

Welcome

Project ATHENA has made further progress in the development of innovative privacy-preserving approaches, integrating omics and non-omics data, to advance personalized medicine. In this newsletter, we provide insightful interviews with ATHENA consortium partners, including exciting recent project updates.

Before you continue reading, take a minute to register for the ATHENA symposium on November 22nd – [Data-driven Innovation in Personalized Medicine and Care](#).

We are pleased to present interesting duo talks on topics ranging from precision medicine, to advanced analytics and machine learning, as well as legal and ethical frameworks. Prof. Dr. Dani Prieto-Alambrós, Head of the Health Data Sciences Department at Oxford University, Research Coordinator for the EDRON project, and Deputy Director for the DARWIN EU Coordination Centre, will provide the key note.

We look forward to meeting you at the ATHENA symposium. Click [here](#) to register.

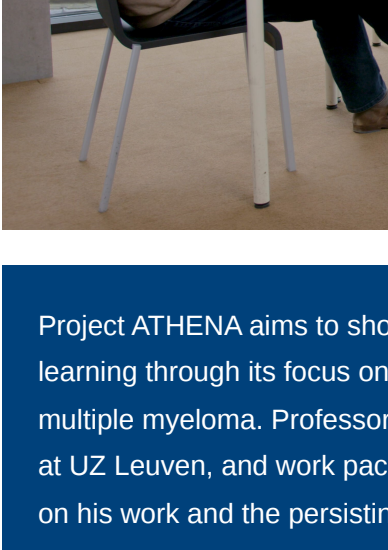


Tine Lewi
ATHENA project co-head
Senior Director - Global Data, Platforms and Partnerships
Janssen Global Commercial Data Science

Read more



Matching patients with therapy in bladder cancer using data science



"Using data science, we can redirect treatments to those patients that will likely benefit. As such, we save money and we avoid suffering."

Prof. Dr. Frank Van der Aa, UZ Leuven



Project ATHENA aims to showcase the possibilities of real-world data and federated learning through its focus on two specific medical conditions: bladder cancer and multiple myeloma. Professor Dr. Frank Van der Aa, head of the urology department at UZ Leuven, and work package lead for ATHENA, discusses the impact of ATHENA on his work and the persisting challenges in the field.

What makes bladder cancer an interesting condition for the implementation of data science?

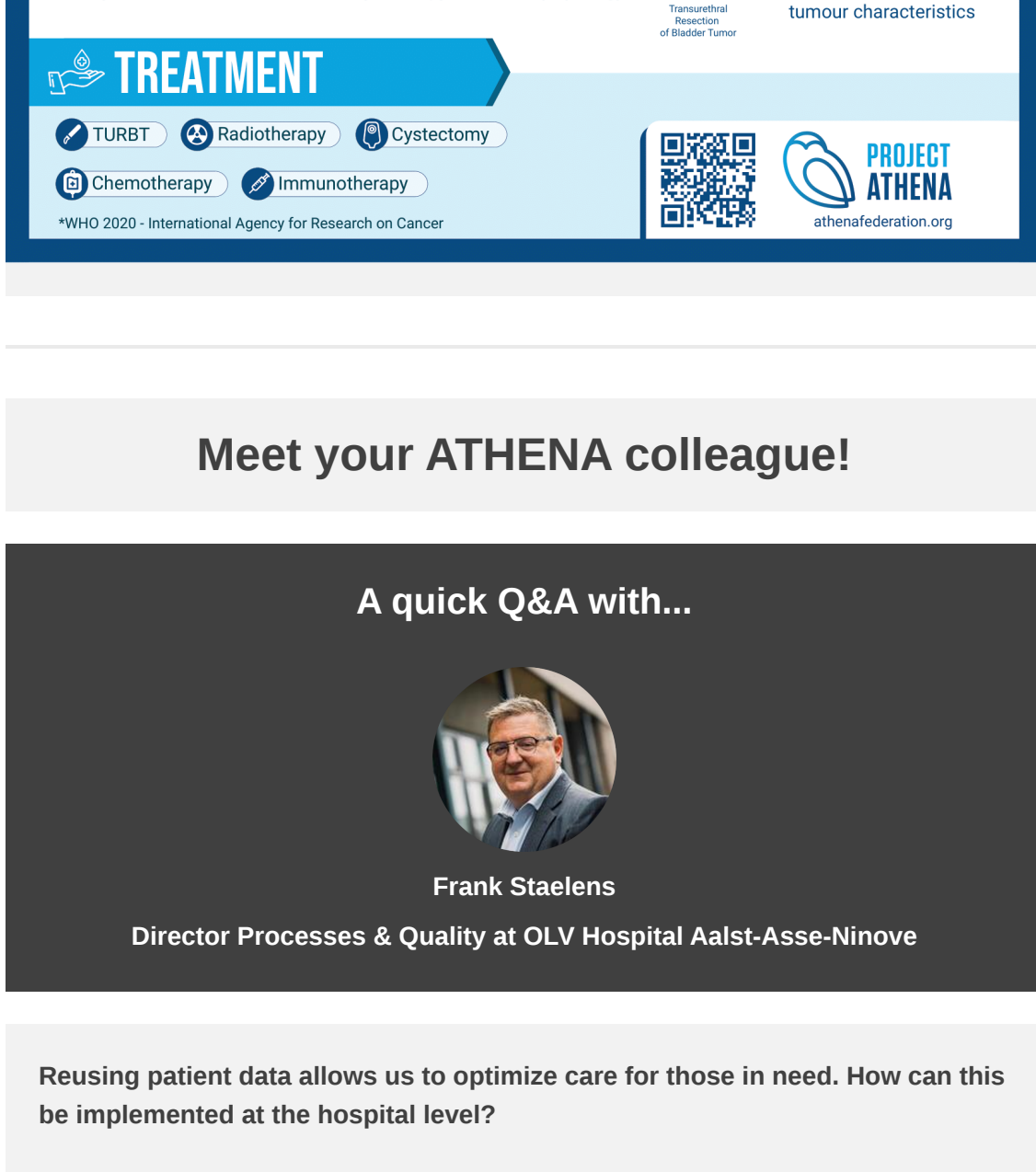
Bladder cancer typically follows a longitudinal course, necessitating continuous monitoring and evaluation over a long period of time. Initially, the majority of bladder tumours manifest as non-muscle invasive tumours, but as treatment progresses, up to 50% of these tumours may advance to further stages. This longitudinal nature poses significant challenges, impacting patients' therapy and physically, as it requires repetitive invasive examination and imposes a substantial financial burden. In non-muscle invasive bladder cancer, another challenge lies in identifying the appropriate treatment strategy for each patient. Currently, we assign patients to specific risk categories based on tumour characteristics, such as size, quantity, and microscopic characteristics (tumour grade). Depending on the risk, an alternative treatment scheme is used, focusing more on preventing either recurrence or progression. However, risk assignment is rather arbitrary. A patient categorized as high risk and undergoing a certain treatment, such as BCG therapy, spanning several months, might demonstrate positive outcomes after re-evaluation, or might not respond at all and even progress to muscle invasive disease. In the latter case, the patient has potentially lost valuable time with the earlier treatment, and upfront cystectomy might have been a more suitable option. I am convinced that, using data science, we can stratify our patients better, avoiding such under- but also overtreatment.

