Italian Journal of Medicine

https://www.italjmed.org/ijm

eISSN 1877-9352

Please cite this article as:

Pietrantonio F, Kopsaj V, Rosiello F, et al. **An innovative model of university cooperation in developing countries: results of five years of experience in internal medicine, health promotion and education**. *Ital J Med* doi: 10.4081/itjm.2025.1941

Submitted: 04-02-2025
Accepted: 27-03-2025

An innovative model of university cooperation in developing countries: results of five years of experience in internal medicine, health promotion and education

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Key words: humanitarian medicine, university cooperation, capacity building, sustainable health care, global health.

Contributions: the abstract was co-written. FP, wrote the sections 'Introduction', 'Methods' and 'Discussion'; VK, wrote the section 'The social value of humanitarian medicine'; DP, wrote the section 'Assessing the impact of humanitarian medicine'; FR, AT, data management and elaboration; FP, LM, model conceptualization; DP, VK, AT, wrote the section 'Conclusions'.

Conflict of interest: the authors declare that they have no competing interests.

Ethics approval and consent to participate: not applicable. Data was collected through field reports, interviews and impact assessments.

Informed consent: not applicable.

Patient consent for publication: not applicable.

Availability of data and materials: the datasets used and/or analyzed during the current study are available upon reasonable request from the corresponding author.

Funding: none.

Acknowledgments: the authors thank "Mattoni di Gioia" and in particular Patrizia Cusano, who contributed to the realization of all the missions, Umberto D'Alessandro for the precious contribution given to the project with the Medical Research Council and Giulio Mariani for the professionalism with which he contributed to the realization of the mission in Cameroon.

Abstract
University cooperation in the field of humanitarian medicine combines academic expertise with development initiatives. The UniCamillus Task Force was established in 2019 to propose new models for training students from developing countries and promoting self-sufficient health systems through medical interventions, education, and capacity building. Five years of experience in regions such as the Amazon, Cameroon, and the Gambia, using assessments, stakeholder collaboration, training, and long-term monitoring, were used to create an innovative model. Data was collected through field reports, interviews, and impact evaluations. In five years, over 130 health workers were trained, telemedicine centers were established, and improved medical access for underserved populations was achieved. The missions have provided over 4000 consultations and ensured continuity of health facilities after surgery. Integrating university cooperation into development programs promotes sustainable health autonomy. By addressing the challenges of humanitarian medicine − lack of coordination, inadequate follow-up, and inadequate technology – working with an innovative model strengthens health systems in the target regions. The innovative model of university cooperation exemplifies university-led humanitarian medicine, fusing research, education, and service. Future efforts will improve digital health solutions, expand research collaborations, and strengthen institutional networks for lasting impact.

Introduction

University cooperation

University cooperation stems from the need to link the expertise within the university world to the actions of the other (social and political) actors involved in development cooperation.[1] Indeed, the importance that the dynamics of interdependence of its different action plans are assuming in today's society is becoming increasingly evident. In this context, the complexity of the world of cooperation calls for an ever-increasing involvement of scientific competencies that are not limited to intervention techniques for the implementation of individual development cooperation actions on the territory, but invest topics ranging from energy to climate change, from health to sustainable environment, from the rule of law to good governance.[2] Not only is it necessary to have a planning approach that knows how to combine hard sciences and socio-institutional sciences, but also an adequate methodology for approaching complex problems and an ability to manage organization models and multifactorial projects, such as, for example, interventions that know how to combine together the economic and environmental, institutional and social, human rights and security 'pillars'.[3] All the more reason for a university such as UniCamillus, which was established with the aim of valorizing education as a driver of development, primarily targeting students from developing countries (DCs), to provide them with an excellent education to be used when they return home, actively contributing to the development of their own countries, to promote university cooperation activities for development cooperation since its foundation.

Unicamillus Task Force

Born from an intuition of Prof Gianni Profita, Magnificent Rector of the Saint Camillus International University of Health Sciences, in 2019 to give substance to the UniCamillus mission of providing professional and qualified training to young students with the aim of returning to their countries of origin to contribute to changing the health realities of DCs, combined with the objective of fostering the development of culture and science at the service of mankind at an international level. The aim is to promote study and research activities through the exchange of students between the Rome headquarters and DCs, and to promote the self-development of the countries in which it operates, by including a strong capacity-building component in its projects, understood as the transfer of technology, methodology and know-how.

