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Impacts of University Departments of Rural Health to Their Regions Through Intellectual Capital

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ABSTRACT

Objective: This paper aims to identify ways in which University Departments of Rural Health (UDRHs) contribute intellectual capital to their rural and remote regions.

Background: UDRHs contribute to their regions through various means, including student placements, workforce development, First Nations support and training, community engagement, economic impacts and research. UDRHs also contribute to various forms of community capital, although there remains a lack of detailed understanding of how UDRHs contribute to the intellectual capital of their regions.

Methods: Senior staff from six UDRHs worked from a constructivist research paradigm as 'insider' researchers to identify four key avenues through which UDRHs contribute and enhance intellectual capital in their regions. For each avenue, a case study was developed to examine these contributions in detail.

Results: The four case studies illustrate how different UDRHs contribute intellectual capital through students and health professional education and training, community partnerships to address local issues, research and research capacity building and through UDRHs networks that cross regions and rural–urban boundaries. UDRHs were found to contribute to health practice, local evidence, partnerships and advocacy, all benefiting their regions.

Conclusion: The co-production of locally tailored knowledge by UDRHs offers a valuable contribution to rural and remote communities. The knowledge and evidence contributed by universities is often not provided by other sectors in rural areas, but is valued by communities, contributes to intellectual capital in these regions, and bridges the urban–rural knowledge divide.

1 | Introduction

University Departments of Rural Health (UDRHs) contribute to their regions in various ways [1–5]. Evaluations have documented outcomes and impacts of UDRHs, including workforce development over time [4, 5], economic contributions [1, 2] and research outputs [6, 7]. UDRHs also play a significant role in student placements, rural-origin and First Nations student enrolments and research activity [1, 6–9]. More recently, application of the Community Capitals framework [10] has shown that UDRHs bring financial, built and human capital to their regions and enhance cultural, social, political and human capital through infrastructure development, attracting students, staff and their families to regions, contributing to local projects and organisations, capacity building of local organisations and development of local evidence. This study concluded that locally

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Summary

- What is already known
  - UDRHs have outcomes in student training, workforce and research for their regions.
  - UDRHs contribute financial, built and human capital to their regions.
  - Intellectual capital has been highlighted as a unique contribution by UDRHs to their regions.
- What this paper adds
  - Evidence that UDRHs enhance intellectual capital across their regions.
  - Intellectual capital is contributed through evidence, engagement, research, education and training, and capacity building.
  - UDRHs contribute to rural and remote community development.

tailored knowledge was a key contribution of UDRHs to rural and remote communities [3]. Since intellectual capital is not one of the seven capitals in the Community Capitals framework, this earlier work did not explore this aspect in depth. This paper addresses this gap by identifying the ways in which UDRHs contribute intellectual capital to their regions.

The term 'intellectual capital' is primarily used in business, management and human resources to capture the knowledge of employees and organisations [11]. As society becomes increasingly information-driven, intellectual capital and knowledge-based resources form the foundation for growth, adaptation, innovation and change [11–13]. Intellectual capital is dynamic, expanding as knowledge is produced, shared, adopted and updated [11]. It evolves as it is influenced by an expanding network of people and organisations, extending across industries, sectors and communities. Furthermore, knowledge, resources and information are generated through diverse means, not solely within formal organisations. This study adopts a broad conceptualisation of intellectual capital, encompassing the knowledge, evidence and critical thinking that shape decision-making, action, change and capacity building within specific contexts, notably rural health and well-being [14]. UDRHs have the capacity to connect, apply and extend broader knowledge, evidence and best practice into their regions by collaborating with local communities through co-production and empirical research. This study aims to examine how UDRHs contribute intellectual capital to their regions through case study analysis.

