SOCIAL INNOVATIONS Journal

Vol. 8 (2021): A Healthcare Workforce Cadre That Meets A Country's Needs

https://socialinnovationsjournal.com/index.php/sij/issue/view/78

# To a Blueprint for Rural Health

By Alan Bruce Chater, Head Mayne Academy Rural and Remote Medicine, University of Queensland, Australia

## Abstract

Addressing the issue of rural and remote health has been a practical and policy challenge over centuries. Evidence on how to address this emerged in the 1970's and have been built upon since then. Rural World Organization of National Colleges and Academies of General Practice/ Family Medicine (WONCA) initially developed policies on training for rural practice and rural practice and rural health. Although initially based on studies on the needs of rural doctors especially in high income countries, the evidence has been found to be generalizable to other professions and low-income and middle-income countries (LMIC). Rural Wonca in its literature review funded by WHO, found substantial evidence in LMIC. As the evidence for this has built through the literature, the WHO have published first, "Increasing *access to health workers in remote and rural areas through improved retention in 2010,"* and then the "*WHO Guideline on health workforce development, attraction, recruitment and retention in rural and remote areas in 2021."* These publishes works have been complemented by other initiatives and publications internationally including substantial evidence from the World Bank.

During the last two decades, increasing evidence has emerged about not only about what to do but how to do it. These have been encapsulated in the "Blueprint for Rural Health" (Blueprint) (1) from the 17th International Rural Health Conference. The Blueprint outlines several important principles that should underline rural and remote health including the importance of advocacy, primary health care (PHC), universal health care, public health, community infrastructure, access, and workforce. In this paper I will highlight some important new concepts and themes including, end to end planning and integrity, clinical courage, rural health education in rural for rural, immersive community engaged education (ICEE), rural exposure -- any is good -- more is better, grow your own, redundancy, stepladder education, engaging young doctors, the right health worker, rural generalism, rural origin, ruralization, rural policy, and localizing economic benefit.

This provides a framework for further developments in rural and remote heath for the benefit of rural people and communities.

## Introduction

The rewards and challenges of rural health have been highlighted in research and literature over many years.

The iconic rural doctor providing health services in and for a rural community was celebrated in *A Fortunate Man 1967 UK* and *Doctor Stories* 2012 Japan. The heroic aspect of this work

was also celebrated in *Single Handed - General Practitioners in Remote and Rural Area 2000 Scotland*. The struggles of a young Scottish rural doctor in a Welsh mining town in *The Citadel 1937* talked equally to the tragedy in some of these communities and the struggles that inspired the National Health Services in Britain to address some of these inequities.

Nurses and indeed other professions have had iconic stories in publications such as *Bush Nurses, Nurses of the Outback, Outback Nurse, Island Nurse in Australia, Voices in the Dust, Diaries of a Nurse,* and *Ebola Safari* in Africa and some have reflected on the tragedies of poor facilities and isolation such as the death of a nurse at Fregon in South Australia.

Despite these inspirational stories, for many communities, merely having a health professional is aspirational. This paper explores that journey which rural and remote communities worldwide go through in addressing this, especially for those where the situation is most dire -- in countries where the health workforce is already constrained.

**What is rural?**

The definition of rural remains elusive and is a topic for another publication.

It does have some of the elements of the famous legal ruling by Justice Potter Stewart in which he could not define obscenity but stated "I know it when I see it." The member countries of the World Health Organization (WHO) that have attempted to define it without agreement as there is such variation in population density and industry although often and usually including agriculture. One measure that has stood the test of time for many uses access and isolation.

The WHO in 1955 published *The Rural Hospital (*cited in Rural Health Care 1982) and that defined rural as "any area such that the time of transport to a built-up area of urban character would exceed ½ hour." This definition overlooks the fact that defining urban can also be problematic.

The closest to an current international definition is that developed by The Organisation for Economic Co-operation and Development (OECD). (2) The OECD developed regional typology takes into account the population density, the size of the urban centers located within a region, and the driving time needed to reach a highly populated center.

As health professionals, and with regard to health services, it seems sensible to have a working health-related definition that defines rural as where doctors and other health professionals perform tasks that would be usually undertaken by specialists or other professionals. It is this aspect of needing to work at full, and often expanded scope and responsibility, that is most defining of a rural health professional and indeed rural health service.

**What is it about rural that causes concern for consumers and policymakers?**

The issues behind this have been discussed and debated over many years at conferences on rural health care issues.

A conference on rural health care in 1939 noted:
"Even a superficial examination of medical practices of the last 100 years will indicate that that there has been scarcely a time or a place, in western nations at least, that there have not been complaints of a lack of medical services in rural areas" (3).

Not just high-income countries have suffered from this. Existing inequalities and inequities in many LMIC were made even worse by lack of access in an environment of already constrained workforce and services.

Many publications and policies have sought to address this and this paper seeks to bring together the current state of these offerings.

**Why do we concentrate on rural?**

In regard to access to health care, there are many disadvantaged groups and locations other than rural, and it can be argued that these are just as disadvantaged. So why single out rural and remote from these?

Specific environments require specific solutions and the urban model has clearly been a poor fit for rural. Rural and remote health can often present a unique combination of challenges -- the perfect storm of insufficient health services exacerbated by the problem of access. Only in rural is access almost a universal and persistent issue and a so-called wicked problem through time and across the world.

In concentrating on rural we don't deny that there are issues elsewhere, e.g. urban poor, but would assert that the issues and solutions to the rural health are, and need to be, tailored to rural care.

Ironically, rural care, can, if well done, be the ideal of practice with patient centered, personal, continuous care. That is our goal.

**What has changed?**

The last 100 years has seen remarkable changes with improvements in transport, specialized care, and technology being major influencers.

The evolution of faster and safer transport has meant that services can be accessed more easily for many but the rural and poor are often not advantaged by this and remain, or

become, in fact, disproportionately disadvantaged as services shrink further, private transport is not attainable, and public transport is non-existent.

Centralized administration and specialized care have concentrated populations into larger urban areas further and further from the rural populations. While there has been a move in some jurisdictions to a hierarchical decentralized delivery of health services in an attempt to address this, often the power and resources, financial, educational, and administrative, stay centrally in larger regional and metropolitan centers.

Technology has meant an increased understanding of medical conditions, and the supremacy of specialist knowledge. This can serve populations well in highly specialized areas but even then, access to these services remains unattained for many rural people. The current coronavirus (COVID-19) pandemic has seen technology accelerate sometimes for better and often for worse.

There has been equally some democratization of knowledge access for those with adequate internet service and this has allowed local practice and indeed education to be sited in and more effective in areas distant for established "centers of learning."

Barbara Starfield and colleagues (4-6) have shown that while specialization is beneficial in the some highly specialized areas it does not provide well for the majority of services which require an integrated primary care approach.

The World Heath Report 2008 (7) identified also, continuing and current trends of hospital-centrism, commercialization, and fragmentation, along with the need for primary health care more than ever to address this. Only primary care can adequately address health equity and universal access to provide patient centered care.

**The path to rural policy**

Formal research into the issues around rural health began in the 1970's and resulted in publications including *Rural Health Care*. (8) In this publication, the authors outlined the principles of rural health care as:

1. Planning must be population based
2. The rural health system should be based on generalists
3. All functions within a rural health care system should be integrated
4. Rural communities must build two-way cooperative arrangements with other rural and urban communities
5. The structure of the reimbursement system must reward appropriate rural health services
6. There are thresholds in rural health care/certain levels of service require external subsidy

In 1992 in Vancouver a small group of rural doctors met to discuss specifically the issues of training future doctors for rural practice. This group was formalized into the WONCA (World Organization of National Colleges and Academies of General Practice/ Family Medicine) Working Party on Training for Rural Practice (sic) which formalized its recommendations into the Policy on Training for Rural Practice(9) which was endorsed by WONCA World Council in 1995.