Presence in development cooperation projects

1. Amazonia (01/08/2019-14/08/2019 and 05/11/2023-19/11/2023): immediately after the creation of the UniCamillus Task Force (UTF), the first mission was carried out, inaugurating the collaboration with an important local organization that has been active in Brazil for years: Fraternity São Francisco de Assis in Providence of God, São Paulo. Created by the São Francisco de Assis Fraternity in the Providence of God, the Papa Francisco Hospital Ship in the Providence of God was officially inaugurated in the presence of the joint mission of the non-profit organization "Mattoni di Gioia" and UTF, on 17 August 2019 in the city of Belém with the aim of ensuring health care for more than 1000 rural communities (ribeirinhas) living along the banks of the Amazon River. The next mission, organized by "Mattoni di Gioia", was in 2023, consolidating partnerships with local communities and carrying out activities to train local staff and promote health alongside the provision of health services and diagnostic tests.
2. Cameroon (24/02/2021-7/3/2021): the mission was set up to initiate university collaboration with hospitals that are already operational and assess the possibility for UniCamillus to be present in the area through the management of a local hospital, making the expertise of qualified personnel available to the Cameroonian community, responding to a very explicit request from local stakeholders, given that there is great interest in the development of university training projects, which represents an important meeting point between the mission of UniCamillus and the needs of the population.

3. The Gambia (04/09/2022-12/09/2022): carried out a mission to sign a Memorandum of Understanding between UniCamillus and the Medical Research Council Unit The Gambia at the London School of Hygiene & Tropical Medicine that is leading health research in West Africa to save lives and improve health across the world with the aim of carrying out the following activities:[4] i) exchange of people, from students to professors, nurses, and doctors, from short-term internships to full degrees; ii) use of digital technologies for enhancing health services (in particular telemedicine); iii) providing equipment and support the modernization of an existing unit (Table 1).

Methods

The methods used in the realization of the missions proved to be very appropriate, allowed for the realization of projects adapted to the needs of the population in a short period of time and created the conditions to fully leverage the university's in-house expertise.

The methods are characterized by the following steps: i) definition of UniCamillus' interests in the country; ii) preliminary study: consultation of databases [World Health Organisation, United Nations International Children's Emergency Fund, non-governmental organizations (NGOs)]; report consultation; literature consultation; iii) preliminary contacts with local stakeholders; iv) realization of conventions with stakeholders already involved in training and social work in Italy to realize joint programs; v) preliminary assessment in collaboration with local health organizations; vi) Memorandum of Understanding with local training and research structures; vii) definition of the project based on the needs of the population, training needs and suggestions of the health workers on site; viii) acquisition of funds; ix) realization of the mission; x) dissemination of results (Figure 1).

2019 year I - model creation

Territory: Pará region (Brazil).

Target patients and context: patients with pathologies from river communities (ribeirinhas).

Activities: the Barco Hospital Papa Francisco, brings healthcare along the Amazon River to remote areas. The hospital ship, active throughout the year, offers multidisciplinary health and surgical services in internal medicine, pediatrics and neurology, telemedicine, health training, and prevention education.

Intervention site: Amazon River, Obidos community (Pará, Brazil).

Duration of intervention: 14 days. Barco Hospital continued its missions (1 every 2 weeks to date).

Human resources: 2 UTF doctors and Brazilian/Italian medical team, including 3 surgeons, 1 anesthetist; 2 dentists; 1 ophthalmologist; 2 internists; 1 radiologist; 'Agreement with the non-profit organisation "Mattoni di Gioia – Onlus"'.

Material resources: diagnostic instruments already present at Barco Hospital through own funds. The mission was financed by "Mattoni di Gioia". An echograph and instrumentation to start teleconsultation and telemedicine activities ("Mattoni di Gioia"); computer (UniCamillus).[5]

Link with scientific research: UniCamillus publications and conferences already been realized.

2021 year II - extension of the model

Territory: Cameroon, Africa.

Target patients and context: children, pregnant women, and health personnel.

Activities: vaccinations for children and pregnant women. Education on healthy lifestyles on topics: nutrition, physical activity, and daily organization (*e.g.*, salt and sugar reduction). Video-recorded interviews for health situation analysis and understanding the needs of health personnel, doctors, and students; BLS-D (Basic Life Support- early Defibrillation) training for health personnel.

Place of intervention: Bertuà, Bimengue, Yaoundè, Mengue.

Duration of intervention: 24/02-7/03.

Human resources: UTF and a multidisciplinary team of 2 internists and 1 surgeon from Sapienza University of Rome.