2 | Methods

As intellectual capital is intangible and difficult to measure [13], case studies were selected as they 'comprise more detail, richness, completeness, and variance' and are embedded in context [15]. These case studies were developed by the authors who are senior members of six UDRHs. Authors worked from a constructivist research paradigm as 'insider' researchers to produce insights into how knowledge use creates impacts in rural and remote health [16–18]. Through discussions, the authors identified four key avenues UDRHs use to contribute and enhance intellectual capital in their regions: (1) student training; (2) community partnerships to address local issues; (3) research; and (4) sharing information between the regions and policy forums. A case study was developed for each avenue to explore how intellectual capital was contributed and enhanced. Each case was designed and drafted by one or two authors based on their insider knowledge from their own UDRH. As such, the case studies provide reflexive, retrospective analyses from the perspective of leaders, drivers or partners involved in the case, who have critically reflected on observations, processes, learnings, outcomes, impacts and challenges throughout the UDRH activity [18]. No ethical approval was required as authors constructed the case studies. Each case study originates from different UDRHs but represents practises typical across UDRHs [15, 18]. Draft case studies were shared, critically discussed and revised collaboratively. Importantly, these case studies focused on impacts beyond the authors, their UDRHs, students and funding requirements to consider the broader regional impacts of intellectual contributions.

3 | Findings

Through detailed discussion, the authors identified four key avenues through which UDRHs contribute intellectual capital: (1) developing the intellectual capital of the local and future rural and remote health workforce; (2) co-producing intellectual capital to address local issues within rural and remote communities; (3) building research capacity in the region; and (4) fostering intellectual capital for their regions through UDRH collaboration. A case study was developed for each of these avenues to illustrate UDRH contributions to intellectual capital.

3.1 | Case Study 1: Developing Intellectual Capital of the Local and Future Health Workforce Through Mental Health Training

By facilitating rural clinical placements for university students studying a range of health professions, UDRHs develop the intellectual capital of the current and future workforce. These placements upskill future health professionals through the guidance of UDRH educators who share evidence, clinical wisdom, First Nations knowledges and local health service knowledge to improve students' readiness for rural practice. UDRHs also provide education to nursing and allied health practitioners, typically aimed at enhancing supervision, communication and interprofessional skills. This education, for both students and supervisors, enhances a dynamic learning environment that benefits rural and remote health services. While UDRHs routinely contribute to developing current and future rural practitioners, they also expand intellectual capital in areas not mandated by funding but driven by local needs. A prominent example is investment in training in rural mental health.

Nearly half of Australians experience mental illness in their lifetime [19]. Furthermore, psychological distress, suicide and self-harm rates increase with geographical remoteness, while access to mental health services declines [20, 21]. Consequently, students across all disciplines will encounter patients with mental health conditions. Coupled to these health needs is a significant workforce shortage in mental health [21], resulting in challenges

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to accessing rural mental healthcare. Given the lack of services, increasing the skills of both the existing and future rural and remote health workforces who do not specifically work in mental health is essential. UDRHs have undertaken this in various ways.

Educators at Three Rivers UDRH identified key challenges in mental health education for rural health students and early career health professionals. These included low levels of preparedness among, and support for, students; challenges surrounding the stigma of mental health; and limited access to rural-specific mental health information for both health professionals and communities. In response, Three Rivers UDRH at Charles Sturt University partnered with the Murrumbidgee Primary Health Network to develop the Mental Health Educational Enhancement Hub (MHEEH), a virtual platform offering tailored resources to better equip students and health professionals for working with rural populations experiencing mental health conditions [22]. Resources include links to student self-care and wellness tools, access to Mental Health First Aid and suicide prevention training, de-brief sessions, reflection activities and career pathways information. It also provides support materials for supervisors. All resources aim to engage and support high-quality student training and enhance mental health service provision in the local area. Launched in late 2024, MHEEH has received over 1600 website visits, and 120 rural health professionals have participated in free education sessions. This initiative continues to foster knowledge exchange between rural industry and community partners, strengthening mental health and well-being.

In another rural region, a different approach to mental health training was implemented. Although many future allied health professionals feel ill-prepared to work with mental health clients, placements with a mental health focus have been found to develop the necessary knowledge and skills [23]. Through partnership between four Victorian UDRHs and rural health services, mental health placements were developed for allied health students not training as mental health practitioners. Placements are offered at eight sites in small rural Victorian towns, where students work with children, aged-care residents and other community members to promote emotional regulation, build resilience and connection, and prepare for and respond to change. An initial orientation in mental health education is provided on mental health conditions, working with clients experiencing mental health challenges and holistic approaches to client well-being. Evaluation indicated the orientation was valued, leading to its expansion to include additional topics, such as symptoms of mental illness, assessment and referral processes, appropriate use of language, re-assessment of client needs and goals and managing personal mental wellness and emotional responses.