The key recommendations of the report were:

1. Increasing the number of medical students recruited from rural areas
2. Substantial exposure to rural practice in the medical undergraduate curriculum
3. Specific flexible integrated and coordinated rural practice vocational training programs
4. Specific tailored continuing education and professional development programs which meet the identified needs of rural family physicians
5. Appropriate academic positions professional development and financial support for rural doctor-teachers to encourage rural research and education
6. Medical schools should take responsibility to educate appropriately skilled doctors to meet the needs of their general geographic region including underserved areas and should play a key role in providing regional support for health professionals and accessible tertiary health care
7. Development of appropriate needs based and culturally sensitive rural health care resources with local community involvement, regional cooperation, and government support
8. Improve professional and personal/family conditions in rural practice to promote retention of rural doctors
9. Development and implementation of national rural health strategies with central government support

The Working Party was formalized at the 1995 World Wonca conference into the WONCA Working Party on Rural Practice (Rural Wonca). The working party went on to hold the first International conference on Rural Medicine in Shanghai in 1996 and from this and the subsequent Rural Health conferences came a further publication of collated conference recommendations focussing more broadly on rural services, entitled *Policy on Rural Practice and Rural Health* (10) in 1998 with a second edition in 2001.

From these conferences, further principles for rural health care emerged:
1. That the necessary infrastructure for the implementation of comprehensive health care delivery for rural, remote, and underserviced areas must be a high priority for national governments.
2. That the specific nature of rural practice, including the broader range of skills required of rural doctors, needs to be recognized by governments and professional organizations.
3. That the core general practice/family practice competencies of rural doctors needs to be enhanced by the provision of additional skills for rural practice appropriate to the

specific location of the practice.
4. That the status of rural doctors needs to be elevated by a coordinated approach involving improved career prospects, education, and training, improved incentives and improved working conditions. These should be supported by governments, communities, and professional organizations recognizing the pivotal role of the rural doctor.
5. That the rural doctor and other health professionals should assist the community in assessment, analysis, and development of health services responsive to community needs, while recognizing the importance of a patient-centered approach at the individual level.
6. That models of rural health services need to be evaluated and promoted, in partnership with rural communities, and in cooperation with regional and national health authorities.
7. That rural doctors need to adopt the philosophy of primary health care as a key to the health of rural communities.
8. That women must be involved in all representative bodies and be there when decisions are being made.

The Policy also outlined a strategic framework for better rural health care around five main elements:
1 Preparation for rural practice
2 The development, maintenance, and enhancement of the skills of rural doctors
3 Recruitment of doctors to and retention of doctors in rural practice
4 Meeting community needs
5 Providing a framework for rural health care

Although doctor focussed by a then doctor focused organization, the elements were broadly applicable.

In 2010 the first evidence-based guidelines *Increasing access to health workers in remote and rural areas through improved retention (The Guidelines) (11),* were published by WHO. These noted that the decision to relocate to, stay in, or leave a rural area are based on various dimensions and the guidelines reviewed interventions in these dimensions of:

- education
- regulations
- financial incentives
- professional and personal support

The Guidelines have been, over the last two years, subjected to a rigorous review process (12) and are now refined in 2021 into: *WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas (13)*

The recommendations with their strength of recommendation are:

**Education**
**1. WHO recommends using targeted admission policies to enrol students with a rural background in health worker education programs**
Strength of recommendation – strong Certainty of evidence – moderate
**2. WHO suggests locating health education facilities closer to rural areas**
Strength of recommendation – conditional Certainty of evidence – low
**3. WHO recommends exposing students of a wide array of health worker disciplines to rural and remote communities and rural clinical practices**
Strength of recommendation – strong Certainty of evidence – low
**4. WHO recommends including rural health topics in health worker education**
Strength of recommendation – strong Certainty of evidence – low
**5. WHO recommends designing and enabling access to continuing education and professional development programs that meet the needs of rural health workers to support their retention in rural areas**
Strength of recommendation – strong Certainty of evidence – low

**Regulation**
**6. WHO suggests introducing and regulating enhanced scopes of practice for health workers in rural and remote areas**
Strength of recommendation – conditional Certainty of evidence – low
**7. WHO suggests introducing different types of health workers for rural practice to mee the needs of communities based on people-centered service delivery models**
Strength of recommendation – conditional Certainty of evidence – low
**8. WHO acknowledges that many member states have compulsory service agreements. When compulsory service in rural and remote areas exists, WHO suggests that it must respect the rights of health workers and be accompanied with fair, transparent, and equitable management, support, and incentives**
Strength of recommendation – conditional Certainty of evidence – low
**9. WHO suggests providing scholarships, bursaries, or other education subsidies to health workers with agreements for return of service**
Strength of recommendation – conditional Certainty of evidence – low

**Incentives**
**10. WHO recommends employing a package of fiscally sustainable financial and nonfinancial incentives for health workers practising in rural and remote areas**
Strength of recommendation – strong Certainty of evidence – low

**Support**
**11. WHO recommends investing in rural infrastructure and services to ensure decent living**
**conditions for health workers and their families**
Strength of recommendation – strong Certainty of evidence – low
**12. WHO recommends ensuring a safe and secure working environment for health workers in rural remote areas**
Strength of recommendation – strong Certainty of evidence – low
**13. WHO recommends providing decent work that respects the fundamental rights of health workers**

Strength of recommendation – strong Certainty of evidence – low
**14. WHO suggests identifying and implementing appropriate health workforce support networks for health workers in rural and remote areas**
Strength of recommendation – conditional Certainty of evidence – low
**15. WHO recommends a policy of having career development and advancement programs, and career pathways for health workers in rural and remote areas**
Strength of recommendation – strong Certainty of evidence – low
**16. WHO suggests supporting the development of networks, associations and journals for health workers in rural and remote areas**
Strength of recommendation – conditional Certainty of evidence – low
**17. WHO recommends adopting social recognition measures at all levels for health workers in rural and remote areas**
Strength of recommendation – strong Certainty of evidence – very low

At the same time the importance of the health workforce has been recognized as not onl vital to health but also as a key economic driver. (14)

This was emphasised at the Fourth Global Forum on Human Resources for Health Dublin 2017 in the Dublin Declaration on Human Resources for Health: Building the Health Workforce of the Future which noted the need to:

*Emphasize the fundamental importance of a competent, enabled and optimally organized and distributed health and social workforce, especially in rural and under-served areas, for the strengthening of health system performance and resilience (15)*

The Declaration of Astana on Primary Care also for the first time specifically mentioned rural health as a specific area for action and noted the need to address the role of hospitals in PHC, integrating public health and PHC, and the role of PHC in health emergencies. (16)

The WHO documents and guidelines have been supplemented and supported by a number of other key papers with important clarification, key concepts, and enablers.

*The Rural Wonca Checklist - Implementing rural pathways to train and support health workers in low and middle income countries (17)* commissioned by WHO, analyzed the literature with respect to recruitment and retention in rural areas of LMIC and provides an assessment tool for health services to benchmark against, through considering:

1. Community needs rural policies and partners
2. Existing workers in their scope
3. Selection of health workers
4. Education and training
5. Working conditions for recruitment and retention
6. Accreditation and recognition
7. Professional support and upskilling

8. Monitoring and evaluation

This paper emphasised the integrated and interdependent nature of these steps and although favouring pathway over pipeline to be more empathetic to the volition and aspiration of young health professionals did note that, like a pipeline, the integrity of all elements is essential. The tool has been used in many workshops and contexts to assist planning in rural services.

A study in the Arctic across two continents, *Making It Work 2019* (18) also developed a framework for remote rural workforce stability based on three steps -- plan, recruit, and retain -- to sustain rural health services.

They further elucidated five conditions for success:

- Recognition of issues
- Engage residents
- Adequate investment
- Annual cycle of activities
- Monitoring and evaluation

This is complemented in the Canada and Canadian Arctic by the *Canadian Rural Road Map*.(19) The Advancing Rural Family Medicine: Canadian Collaborative Taskforce is a joint initiative of the Society of Rural Physicians of Canada (SRPC) and the College of Family Physicians of Canada (CFPC). The goal of this joint initiative is to enhance equitable access to health care and improve patient outcomes in rural and remote communities in Canada.

The Roadmap outlines 20 actions in four directions:

1. Reinforce the social accountability mandate of medical schools and residency programs to address health care needs of rural and Indigenous communities.
2. Implement policy interventions that align medical education with workforce planning.
3. Establish practice models that provide rural and indigenous communities with timely access to quality health care that is responsive to their needs.
4. Institute a national rural research agenda to support rural workforce planning aimed at improving access to patient-centred and quality-focused care in rural Canada.

