as a business generator, with over 50 new spin-off companies annually. The UT has a dedicated strategic research programme in Personalised eHealth Technology (PeHT). In this cross-faculty programme, all research groups whose work focuses on eHealth technologies are working together on the healthcare of tomorrow. Together we aim to research, develop, and demonstrate beyond state-of-the-art solutions for smart remote monitoring and artificial coaching, and other services that support people with chronic conditions in their well-being.

The programme works with a range of industrial and clinical partners. It brings expertise in clinical research methodology, evaluation and data driven health services research, and innovative methods to translate fundamental research to clinical applications and individualised health technologies to support personalised medicine.

In RE-SAMPLE, the following groups are involved: 'Biomedical Signals and Systems', 'Health Technology and Services Research', and 'Services and Cybersecurity'.

Latest news

RE-SAMPLE PhD students presented their work at the Netherlands Respiratory Society Symposium!

On 12 November 2021, our RE-SAMPLE PhD students Charlotte Bucsán (MST, Enschede) and Sanne van Dijk (UT-HTSR, Enschede) joined the 13th Young Investigator Symposium (YIS) of the Netherlands Respiratory Society (NRS) in Amsterdam. The YIS was organised by the NRS Young Investigator Board, chaired by our RE-SAMPLE's clinical coordinator Anke Lenferink (UT-HTSR). The theme of the YIS was 'Out of the box'.

Charlotte and Sanne both participated in workshops, led by experienced professionals in the field of pulmonary research, in which they presented their own research plans and ideas. They received feedback on their presentations from the workshop leaders and their young investigator peers from many different research institutes in the Netherlands.

Charlotte presented the protocol of the RE-SAMPLE multicentre prospective observational cohort study. This cohort study will be performed in three clinical sites, MST in the Netherlands, Gemelli hospital in Italy and Tartu hospital in Estonia. The main objective is to identify relevant predictors for disease progression in COPD patients with comorbidities. The main focus of Charlotte's research project is to conduct the cohort study at MST and to evaluate the collected data on e.g. clinical outcomes.

Sanne presented a protocol for a systematic review on diagnostic tools to distinguish exacerbated COPD from heart failure as a cause of breathlessness. She will summarise what has already been investigated in the field throughout the years, and take this as a starting point to further investigate the coexistence of COPD and heart failure.

As the YIS was organised just before the Covid-19 measures became stricter, Charlotte and Sanne were lucky to be able to get to know the Dutch pulmonary network just a bit, and to learn from each other, in real-life.

RE-SAMPLE needs your input! Do you have COPD? Please fill in our patient survey!

RE-SAMPLE aims to develop eHealth applications that will support patients and healthcare professionals to manage COPD and complex chronic conditions. To fit the technology to the needs of people with COPD, we need your input. After all, we want to develop a technology in a way that people living with COPD can really benefit from it. That is why we constantly try to obtain new information and learn from people with COPD in various ways. One of these ways is by using a questionnaire, through which we want to learn more about the experiences of people with COPD and how they deal with their disease. We also want to find out where patients would like more support and what their specific needs are. For this reason, an online questionnaire has been developed by *Roessingh Research and Development*. To learn from all different COPD experiences, we would like this questionnaire to be filled in by as many people with COPD as possible.

Here is where we need your help! Do you have COPD or do you know someone who has COPD? Please feel free to fill in this questionnaire or share this with your network. To be eligible for this questionnaire, you need to be 18 years of age or older, and need to have a clinical diagnosis of COPD. You can access the questionnaire via the following link: https://is.gd/resample or by scanning the QR-code below. Responses from this questionnaire will be collected anonymously and contain no personal data that can be tracked back to you. The answers you give are only used within the RE-SAMPLE project. Completing the questionnaire will only take about 15 minutes.

Publications

"Digital Therapeutics: Virtual coaching Powered by Artificial Intelligence on Real-World Data"

By Harm op den Akker, Miriam Cabrita, and Aristodemos Pnevmatikakis

On 16 December 2021, the first article under the RE-SAMPLE project has been published in *Frontiers*! In this article, partners from Innovation Sprint lay out their vision of Healthentia as a Digital Therapeutics platform, using the RE-SAMPLE use case as a running example.

The abstract is available below!

An ever-increasing number of people need to cope with one or more chronic conditions for a significant portion of their life. Digital Therapeutics (DTx) focused on the prevention, management, or treatment of chronic diseases are promising in alleviating the personal socio-economic burden caused. In this paper we describe a proposed DTx methodology covering three main components: observation (which data is collected), understanding (how to acquire knowledge based on the data collected), and coaching (how to communicate the acquired knowledge to the user). We focus on an emerging form of automated virtual coaching, delivered through conversational agents allowing interaction with end-users using natural language. Our methodology will be applied in the new generation of the Healthentia platform, an eClinical solution that captures clinical outcomes from mobile, medical and Internet of Things (IoT) devices, using a patient-centric mobile application and offers Artificial Intelligence (AI) driven smart services. While we are unable to provide data to prove its effectiveness, we illustrate the potential of the proposed architecture to deliver DTx by describing how the methodology can be applied to a use-case consisting of a clinical trial for treatment of a chronic condition, combining testing of a new medication and a lifestyle intervention, which will be partly implemented and evaluated in the context of the European research project RE-SAMPLE (REal-time data monitoring for Shared, Adaptive, Multi-domain and Personalised prediction, and decision making for Long-term Pulmonary care Ecosystems).

You can read this article in open access at this link

Do you want to know more about RE-SAMPLE activities?

[Click here!](#)

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