Both training opportunities enhanced the awareness of working with clients with mental illness for students, their supervisors and others working within the same organisations. Students and health professionals can utilise these skills in their practice. Community members benefit from a local workforce more skilled in mental health. The mental health education and training was rurally focused, addressed a current need in rural communities and was not required by UDRH funding. Through these efforts, UDRHs have contributed to developing intellectual capital by training the current and future workforce to apply their skills for the benefit of rural residents.

3.2 | Case Study 2: UDRH Co-Produces Intellectual Capital to Address Family Violence in Their Region

Intellectual capital fosters the ability to make informed decisions and to strategically pursue positive change. Academics based in rural areas and employed through UDRHs can contribute to this by providing critical thinking and adapting knowledge to fit the rural or remote context. An advantage for UDRH academics has been investment into capacity building, not only of UDRH staff but also of community members. Capacity building extends beyond building knowledge to other elements that enhance the value of community, use information, encourage the formation of networks and partnerships, and facilitate leadership [24]. UDRHs use their extensive networks, including within different departments of their universities and across other UDRHs and jurisdictions, to test ideas and build collaborations that enable local capacity building to achieve better health and well-being outcomes locally.

Drawing on engagement with community members and organisations, the WA Centre for Rural Health (WACRH) recognised the pervasive impact of family violence in Australia and within their UDRH region. WACRH focussed on primary prevention of family violence to create widespread community impacts. Primary prevention involves changing social factors that increase the likelihood of committing or experiencing inter-personal or family violence, and it specifically addresses the gendered drivers that contribute to violence against women. WACRH supported a community initiative and became a key partner in a long-term, community-driven family violence prevention initiative, beginning by formally joining the initiative known as Community Respect Equality. From previous research, WACRH understood that organisational commitment requires staff at all levels of the UDRH to be part of organisational efforts. WACRH staff were also aware of how common family violence is. To ensure commitment across WACRH, short narratives were collected from staff who voluntarily shared brief accounts of their personal experiences with family violence. These narratives were edited, deidentified and circulated internally and locally. This signalled the high prevalence of family violence and engaged staff and others in WACRH's genuine commitment to addressing family violence.

WACRH were also keen to bring their role as a university to local community efforts around family violence prevention, recognising that prevention should not exist in isolation from responses to support people affected by family violence. Over many years, WACRH participated in a Community of Practice across their larger university, contributing to capacity building of their own staff and others involved in the Community of Practice as well as learning from this community and sharing these learnings locally. Using these learnings and other contributions of evidence, research, collaboration, leadership and partnership, WACRH led or supported a series of steps and interventions aimed at preventing family violence locally, including an assessment of community readiness [25]; securing funding for the partnership; conducting a local survey of attitudes towards family violence

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[26]; establishing a new community group focused on family violence prevention and communicating prevention messages [27]; developing and delivering prevention training to community members, leaders and General Practitioners (GPs) with credentialing; implementing various health promotion activities; establishing a community of practice at the University of Western Australia [28]; providing support to local First Nations communities; and assessing workforce needs for social workers [29] and GPs [30]. These activities were opportunistic or strategic, each informing and shaping subsequent actions. Learnings were generated throughout and both shared beyond WACRH and informed by the community. Through capacity building and collaborative partnerships, WACRH generated locally produced knowledge relevant to family violence prevention.

In their role, WACRH worked with local leaders and organisations to address a current issue in the local community. WACRH drew on existing evidence and, with local partners, generated new evidence tailored to the local context. Key to this was capacity building that involved expanding relevant networks, using and reflecting on data to refine approaches, sharing successes and learnings across the partnership, and celebrating achievements to sustain collective efforts [24]. WACRH invested in building the capacity for knowledge development and critical thinking among staff, health practitioners and community members. The ongoing communication, collaboration and knowledge development within both the UDRH and local communities exemplifies the intellectual capital that a UDRH can generate to address local issues in partnership with their rural and remote communities.

