Welcome to the second edition of our newsletter!

Prepare yourself for an expedition into the AFFIRMO Project. We're thrilled to share updates on our progress over the past two years and look back at the amazing journey of the AFFIRMO Project.

Before delving into the details, let us take a moment to appreciate the dedication, hard work, and passion of our incredible team members who have made the AFFIRMO Project a reality.

We hope you enjoy learning more about the outcomes that the AFFIRMO's team has produced during the first two years of the project.

Have a nice reading and keep following us to receive all the updates on our work in the next months!
THE PROJECT

AFFIRMO: ADVANCING HEALTHCARE FOR MULTIMORBIDITY AND ATRIAL FIBRILLATION

PIONEERING FOR THE MANAGEMENT OF OLDER PATIENTS WITH ATRIAL FIBRILLATION AND MULTIMORBIDITY.

AFFIRMO, a groundbreaking initiative with 20 partners from nine countries, aims to enhance the clinical pathway for older patients with multimorbidity and Atrial Fibrillation (AF). Focusing on the challenges posed by multiple chronic conditions, AFFIRMO adopts a patient-centered approach that considers individual needs and social contexts, actively involving patients in decision-making.

Professor Søren Paaske Johnsen, the Principal Investigator of AFFIRMO from Aalborg University, highlights that the project is well underway with the first parts now being completed. The work that has been covered has provided detailed insights into the complex patterns of multimorbidity as well as the challenges of ensuring safe and effective pharmacotherapy to older patients with atrial fibrillation. In addition, a multinational survey and interviews have been performed in order to develop a care model in line with the needs and preferences of the patients.

Professor Gregory Lip from the University of Liverpool, UK, co-Principal Investigator adds that the consortium is now preparing to start including patients in a multinational clinical trial, which will test the efficacy of a new holistic care model based on the ABC (Atrial fibrillation Better Care) pathway for older AF patients with multimorbidity. The trial will be conducted in six European countries pending final ethical approval.
Multidisciplinary Approach: The project’s success relies on a multidisciplinary consortium of experts from various fields, such as clinical research, epidemiology, data science, biostatistics, pharmacology, economics, psychology, and social sciences.

Training for Clinicians and Researchers: The Università Cattolica del Sacro Cuore has developed a transformative training course empowering clinicians and researchers. It focuses on patient empowerment, feedback from the Empowerment monitoring process, and a personalized toolbox accessible through the AFFIRMO platform. This innovative training method enhances communication between healthcare professionals and patients.

Patient and Caregiver Needs, Quality Performance Indicators and Outcomes: The AFFIRMO study has explored the needs of patients with AF and multimorbidity and their caregivers, and identified the indicators of healthcare patients and caregivers perceive as markers of good quality care and outcomes that are important to them. This information has informed the clinical trial design and outcomes.

Disease Pattern Analysis: Identifying disease patterns in multimorbid older adults with AF is a critical aspect of the project. By using Latent Class Analysis (LCA), the project has identified seven homogeneous groups of multimorbid individuals, each characterized by specific disease patterns. This information optimizes patient-centered care, targeting patients with similar clinical management needs to improve clinical outcomes.

Risk Stratification Tool: Data collected on disease patterns and clinical outcomes is being used to create a novel risk stratification tool. This tool tailors personalized interventions in randomized controlled trials (RCTs), ensuring patients receive the most appropriate care for their specific needs.
The AFFIRMO project is an ambitious effort to tackle the complex challenges of multimorbidity and Atrial Fibrillation among older patients. **With a holistic, patient-centred approach, a multidisciplinary consortium, and innovative training methods.**

**We want to make a substantial impact on healthcare and patient-reported outcomes.** This project has the potential to enhance clinical outcomes and improve the quality of life for older individuals with atrial fibrillation and multimorbidity, setting a valuable precedent for healthcare initiatives worldwide.
AFFIRMO & EMPOWERMENT:

TRAINING FOR RESEARCHERS AND CLINICIANS

As part of the AFFIRMO project, Università Cattolica del Sacro Cuore is leading the development of an innovative training program for clinicians and researchers in Randomized Controlled Trials. This program focuses on patient empowerment, feedback utilization, and personalized toolkits. Additionally, the program offers guidance on effectively accessing these valuable resources through the AFFIRMO platform.