The 15th World Rural Health Conference *Delhi Declaration* highlighted the inequities facing rural health and emphasized these especially in the context of Alma Ata and the Astana Declaration. (20)

The World Bank has produced many useful documents (21-23). on the economic and social determinants of the rural health workforce and its recent paper "Reimaging Primary Health Care Workforce in Rural and Underserved Settings" (24) addresses directly the need for rural-based education. This monograph explores how to make the most effective utilization of rural health facilities for service provision, education, and economic benefits. and links these in cost effective framework.

SOCIAL INNOVATIONS Journal

Vol. 8 (2021): A Healthcare Workforce Cadre That Meets A Country's Needs

https://socialinnovationsjournal.com/index.php/sij/issue/view/78

**A Blueprint for Rural Health**

In 2020/21, Rural Wonca held its 17th World Rural health Conference and included a series of keynote lectures in cooperation with Network: Towards Unity For Health (TUFH)

- Rural training pathways and pipelines
- Learning in rural setting
- Rural workforce retention strategies
- Supporting young health professionals in rural settings
- High performing rural teams and rural workforce: getting the balance right
- Digital health ai and telehealth: improving not worsening access
- Rural effects of climate change
- Role of family medicine in rural health
- Rural generalist family care
- establishing family medicine in low- and middle-income countries
- Epidemiology and public health

This conference was to be face to face in Bangladesh but was, due to the pandemic, held virtually. It did however hear from and acknowledge the substantial progress and role of the Government of Bangladesh, in taking health to its people through a dispersed network of community clinics catering to 6,000 people within a local area. (25)

From these 11 lectures, the above publications and evidence , and through an iterative consultative process the ***Blueprint for Rural health*** (1) was developed to highlight and share successful approaches and provide assistance to governments, educational institutions, advocates, and indeed rural organizations, communities, and people in implementing solutions.

Key areas considered in the Blueprint are:

1. Advocacy
2. Primary Health Care
3. Universal Health Care
4. Public health and community infrastructure
5. Access
6. Workforce

This paper will now demonstrate some of the key elements and highlights of the Blueprint. Readers are recommended to read the Blueprint in full at www.ruralwonca.org.

**1. Advocacy**

The role of rural communities, rural groups, and rural health professional groups is essential to establishing rural policies that meet the needs of rural communities. These have included

rural doctors associations in Norway, Canada (Society of Rural Physicians of Canada SRPC), Australia (Rural Doctors Association of Australia RDAA and state RDAs), South Africa (Rural Doctors Association of South Africa RDASA). and Thailand, rural health groups such as the National Rural Health Association and, some remote and rural nursing organizations such as the Council of Remote Areas Nurses (CRANA) in Australian and community health worker organizations (usually rural) especially in Africa. They have also resulted in rural academic groups at an international level -- Rural Wonca, Rural Seeds (young doctors), Regional level -- Wonca Rural South Asia (Worsa), the European Rural and Isolated Practitioners Association (Euripa), and at a country level in countries as diverse as Primary Care and Rural Health in Bangladesh to, in Australia, the Australian College of Rural and Remote Medicine (ACRRM), and within a college, the Royal Australian College of General Practitioners (RACGP), a Rural Faculty.

These groups have influenced policy at local and sometimes higher levels, established rural proofing (UK/South Africa), resulted in national policies and roadmaps, and in Australia, resulted in the appointment of a National Rural Health Commissioner.

2. **Primary Health Care**

The concept of primary health care is a great one to bring together many of the best aspects of health. The definition of primary health care can however be fraught with danger as it can be used in a pejorative or restrictive way that suggests that it is defined more by exclusion of hospital, emergency, or specialized care than a positive proactive view of its role. This deficit was noted and addressed in the Astana Declaration.

In rural areas Primary Health Care needs to be comprehensive, continuous, first contact care that is as integrated and generalist as possible with all practitioners working to their maximum ability. This means that these rural practitioners work in the realm that specialists would often be responsible for in the city.

Primary Health Care (PHC) in rural areas should have the characteristics of being both primary in terms of including all first contact care, and also comprehensive, local, grounded, and proactive in addressing the health needs of rural communities.

3. **Universal Health Care**

The UN Sustainable Development Goal 3.8 was aimed to achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.

This has many aspects but requires local rural health care to be accessible, affordable, provide gender equity, be culturally appropriate, be engaged and local, be comprehensive, and be supported by adequate Infrastructure.

### 4. Public health and community infrastructure

Adequate community infrastructure is vital to the comprehensive health of the rural population and their health workforce and needs to be a priority. Basic sanitation and services should be a priority. Innovations abound in this area. Such facilities are a basic need for good health and are vital for attracting staff.

Some programs, such as aged care, have subsidies in many countries that follow the person and can be used to support and fund local services. These can be more effective and acceptable to people locally and have a multiplier effect on the local economy.

For adequate health services and especially local health service education good internet is essential.

### 5. Access

Access to high quality health services is the cornerstone of rural health care. Technology can enable this but should not replace it.

The issues of access for rural populations are not just access to any service but access to a service that can adequately address locally, the preventative, diagnostic, urgent, curative, and palliative needs of the people in these communities.

This might need to be provided in a scaled and stepped down way but must mean that rural people have access to safe, applicable health care.

This needs health practitioners to have commensurate skills to address the needs of rural and remote communities. These will vary but need to be set by those who work in rural, be informed by those who set the standard for their rural medicine specialty, and balance geographic risk to achieve an absolute benefit in the rural context. As an example, it is pointless advocating for immediate coronary stents when they are not available locally. Intravenous clot busting lysis locally, although not gold standard in the city, saves lives in rural areas while awaiting access to the city stent solution.

The balance must be attained between the available generalist health practitioner and solution, compared to a distant and often inaccessible specialist solution. If not, a focus on specialization leads to increased vulnerability and takes narrow view of patients that focuses only on their disease and takes no account of their circumstance. (26)

To achieve this all practitioners should be able to function at top of their scope. This can be enhanced by clinician led technology for simple access to the internet for guidance and procedures through to real time videoconferencing or telephone assistance. This hass become even more common in the COVID-19 age even in the city and is equally applicable in the modern learning environment for both students and adult learners.

### 6. Workforce

The workforce in rural areas needs to be fundamentally different from the workforce in urban areas if is it is to be effective sustainable and cost effective. They must be generalists in generalist teams working at maximal scope and with some advanced and extended skills.

The workforce needs to be primarily selected for their intention and desire to be in rural areas. Absolute intelligence or academic excellence should not be the primary factor. The benefits of this have be demonstrated in a number of settings. (27, 28)

Health professionals of all types can and should be educated in the rural environment and learn how to apply their skills in this context.

Even Flexner, whose report (29) centralized much of the medical training to improve education standards and standards of practice observed:

*The small town needs the best and not the worst doctor procurable, for the country doctor has only himself to rely on. He cannot in every pinch hail a specialist and nurse. (29)*

In considering workforce it is equally important to have a sustainable workforce with adequate redundancy and a plan for recruitment or succession planning. Too often, as Professor Paul Worley observed, rural towns and villages are "one doctor (or other practitioner) away from a crisis."(30)

## Important New Concepts and Themes

Throughout the **Blueprint for Rural Health** there are a number of important concepts that have arisen out of discussion, practical implementation, and experience of the initiatives suggested and supported by the evidence.

1. *End to end planning and integrity*

As described, while the pathway concept is more respectful of those who seek to or are working in rural areas, the path to rural behaves very much as a pipeline in that it:

- Needs regular maintenance
- Can be augmented
- Can leak
- Will cease to flow if blocked
- Will fail if a piece if missing or removed
- Need for redundancy

Too often in policy development one piece of pipe is moved from one part of the pipeline to another disrupting flow and reducing or stopping output.

