

REVOLUTIONISING THE MOLECULAR DIAGNOSTICS THE SITUATION IN CROATIA

In Croatia, the centers face challenges in terms of insufficient tools and infrastructure for NGS testing, as well as a lack of sufficient funding for the development of proper infrastructure. Funding and reimbursement are the main obstacles to integrating genomics into routine care.



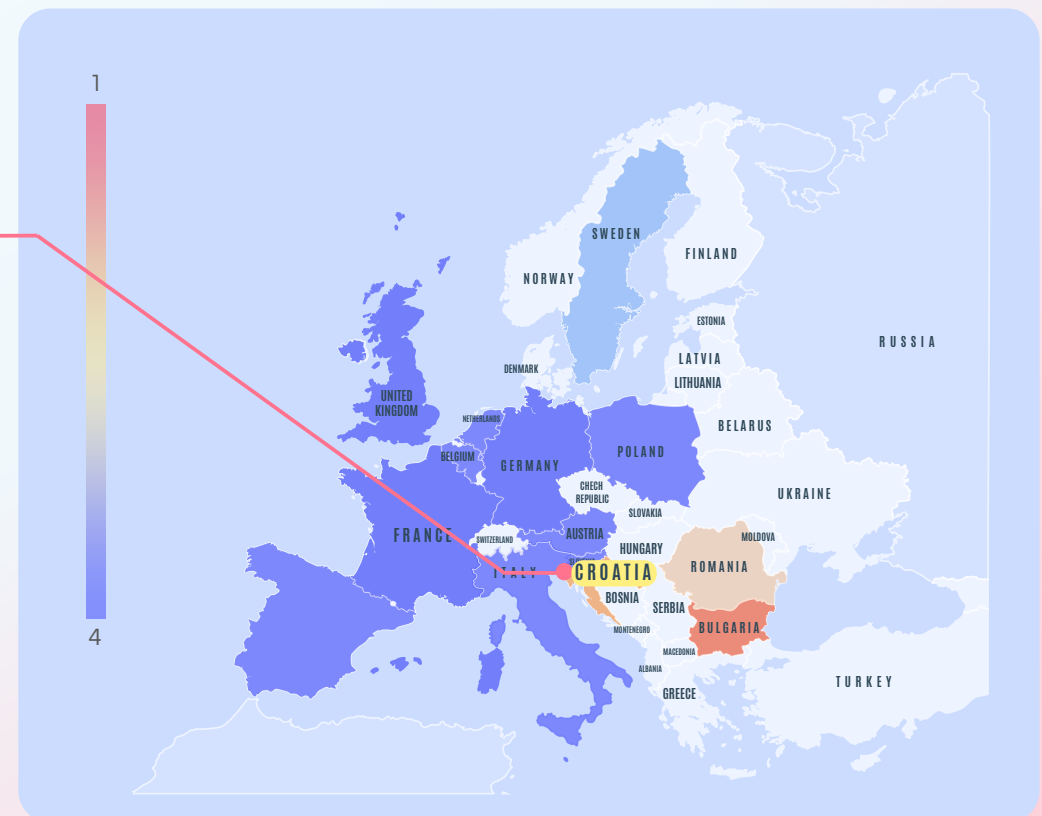
CORE PILLARS	Well Implemented	Implemented	Not Implemented	Clear Information Not Available
Infrastructure and tools	☐	☒	☐	☐
Molecular tumour boards and expertise	☐	☒	☐	☐
Reimbursement for NGS and liquid biopsy	☐	☐	☒	☐
Education/training/ awareness	☐	☐	☒	☐
Governance	☐	☐	☒	☐
Healthcare workforce	☐	☐	☒	☐
Data sharing and linking	☐	☒	☐	☐

INFRASTRUCTURE AND TOOLS

CROATIA	Available	Not Available
NGS centre	●	○
Equipments	○	●
Funding	○	●
Routine utilization	○	●

In Croatia, there is an available Next-Generation Sequencing (NGS) center, indicating the presence of facilities for genetic sequencing. However, the centers face challenges in terms of insufficient tools and infrastructure for NGS testing, as well as a lack of sufficient funding for the development of proper infrastructure. Additionally, NGS technology is not routinely utilized in the country, suggesting limited adoption and awareness of its benefits. These factors point to the need for further investment and development to enhance the capabilities and utilization of NGS technology in Croatia.