Material resources: initial assessment mission fully financed by UniCamillus, acquisition of materials for the dissemination of results financed by UniCamillus' own funds; vaccines, on-site health equipment on Ministry of Health funds.
Link with scientific research: UniCamillus publications and conferences already been realized.

2022 year III - extension of the model
Territory: the Gambia, Africa.
Objective of intervention: implementation of the Memorandum of Understanding with the Medical Research Council to plan training activities, student exchange, and collaboration in development cooperation projects. Prevention, awareness-raising for women and children; nutrition. Training health workers.
Activities: prevention activities through general medical examinations and institution building, following the activities of the Medical Research Council with which an agreement has been made. https://www.lshtm.ac.uk/research/units/mrc-gambia
Place of intervention: Kiang West Hospitals and Keneba Health Center.
Duration of intervention: 4-12 September 2022.
Human resources: UTF and multidisciplinary team on site.
Material resources: UniCamillus sponsored the mission.
Link with scientific research: UniCamillus publications and conferences already been realized.

2023 year IV - second Amazon mission
Replication of the model structure, from 5 to 19 November 2023.
Territory: Amazonia, Pará Region, Amazonia, Brazil.
Activities: visits, interventions, and training for healthcare personnel in pediatric, internal medicine, and surgical patient management.
Place of intervention: Ipiranga-Praiha.
Duration of intervention: 5/11-19/11 2023.
Human resources: International team (internal medicine, pediatrics, neurology) Italian and Brazilian. UTF and multidisciplinary team of 'Convention with 'Mattoni di Gioia' - Onlus. Team of Italian doctors, including 2 UTF, 1 surgeon, 1 radiologist, 1 anesthetist + Brazilian international: 3 surgeons, 1 anesthetist, 2 dentists, 1 ophthalmologist, 2 internists.1 radiologist.
Material resources: mission financed by Mattoni di Gioia, on-site material resources present (Barco's own funds), UniCamillus valorized the presence of lecturers who made their expertise available in the field of patient management and training of Internal Medicine practitioners; they also set up health promotion activities for lifestyle improvement.
Connection with scientific research: UniCamillus publications and conferences already been realized.

The social value of humanitarian medicine
Humanitarian medicine is not just an emergency health intervention but represents a form of social justice that responds to structural inequalities in access to care. In DCs, health shortages are not exclusively a question of economic resources but also stem from power inequalities, social marginalization, and institutional fragility. In this context, humanitarian medicine plays a key role in reducing the health gap, not only by providing direct medical assistance but also by promoting capacity building, local training, and skills transfer.
A crucial factor influencing health inequalities is the social determinants of health, *i.e.*, the economic, environmental, and social conditions that determine individual and community health outcomes. Factors such as poverty, education, housing, nutrition, and access to clean water have a direct impact on the well-being and effectiveness of health interventions.[6] Without addressing these determinants, medical care alone cannot create sustainable improvements in health equity. The UTF recognizes this by integrating health promotion with education and economic support initiatives, ensuring that interventions lead to lasting benefits for communities.

The humanitarian approach to health is part of a broader paradigm of sustainable development, as improved health conditions have a direct impact on quality of life, economic productivity, and social stability. Indeed, access to care not only prolongs life and reduces mortality, but also contributes to strengthening human capital, enabling local populations to improve their living conditions independently and sustainably. In this perspective, initiatives such as those promoted by the UTF, which combine clinical intervention with the training of local health workers, represent an innovative model of cooperation, capable of fostering sustainable health autonomy instead of perpetuating forms of dependence on external assistance.

To ensure the effectiveness of these interventions, it is essential to overcome a purely welfarist vision, recognizing humanitarian medicine as a strategy for social empowerment and reducing inequalities. This implies integrating health actions with educational, social, and political strategies, and actively collaborating with local communities to build more resilient and inclusive health systems. In this sense, humanitarian medicine, like the Athenian democracy experiment, is rooted in a principle of social justice that addresses structural inequalities and promotes inclusion, autonomy, and equity. Similarly to Plato's social division, which conceived of a meritocratic order as the basis for a just and functional society,[7] humanitarian medicine also aims at a more equitable order, where every individual can access opportunities for health and well-being, contributing to a more just community. Welling *et al.* (2010) highlighted the so-called 'seven sins of humanitarian medicine', a critical framework useful for assessing the effectiveness of humanitarian interventions.[8] This framework is particularly relevant in the case of the UTF project, providing a lens through which analyze whether the initiative has moved in the right direction.

Table 2 presents the 'seven sins' in the first column and, in the second, the actions taken by the UTF to avoid them. This approach allows for a transparent evaluation of the strategies adopted and their concrete impact.

