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Mitigating health inequalities in rural European communities through collaborative primary care research: A position paper of the WONCA Europe network EURIPA

Miriam Dolan, Ferdinando Petrazzuoli, John Wynn-Jones, Anette Fosse, Christopher E. Clark, Rosario Falanga, Gheorghe Gindrovel Dumitra, Mark Gussy, Christos Lionis, Claudio Colosio, Rebecca Payne, Joyce Kenkre, Kateřina Javorská, Ioanna Tsiligianni, Donata Kurpas, David Halata, Liam Glynn & Tim Sanders

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Mitigating health inequalities in rural European communities through collaborative primary care research: A position paper of the WONCA Europe network EURIPA

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KEY MESSAGES

- Published research on rural primary care across Europe is scarce, which has led to a limited evidence base for bespoke clinical interventions, health service design, funding, healthcare educational frameworks, and workforce planning.
- A European network of researchers and academic institutions has been established to address this gap through collaboration and priority setting.

ABSTRACT



Rural populations in Europe face health inequalities due to a multitude of factors, including the higher prevalence of multi-morbidity, inadequate access to primary and secondary health care services, and widespread health workforce shortages. Although some challenges are also present in other contexts, the multitude and interconnectedness of these factors induce significant health inequalities. Research is a prime tool to demonstrate these, examine potential rural-specific solutions and serve as an essential advocacy instrument for change. Rural primary care remains however significantly underrepresented in European research, contributing further to the health inequities as policies and interventions are often based on urban-centric data. Therefore, advancing evidence-based solutions for rural primary healthcare requires stronger research collaboration. In response, the Rural Health European Academic Network (RHEAN) was established in 2024 to expand academic partnerships beyond the WONCA Europe network EURIPA, the European Rural and Isolated Practitioners Association. This paper identifies rural-specific primary care challenges emerging from key literature and network discussions that shape RHEAN's collaborative research agenda. The agenda will be refined through a mapping survey of rural primary healthcare research and education within the networks.

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Introduction

24% of Europe's population lives in rural areas. This is higher in Eastern European countries and in the Ural and Caucasus areas [1]. Within the European context rural areas are defined as areas where more than 50% of the population lives in rural grid cells, outside of urban clusters, often characterised by lower population density and a strong connection to agriculture [1]. Rurality is therefore relative, depending on the rural population's remoteness, size and sparsity compared to the rest of the country. While this definition is a useful starting point, it is important to acknowledge that rurality encompasses more than geographical criteria; it also integrates psychological and philosophical dimensions [2]. Consequently, the conceptualisation of rurality remains a subject of ongoing scholarly debate, with calls for more inclusive and multidimensional definitions [3].

European rural populations share accumulating challenges; a disproportionately high prevalence of an older population with multimorbidity, significant healthcare workforce shortages, unmet health needs among agricultural workers, the application of health policies primarily designed for urban contexts etc. (see Table 1), which collectively hinder achieving the United Nations' Sustainable Development Goal 3 stipulating universal health care coverage for all [4]. The European Union (EU) has a long-term vision for rural areas which also strongly features health and access to health services [5]. The World Health Organisation (WHO) recognises that primary health care is the most effective and cost-efficient approach to achieving universal health coverage [4]. Hence, rigorous research into the determinants of rural health inequities and the role of primary care in addressing them is essential to realising universal health coverage.

Table 1. Rural primary care issues and potential solutions.

Theme	Rural primary care issues	Potential solutions
Social and political determinants of health	A disproportionately higher proportion of older people with multimorbidity and reduced social mobility	Streamline chronic disease review appointments Promote integrated care Improve patient-centred access Value and support generalism and continuity of care Implement Social prescribing (Box 1) Extend the scope of rural primary healthcare professionals
	Unmet occupational healthcare needs of agricultural workers	
	Adverse health consequences of climate change and policies to tackle climate change	Initiate and scale up planetary health initiatives e.g. by supporting non-medical interventions (Box 1) Advocate for rural-proofing of climate change policies Explore and address health illiteracy Recognise and address rural stoicism, stigma (e.g. mental health)
	Cultural and educational factors	
Healthcare service design and management	Negative health impact of national/EU policies	Advocate for rural proofing of EU or national policies Value and support generalism and continuity of care Substitute tasks within multidisciplinary primary care teams Implement rural recruitment, retention and training strategies Facilitate the mobility of health care workers and patients Implement evidence-based technological innovations
	Inadequate access to primary care	Extend the scope of practice of rural primary healthcare Integrate primary and secondary care through digitally enabled solutions and implement effective Near-patient diagnostics (e.g. POCUS-see Box 2)
	Deficient access to secondary care	
Workforce	Limited undergraduate exposure to rural GP	Admit students with a rural background Set up context-based longitudinal rural placements Make universities socially accountable
	Lack of appeal of training in rural primary care	Advance Rural Track training programmes (see Box 3)/ Fellowships Recognise importance of external factors like childcare etc. Approach recruitment and retention in a systematic way Advocate for a national rural healthcare workforce policy Initiate programmes that counteract professional isolation
	Recruitment and retention issues	Set up/roll out training courses in advanced practice Have national and internal governance structures and pathways defining scope of practice Nurture and promote interprofessional collaboration/learning Empower rural practitioners and students (Box 4)
	Task substitution within primary care teams by default without evidence/funding	Strategically determine research priorities and initiate funded research through collaborative networks like EURIPA/RHEAN Ensure patient and public involvement using existing guidance
Research	Deficit in capacity, funding, patient participation, dissemination	