As McKendry said in looking at the Ontario Rural Medical workforce in 1999

*It metaphorically needs a constant 'plumber or guardian/gardener who can attend to these issues. The guardian must ensure that it starts at the right place and finishes at the right place, that it functions well and that all that work on it have a clear understanding of its purpose and function.*

*It appears that previous efforts to manage physician resources have suffered from a lack of longitudinal planning and specific planning horizons when planners recheck original assumptions against the current changing environment, and continually modify their plans based on new information.* (31)

One of the icons of rural medical education, the Norther Ontario School of Medicine was one of the outcomes of this report -- a truly integrated regional solution.(32)

2. *Clinical courage*

Temperament and character can be important to a successful career in rural health. (33) Further research has found that the temperament of most medical students is suited to rural practice. (34)

Building on that temperament with maximized skills and the ability mange in a complex and constrained health system is important.

One of the characteristics of rural practice that has been raised and then defined by research is the concept of clinical courage. (35)

To thrive and not just survive in rural communities a rural practitioner needs adaptive skills which are summarized in a recent paper :

- Standing up to serve anybody and everybody in the community
- Accepting uncertainty and persistently seeking to prepare
- Deliberately understanding and marshalling resources in the context
- Humbly seeking to know one's own limits
- Clearing the cognitive hurdle when something that needs to be done for your patient
- Collegial support to stand up again

3. *Rural Health Education in Rural for Rural*

To be successful in producing future rural practitioners, rural health education must:

- Be immersive
- Acknowledge that the teachers are the frontline practitioners
- Grow the frontline practitioners as teachers
- Grow local facilities to allow local simulated learning
- Enable and support education through online resources

A catalogue of these initiatives is contained in the 71 chapters by 74 authors of *The Rural Medical Education Guidebook* released in 2014 by Rural Wonca. (36)

4. *Immersive Community Engaged Education (ICEE)*
   For rural health worker education to be successful, the learning must be in rura- by-rural practitioners for rural practice. The "lack of teachers" is often cited as the reason this cannot happen, but it overlooks the fact the local practitioners, supplemented by on-line resources, are the teachers with the understanding or rural context and content. This is encapsulated in the following definition from the World Bank publication *Reimagining Primary Health Care Workforce in Rural and Underserved Settings. (24)*

*ICEE programs feature clinical education in which students and trainees are immersed in the rural and underserved community clinical settings with the generalist PHC health care providers as the principal clinical teachers and role models. This contrasts with conventional health workforce programs in which most clinical education occurs in large urban teaching hospitals. ICEE is socially accountable education that is grounded in community engagement and local comprehensive PHC, and fosters authentic relationships focused on improving the health of the local population. ICEE is a major contributor to successful production of skilled PHC team members, particularly within the facilitated education and training pathway that begins with recruiting local students from rural and underserved communities and provides education, training, and professional development throughout their careers.*

5. *Rural exposure -- any is good -- more is better*

*You cannot be what you cannot see.*

Any exposure to rural areas, especially immersive education, is important in encouraging a future rural career. Very short term exposure may be just "tourism" but six week immersive blocks have been shown to increase intent to practice in rural areas. (37) During COVID-19 lockdowns the lack of such exposure has reduced this intent despite on-line exposure (unpublished evidence).

Repeated exposures seem to also be beneficial, but evidence is limited.

More prolonged exposure such as longitudinal integrated clerkships have been promoted (38) and adopted widely (39) both in rural and more widely.(40). Worley, et al have developed a

typology of longitudinal integrated clerkships (41) in the medical context. I think they noted that the characteristics of these vary from short term community and family medicine immersions in smaller centers to longer term family medicine and specialist exposure in larger centers. The benefits and various effects of these still remain to be quantified more explicitly.

6. *Grow your own*

Many willing workers can be found within communities and can be grown with the right educational environment to diploma and degree qualifications relevant to the needs of the community. In growing health workforce, comfort and satisfaction with rural lifestyle is important. Skills can be learnt.

A buddy system and mentoring is important in adding competencies locally. Teaching skills in context results in confidence and appropriate understanding of the applicability of those skill in context. This supervision, distant or remote, is a vital to quality care.

The so-called hidden curriculum (42) can be harnessed in the rural context to provide positive role models and clear vison of a worthwhile career.

7. *Redundancy*

The concept of vulnerability of rural services is well known. Paul Worley, a rural doctor and recently retired first Rural Health Commissioner, coined the phrase "one doctor away from a crisis."

While sometimes necessary, single anything – be that a medical practitioner or law enforcement officer, is a recipe for disaster and burn out in small communities.

There is a need for time off if nothing more but more importantly, having two people improves collegiate collaboration and provides an extra hand in a crisis.

This concept is the same with infrastructure. Rural is at the end of the supply chain. Vulnerability of these supply chains is evident and amply demonstrated especially during the COVID-19 crisis. Rural areas need back up and self-sufficiency and more contingencies than city counterparts.

8. *Stepladder education*

Career progression in place can be a powerful factor in people staying in rural area. The stepladder programs in the Philippines have proven successful with more graduates practicing in low-income communities. (43)

The regional medical program in the Philippines was established by the Ateneo de Zamboanga University (AZDU) School of Medicine. The AZDU program was developed by

local community leaders to serve the Western Mindanao region and to minimize students from the region having to leave home to study medicine in the city. It also had a strong focus on socially accountable medicine. The school has had a major positive impact on staffing public health services in the region.
(44)

9. *Engaging young doctors*

Every generation looks at the other generation from the appearance of that generation as it now is. These views can be through "rose colored glasses" or conversely. While there are variations between generations the similarities outweigh the variations.

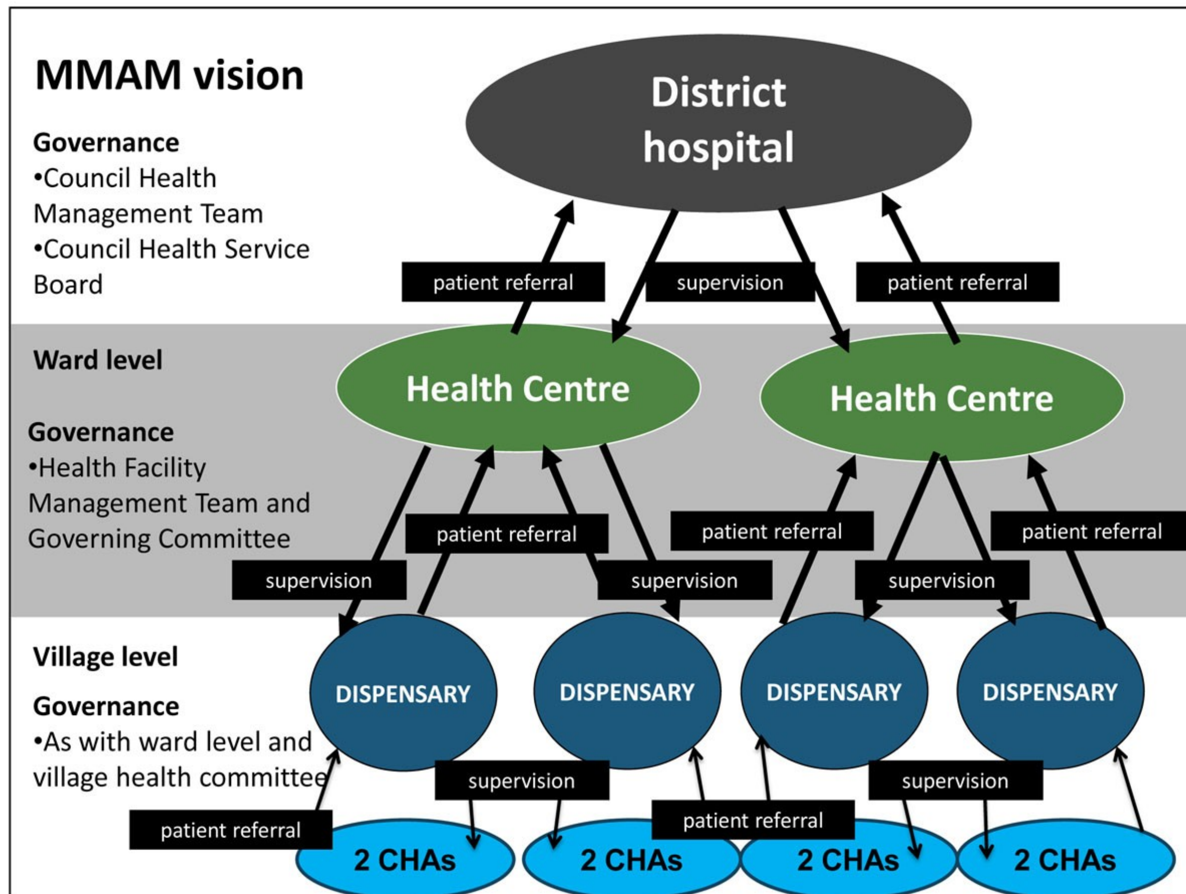
In all generations, some people will be altruistic, some will stay in rural areas, many will move on to other rural areas or to cities. It is often said, pointing to older rural practitioners that the younger generation will not stay like they have. This overlooks that fact that many of their generation moved on.