Finally, this concept map (Figure 2) offers a structured view of the main aspects of the social value of humanitarian medicine, illustrating how it contributes to social justice by reducing health inequalities and ensuring equitable access to care; promotes empowerment of local communities through capacity building and training of local health workers; fits into a logic of sustainable development by improving quality of life, economic productivity and social stability; and overcomes the welfarist approach by fostering a transition towards sustainable models of health autonomy. Through this visual representation, we can better understand the connections between humanitarian medicine and social development, highlighting the key role of university cooperation, training, and skills transfer strategies in building more resilient and inclusive health systems.

Evaluating the impact of humanitarian medicine

Measuring the impact of humanitarian medicine is a complex challenge that goes beyond simply collecting clinical data. While the number of patients treated, treatments administered, and medical devices distributed are key indicators, it is necessary to adopt a broader perspective that considers the social, economic, and institutional change produced by health interventions. The effectiveness of humanitarian medicine, in fact, cannot be assessed only in terms of immediate results but must be analyzed in light of its capacity to generate long-term transformations.

An effective impact assessment model must include qualitative and quantitative indicators, such as:

- the improvement of local health skills (number of trained professionals, dissemination of good medical practices);
- the accessibility of health services after the end of the project (continuation of care, strengthening of health structures);
- the change in the health conditions of the populations involved (reduction of maternal and infant mortality, prevention of chronic diseases);
- the economic and institutional sustainability of health programs, *i.e.*, the ability of local communities to continue health activities independently after the withdrawal of NGOs or international institutions.

Initiatives such as those promoted by the UTF highlight the importance of a multidimensional approach to evaluation, which considers not only medical outcomes but also the cultural and social implications of health cooperation. For example, the creation of collaborative networks between universities, local authorities, and communities is a key indicator of the ability to build durable and independent health infrastructures.

Finally, an aspect often overlooked in impact assessment is the role of local populations in the decision-making process. The success of humanitarian intervention cannot only be measured by the number of lives saved but also by its ability to promote the protagonism of local communities, making them active participants in the management of their health. Only through a participatory approach, based on the sharing of knowledge and resources, can humanitarian medicine become a true instrument of social transformation.

The analysis of the data in Table 1 highlights the success of the UTF in responding to these challenges. For example, the training of 300 health workers in 4 years shows a significant improvement in local skills, promoting the spread of sustainable medical practices. The results indicate that the humanitarian medical interventions had a multidimensional impact, addressing not only immediate health needs but also focusing on education, infrastructure stability, and long-term sustainability. By integrating capacity-building efforts, ensuring continuity of services, and promoting economic self-sufficiency, the program succeeded in improving the resilience of local health systems in the long term.

Table 1 gives a detailed overview of the activities carried out in the various cooperation projects. The figures show the broad scope of the interventions, with over 150,130 people reached and 4054 visits carried out in four years. In addition, the implementation of health training sessions enabled 130 local professionals to be involved, strengthening the health system in DCs.

Data on the distribution of drugs and vaccinations administered highlight the concrete impact of the health missions, particularly in terms of preventing infectious diseases and reducing the social stigma attached to diseases such as HIV. The approach adopted has therefore combined clinical interventions with awareness-raising and training strategies, ensuring an integrated and lasting response to the needs of local communities. Table 3 shows the impact evaluation of humanitarian medicine.

Finally, Table 4 provides an overview of the places of intervention and the number of patients served monthly. The wide territorial coverage, from the Amazon to Cameroon and the Gambia, demonstrates the ability of the UniCamillus model to adapt to different contexts and to respond effectively to local health needs. In particular, the creation of telemedicine centers and the promotion of maternal and child health prove to be key elements in improving the quality of life in the communities served.

The integration of these data with qualitative indicators reinforces the validity of the UTF model, confirming that humanitarian medicine must not be limited to providing immediate care, but must be a driver of structural and social change.

Discussion

A 5-year review of university cooperation activities in internal medicine, health promotion, and training programs reveals an emerging intervention model that can serve as a basis for structuring development initiatives in DCs. This model offers a framework for integrating university and research expertise, improving the effectiveness and long-term impact of international cooperation programs.