The European Rural and Isolated Practitioners Association (EURIPA) is a WONCA Europe network established in 1997. It has 95 members and an international advisory board with members from 33 countries. EURIPA published its Blueprint for Rural Practice in Europe in 2022 [3]. This followed the earlier Charter for Rural Practice (1997). The Blueprint sets the vision and a benchmark for European rural health care over the next 25 years. One of its objectives is strengthening the research base to inform rural bespoke solutions to address health inequalities. To achieve this, a wider collaboration was established in 2024, the Rural Health European Academic Network (RHEAN). Research collaborations have a long tradition in rural health [6], which have been initiated in Europe [7,8]. The formation of RHEAN was the result following a consensus panel meeting at the EURIPA rural forum held in Sinaia, Romania. From RHEAN's initial formation, members have been looking at formulating research priorities and how to build research capacity.

Research priority setting has been ongoing and will be further informed by a mapping survey initiated by RHEAN. This paper identifies four central themes associated with health inequalities affecting rural populations and primary healthcare teams, along with some proposed solutions, which are summarised in Table 1. The themes surfaced from discussions within the EURIPA and RHEAN networks, drawing on review documents and existing knowledge of rural primary healthcare challenges [9–11]. A consensus-based approach was employed, facilitated through a shared living document and a combination of in-person and online engagements.

Social and political determinants of health

Rural populations in different European countries have multiple Social Determinants of Health (SDH) in common. The WHO defines SDH as 'the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life'. SDH significantly impact health inequalities – the unfair and avoidable differences in health status [12].

A notable example of a rural SDH leading to health inequality is the disproportionately higher number of older people with multi-morbidity living in rural areas [1]. Multi-morbidity is linked with higher service usage and reduced social mobility. The rural context arguably hinders living well with multi-morbidity and providing effective, person-centred care to this population. Table 1 outlines a range of potential strategies that can inform service design, workforce planning and development, and educational initiatives aimed at addressing these challenges. Additionally, Box 1 presents the concept of *social prescribing and community orientation in rural primary care*, which is increasingly recognised as a promising approach to mitigating the adverse effects of social determinants of health.

Another example of a common rural SDH is the link between rural living and agriculture. 2020 Eurostat data reveal that agriculture has a higher average fatality and accident rate [1]. Agricultural workers often experience more stress and have higher suicide rates; in certain countries, suicide rates among farmers are 20% higher than the national average [13]. The high morbidity rates among agricultural workers are not met with extended general and occupational health services. According to EU rules, only employees have the right to be involved in health surveillance programmes, whilst family-based and small-sized enterprises without employees do not, which is around 90% of agri-business in EU countries. Agricultural

Box 1 Social prescribing and community orientation in rural primary care

Social prescribing (SP) connects people to activities, groups, and services in their community to meet the practical, social and emotional needs that affect their health and wellbeing. A key component is taking a holistic approach to people's health and wellbeing. It is designed to work for people with one or more long-term conditions, who need support with their mental health, who are lonely or isolated and/or who have complex social needs which affect their wellbeing.

There are opportunities in rural areas to tap into their direct environment and context to improve health and social wellbeing through green social prescribing. The health and social benefits of exposure to green spaces, such as forests, parks, and community gardens, and activities like social farming are increasingly apparent and can improve aspects of both physical and mental health.

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workers' occupational and health care providers are General Practitioners (GPs), who could lack the knowledge, skills, or resources.