Each generation has enthusiasm and inspiring and harnessing that enthusiasm is vital. Rural Wonca has Rural seeds, and their Rural Café has attracted many students to their group. Rural student clubs have been shown positively to affect students career decisions.(45)

*10. The right health worker*

There is much discussion about what level of health worker is the right solution for a health system. Having the right health worker at the right level and maximizing their effectiveness is important. Adequate supervision is vital, and a tiered supervision and support system is appropriate.

In Tanzania, a Connect project partnership between Ifakara Health Institute (IHI), Tanzanian Ministry of Health and Social Welfare (MoHSW), Tanzanian Training Centre for international Health (TTCIH), and Columbia University's Mailman School of Public Health (CU-MSPH) was launched in 2011. The project provides funds to Kilombero, Ulanga, and Rufiji districts for human resources and supplies. Community health workers are selected from their communities with minimum skills for none months of training and then redeployed home under the supervision of trainers and a local clinical officer. Workers were given equipment (bicycle, mobile phone, and clinical infrastructure) and the community is required to employ the health workers including salaries and social security benefits. By August 2012, 113 community health workers were trained in 50 intervention villages at a cost of US$ 2,489.30 per health worker for training including 40% for meals, 20% for accommodation, 8% for training, and 10% for tuition fees.
(46, 47)




*11. Rural generalism*

The concept of rural generalism reminds us that all professionals in rural areas must be generalists and working to improve and maximize their scope of practice and hence utility to the local health services.

This is most clearly described in the outcome from Inaugural World Summit on Rural Generalist Medicine.

*We define 'Rural Generalist Medicine' as the provision of a broad scope of medical care by a doctor in the rural context that encompasses the following:*
*• Comprehensive primary care for individuals, families and communities.*
*• Hospital in-patient and/or related secondary medical care in the institutional, home or ambulatory setting.*
*• Emergency care.*
*• Extended and evolving service in one or more areas of focused cognitive and/or procedural practice as required to sustain needed health services locally among a network of colleagues.*
*• A population health approach that is relevant to the community.*
*• Working as part of a multi-professional and multi-disciplinary team of colleagues, both local and distant, to provide services within a 'system of care' that is aligned and responsive*

*to community needs.(48)*

This needs to be supported by a fit for purpose curriculum as demonstrated by the Australian College of Rural and Remote Medicine. (49)

The benefit of this has been demonstrated in medicine (50) and is increasingly being taken up by other professions. (51)

This has proven not only to be highly effective in high-income countries but also in low- and middle-income countries.

In India a Fellowship in Secondary Hospital Medicine (FSHM) is a year-long blended on-site and distance learning program implemented in 2007 by Christian Medical College (VMC) Vellore. It provides education and professional support for junior doctors doing required rural service terms in rural hospitals. It consists of 15 paper-based distance learning modules to support skills for work in rural hospitals, professional networking, and project work focused on improving rural services with promising results for participants.
(52)

The government of Nepal and Nick Simons Institute (NGO) progressively implemented in 2006, a program to develop family physicians for remote Nepalese hospitals. Firstly, one to two qualified family practice doctors were recruited per program and hospital. Students were competitively selected and given scholarship support and bundled incentives for participating in the three-year post-graduate program with a binding contract to work in the remote hospital for three years. In-service training was provided for all staff for an effective hospital team.

All seven program hospitals became providers of emergency obstetric care and doctors did 10-50 caesarean sections per year and lessons learnt were the need for continued refinement of the pathway for addressing emerging issues.
(53) (54)

### *12. Rural origin*

Much is made in the literature about the importance of rural origin and the effect of this on the intention of health professionals to become rural health practitioners.

The medical literature has consistently shown that a rural background is the single most significant personal characteristic influencing doctors' decisions to practice in rural locations. (55)

There is no doubt that rural origin means that these individuals are probably more comfortable with rural areas and that they are more likely to go to rural settings. Some however are scarred by an unhappy rural upbringing. So, although usually a positive factor some may have had bad experiences and vow never to return to rural communities.

It is also unrealistic to expect that rural origin students will shoulder the burden of providing the future rural workforce especially if unsupported. Practitioners of rural origin additionally sometimes resent the expectation that they are seen as the sole solution to the rural workforce issue. (56)

The time and extent of exposure is important. (57) and needs more exploration.

*13. Ruralisation*

*Small rural health systems represent a variety of ever-changing environments with two endangered species: hospitals and practitioners. Those who would treat rural communities with the disease of "retentionitis" would do well to learn from experienced healers such as Sir William Osler who said that prescribing external remedies is far less important than understanding the lifestyle and habits of the patient. Robert C. Bowman, M.D. Personal communication 1997*

Rural origin is important and reflects an exposure to the rural environment in the young and teenage formative years. Unlike those who have had rural experience there are a significant number who come across rural areas and rural practice in their early adult and tertiary education years. They are sometimes called the "tree changers."

In the context of rural recruitment, they have been termed the convertibles.

University and other education, especially if more distant, can have deleterious effects on rural intention (58) while home basing their learning in rural areas improves rural intent. (59)

In Australia, the Rural Clinical Schools and University Departments of Rural health and the Rural Undergraduate Support Scheme (RUSC) have encouraged the development of initiatives in regional (and sometimes rural ) longitudinal immersion of medical students (60) and other health student and in encouraging, more broadly, rural exposure.

This has spread to involved international collaboration between rurally orientated universities around the world.(38) This has educational validity and aligns with the current educational movement worldwide to implement longitudinal integrated curricula. (40)

Just like early rural exposure, exposure in the formative years of forming relationships and education can have a significant effect on the potential future rural practitioner forming a relationship with someone who also feels comfortable in rural area. The retention of the partner in a rural area enhances the retention of the rural health professional themself.

For those who don't come from rural areas the journey to rural is a complex one with many chances for enhancement and degradation.

A study in Australia by Smith, et al (61) identified the key elements in these iterative steps