As far as Italy is concerned, the new Law 125 of 11 August 2014 tends to promote synergies between universities, social actors, and public administrations, called to be part of the National Council for Development Cooperation, a permanent instrument of participation, consultation, and proposal, to express opinions on the coherence of political choices, strategies, guidelines, programming, forms of intervention, their effectiveness, and evaluation (Art. 16).[9] The reference to the participation of public and private, profit and non-profit entities (Art. 23-27), together with the need to rationalize the resources of the public administration, highlights the reformer's intention to support the capacity to work as a system, calling for a 'proceduralized' *a priori* and *a posteriori* validation process that involves the different civil society entities, fostering the establishment of a desired network of

interdependencies between them. The university world can truly become a vector for the innovation of social actors from a transnational perspective. From the point of view of operational methods, it is first of all necessary to organically coordinate the 'three natural competencies' involved in university cooperation for peace and development: the scientific-academic dimension, the organizational-managerial competencies, and the motivational drive typical of the university's spirit of service to civil society and the international community.

The model also envisages a shift from the traditional 'academic collaboration', motivated by mainly scientific aims, to a broader 'university cooperation for peace and sustainable development' that places peace and the development of the society in which it operates at the center of its commitment, reconciling technical-scientific interventions, necessarily sectorial, with the real needs of the local populations whose needs become apparent during the course of the program itself, and working in close collaboration with other institutional and non-institutional actors.[10,11]

The main features of the implemented model that is proposed are as follows:

1. Research and education. The exchange and co-creation of courses, research projects, and publications will be one of the main shared activities. Tutored online classes will also be made available to facilitate access to teaching and training.
2. Exchange of people, from students to professors, nurses, and doctors, from short-term internships to full degrees. This is a fundamental part of the programs, as it is essential for building bridges between the respective cultures.
3. Promoting the use of digital technologies to improve health services. These could range from telemedical consultations between doctors to the co-design of a national medical database with public authorities and local partners.[12]
4. Collaboration in defining processes to improve healthcare activities by making available specific skills that are more present in developed countries than in DCs, such as the management of cardiovascular diseases, diabetes, and strokes.[13]
5. Set up health promotion programs, promotion of personalized medicine (6 P Medicine).[14]
6. Provide equipment and support the modernization of an existing unit or create a new one or provide support to the local health system.
7. Creation of international consortia to promote global research collaboration and improve training programs.

The model must necessarily be dynamic and adapt to the local situation in the country where the program takes place. In most cases, one of the ways in which a university such as UniCamillus can be present and useful is to offer external support that allows for the development of skills through the organization of on-site placements (through missions by UniCamillus professors) capable of carrying out on-the-job training to improve the level of education of health workers with the ultimate goal of actively intervening in life expectancy and prospects for care. This modality enables both on-site improvement actions and training programs for interested students.

In this perspective, it becomes essential to measure the value generated by such a cooperation model. A robust evaluation strategy must quantify the social, economic, and health impacts of the interventions and enable comparative analyses over time and across contexts to identify areas for improvement and monitor progress. Although measuring qualitative outcomes remains complex, the proposed model incorporates a framework based on specific, predefined quantitative indicators that allow for a clear, data-driven representation of the activities and outcomes. This approach requires that healthcare personnel systematically collect data in parallel with the interventions, making it possible to construct meaningful impact indexes.

An effective assessment model should therefore integrate both qualitative and quantitative indicators, enabling a multidimensional understanding of the interventions' outcomes.

Field activities between 2019 and 2023 in Amazonia, Cameroon, and Gambia (Table 1) demonstrate how this model translates into practice. Over 4000 visits, 99 surgeries, and more than 1600 diagnostic exams were performed, alongside medicine distribution and dental, pediatric, and preventive services. Health education involved over 2000 people, including adults affected by social stigma, and training

courses improved the skills of 130 local health workers. These actions align with core elements of the model, particularly the integration of care delivery and capacity building.
Table 4 shows how activities were adapted to context while maintaining shared goals: primary and maternal-child care, telemedicine, training, and health promotion were central across all sites. Populations served ranged from 14,800 to 179,000, showing the model's scalability and flexibility, even in remote or underserved settings.
Ethically, UniCamillus' approach aligns with the principles outlined by Welling *et al.* (Table 2). Interventions were co-designed with communities, avoided unnecessary technology or duplication, and focused on long-term impact, avoiding common pitfalls in humanitarian action such as lack of coordination, follow-up, or cultural sensitivity.
Table 3 further highlights the impact: 130 health workers were trained, over 6000 people reached with education activities, and 80% of health facilities were still operational after 3 years. Local ownership and continuity – through mechanisms such as local health cooperatives – underline the sustainability of this model.
The expertise of an international university such as UniCamillus can provide further added value in the realization of a more ambitious and ongoing Italy-Africa collaboration project, envisaging both training activities for UniCamillus students in the form of internships in equipped hospitals in DCs and the development of cooperation projects during the study activities carried out in the Rome campus in the form of research projects and theses for both undergraduate and postgraduate degrees. With the aim of developing the mission of UniCamillus more and more concretely, the project may envisage the development of innovative student-centered training methodologies, aimed at training physicians dedicated to the care of patients and the community, with particular emphasis on disease prevention in response to the needs of the community. Integration with the country's training network is a fundamental requirement to achieve integrated teaching and to stimulate the training of doctors not only with a solid scientific basis but also with significant clinical experience and complete dedication to patients. In this context, topics of particular importance are represented by primary care and disease prevention, maternal and child health, tropical medicine, surgical techniques, urgency management, ultrasound, the development of radiological techniques, telemedicine, and the integrated therapeutic approach with constant attention to ensuring scientific excellence.
The ultimate goal of the university cooperation programs and the proposed model is to help create better healthcare, inspired by what Confucius intuited as early as the 5th century BC: 'give a man a fish and he will eat one day. Teach him to fish and he will eat a lifetime' (Confucius).