Although rural areas are often idealised as 'idyllic', the physical environment can present additional challenges to accessing services in general, and social connectivity. Moreover, rural communities are particularly vulnerable to the impacts of climate change, which they tend to experience more acutely and immediately than urban populations. National and European climate policies can furthermore disproportionately affect rural livelihood, particularly in farming and fishing sectors, thereby influencing the financial stability, social cohesion, and emotional well-being of these communities [14]. Such policies exemplify political determinants of health, a concept referring to how political systems, power structures, and policies influence people's health and well-being. When policies are not 'rural-proofed', that is, critically assessed through a rural lens to ensure their relevance and appropriateness for rural population, they risk exacerbating existing health disparities and undermining the health of those who live and work in rural areas [4].

Healthcare service design and management

Rural implies less populated and more dispersed. Many people in rural areas must travel long distances to access health services. Access to primary care has also been reduced due to a rural workforce crisis. 'Medical deserts', where people have insufficient access to healthcare due to a shortage of medical personnel, long waiting times, and/or extended travel distances to facilities have become a stark reality especially in rural or deprived urban areas [15,16]. Furthermore, patients and their local healthcare team have less availability of specialist services, therefore most healthcare is delivered locally. Table 1 outlines key access challenges in rural primary care and proposes potential solutions.

Digital health technologies, including telemedicine and telemonitoring, offer promising avenues for addressing access barriers in underserved and geographically isolated regions. To ensure their effective integration into rural healthcare systems, further research is warranted to evaluate the efficacy, feasibility, and implementation challenges of telemonitoring, as well as the safety and quality standards associated with telemedicine [17]. Near-patient diagnostics are also advancing. An example is Point-of-care ultrasound (POCUS), which has been researched and could be specifically relevant in delivering health care to low-density and difficult-to-reach populations (Box 2).

Some rural areas, like islands, are very remote or difficult to reach, meaning their nearest district hospital with an emergency department is not easily accessible. Local primary care teams or community hospital clinical personnel must be trained, equipped and funded to deliver emergency care with synchronous or asynchronous specialist back-up. The General Medical Council in the United Kingdom (UK) has recently developed a Rural and Remote Health (Unscheduled and Urgent Care) credential providing a consistent approach to teaching and equipping doctors with enhanced skills in leading, delivering and coordinating unscheduled and urgent patient care closer to home [18].

Box 2 Point-of-Care Ultrasound (POCUS) in rural primary care

Point-of-care ultrasound (POCUS) is defined as ultrasonography that is performed by the clinician in real time. It has been increasingly adopted across various medical specialties for a broad spectrum of clinical indications, including those related to the cardiovascular, pulmonary, renal, musculoskeletal systems, for soft tissue and in pregnancy. Recent studies have demonstrated that general practitioners (GPs) can perform lung ultrasonography with a high degree of accuracy following a structured training programme.

POCUS holds significant potential to address healthcare inequalities and to empower GPs, particularly those practicing in rural, remote, resource-limited, or underserved areas. The World Organisation of Family Doctors (WONCA) advocates for the integration of POCUS training into both residency programmes and continuing professional development for GPs, recognising the operator-dependent nature of POCUS.

Continued research is essential to establish best practice and implementation of POCUS especially in rural and underserved areas to evaluate efficiency and feasibility.

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There are examples of how technology can facilitate specialist care [17]. But in many instances primary care teams in rural areas require an advanced scope of practice compared to their urban counterparts as access to specialist services e.g. for mental health, care for the elderly and palliative care is sparse or inaccessible. This has implications for training and continuous professional development, which is often difficult and time consuming to access due to distance from training facilities, isolation and challenging engagement if delivered through a hybrid online approach.

Task supplementation and substitution, within and beyond the primary healthcare team, to allied health practitioners and community organisations have been proposed as service design strategies to address increasing demand and general practitioner under-recruitment [19]. Task substitution has however been questioned both on safety and cost efficacy grounds and further research is needed to evaluate the safety, effectiveness, and quality of such approaches in rural 'medical deserts'.

Workforce

Europe is facing a health workforce crisis. This is expected to get worse with the demand for health and care to increase based on estimates that in 2050 around 30% of the EU population will be 65 years old or older, compared to 21% in 2022, with the proportion of older people rising more rapidly in rural than urban populations [1,20]. Rural areas are already facing substantial recruitment and retention issues [21].

Rural healthcare training pathways, or 'pipelines', are promoted as effective interventions for education and recruitment [22]. A WHO report highlights that admitting students from rural backgrounds and training them in rural areas are evidence-based strategies that improve attraction and recruitment [21]. Longitudinal placements in rural primary care provide context-specific exposure and have proven remarkably successful [22].

In their World Bank Group discussion paper, R. and S. Strasser state that the most successful education and training model for local rural comprehensive primary care teams is 'socially accountable, immersive community-engaged education woven into a facilitated education and training pathway starting with recruiting local students from rural and underserved communities' [23].