We're developing training materials and tools to promote seamless communication between healthcare professionals and patients. To make this possible with the Università Cattolica Learning we introduced a digital oasis for ongoing remote education known as Blackboard. This interactive platform integrates training into healthcare professionals' daily routines, making learning an enriching part of their clinical journey.

WHAT’S IN FOR RESEARCHERS AND CLINICIANS?

The training materials that will be uploaded onto Blackboard and made available, here what you will find:

- **5 short videos pills** in English on some main themes of the AFFIRMO project (Video introduction on the project, Video on the medical principles of the ABC approach to atrial fibrillation, Introduction video on the psychological principles of engagement, Video on the structure and use of the digital platform, Video on the empowerment toolbox materials)
- **Abstract**: each video will be accompanied by a summary of the content.
- **Empowerment toolbox**: a package of 7 materials that the doctor should be able to view and become familiar with.
- **Learning questionnaire**: for each video, there will be four multiple-choice questions.
Liverpool is renowned for the Beatles' birthplace, its rich maritime history, and its cultural heritage. The second AFFIRMO consortium meeting was held in this lovely setting.

AFFIRMO is now in its second year, and while we've achieved a lot, there's an exciting journey ahead!

DAY 1: WHAT WE ACHIEVED
Our project meeting started with a warm welcome from the project coordinators followed by presentations of every work package. On this occasion, the consortium shared its accomplishments and updates and celebrated significant milestones.

DAY 2: TO THE FUTURE!
Following a discussion of the six-month work schedule the consortium defined the roadmap for the AFFIRMO’s project. During the project meeting the consortium enthusiastically engaged in the discussion, contributing their knowledge and insights. The atmosphere was one of enthusiasm and teamwork. Ideas were shared, problems were solved, and creative approaches were put forward.

At the Consortium meeting, we recorded interviews.

Check the trailer on YouTube!

Cheers to a successful project meeting! The AFFIRMO team is grateful for the incredible teamwork, dedication, and brilliant ideas that brought us to this point.
AFFIRMO & HEALTH CHALLENGES

MULTIMORBIDITY CLUSTERS

In our effort to address the health challenges of older individuals with atrial fibrillation (AF), we’ve explored the complex web of comorbid diseases that affect this group. Think of it as examining a network of interconnected conditions where diseases interact and impact each other. **We studied older adults with multiple health issues and atrial fibrillation (AF) to understand their medical and social needs.** With the aim to create new training materials and improve personalized care by developing a better risk assessment tool through a randomized clinical trial (RCT). By means of Latent Class Analysis (LCA), we identified seven homogeneous groups of multimorbid individuals characterized by disease patterns including:

1. neuropsychiatric disease, complex multimorbidity,
2. eye disease
3. musculoskeletal disease
4. metabolic disease
5. cardiovascular disease
6. unspecific comorbidity.

We obtained data from patients aged 65 and older diagnosed with atrial fibrillation (AF) by utilizing two extensive population-based data sources: the Swedish National Patient Register and the Danish National Patient Register.

**OUR PRIMARY OBJECTIVE** is to identify homogeneous groups of AF patients who share similar patterns of chronic conditions. This segmentation can **enhance patient-centred care by tailoring clinical management to patients with similar needs, ultimately leading to improved clinical outcomes.** Furthermore, the consistent identification of these comorbidity patterns will contribute to the development of a robust risk stratification tool. By incorporating these findings and considering the influence of polypharmacy, we aim to refine the elements of the risk stratification algorithm. This refinement will enable the tool to recognize clinically significant factors contributing to the complexity of a patient's health, thereby offering valuable insights for clinical assessment and intervention.
AFFIRMO & HEALTH CHALLENGES

QUALITY PERFORMANCE INDICATORS (QPIS)

Within the framework of the AFFIRMO project, the University of Liverpool undertook a comprehensive study aimed at assessing the critical requirements, defining quality performance indicators (QPIs), and establishing key outcomes for patients afflicted with atrial fibrillation in the context of multi-morbidity, alongside their caregivers. This endeavour also considered the needs of healthcare professionals responsible for managing these patients.

THE RESEARCH:

1. **Requirement Identification**: The project started by identifying key needs and quality indicators for individuals with atrial fibrillation, their caregivers, and the healthcare providers tending to their needs.