COUNTRIES' CORRELATION	INDEPENDENT VARIABLE
Dependent Variable	Funding
NGS Centre	High Positive Correlation
Equipment	High Positive Correlation
Routine Utilization	Medium Positive Correlation
1-0,8 - Very High Positive 0,79-0,6 - High Positive Correlation 0,59-0,4 - Medium Positive Correlation	
0,39-0,2 - Low Positive Correlation 0,19-0 - Very Low Positive Correlation	



MOLECULAR TUMOUR BOARDS AND EXPERTISE

Croatia has an MTB panel and holds regular consultation meetings, highlighting the country's access to advanced genomic sequencing capabilities. However, the lower volume of patients being tested or discussed suggests potential opportunities for expanding the utilization of NGS technology and exploring its applications in various domains within Croatia.

	MTB Panel	Consultation frequency	Testing/ Discussion
Belgium	●	●	●
CROATIA	●	●	○
Spain	●	●	○
Italy	●	●	●
France	●	●	●
Germany	●	●	●
United Kindgom	○	○	○
Ireland	○	○	○
Slovenia	●	●	●
Poland	○	●	●
Sweden	○	●	○

● Available
○ Not Available

● Very High
● High
● Medium
● Low
● Very Low

● High
● Medium
○ Low

COUNTRIES' CORRELATION	INDEPENDENT VARIABLE
Dependent Variable	MTB Panel
Consultation Frequency	Very High Positive Correlation
Testing/ Discussion	High Positive Correlation

1-0,8 - Very High Positive

0,79-0,6 - High Positive Correlation

0,59-0,4 - Medium Positive Correlation

0,39-0,2 - Low Positive Correlation

0,19-0 - Very Low Positive Correlation

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REIMBURSEMENT FOR NGS AND LIQUID BIOPSY IN CROATIA

In Croatia, funding is the main obstacle to integrating genomics into routine care. The availability of sufficient funding for the reimbursement process is uncertain, potentially posing challenges to the sustainability and accessibility of these reimbursement programs in the long run.

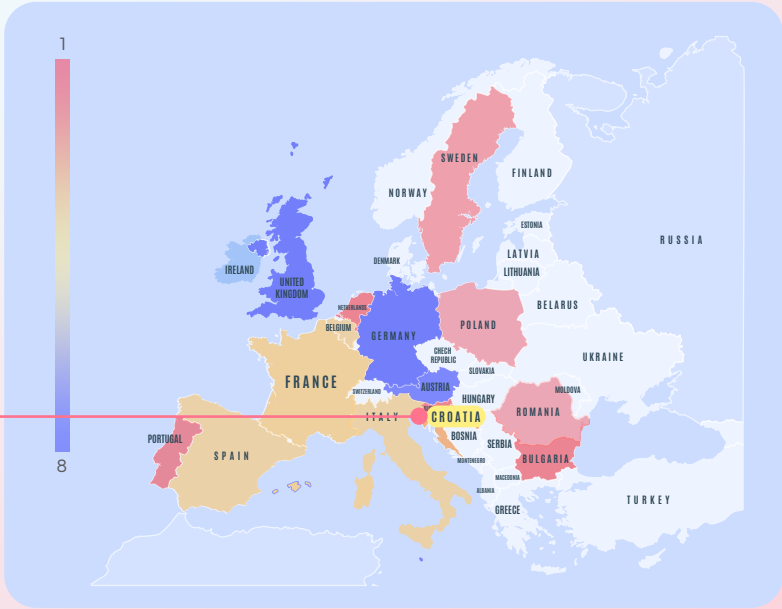
CENTRES' CORRELATION	INDEPENDENT VARIABLE
Dependent Variable	Funding
Reimbursement for NGS	Medium Positive Correlation
Reimbursement for Liquid Biopsy	Low Positive Correlation



EDUCATION/TRAINING/AWARENESS

In Croatia, the awareness and understanding regarding NGS are relatively low. The barrier to integrating genomics into routine care is a lack of training with the latest advance. Cooperation between faculties should be better and the courses that involve training on data security and data sharing are needed. There should be initiatives aimed to address the lack of a trained workforce and enhance knowledge in the field.

COUNTRIES' CORRELATION	INDEPENDENT VARIABLE
Dependent Variable	Educational Programmes
Trained Personnel	Low Positive Correlation
Awareness/ Understanding	Medium Positive Correlation
Educational programme/ workshops to increase awareness	Medium Positive Correlation



GOVERNANCE

In Croatia, laboratories or institutions do not have ISO accreditation or certification, indicating a potential gap in the formal recognition of quality management systems. However, the regular updating of clinical guidelines demonstrates a commitment to evidence-based practice and staying up-to-date with the latest medical knowledge. While internal guidelines are reported as absent or minimal, Croatia relies on external guidelines from national or international sources to inform clinical practices. The use of external quality assessment indicates a proactive approach to ensuring the accuracy and reliability of laboratory testing services.