Keeping 'on the rural track' after finishing undergraduate education has been facilitated in various countries, such as in Scotland (see Box 3, Rural Track GP Training Programme in Scotland). Concerns expressed by trainees when considering rural practice, many of which also contribute to the migration of established rural GPs, such as fears of social and professional isolation, managing emergencies, extended scope of practice, and the need for cultural adaptability, are addressed explicitly within this type of tailored postgraduate training programme. More evidence is emerging that rural GP training programmes and fellowships for early career GPs increase rural retention and recruitment [21].

Incentives to train and then stay working rurally are often complex as a survey among young doctors in the Czech Republic showed. They found that the main motivating factors leading general practitioner trainees to work in rural areas are finance, securing a suitable job for a partner and obtaining schooling for children, ideally all three fulfilled [24].

The structure developed by Abelsen et al. illustrates a functional framework to support the planning of a sustainable rural healthcare workforce, describing overarching conditions for success like recognition of the issues, engagement with residents, adequate investment, cycle of activity, monitoring and evaluation [25]. This framework and rural training pathways should be standard practice and policy. Therefore, there is a broader political and social accountability question for national and European policymakers, universities, and deaneries.

Box 3 Rural Track GP Training Programme in Scotland

Rural track is the smallest of the Scottish GP training programmes but covers the largest geographical area. The programme offers generalist training in district general hospitals and remote GP training practices. Trainees experience remote and rural medicine and integrate into local rural communities. Rural Track posts are for trainees who want to experience the true generalist experience that working as a GP in rural Scotland offers.

Reference

<https://www.scotmt.scot.nhs.uk/media/3042573/Rural-Track.pdf> (last accessed 10/5/2025)

As with training, an essential dimension of retention is the provision of ongoing professional development, with particular emphasis on competencies necessary for rural practitioners. These include proficiency in telehealth technologies, near-patient diagnostics, a strong community orientation, and the ability to identify and address negative social determinants of health. There is an growing call for advanced clinical generalism within rural primary care teams, driven by previously mentioned factors such as greater distances from secondary care and a high proportion of elderly patients with multimorbidity, necessitating comprehensive, patient-centred, and continuous care [2,3]. Additionally, rural practitioners require capabilities for collaborative work within extended multidisciplinary and often inter-sectoral teams, and emergency and pre-hospital care competencies.

The challenges of social and professional isolation that rural primary healthcare providers commonly face must also be acknowledged and addressed. Burnout among (rural) General Practitioners is high [26]. This can be effectively mitigated by providing relevant, interactive e-learning opportunities or peer learning within small local networks.

Due to persistent workforce shortages, rural primary healthcare teams often use innovative approaches such as task substitution and supplementation within multidisciplinary and frequently intersectoral teams. Through these models, team members gain valuable expertise and are supported in assuming advanced practice roles. For example, practice nurses may independently manage chronic disease clinics, and

Table 2. Priority areas for rural primary healthcare research in the European context.

Themes	Priority areas for rural primary healthcare research in the European context
Definition of rurality	Develop a tool similar to the one used in the USA [27]
Access to primary healthcare	<ul style="list-style-type: none"> Strengthen the evidence base of interventions that improve access [9,28] How to best substitute roles within rural multidisciplinary primary care teams Effectiveness of recruitment and retention strategies Feasibility, safety and cost of increased mobility of health care workers How to use and implement technological innovations that improve access without compromising quality and safety
E-health:	Extend research on the safety and effectiveness of remote encounters [30]
Remote encounters	Understand attitudes and skills related to telemonitoring of practitioners in European rural primary care [31]
Telemonitoring [29]	Research digital literacy and connectiveness of rural populations [32]
Near-patient (NP) diagnostics	Strengthen the evidence in the effectiveness, efficiency, acceptability, feasibility of NP diagnostics in rural settings and how to train rural practitioners
Rural health systems	Address research gaps on health system strengthening tools in rural settings [33]
Undergraduate healthcare education in rural primary care	Extend the evidence base using comparative studies on the effectiveness of future recruitment and the quality of schemes like rural longitudinal placements, admitting students with a rural background, having social accountability incorporated in medical schools
Postgraduate training in rural primary care	Extend the research on the effectiveness of Rural Track programmes (Box 3)/rural Fellowships and on the drivers to train in rural primary care pan-European
Recruit and retain	Research on the applicability of existing frameworks for local healthcare organisations in the European context to achieve a stable remote and rural workforce
Extended scope of rural/remote working practitioners in various clinical areas	Examine what the specific learning needs are of rural practitioners and how these could be addressed (e-learning, small group learning, extended scope programmes) e.g. clinical areas with high demand and reduced secondary care access: care for the elderly, mental health, emergency and palliative care, occupational health of farm workers
Social prescribing (SP) and community orientation	Research feasibility and effect of (green) SP, especially on social isolation/loneliness in rural areas in Europe (see Box 1)
Policy and legislation	Examine how to best support and promote advocacy skills of rural populations/primary care teams
Rural primary care research	<ul style="list-style-type: none"> Endorse community involvement- patient and public involvement in research Support rural researchers in leading and publishing research Set research priorities through scoping research and network engagements Demand social accountability of academic institutions