Conclusions

The 5-year experience of the UTF shows that university cooperation, if based on structured partnerships, capacity building, and commitment to sustainability, can significantly strengthen health systems in low-resource settings. Fieldwork in Amazonia, Cameroon, and the Gambia shows that interventions based on education, digital health tools, and primary care can reach over 150,000 people and train more than 130 health professionals while promoting continuity of services and resilience of local infrastructure.
This study contributes to the literature by offering a replicable model of university-led humanitarian medicine that not only addresses urgent health needs but also promotes long-term impact through an integrated approach. By aligning with ethical frameworks (*e.g.*, the 'seven sins' of humanitarian medicine) and developing a multidimensional impact assessment system, the UniCamillus model addresses the limitations of short-termism, fragmentation, and top-down interventions.
From a clinical and operational perspective, the study shows how student and lecturer mobility, blended learning, and telemedicine can be effectively used to support health promotion, maternal and child health, and chronic disease management in different contexts. The integration of care, education, and research within a single cooperation model ensures that academic institutions can act not only as knowledge centers but also as agents of sustainable development.

In conclusion, the experience presented here shows that humanitarian medicine – if guided by rigorous planning, local participation, and data-based evaluation – can evolve into a form of social transformation. The UniCamillus model reinforces the idea that empowering local communities through knowledge transfer and institutional collaboration is not only ethically sound but also clinically effective and scalable.

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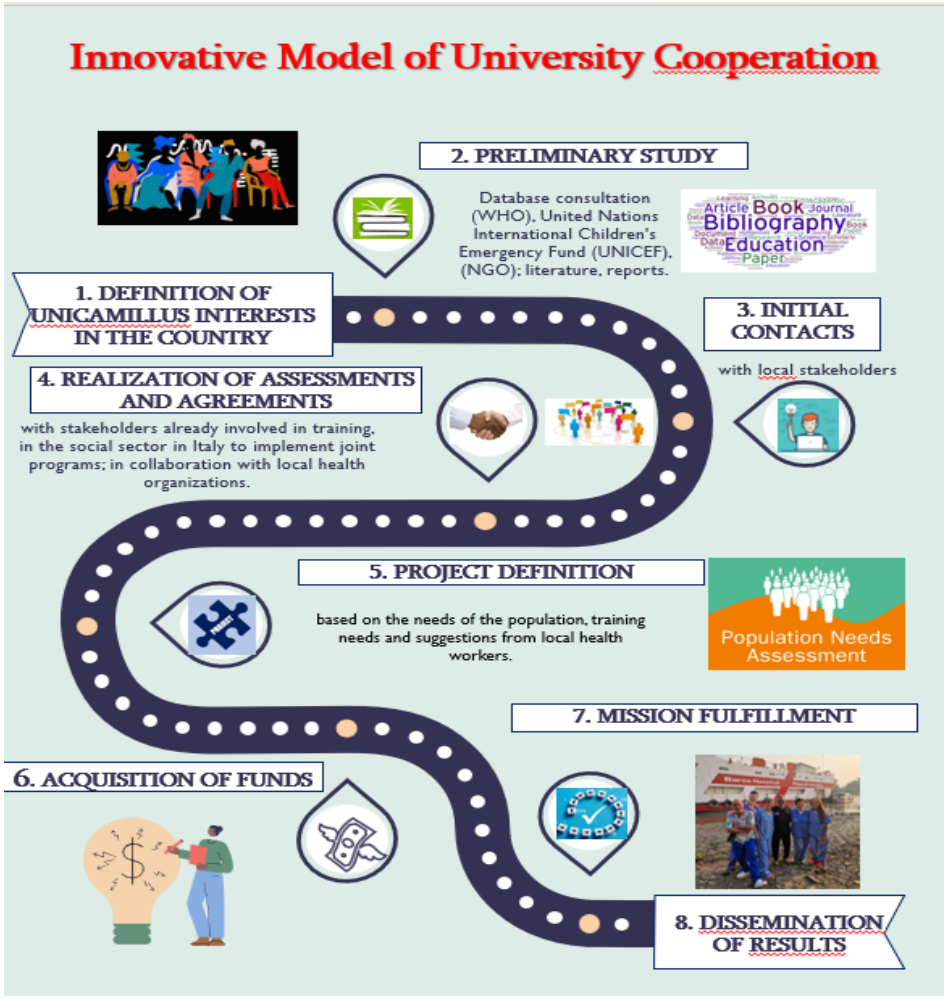