3.3 | Case Study 3: 'Growing Our Own' to Strengthen the Rural Evidence Base and Health Outcomes

Health research is important for innovation and assessment of health status and health interventions. Conducting high-quality health research with real-world outcomes requires and increases intellectual capital within rural organisations and communities by developing critical thinking. Understanding and embracing research can improve health, particularly by creating ongoing partnerships between researchers and end users of the research to facilitate research translation. Intellectual capital can grow through investment in place-based researchers who are embedded in their communities and connected locally, regionally and nationally to enable rural health solutions and increases in research capacity [31]. Throughout their existence, UDRHs have progressed the rural health research agenda through initiatives and programmes that support place-based research with collaborators from healthcare and community to address local health issues [7, 9].

The University of Newcastle Department of Rural Health (UONDRH) was established more than 20 years ago [9], allowing considerable time for the development and establishment of place-based research staff, initiatives and programmes that have contributed to the development of intellectual capital in local rural areas. This has been achieved through expansion and growth over time, longevity in the rural context, connections with urban researchers and collaborators in other rural and remote areas, in conjunction with local capacity building and enhanced skill development [31].

The UONDRH has implemented numerous research initiatives that have developed intellectual capital across a wide range of rural health, workforce and training needs and issues. Strategies have included embedding undergraduate and postgraduate research students in rural contexts, using pre-existing programmes to build rural capacity and providing beginner and higher degree research support, education and mentoring for rural-based academic staff and clinicians [31]. Being place-based has been key, allowing research questions to derive from community and clinicians facing current and genuine local issues. Connections and trust were built over time to develop solutions with and for those people impacted. Relationships with local government, healthcare providers, Aboriginal Controlled Community Organisations and community members allow for shared ownership of solutions [32]. Two related examples of UONDRH research initiatives demonstrate the development of intellectual capital.

First, a research initiative providing brief nutrition interventions at a local field day has created new knowledge about the health of older adults [33] and the diet quality of rural people [34]. The initial UONDRH nutrition-focussed project undertaken at agricultural field days evolved to include a range of multidisciplinary interests (e.g., oral health, pharmacy) that addressed broader rural health issues (e.g., mental health, physical activity and sleep). Community participants, mostly farmers, gained a broad range of knowledge of their own health measures, individualised feedback and resources to support their desired health improvements. To support the researchers, UONDRH collaborated with nutrition experts at multiple universities to enhance researcher mentoring, supervision and skill development at UONDRH [34].

The second research series snowballed from an honours student project about mapping where healthy foods could be obtained in the local rural area into a growing research focus on food access and rural food environments. It further developed into a collaboration across UDRHs and among regional nutrition researchers who collaboratively developed a scoring tool for rural food retail environments [35]. This extended into a commentary on the future of nutrition and dietetics research in rural areas [36]. Local connections and collaborations between researchers led to an opportunity to involve representatives from rural community organisations with established leaders in food environment research in a project to address local concerns [32]. The outcomes of this research will inform future initiatives to improve rural food access. Additionally, this research collaboration developed the capacity of academic staff across four UONDRH sites with training in participatory mapping and group model building [32], an approach with applications across a range of future health-related research studies.

Together, these research collaborations and body of literature have been developed through a critical mass of PhD-qualified staff with track records in nutrition-related health and workforce issues. This group has evolved from two staff in 2002 to 10 in 2025 [31]. Initially connecting like-minded researchers through the Australian Rural Health Education Network, the

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group has now established a broader research network that includes 25 nutrition-focused researchers from regional and rural universities across the country [36]. These examples demonstrate the need and desire for establishment of collaborative, place-based research teams [31] to build knowledge and develop solutions for the health of rural and remote communities.