paramedics may provide home-based care for elderly patients. These evolving roles necessitate enhanced supervisory skills from general practitioners and a high level of interprofessional collaboration within the primary care team. Funding gaps for such innovative approaches commonly exist, often leaving practitioners left with the choice of investing good will or leaving their patients short.

Research

Potential solutions to the health inequalities faced by rural populations and the specific challenges of rural primary healthcare (as outlined in Table 1) form the basis for a call for expanded, dedicated research efforts (see Table 2). However, advancing the European rural primary healthcare research agenda requires addressing several barriers. Insights from the United States highlight key challenges in rural health research, including inconsistent definitions of what constitutes a rural area, methodological difficulties in studying geographically dispersed populations, and the influence of complex social and cultural dynamics [34]. Additionally, rural researchers are often underrepresented within centralised, urban-based academic institutions and may encounter what has been termed 'urban narcissism', a form of marginalisation or lack of recognition of rural research within the broader research community [35].

Despite increased rural primary care research activity in recent decades, the field remains relatively fragmented and lacks a cohesive, structured framework for collaboration and knowledge development [8].

Rural primary care research is often underrepresented in peer-reviewed research papers in Europe. For example, a recent review on access to primary care in rural areas found that only 5% of documents came from Europe [36]. Specific academic journals like *Rural and Remote* have started to fill this gap. Rural academic collaborations and networks like RHEAN creates opportunities for skill development and collaboration. Researchers from rural backgrounds with a passion and understanding for living and working in a rural area are becoming stakeholders through organisations like EURIPA. See Box 4 on how

Box 4 Involving undergraduate medical students in rural primary care research

BF Nasir et al. describe how medical students at the University of Queensland, Australia get involved in research during their rural placement through conducting a Rural Health Project (RHP). They concluded that this helps to establish a robust pipeline for research and could be a valuable method to address community-specific rural health priorities. It simultaneously enhances the students' research skills. They looked at a total of 2806 eligible RHPs conducted between 2011 and 2021. Projects mostly addressed individual care needs or were related to factors influencing health status and contact with health services.

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Box 5 Rural research in Crete and Ireland

The European Rural and Isolated Practitioners Association (EURIPA) and the European General Practice Research Network (EGPRN) have been involved in conceptualising and developing a practice-based research network (PBRN). During two international workshops the rationale and design of such networks among rural family practices was evaluated. Key outcomes were shared with the WONCA Working Party on Research, the International Federation of Primary Care Research Networks, and EGPRN to encourage further development.

In Greece, the Cretan Practice-Based Research Network (CPBRN) was founded in 2006 in collaboration with the University of Crete. It is an example of a Practice-based Research network. The CPBRN applied a 'Stepwise Model' to guide its development. A publication in the *European Journal of General Practice* demonstrated that establishing a PBRN is feasible in resource-limited settings, particularly in rural areas lacking systematic morbidity data.

In the Republic of Ireland, the Irish College of General Practitioners for the first time in 2024, has offered ring-fenced funding for rural research. This proportional research funding, accessible to communities and rural researchers, was specifically called for within the 'Limerick Declaration on Rural Healthcare', constructed after the WONCA World rural health conference in Ireland in 2022.

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undergraduate students on rural placements can get involved in research projects. [Box 5](#) gives examples of some selected positive initiatives and approaches to sustainably promote rural primary care research.

Broad stakeholder involvement of patients through Patient and Public Involvement (PPI) frameworks, practitioners, and policy makers is becoming the norm in research. PPI is a way to ensure the patients' views are heard and included in the research design. This is even more important in rural areas, as rural dwellers are often excluded from participating in relevant studies [37].

Conclusion

Establishing and developing a pan-European rural primary care research network will strengthen the evidence base guiding best practices in rural primary healthcare and informing the design and implementation of rural-proofed healthcare services and policies. A clearly defined mission and research priorities will create opportunities to conduct and publish high-quality rural primary care research, which will aid in addressing health inequalities within rural communities across Europe.

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