

## Global Spotlights

# The impact of government policies, funding, and networking to accelerate transatlantic cardiovascular research

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In today's rapidly evolving international research landscape, networking and collaboration with researchers from diverse countries, institutions, and disciplines have become vital to drive success. Similarly, advances in the field of complex multifactorial cardiovascular diseases necessitate a multidisciplinary approach and global cooperation. Networking and collaboration can bring significant advancements in cardiovascular research by improving different facets of the disease such as prevention, diagnosis, patient care, and treatment. In this article, we present the impact of national and international government policies and funding opportunities to bridge efforts between cardiovascular researchers in the USA and Europe (EU). To accelerate transatlantic collaborations, we examine the impact of collaborations, related challenges, and funding mechanisms and present a call to action for the governments to prioritize international partnerships and capacity building.

## Impact on research progress

The government policies and funding initiatives have had a significant impact on the research collaborations and cardiovascular research progress. International collaborations bring researchers with diverse expertise together to enhance research productivity, allowing for sharing of resources, data, and infrastructure.<sup>1</sup> This synergy between the researchers and intercountry data sharing promotes transparency and reproducibility by enabling cross-validation of studies across different sites and enhancing the statistical power of the studies. Cardiovascular research requires diverse and complementary expertise from different fields, from clinicians and basic researchers, from the academia to the industry, health economics, policy makers, and patient organizations. Intercountry collaborations could enable researchers to identify genetic patterns prevalent in certain ethnic or racial groups. This could not only help in generating precision medicine but also help in identifying culturally relevant interventions and dietary patterns to promote cardiac health.

## Challenges associated with international collaborations

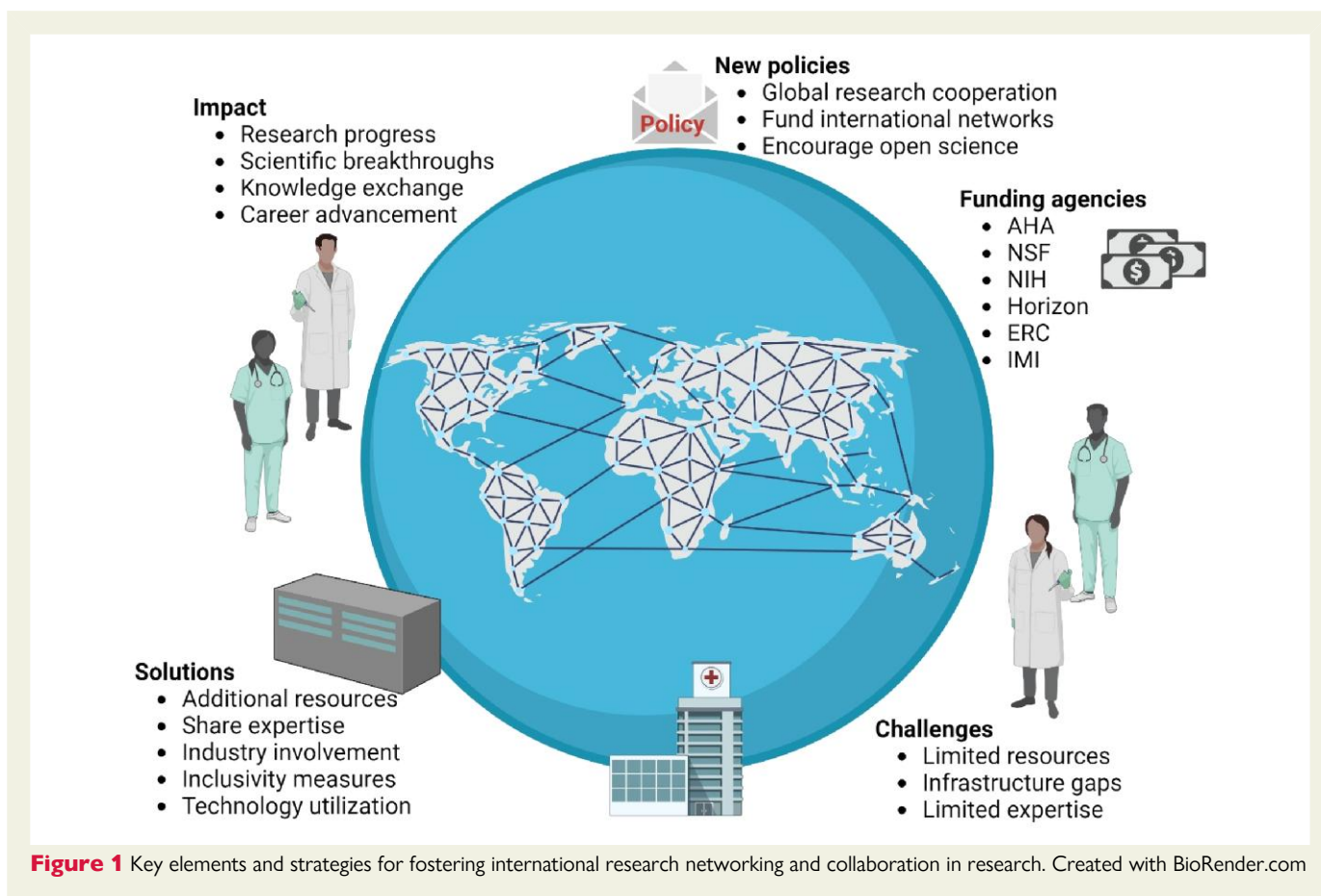
While international collaborations are necessary to increase the research impact, it comes with several challenges. In terms of interpersonal needs, different languages, multi-cultural perspectives, and habits might create communication gaps and confusion among the collaborating researchers. In terms of regional requirements, the research laws in different countries, host institution objectives, and national ethical restrictions might impede the intercontinental collaboration process. Moreover, cardiovascular research being crucial can sometimes be given a low priority compared with more pressing health needs such as those that happened during the COVID-19 pandemic. Further, healthcare data sharing is challenging due to privacy and security concerns, especially in EU where General Data Protection Regulation (GDPR) compliance is required. The new EU–US Data Privacy Framework (DPF) to be finalized in 2023 is a step to let EU researchers freely transfer patient data to US researchers with EU–US DPF certification.<sup>2</sup>