Figure 1. Innovative model of university cooperation.

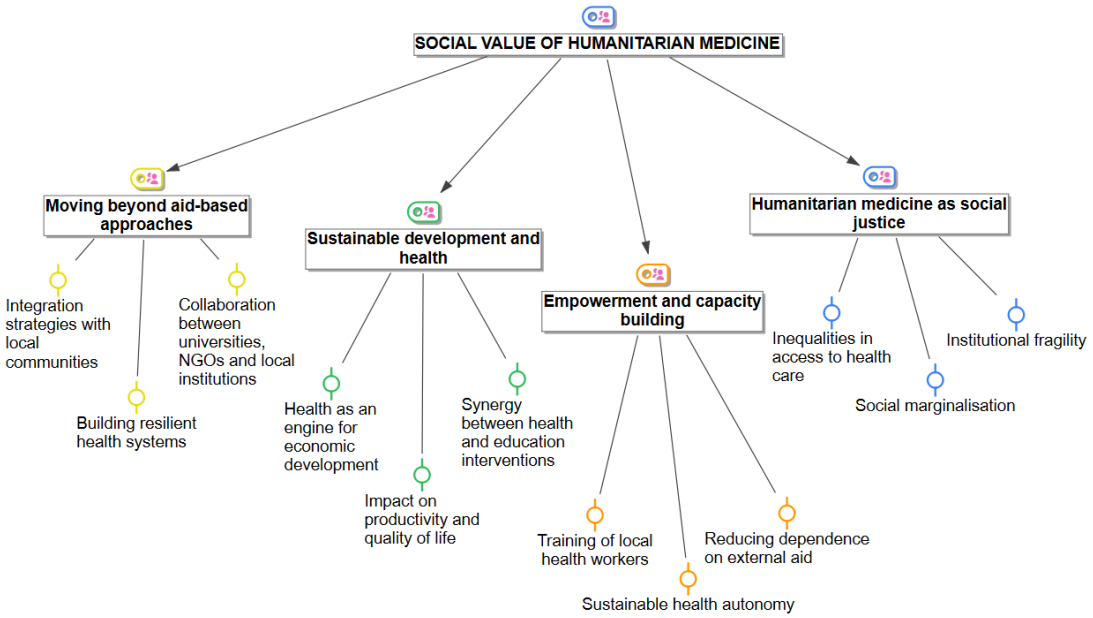

Figure 2. Concept map of the role of humanitarian medicine in empowering communities. UniCamillus Task Force. Source: Vera Kopsaj's elaboration with MAXQDA

Table 1. Activities carried out in development cooperation projects.