- Preparation
- Experience
- Socialization

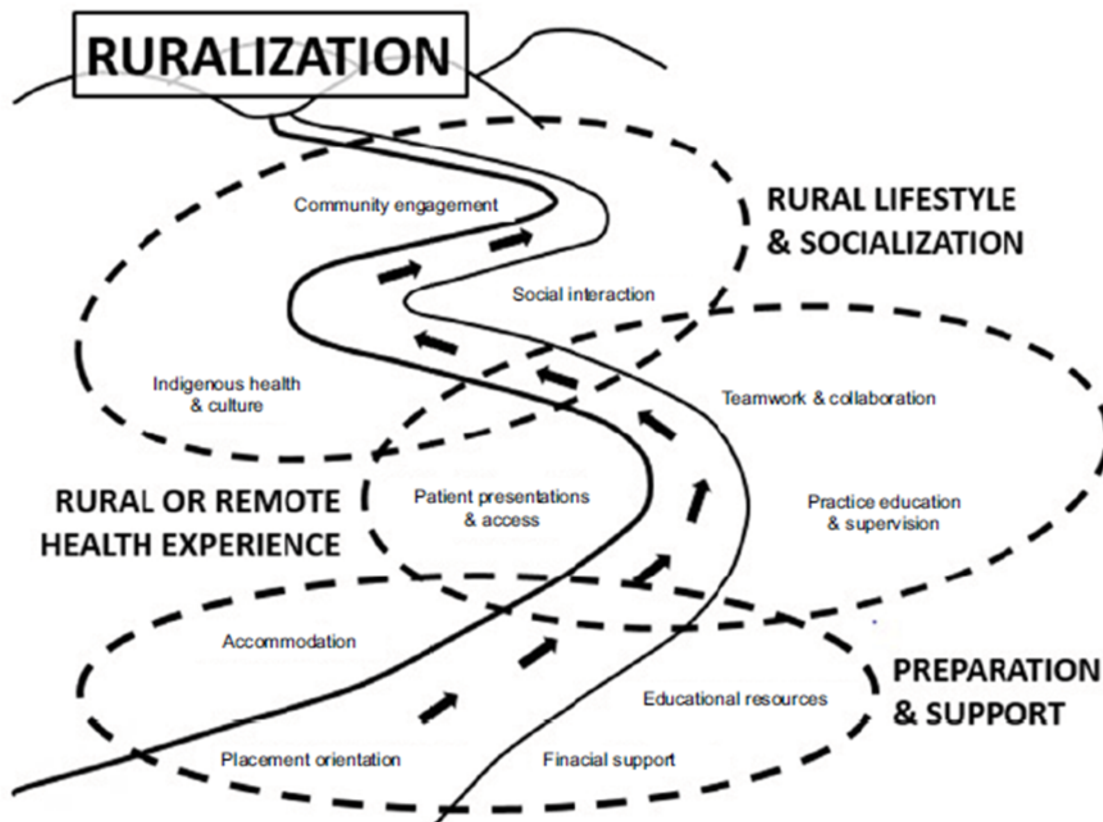


**Figure 1** The conceptual model of "ruralization of students' horizons," showing three overlapping zones or stages representing the emergent themes.

They further identified the factors that make or break this experience

- Disablers

A difficult environment financially, poor transport, and poor internet in this Australian study were key negatives as were the more individual, idiosyncratic, and personal preferences with regard to lifestyle and satisfaction.

- Enablers and enhancers

These also included more individual, idiosyncratic, and personal preferences with regard to lifestyle and satisfaction but were enhanced by a number of factors that could modulate and mitigate the persons existing attitude and mindset.

The key factors here seem to be a positive work experience including staff, support, and learning environment, community engagement, and a positive social experience.

Most importantly these factors also apply to the partner and family of rural practitioners who are in a relationship when they go to rural .(62, 63) These forces can have a multiplicative effect positive or negative.

*A clear message emerging from the extensive research that has looked at what factors influence physicians' decisions about where to practice medicine is that matters affecting the lives of spouses and children are among the most important considerations. (64)*

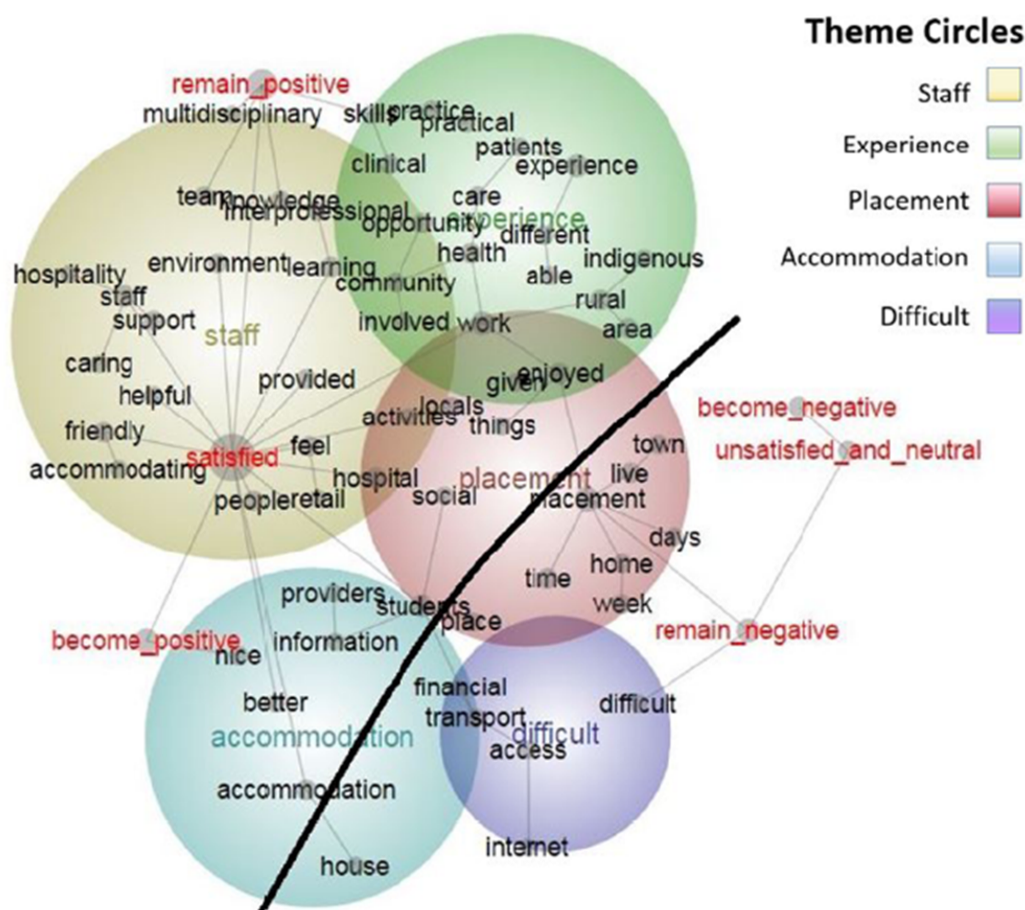



**Figure 2** Leximancer concept map showing: theme circles – "staff," "experience," "placement," "accommodation," and "difficult"; nodes in the upper left – "satisfied," "remain positive," and "become positive"; and bottom right – "unsatisfied and neutral," "become negative," and "remain negative." A heavy black line purposively placed to represent the horizon between "satisfied" and "positive" elements versus "unsatisfied" and "negative" ones.

This evidence is reinforced by a Idaho rural family physician workforce study: the Community Apgar Questionnaire in which the authors provide a predictive tool for measuring satisfaction with site.(65)

*14. Rural Policy*

Advocacy is an important part of policy as described previously. Much of this can be centrally based and there is much to be said for the expertise that central bureaucracy brings to the interventions. It does however run the risk of being unrealistic and disconnected from the on-ground situation.

This is made worse by the sentiment, sometimes, from central policymakers that the problems can be defined and the solutions formulated by those not living in rural areas. This has been called geographic narcissism.

*In the field of psychotherapy there is a subtle, often unconscious, devaluation of rural knowledge, conventions, and subjectivity, and a belief that urban reality is definitive. Through metaphors from geography and cartography and via psychoanalytic theory on privilege, I formulate urbanity as a seldom-addressed privilege and consider implications of the misrepresentation or absence of the rural world on the "map" of psychotherapy. I countermap urban biases on power, space, and time and explore consequences of frame, self-disclosure, ethics, and interpretations as I investigate urban valuing of specialized expertise over wisdom, urban disconnection from weather and distance, urban colonizing behaviour, the dumping of incompetent professionals into rural areas, and the urban sense of entitlement to anonymity.(66)*

The best policy initiatives involve a partnership between the two with rural at the heart of policy (67).

Ideally planning should be with and by rural people.

In Thailand The Collaborative Project to Increase Production of Rural Doctors (CPIRD) was initiated in 1994 as a policy targeting rural selection into medical school and rural training tracks with rural return of service. Since 2005, the CPIRD has initiated four different tracks (regular CPIRD) to select rural high school students, one district-one doctor program (ODOD) (for remote high school students), a regular post-graduate program (for people with medical-related bachelor degree), and a post-graduate program for civil servants with medical-related bachelor degrees. It has been comprehensively evaluated using control groups to show positive academic, rural recruitment, and retention results.
(68)

In Australia, the Rural Health Commissioner with statutory powers provides advice to government ministers and works with the bureaucracy. Within the State of Queensland, the Statewide Rural and Remote Clinical Network allows clinicians to have direct input into health policy and has be recently strengthened by an Office of Rural and Remote Health.

It is however important to also provide a check on existing and future government policy. In South Africa and the U.K. rural proofing has been implemented to ensure that policy is tailored to rural areas.