3.4 | Case Study 4: UDRH Network Grows Intellectual Capital Across UDRHs and Between Political Arenas and Rural and Remote Regions

By connecting with each other, UDRHs collectively distribute knowledge among UDRHs, into broader policy arenas and back to individual UDRHs. The Australian Rural Health Education Network (ARHEN) exemplifies how UDRHs cultivate intellectual capital within their regions. ARHEN was established in 2001 when the Directors of the then nine UDRHs formed a network. Twenty-four years later, ARHEN encompasses all 19 funded UDRHs and operates as a not-for-profit organisation from the nation's capital, with a Board consisting of the Directors from each UDRH. ARHEN actively advocates for UDRH health professions training, rural research and broader rural and remote health issues. A central feature of ARHEN is its two-way approach to sharing, connecting and building knowledge between UDRHs as well as linking knowledge between national political arenas and individual UDRHs.

ARHEN facilitates knowledge distribution and sharing between UDRHs in various ways. It supports six staff networks involving over 160 UDRH staff, fostering connection and knowledge exchange. Additionally, four communities of practice, each focused on projects and placements, involve approximately 80 members. UDRH staff in these networks share information and strategies, applying these insights to their own region. Topics shared have included reporting, accommodation, student safety and shared policies. New staff at any UDRH benefit from the experience of others, not only in programme design and implementation but also in addressing challenges. UDRH Directors have also shared specific programmes that have been adopted by other UDRHs, including models of service learning and training on cultural competency, mental health, telehealth and family violence. Furthermore, ARHEN has compiled a database of over 4000 peer-reviewed publications authored by UDRH staff, offering a comprehensive body of knowledge generated by the network.

ARHEN is also a strong and effective advocate for rural health based upon its role facilitating knowledge exchange between rural and remote regions and relevant leaders, decision-makers and peak organisations. As a national body, ARHEN provides a platform for UDRH Directors to contribute rural and remote perspectives on health, research, policy and reviews that benefit UDRH regions. ARHEN identifies strategic priorities across UDRHs and adopts a bi-partisan approach to meeting with politicians to describe and advocate for these priorities. Further, ARHEN provides rural expert feedback on five to six policy consultations annually, with recent contributions to the Scope of Practice Review, the National Nursing Workforce Strategy, the National Allied Health Strategy and reviews of the MRRF strategic priorities and legislation. ARHEN's membership on the National Rural Health Alliance Council and collaborations with other peak rural health bodies ensure that ARHEN remains current on rural health advocacy issues. Additionally, ARHEN provides UDRHs with weekly updates on new funding programmes, policies, inquiries and topics of interest to UDRH staff. This creates opportunities for UDRHs to apply for funding, advocate on rural health issues and share information in their regions.

While acknowledging that individual UDRHs face very different issues, ARHEN recognises that UDRHs are more effective advocates when working together. Therefore, ARHEN facilitates information sharing to rural and remote regions, and between these regions and the nation's capital. ARHEN also connects UDRH staff based in rural and remote regions for collaboration, communities of practice and capacity building. These enable the production and distribution of information to advocate for rural and remote health at a national level, while simultaneously informing, connecting and supporting knowledge development of UDRH academics to advance intellectual capital in rural and remote regions.

4 | Discussion

UDRHs contribute to their rural and remote regions in many ways [1–5], including through the seven types of community capitals [3]. Building on this, the case studies presented here demonstrated how UDRHs co-produce locally tailored knowledge which is valued by rural and remote communities and less frequently contributed by other sectors [3]. The case studies highlighted UDRHs' intellectual capital contributions to rural and remote students on placement—who represent the future health workforce—as well as to community members, local initiatives, UDRH staff and regional advocacy. Through these efforts, UDRHs grow intellectual capital by leveraging their research and education expertise in collaboration with local organisations to support rural and remote regions. By embedding themselves in the local context, UDRH academics shape their research, teaching and engagement activities around priorities and challenges identified by rural and remote communities. This fosters a relational approach to knowledge production where local knowledge directly influences academic activities.