Year, country	2019 Amazonia	2021 Cameroon	2022 Gambia	2023 Amazonia	Total
No. of team doctors, of which UniCamillus	2 UTFs in a multidisciplinary team: with 3 Italian and 2 Brazilian doctors	3 UTF doctors collaboration with internal team	2 UTF collaboration with internal team	2 UTFs in a multidisciplinary team: with 3 Italian and 10 Brazilian doctors	9
Activity period/duration of intervention	01/08-14/08	24/02-07/03	4/09-12/09	5/11-19/11	7 weeks / 49 days
No. of people from the communities	49,330	46,000	14,800	40,000	150,130
No. of visits carried out	779	1700	750	825	4054
No. of surgeries	-	40	-	59	99
Admissions	-	-	-	40	40
Dental examinations and operations	163	-	-	455	608
Pediatric visits	100	-	-	152	252
Radiological and laboratory examinations	335	-	-	1326	1661
Distribution of drugs	300	n.a	n.a	672	972
No. of training sessions for health personnel/No. of participating health personnel	2 telemedicine and patient management courses in dentistry and general medicine/20 participants	2 BLSD courses/40 participants	2 telemedicine and gynecology/obstetrics courses/no. 40	2 courses/30 participants	8 courses / 130 people trained
No. health education sessions, prevention/No. participants	2/60 participants	4/160	2/80	no. 14 meal delivery and training to nutrition/6000+	8/300
No. of health education sessions for pregnant women/No. women participants	n.a.	2/200	2/100	n.a.	4/300
No. of vaccines sessions for children/pregnant women education	n.a.	2/200	–	2/200	4/400
No. of education session for adults victims of social stigma/participants	2 health education sessions/779 participants	2 sessions of health education on HIV social stigma/1000 participants	4 educational and training sessions for the role of women and the prevention of risk factors in pregnancy/ 120 participants	4 educational and training sessions for the role of women and the prevention of risk factors in pregnancy/ 146 participants	12 sessions / 2045 participants
Epidemiological screening performed	Cardiovascular risk factor screening	HIV testing on asymptomatic cases	On malnutrition in pregnancy and related risks	Lifestyle hypertension diabetes	4

Table 2. UniCamillus task force impact analysis: addressing the 'seven sins of humanitarian medicine' with sustainable solutions.

Seven Sins of Humanitarian Medicine (Welling et al. (2010)	UniCamillus Task Force: Actions Taken to Avoid the Sins
Sin #1: leaving a mess behind	Sustainable interventions through capacity-building and training local healthcare professionals to ensure long-term impact.
Sin #2: failing to match technology to local needs and abilities	Adapted medical interventions to local infrastructure, social context, and healthcare workforce capabilities, ensuring appropriate technology use.
Sin #3: failing of NGOs to cooperate and help each other, and to cooperate and accept help from military organizations	Collaborated with local and international stakeholders to create a unified approach, avoiding inefficiencies and duplication.
Sin #4: failing to have a follow-up plan	Integrated follow-up mechanisms to monitor impact, provide continuous support, and strengthen local healthcare systems.
Sin #5: allowing politics, training, or other distracting goals to trump service, while representing the mission as "service"	Prioritized social justice and health equity over external agendas, ensuring that interventions are driven by local needs rather than political influences.
Sin #6: going where we are not wanted, or needed and/or being poor guests	Engaged with communities, respecting cultural contexts, and ensuring interventions are welcomed and co-designed with local stakeholders.
Sin #7: doing the right thing for the wrong reason	Focused on genuine empowerment and sustainable development rather than short-term visibility or donor-driven motivations.

NGOs, non-governmental organizations.

Table 3. Impact evaluation of humanitarian medicine.

Indicator	Description	Measurement Method	Examples
Improving local health competencies	Number of trained health workers, dissemination of good medical practices	Training reports, interviews	- 130 health workers trained in 4 years - Health education activities for over 6000 people
Accessibility to health services after the end of the project	Continuation of care, strengthening of health structures	Follow-up with local communities	80% of health facilities operational after 3 years
Change in the health status of affected populations	Surgical, diagnostic and monitoring instruments	Epidemiological data	- 99 surgeries - 1661 cardiological examinations
Economic and institutional sustainability of health programs	Capacity of local communities to continue health activities on their own after the withdrawal of NGOs or international institutions	Interviews with local leaders, fund analysis	Creation of local health co-operatives

NGOs, non-governmental organizations.

Table 4. Intervention sites and patients served.

Country	Year	Location	Inhabitants in the area served by health services	Patients visited/monthly	Activity
Amazonia	2019	Obidos (Parà) Barco Hospital Papa Francisco	50,000	2069	✓ Primary health care ✓ Mother and child health ✓ Set up of a telemedicine center ✓ Health promotion ✓ Training of healthcare personnel
Cameroon	2021	Department Mvila Bimengue Health Center: Centre de Santé Integré, Saint Luc	179,429 n.a.	n.a 2500	✓ Primary health care ✓ Mother and child health ✓ Health promotion ✓ Training of healthcare personnel
Gambia	2022	Keneba Health Center	14,800	1500	✓ Mother and child health ✓ Digital health promotion ✓ Set up of students' training ✓ Set up of scientific researchers
Ipiranga Prainha	2023	Barco Hospital Papa Francisco	40,000	n.a.	✓ Primary health care ✓ Mother and child health ✓ Development of surgical activities ✓ Health promotion ✓ Training of healthcare personnel