The term "rural proofing" is used to define a systematic approach which identifies any notable rural differentials likely to impact service effectiveness and outcomes. It assists service providers by enabling thinking about appropriate solutions, mitigations, and opportunities. The objective is to ensure equitable outcomes for service users who live in rural areas.(69) This has much promise but can fall by the wayside(70) and needs constant attention.

*15. Localizing economic benefit*

Rural health solutions must make economic sense and key factors here are
- The benefit of community development
- The business multiplier effect of a healthier rural population and health workforce
- Aging population – the opportunity for any aged care subsidies to be applied and spent locally
- Improved opportunities for work
- The accessibility of local services
- Opportunities for women
- Shorter supply chains
- Integration of emergency, public health, and primary care
- Private/Public cooperation
- Harnessing education expenditure locally and utilizing students as a learning workforce

The economic benefits of health workforce more generally have been demonstrated by Unite Nations High-Level Commission on Health Employment and Economic Growth in their report "Working for health and growth: Investing in the health workforce" *(71)* and their subsequent "Global Strategy on Human Resources for Health: Workforce 2030." *(72).*

This outlines *the linkage between investments in the health workforce and "improvements in health outcomes, social welfare, employment creation and economic growth", arguing that the investment in human resources for health can deliver a triple return of improved health outcomes, global health security and economic growth(73)*

The benefit of training to enhance that impact with a fit for purpose workforce has also been demonstrated. *(74)*

The further benefit of localizing these services to a rural context has been evident in recent times. This is evident in many anecdotal accounts such as benefits of local aged care to a small town in Ireland (Dr Jerry Cowley presentation at 16th WRHC). The economic benefit of

dispersed health professional education has been also reported by the Northern Ontario School of Medicine (NOSM). (75)

## Conclusion and Recommendation

The provision of health services in rural areas has been a dilemma for centuries. Those charged with addressing this problem have addressed these issues individually and collaboratively over recent years to tackle this issue effectively by providing a suite of models that enable rural health services.

There is an increasing evidence base that, as one rural doctor is quoted as saying, that the rural health workforce needs to become *"confident, competent, comfortable, and contented."*

This requires a concerted and coordinated effort from all levels from the individual community member, universities, administration, and policymakers. Whether it is called a pathway or pipeline, the way to better rural health care must be linked, sequential, integrated, and focused to provide the desired outcome of good care. More importantly it must have clear line of sight to those that seek to embrace it – i.e., the future rural health practitioners.

*Building a community-responsive rural practice is endless work, a job that inevitably becomes as frustrating as it is rewarding. It requires a large tolerance for uncertainty and willingness to risk. One must deal effectively and tactfully with a variety of constituencies, any one of which can enhance or threaten the success of the venture. These include community people - supporters and opponents - local physicians, government officials, a hospital, one or more funding sources, a new staff and, of course, patients and their families. Not everyone is enthusiastic for the new practice or empathetic with its leaders- who are at all times expected to maintain their own idealism, energy, and optimism. New rural health centres are fragile entities, both economically and politically. When they finally succeed in becoming established it is usually because their people-leaders, staff, board members-were as stubbornly determined as they were resourceful.* Donald L. Madison, 1980 personal communication

Excellent rural health care can be truly great like the Mayo clinic, founded by two rural doctors more than a century ago in a rural town. Equally it can be the worst of the worst. The choice is ours.

## Works Cited

1. Wonca R, editor Blueprint for Rural Health 17th World Rural Health Conference; 2021 Bangladesh
2. OECD. Defining and Describing Regions2011.
3. Rural Medicine. Rural Medicine 1938 Cooperstown Springfield 1939.

4. Starfield B. Policy Relevant determinants of health: an international perspectrive. Health Policy. 2002;60:201-21.
5. Starfield B. Is primary care essential? Lancet. 1994;344:1129-33.
6. Starfield B. Primary care: concept, evaluation, and policy. New York: Oxford University Press; 1992.
7. The world health report 2008 : primary health care now more than ever.: World Health Organization.; 2008.
8. Rosenblatt RA, Moscovice IS. Rural health care. New York: Wiley; 1982. xiii, 301 p. p.
9. Wonca. Training for Rural General Practice. 1995.
10. WONCA Working Party on Rural Practice. Policy on Rural Practice and Rural Health. Traralgon, Vic.: Monash University School of Rural Health; 2002.
11. WHO. Increasing access to health workers in remote and rural areas through improved retention: global policy recommendations.: World Health Organisation; 2010.
12. Strasser S. Retention of the health workforce in rural and remote areas: a systematic review. WHO 2020.
13. WHO guideline on health workforce development, attraction, recruitment and retention in rural and remote areas. WHO Guidelines Approved by the Guidelines Review Committee. Geneva2021.
14. Global strategy on human resources for health: workforce 2030. Geneva WHO 2016.
15. WHO, editor Dublin Declaration on Human Resources for Health: Building the Health Workforce of the future. . Fourth Global Forum on Human Resources for Health 2017
16. World Health O, United Nations Children's F. A vision for primary health care in the 21st century: towards universal health coverage and the Sustainable Development Goals. Geneva: World Health Organization; 2018 2018. Contract No.: WHO/HIS/SDS/2018.15.
17. Chater A B OSB. A Checklist for implementing rural pathways to train and support health workers in low and middle income countries. Rural Wonca 2020.
18. Making it work Framework for Remote Rural Workforce Stability A brief overview Europena Regional Development Fund; 2019.
19. Taskforce. ARFMTCC. The Rural Road Map for Action – Directions. Mississauga, ON; 2017.
20. Kumar R. The Delhi Declaration 2018: "Healthcare for All Rural People" - Alma Ata Revisited. J Family Med Prim Care. 2018;7(4):649-51.
21. McPake B, Squires A, Mahat A, Araujo E. The economics of health professional education and careers : insights from a literature review. Washington, DC: World Bank Group; 2015. xiii, 70 pages p.
22. McPake B, Edoka I, Scott A, World Bank. Analyzing markets for health workers : insights from labor and health economics. Washington, DC: The World Bank,; 2014. Available from: https://hdl.loc.gov/loc.gdc/gdcebookspublic.2014009118.
23. Soucat ALB, Scheffler RM, World Bank. The labor market for health workers in Africa : a new look at the crisis. Washington, DC: International Bank for Reconstruction and Development/World Bank; 2013. xxiv, 356 pages p.
24. Strasser RS, S. Reimagining Primary Health Care Workforce in Rural and Underserved Settings (English) Health, Nutrition, and Population (HNP) Discussion Paper. Washington, D.C.: World Bank Group; 2020.