COUNTRIES' CORRELATION	INDEPENDENT VARIABLE	COUNTRIES' CORRELATION	INDEPENDENT VARIABLE
DEPENDENT VARIABLE	ISO Accreditation/ Certification	DEPENDENT VARIABLE	Clinical Guidelines
Internal Guidelines	Very Low Positive Correlation	Internal Guidelines	Very Low Positive Correlation
External	Low Positive Correlation	External	Very Low Negative Correlation
External Quality Assessment	Low Negative Correlation	External Quality Assessment	Low Negative Correlation

1-0,8 - Very High Positive 0,79-0,6 - High Positive Correlation 0,59-0,4 - Medium Positive Correlation
 0,39-0,2 - Low Positive Correlation 0,19-0 - Very Low Positive Correlation

	ISO Accreditation/ Certification	Clinical Guidelines	Internal Guidelines	External Guidelines	External Quality Assessment
Belgium	●	●	●	●	●
CROATIA	●	●	●	●	●
Spain	●	●	●	●	●
Italy	●	●	●	●	●
France	●	●	●	●	●
Germany	●	●	●	●	●
United Kindgom	●	●	●	●	●
Ireland	●	●	●	●	●
Slovenia	●	●	●	●	●
Poland	●	●	●	●	●
Sweden	●	●	●	●	●

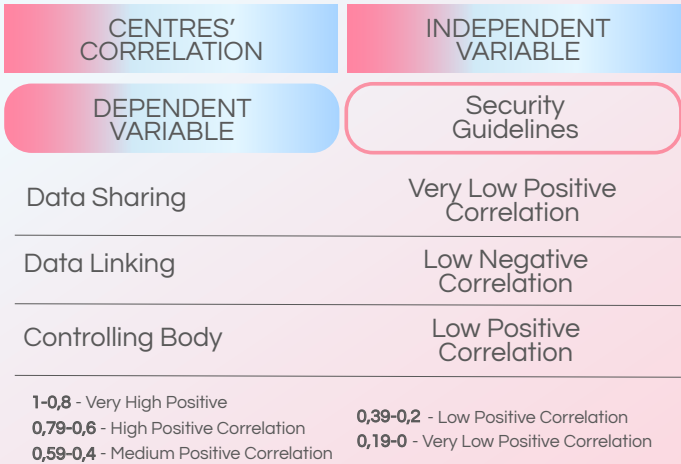
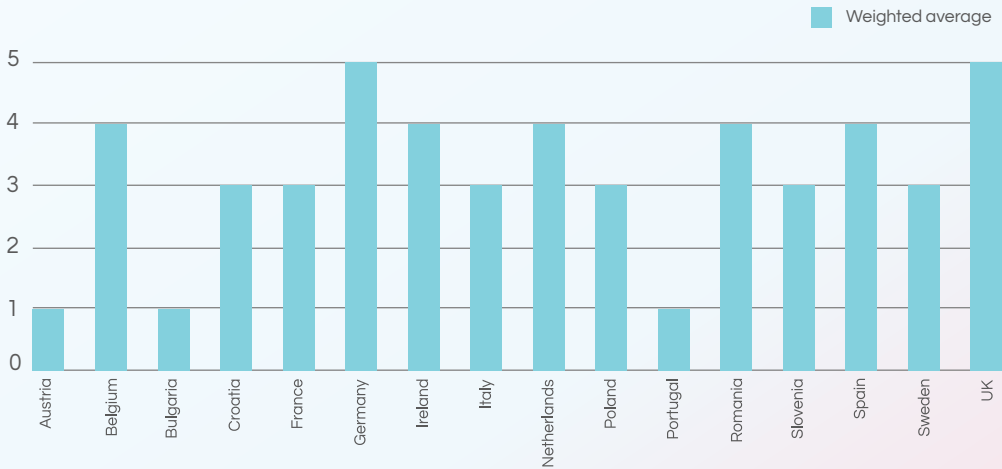
HEALTHCARE WORKFORCE

The data suggests that there may be a lack of availability of a sufficient healthcare workforce or personnel in Croatia. This implies that the country is facing challenges in terms of an inadequate number of healthcare professionals to meet the demands and needs of the healthcare system. The shortage of personnel can potentially impact the delivery of healthcare services, including cancer diagnosis, treatment, and management, and may require attention and strategies to address the workforce shortage and ensure adequate healthcare coverage for the population.



DATA SHARING AND LINKING

In Croatia, there are active cross-border and cross-disciplinary collaborations in the field of NGS testing/application. Routine sharing of data is practiced, indicating a culture of data sharing among stakeholders. The country has established both external and internal security guidelines to ensure the protection of NGS data. However, there is currently no data linking between NGS data and the Electronic Health Record, and there is no specific controlling body dedicated to data sharing in this context.





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