Other limitations of intercontinental funding initiatives include transfer of federal money across borders. The disparity in initiating connections between the countries conducting intensive research and less research-intensive countries also poses challenges. Most of the intercontinental collaborative funding opportunities rely mainly on pre-existing contacts between investigators in the USA and EU.

## Some examples of success stories

Despite the challenges discussed above, many large international research projects have provided significant outcomes relating to cardiovascular research that highlight the great potential of international collaborations. One such initiative is the INTERHEART, an

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observational case–control study conducted from 1999 to 2003 that involved expert investigators from 52 countries spread across 262 sites. As a final outcome, this study identified nine key easily measurable risk factors that were associated with up to 90% of myocardial infarction cases worldwide.<sup>3</sup> The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) is another example of international initiative. The GBD study consists of over 9000 researchers across 204 countries participating toward providing updated data on risk and mortality for up to 369 diseases, which also include cardiovascular diseases.<sup>4</sup> Such international collaborative studies could help in developing future research targeting environmental, lifestyle, and socioeconomic factors leading to the development of targeted prevention strategies worldwide.

## Government policies and initiatives for collaborative funding

The USA has the greatest expenditure of any one country in research and development. The National Heart Lung and Blood Institute annual research budget alone is \$3 billion, spread across 520 different institutions, on average.<sup>5</sup> On the EU side, the European Research Council (ERC) spending for 2023 is €12.4 billion for all research fields.<sup>6</sup> As such, government initiatives play a pivotal role in catalyzing transatlantic connections. In 1998, the EU–US ‘Agreement for Scientific and Technological Cooperation’ was formulated, joining research and innovation priorities, including in the health sciences domain.<sup>7</sup> This includes cross-continent research projects, joint task forces, joint organization of conferences and seminars, and exchange of researchers

[Decision (EU) 2018/1578]. In practice, this agreement allows Horizon Europe, supported by the European Commission, for joint collaborative grants and for individual training grants, such as the Marie Skłodowska-Curie actions and ERC awards being open to the US as well as Asian researchers. The National Institutes of Health awards most of its \$3 billion annual research budget to R01 projects, which can be team science projects with multiple principal investigators, including European senior investigators. In 2019, an agreement was struck between the ERC and the National Sciences Foundation to enable researchers funded by one of the bodies to be hosted by investigators funded by the other.<sup>8</sup>

Along with the initiatives by the government, funding agencies provide opportunities for grants toward facilitating collaborative projects to promote knowledge exchange. Several initiatives by Leducq Foundation, American Heart Association (AHA), Global Hearts Initiative, and Global Cardiovascular Research Funders Forum aim at facilitating international cooperation to accelerate global cardiovascular research output.

Networking meetings are a key platform for initiating international collaborative projects in cardiovascular research by bringing together leading researchers to share their latest findings and ideas. Major cardiovascular societies, such as the AHA, European Society of Cardiology (ESC), and International Society for Heart Research (ISHR) dedicated to fostering global interactions among cardiovascular scientists and clinicians, host annual conferences that attract thousands of attendees from around the world. The European Cooperation in Science and Technology (COST) Actions provide funding for networking meetings, scientific data and ideas exchange, and research visits for

junior researchers to European labs.<sup>9</sup> The emergence of online and hybrid meetings during the COVID-19 pandemic has increased participation from researchers in less research-intensive countries and junior researchers worldwide. Virtual research networks like the European Research Area Network and Cardiovascular Research Network further connect healthcare professionals across EU and USA to advance cardiovascular research and improve health outcomes.

## Conclusions and call to action

From sharing expertise and resources to collaborative development of projects, collaboration and networking can help researchers stay acquainted with the state-of-the-art developments in their field, expand their knowledge, and advance their careers.<sup>10</sup> However, building such research networks and maintaining them can be challenging, notably for early career researchers and under-funded research fields and countries.<sup>11</sup> Funding programmes from the USA and EU support transatlantic research, and others must be expanded to include not only EU–US partnerships but also to allow countries with less developed economies to widen their participation in cardiovascular research and expand the excellence. In addition, pharmaceutical companies and industries can play a bigger role in transatlantic sponsored research, given their global presence extending beyond the developed economies.

As such, in the dynamic field of cardiovascular research, it is imperative for governments and funders to sustainably refine, develop, and implement new policies that align with the prevailing need of the researchers. For example, the cultivation of initiatives that foster the utilization of modern-day technology, fund international networks to bridge the gap between researchers, align global research regulations, foster interdisciplinary research, and encourage the paramount concept of open science is needed. These progressive policies can also stimulate inclusivity and provide researchers with knowledge without any bounds. Key elements and strategies for fostering international research networking and collaboration in research are depicted in [Figure 1](#).

## Declarations

### Disclosure of Interest

All authors declare no disclosure of interest for this contribution.

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