25. Sustainable Development Goals Bangladesh Progress Report Government of the People's Republic of Bangladesh/Bangladesh Planning Commission MoP; 2020.
26. McConnel FB, Pashen D, McLean R. The ARTS of risk management in rural and remote medicine. Canadian journal of rural medicine : the official journal of the Society of Rural Physicians of Canada = Journal canadien de la medecine rurale : le journal officiel de la Societe de medecine rurale du Canada. 2007;12(4):231-8.
27. Iputo JE. Faculty of health sciences, walter sisulu university: training doctors from and for rural South african communities. MEDICC Rev. 2008;10(4):25-9.
28. Beaton NS, Nichols A, McLellan A, Cameron B, Gupta TS. Regionalisation of rural medical training in far north Queensland: a learning experience for medical educators and managers. Aust J Rural Health. 2001;9 Suppl 1:S32-8.
29. Flexner A, Carnegie Foundation for the Advancement of Teaching., Pritchett HS. Medical education in the United States and Canada; a report to the Carnegie Foundation for the Advancement of Teaching. New York City1910. xvii, 346 p. incl. maps, tables. p.
30. Worley PS. Always one doctor away from a crisis! Rural Remote Health. 2004;4(2):317.
31. McKendry R. Physicians for Ontario : Too Many? Too Few? For 2000 and Beyond. In: Care OMoHaL-T, editor. Ontario 1999.
32. Hogenbirk JC, French MG, Timony PE, Strasser RP, Hunt D, Pong RW. Outcomes of the Northern Ontario School of Medicine's distributed medical education programmes: protocol for a longitudinal comparative multicohort study. BMJ Open. 2015;5(7):e008246.
33. Eley D, Young L, Przybeck TR. Exploring temperament and character traits in medical students; a new approach to increase the rural workforce. Med Teach. 2009;31(3):e79-e84.
34. Eley DS, Cloninger CR, Power DV, Brooks KD. The personalities of most medical students are suited to rural practice: Implications for rural education program recruitment. Med Teach. 2019;41(10):1160-7.
35. Konkin J, Grave L, Cockburn E, Couper I, Stewart RA, Campbell D, et al. Exploration of rural physicians' lived experience of practising outside their usual scope of practice to provide access to essential medical care (clinical courage): an international phenomenological study. BMJ Open. 2020;10(8):e037705.
36. Wonca R. Rural Medical Education Guidebook Chater AB, editor: WONCA 2014.
37. Chater AB, Wyatt J. Optimising rural medial learning. In: Rourke J, Strasser R, Couper I, Reid S, editors. WONCA rural medical education guidebook. Bangkok, Thailand: World Organisation of Family Doctors (WONCA); 2014. p. 1-14.
38. Walters L, Walker L. Rural medicine 'cooking up' longitudinal integrated clerkships. Rural Remote Health. 2018;18(3):5099.
39. Norris TE, Schaad DC, DeWitt D, Ogur B, Hunt DD. Longitudinal integrated clerkships for medical students: an innovation adopted by medical schools in Australia, Canada, South Africa, and the United States. Acad Med. 2009;84(7):902-7.
40. Hense H, Harst L, Küster D, Walther F, Schmitt J. Implementing longitudinal integrated curricula: Systematic review of barriers and facilitators. Med Educ. 2021;55(5):558-73.
41. Worley P, Couper I, Strasser R, Graves L, Cummings BA, Woodman R, et al. A typology of longitudinal integrated clerkships. Med Educ. 2016;50(9):922-32.
42. Lawrence C, Mhlaba T, Stewart KA, Moletsane R, Gaede B, Moshabela M. The Hidden Curricula of Medical Education: A Scoping Review. Acad Med. 2018;93(4):648-56.

43. Woolley T, Cristobal F, Siega-Sur J, Ross S, Neusy AJ, Halili S, et al. Positive implications from socially accountable, community-engaged medical education across two Philippines regions. Rural Remote Health. 2018;18(1):4264.
44. Halili SB, Jr., Cristobal F, Woolley T, Ross SJ, Reeve C, Neusy AJ. Addressing health workforce inequities in the Mindanao regions of the Philippines: Tracer study of graduates from a socially-accountable, community-engaged medical school and graduates from a conventional medical school. Med Teach. 2017;39(8):859-65.
45. Smith LH, A; Langelaan,F;Cane,M;Hall,G editor Factors affecting the career decisions of health students — will they go rural? Data from the NRHSN Impact Survey 2009

10th National Rural Health Conference; 20101: National Rural Health Allinace
46. Tani K, Stone A, Exavery A, Njozi M, Baynes CD, Phillips JF, et al. A time-use study of community health worker service activities in three rural districts of Tanzania (Rufiji, Ulanga and Kilombero). BMC Health Serv Res. 2016;16:461-.
47. Ramsey K, Hingora A, Kante M, Jackson E, Exavery A, Pemba S, et al. The Tanzania Connect Project: a cluster-randomized trial of the child survival impact of adding paid community health workers to an existing facility-focused health system. BMC Health Serv Res. 2013;13(2):S6.
48. Cairns Consensus Statement on Rural Generalist Medicine. Inaugural World Summit on Rural Generalist Medicine; 2013; Cairns Australian College of Rural and Remote Medicine
49. Rural Generalist Curriculum Australian College of Rural and Remote Medicine 2020.
50. Sen Gupta TM, Dan;Lennox,Denis;Taylor,Natalie;Stewart,Ruth;Bond,Deanne. Queensland Rural Generalist Pathway: impacts on rural medical workforce. 13th National Rural Health Conferenec; Darwin, Australia National Rural Health Alliance 2015
51. Nowlan S, Schmalkuche D, Grant D. Perspectives: Leadership in rural health through policy generation: attraction and recruitment in rural Australia. Journal of Research in Nursing. 2020;25(6-7):618-22.
52. Vyas R, Zacharah A, Swamidasan I, Doris P, Harris I. Blended distance education program for junior doctors working in rural hospitals in India. Rural Remote Health. 2014;14:2420.
53. Zimmerman M, Shah S, Shakya R, Sundar Chansi B, Shah K, Munday D, et al. A staff support programme for rural hospitals in Nepal. Bull World Health Organ. 2016;94(1):65-70.
54. Gauchan B, Mehanni S, Agrawal P, Pathak M, Dhungana S. Role of the general practitioner in improving rural healthcare access: a case from Nepal. Human Resources For Health. 2018;16(1):23-.
55. Dunbabin JS, Levitt L. Rural origin and rural medical exposure: their impact on the rural and remote medical workforce in Australia. Rural Remote Health. 2003;3(1):212.
56. Kinder S. Expectations on rural-origin doctors unrealistic2018 Available from: https://insightplus.mja.com.au/2018/12/expectations-on-rural-origin-doctors-unrealistic/
57. Walker JH, Dewitt DE, Pallant JF, Cunningham CE. Rural origin plus a rural clinical school placement is a significant predictor of medical students' intentions to practice rurally: a multi-university study. Rural Remote Health. 2012;12:1908.
58. Bowman R HM. Preventing rural workforce by design. Rural Remote Health. 2014(14: 2852).

59. Denz-Penhey H, Shannon S, Murdoch CJ, Newbury JW. Do benefits accrue from longer rotations for students in Rural Clinical Schools? Rural Remote Health. 2005;5(2):414.
60. Walters LK, Worley PS, Mugford BV. Parallel Rural Community Curriculum: is it a transferable model? Rural Remote Health. 2003;3(3):236.
61. Smith T CM, Waller S, Chambers H, Farthing A, Barraclough F, et al.. Ruralization of students' horizons: insights into Australian health professional students' rural and remote placements. Journal of Multidisciplinary Healthcare 2018;Volume 11:85–97.
62. Wise AN, Anna;Chater,Anne;Craig,Mark Rural Doctors' Spouses: Married to the Practice? : The Queensland Medical Education Centre, Faculty of Medicine, The University of Queensland 1996.
63. Lippert N. The Spouses: A Major Support for the Rural Doctor First National Rural Health Conference 14-16/02/1991; Toowoomba National Rural Health Alliance 1991.
64. Barer ML, & Stoddart, Gregory Lloyd. Improving access to needed medical services in rural and remote Canadian communities : recruitment and retention revisited 1999, June 30.
65. Schmitz DF, Baker E, Nukui A, Epperly T. Idaho rural family physician workforce study: the Community Apgar Questionnaire. Rural Remote Health. 2011;11(3):1769.
66. Fors M. Geographical narcissism in psychotherapy: Countermapping urban assumptions about power, space, and time. Psychoanalytic Psychology. 2018;35(4):446-53.
67. Organization WH. Towards unity for health : challenges and opportunities for partnership in health development : a working paper / Charles Boelen. Geneva: World Health Organization; 2000.
68. Wiwanitkit V. Mandatory rural service for health care workers in Thailand. Rural Remote Health. 2011;11(1):1583-.
69. Rural Proofing for Health Toolkit UK National Centre for Rural Health and Care 2020.
70. Atterton J. Rural Proofing in England: A Formal Commitment in Need of Review 2008
71. High Level Commission on Health Employment and Economic Growth2016 2016//.
72. Global Strategy on Human Resources for Health: Workforce 20302016 2016//.
73. Cometto G, Campbell J. Investing in human resources for health: beyond health outcomes. Human Resources for Health. 2016;14(1):51.
74. Pálsdóttir B, Barry J, Bruno A, Barr H, Clithero A, Cobb N, et al. Training for impact: the socio-economic impact of a fit for purpose health workforce on communities. Human Resources for Health. 2016;14(1):49.
75. Hogenbirk JC, Robinson DR, Hill ME, Pong RW, Minore B, Adams K, et al. The economic contribution of the Northern Ontario School of Medicine to communities participating in distributed medical education. Canadian journal of rural medicine : the official journal of the Society of Rural Physicians of Canada = Journal canadien de la medecine rurale : le journal officiel de la Societe de medecine rurale du Canada. 2015;20(1):25-32.