How do you incorporate data science into care, and what specific contributions has ATHENA made?

Upon starting my work at the hospital, conducting transurethral resections, I observed a lack of comprehensive data collection. To address this gap, we collaborated with other hospitals and established a prospective register to document procedural and tumour details. Later, we also started implementing operational dashboards to analyse our patient data and to study quality control indicators for treatment of bladder cancer. So prior to joining project ATHENA, we had already developed a keen interest in data science. ATHENA's impact on our work is threefold. Firstly, it has enabled a significant acceleration of research. We have notably expanded our data work, incorporating DNA and RNA screening. The combination of omics and non-omics data collection is what sets ATHENA apart, making it a truly unique initiative on a global scale. Secondly, through ATHENA, it became evident that aggregated data can be utilized to extract insights while still preserving patient privacy. ATHENA has really made a significant legal achievement in that area. Finally, ATHENA facilitates the collaboration of diverse stakeholders, including basic scientists, clinicians, and data scientists, fostering collaborative opportunities.

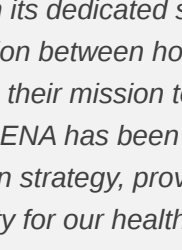
How do you believe data science can revolutionize care in the coming years, and what key factors do you think are necessary to achieve this transformation?

The ultimate objective is to use the data to extract advice, benefiting our patients, particularly through optimized stratification. However, achieving a data-driven healthcare system requires resources. The implementation process demands both time and funding, a critical consideration for both hospitals and the government. Generating a large dataset allows us to delve deeper and gain novel insights into disease progression and treatment effectiveness. Data analysis can also aid in determining whether certain prospective clinical studies are worthwhile to pursue, necessitating access to more data. By the project's conclusion, ATHENA will have demonstrated the viability of privacy-preserving data analytics. However, to acquire a sufficient amount of data, we must scale up to involve multiple centres and even extend our efforts beyond our country.



Meet your ATHENA colleague!

A quick Q&A with...



Frank Staelens
Director Processes & Quality at OLV Hospital Aalst-Asse-Ninove

Reusing patient data allows us to optimize care for those in need. How can this be implemented at the hospital level?

Patient data can be used to evaluate the quality of the care we offer. It enables us to generate insights in diagnostics, disease progression, and treatment pathways, thereby offering our patients the best possible prospects. At OLV, we strive to create a true data-driven care system in close collaboration with our clinical professionals, delivering significant value to our patients.

The OLV hospital Aalst-Asse-Ninove is a partner in the ATHENA consortium. What has your institute gained from this partnership?

ATHENA's uniqueness stems from its dedicated scientific focus. The project showcases an effective collaboration between hospitals, pharmaceutical companies, and research institutions, united in their mission to gather scientific insights and enhance patient care. Project ATHENA has been instrumental in enhancing and expanding our data implementation strategy, providing advantages across multiple areas. It offers a unique opportunity for our healthcare professionals to connect with peers and engage in discussions about innovative technologies. Additionally, it enabled us to expand our health data department, allowing us to emphasize the significance of data reuse, both within and beyond our own institute.