Previous research has found that developing intellectual capital contributes to increased team performance and shared leadership [37]. Similar to the case studies, Basile [38] emphasised the value of partnerships, learning from others, and the role of universities in fostering intellectual capital. Garlick [24] focused on capacity building which UDRHs undertake around research and workforce development, found here to enhance intellectual capital. Interdisciplinary research collaboration and effective healthcare policies have also been identified as important in developing intellectual capital [39], paralleling activities of UDRHs. Other university health centres have also recognised the significance of intellectual and human capital within knowledge-based organisations, particularly the attitudes of those working in these centres [40]. Thus, 'universities have a unique position to act as a bridge between local communities and the broader global community' [14].

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UDRHs serve as 'knowledge network hubs', facilitating the production and sharing of intellectual capital across rural/remote and urban Australia. By connecting academic institutions with rural and remote communities, UDRHs bridge gaps in knowledge and foster local innovation [14]. This promotes the flow of intellectual capital across professional and geographical boundaries, creating a dynamic, bi-directional exchange of knowledge that benefits all involved [38]. Through direct engagement with community members, health services and regional systems, UDRHs serve as institutional nodes where intellectual capital is nurtured and exchanged. Expertise and knowledge are not merely disseminated from urban centres to rural areas; instead, it flows in both directions, enriching both academic and local knowledge, with UDRHs contributing to its development while simultaneously learning from First Nations cultures, local communities, literature and colleagues at other universities.

Historically, urban institutions have often been seen as the primary sources of intellectual capital, with rural and remote areas receiving knowledge but rarely contributing to knowledge production. This has sometimes led to urban knowledge systems being viewed as superior, thereby undervaluing rural and remote perspectives. UDRHs help correct this imbalance by ensuring that rural communities have a genuine voice in the generation and dissemination of knowledge, particularly as related to health and systems of healthcare. By fostering a bi-directional knowledge-sharing relationship, UDRHs ensure that rural-specific expertise, including Indigenous knowledges, is integrated into academic discussions, benefiting both rural and urban communities.

The length of time that some UDRHs have thrived and contributed has further enabled intellectual capital. Long-term relationships and projects build strong partnerships, sustainability and opportunities for learning, changing and adapting. Through UDRHs, significant numbers of rural and remote health academics can develop intellectual capital in, with and for their region. As long-term funded programmes, UDRHs can be the vehicle for this growth of intellectual capital in rural health spaces.

These case studies from 'insider' researchers highlight the impacts of intellectual capital. While further research could provide more objective measures of intellectual capital, it is evident that UDRHs have impacts on their regions beyond funding, infrastructure and performance targets. The skills, practices and knowledge-sharing of academics contribute in many ways that are rarely recognised or attributed to UDRHs. Embedded in rural and remote communities, UDRHs operate at the intersection of practice and scholarship, bridging epistemic and geographic divides, enabling the transfer of contextually relevant learning and fostering locally driven innovation through co-creation of knowledge with local stakeholders. Intellectual capital is co-produced in and for these regions, with UDRHs drawing on global knowledge and literature to complement and integrate with local knowledges and contexts. Consequently, UDRHs anchor a process of knowledge creation and sharing that is regionally embedded, ethically grounded and future-oriented. By building research capacity, supporting professional development, and fostering partnerships between academic institutions and rural communities, UDRHs enhance their regions' ability to generate, apply, grow and sustain intellectual capital.

Author Contributions

Lisa Bourke: conceptualization, data curation, formal analysis, investigation, methodology, project administration, validation, writing – original draft, writing – review and editing. **Sandra Thompson:** conceptualization, data curation, formal analysis, investigation, methodology, validation, writing – review and editing. **Katharine Freire:** conceptualization, investigation, methodology, validation, writing – review and editing, formal analysis, data curation. **Robyn McNeil:** conceptualization, investigation, methodology, validation, writing – review and editing, formal analysis, data curation. **Pam Harvey:** conceptualization, investigation, methodology, validation, writing – review and editing, formal analysis, data curation. **Leanne Brown:** conceptualization, investigation, methodology, validation, writing – review and editing, formal analysis, data curation. **James Debenham:** conceptualization, investigation, methodology, validation, writing – review and editing, formal analysis, data curation.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The authors have nothing to report.

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