2. **Data Gathering**: To obtain diverse perspectives, the research team conducted an online survey, which was accessible to patients, caregivers, and healthcare professionals. This survey reached participants in five European countries, including the United Kingdom, Italy, Spain, Romania, and Denmark, between June 2022 and January 2023. The survey engaged a substantial cohort, involving over 1300 respondents.

3. **Expert Deliberation**: The research findings were then subjected to a thorough and collaborative evaluation through a series of online workshops, termed the Delphi process. These workshops included participation from individuals representing various regions across Europe, comprising patients, caregivers, and healthcare professionals.

4. **Sharing the Results**: The survey results were then discussed through a series of online workshops (known as the Delphi process), which involved patients, caregivers and healthcare professionals from across Europe.

IN ESSENCE:

This research involved soliciting opinions and insights from a wide array of stakeholders, followed by in-depth discussions with experts hailing from different European regions. **This research helps make life better for people with atrial fibrillation and the people who care for them.**
The Digital Health Software and Platforms (DHSP) team at the University of Manchester has developed the **AFFIRMO study app (IABC)** in collaboration with valuable input from people with Atrial Fibrillation who were identified with the help of colleagues from the Arrhythmia Alliance. The clinician platform has been developed to enable clinicians to view data that patients enter into the app, for research purposes.

In April 2023, Steve Antrobus, the Senior Technical Project Manager (STPM), left the University. **Charlotte Stockton-Powdrell**, the Operational Lead for the DHSP team, has since taken over technical development. With the help of the National Co-ordinating Centre (NCC) Leads, the app content has been **translated into the five languages** required for the study; Spanish, Italian, Romanian, Danish, Serbian and Bulgarian. This is the first time the DHSP team have translated content into languages that are not Latin-based, so input from the NCC Leads has been precious. Despite several challenges, the app development is now complete, and the app is currently undergoing testing by the NCCs.

Charlotte Stockton-Powdrell
In the framework of AFFIRMO, Ontonix has developed and tested a patient Risk Stratification tool. The tool is developed in Scilab, a MATLAB-like environment which is freeware - Scilab is delivered by Dassault Systems. It provides a score as a measure of risk (in %) of patients developing a given outcome. The tool has been tested on a database provided by the Karolinska Institute. Testing has been performed at the premises of the Karolinska Institute in May 2023, Stockholm in May 2023. The tool works by specifying first the condition of a given patient, such as age, sex, polypharmacy, number of conditions, civil category, education, etc. This is shown in the box on the left. The result is the outcome: 0 = no hospitalization, 1 = hospitalization within 1 year, together with a probability score. (See boxes on the right).
The tool has been tested on four batches of 50,000 patients. The performance, reflected by the AUC plot is shown below.

Ontonix is presently showcasing AFFIRMO Innovative Risk Stratification tool to major pacemaker/ICD manufacturers. They are keenly interested in using this tool to **identify patients at risk of imminent hospitalization** due to heart failure or decompensation. While the data involved in this scenario is of a different nature than what we typically handle, we believe that with some adjustments, our Risk Stratification tool can be adapted to meet their specific needs.

We believe this tool, which **departs from traditional probability-based techniques and aligns with personalized medicine**, can be adapted to their needs. We're meeting a growing demand for more patient-specific methodologies, where the severity of a given situation is determined based on the individual patient's data, not on data from a large sample. This approach aligns with the principles of personalized medicine, recognizing that each patient's clinical journey is unique.

The **tool that we have developed within AFFIRMO is an important addition to our suite of tools for anomaly detection and early warnings** – which we prefer to the classical plain probability approach – which we are using not only in medicine but in other contexts. In fact, coupling our tools with the one we have developed in AFFIRMO, allows us to extend our reach to data types that we haven’t been able to process.
This June AFFIRMO attended the 28th EHMA Annual Conference in Rome, Italy, co-hosted by EHMA and ALTEMS - Graduate School of Health Economics and Management at Università Cattolica del Sacro Cuore.

The theme, "Health Management: sustainable solutions for complex systems" centered on healthcare innovation and resilience. Diverse stakeholders, including healthcare leaders, managers, researchers, academics, and legislators, shared insights on healthcare challenges.