What is the value of ATHENA to our Belgian health ecosystem?

ATHENA shows how a federated data infrastructure can allow us to benefit optimally from data reuse, without compromising on patient privacy. I truly believe this is the way forward. To make progress, we must develop uniform methods and models, usable across hospitals and healthcare providers. ATHENA has been a pioneer in facilitating cross-institutional discussion and collaboration. It has set an example that is now being followed by many others.

What are the major challenges that still need to be addressed in this area?

At the micro level, we face the need to transform unstructured data. Unfortunately, not all patient data is uniformly captured and of high quality. Transforming these records into usable input is quite challenging. On a higher level, there are a number of hurdles to overcome. Our neighboring countries have made greater progress in the sharing and utilization of patient data. We need to be cautious that the bureaucracy and rigid regulations surrounding data sharing in Belgium do not impede progress. I firmly believe that by leveraging the right tools, such as those provided by the ATHENA project, we can boost innovation while optimally protecting patient privacy.

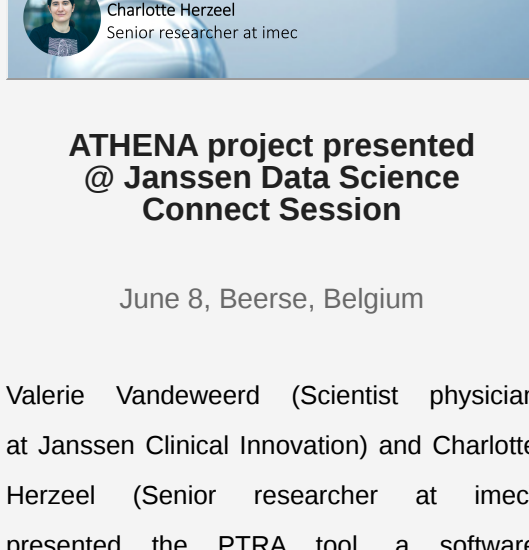
Analysing your patients' disease trajectory with DiTrAn

DiTrAn or DTA is a disease agnostic framework that supports the analysis and visualization of clinical event models. Based on the OMOP Common Data model, the user-friendly tool allows clinicians to perform survival analysis, visualize treatment changes, and compare patient subgroups.

Check out the demo of the DiTrAn tool.



ATHENA is out there!



ATHENA project presented
@ Janssen Data Science
Connect Session

June 8, Beers, Belgium

Valerie Vandeweerdt (Scientist) physician
at Janssen Clinical Innovation and Charlotte
Herzels (Senior researcher at imec)

presented the PTAA tool, a software
package recognizing patterns in large
datasets, which assist care pathways.



Patient perspective on the use and
reuse of real-world data in
Belgium

July, Antwerp, Belgium

Inovigate published the conclusions from the
patient round table on the use and reuse of
routine care health data, in the context of the
ATHENA project. The round table was held on
February 16th, 2023, with the aim of mapping
the patient perspective and understanding
their expectations regarding data sharing.



ATHENA project presented
@ World CB&CDX Conference

September 8, Boston, US

Tine Lewi emphasized the need for
multimodal real-world data (omics/ non-omics)

to accomplish precision medicine. Topics
covered were 1) the ATHENA Project,
illustrating multi-modal data generation
through a public / private partnership;

2) Enabling precision medicine through
privacy-preserving analytic methods;

3) Establishing public/private federated data
networks for precision medicine; 4) Why and
when is a federated data approach needed for
precision medicine.

Interesting for ATHENA followers

Coming up

COPA Conference

September 13-15, 2023
Limassol, Cyprus

--- Technical

IMS Annual meeting

September 27-30, 2023
Athens, Greece

--- Conformational and probabilistic prediction

BioTech4 Event

October 4-6, 2023
Basel, Switzerland

--- Data science technology

SCOM Annual Conference

October 9-11, 2023
Bayfront Hilton Garage, USA

--- Data sciences

OHDSI Global Symposium

October 20-22, 2023
East Brunswick, USA

--- Data sciences

ESMO Congress

October 20-24, 2023
Madrid, Spain

--- Clinical oncology

PHUSE EU Connect 2023

November 5-8, 2023
Birmingham, UK

--- Data sciences

ISPOR Europe Conference

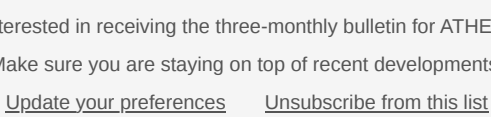
November 12-15, 2023
Copenhagen, Denmark

--- Health economics and outcomes research



Contact:
info@athenaobservatory.org
www.athenaobservatory.org

The consortium has received funding from VLAKO (Flanders Innovation & Entrepreneurship) in 2023, as one of the four supported projects in the IC2N call on personalized medicine (ref. HBC-2019-2526). IC2N (Interdisciplinary Cooperative Research) is a formula for demand-driven, cooperative research, such as presented in project ATHENA.



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