Caterina Bosio, from AFFIRMO's partner EngageMinds HUB, presented the AFFIRMO project, emphasizing cross-cultural patient engagement. It emphasized the importance of considering cultural, healthcare system, and contextual differences when developing digital tools for diverse populations, particularly vulnerable groups like AF patients.
AFFIRMO at the EuGMS Congress 2023

The 19th annual Congress of the European Geriatric Medicine Society (EuGMS) took place in Helsinki from the 20th to the 22nd of September. With more than 1,600 participants from all over Europe and beyond, the congress was not only one of the largest in several years but again a terrific knowledge and dissemination hub for innovation and research in Geriatrics and Gerontology.

During the event, Dr Donato G. Leo (University of Liverpool) and Dr Caterina Trevisan (University of Padua) had the chance to showcase some of the findings from the AFFIRMO project.

Furthermore during the symposium titled Team Work in EU Projects: medication Management's Influence on Health Trajectories: Research Insights for Geriatric Practice"

Cheima Amrouch (University of Ghent) delivered a presentation on "Prescribing Patterns in Individuals with Atrial Fibrillation and Multimorbidity," highlighting the AFFIRMO study.
The symposium chaired by Antonio Cherubini (EuGMS Academic Director) and Georg Ruppe (EuGMS Scientific Liaison Officer) brought together three European-funded research projects with EuGMS participation that are working on related topics and in this way stimulated interaction and potential future collaboration between the projects and the involved researchers. Also for the coming years, the renowned EuGMS congresses and events visited by different relevant target groups of AFFIRMO will remain a valuable and important occasion for dissemination of our project.

**AFFIRMO at European Society of Cardiology (ESC) 2023**

From the 25th to the 28th of August, cardiologists, nurses, health professionals and researchers came together at the ESC Congress 2023. This year under the theme of “Heart Failure” the conference provided a lively platform for cardiovascular medicine professionals to share and discuss the latest research findings.

During the event, AFFIRMO had centerstage with three partners holding presentations:

- **Dr Lu Dai (Karolinska Institute)** “Comorbidity patterns and health-related outcomes in older adults with atrial fibrillation: nationwide population-based findings from Swedish national patient register”
- **Dr Marco Proietti (Heartcare foundation onlus – HCF)** “How to implement integrated holistic management of atrial fibrillation in routine practice”.
- **Professor Deirdre Lane (University of Liverpool)** “The role of patient reported outcome measures (PROMs) in atrial fibrillation management”.
ABOUT CHEIMA

I am a biomedical scientist with a passion for science from an early age. My interests have always been diverse, and I've had the privilege of conducting research in various fields, including infectious diseases and neurosciences. I am a primary researcher pursuing my PhD at Ghent University within the Faculty of Health and Medicine as part of the AFFIRMO project.

ABOUT HER RESEARCH

My current research focuses on evaluating prescribing patterns in older adults with heart arrhythmia and atrial fibrillation. Additionally, I am gaining valuable insights into health economics and predictive modelling. Being a part of the multidisciplinary and international AFFIRMO project has allowed me to collaborate with and learn from researchers across different disciplines. It allows me to engage in stimulating discussions and present our findings at national and international conferences. I am thoroughly enjoying the research process and eagerly look forward to the moment when all these different facets and work packages come together to create a holistic care pathway.
Meet AFFIRMO’s newest entries!

Allow us to introduce you to Berit Hvidberg Christensen, our new Project Manager, who has been leading the way since April 2023. Berit brings a wealth of experience and a deep commitment to our project. Her dedication to understanding the context of the project and the opportunity to meet each of our valued partners have been a genuine pleasure. As we look to the future, we are excited to follow Berit’s guidance and expertise as we navigate the exciting tasks and deliverables that await us in the years ahead.

Peter joined the AFFIRMO team in the Summer of 2023 and will participate in the national coordination of the clinical trial. In close collaboration with Prof Frost (national lead), Peter has been assigned the role of national project manager. He holds a position as an associate professor at the Department of Clinical Medicine at Aalborg University. With his strong background in clinical epidemiology and a profound track record in registry-based studies dedicated to improving the prognosis and management of patients with atrial fibrillation, Peter is a valuable asset to the AFFIRMO team.
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