Building an Age-Friendly Indigo Health System

Final Report to Better Care Victoria

BETTER CARE VICTORIA

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Acknowledgements

Summary

One question being asked by senior health policymakers as we slowly emerge from the devastating impacts of the COVID-19 pandemic is, 'How might we reintroduce care differently, instead of just returning to business as usual?' It is time to think afresh about how we care for our largest group of patients: older people.

The Indigo Consortium focusses on two areas: to provide collective governance for health and wellbeing initiatives within the Indigo Shire, and to identify and support enterprises which contribute to an 'Age Friendly Indigo'.

Through a confluence of ideas, people and funding, the Indigo Consortium, in collaboration with its partner agencies, has developed an approach to make health and social care age-friendly. This report documents that journey.

The first two chapters explore the experiences of older people receiving health care currently. We present the challenges: a fragmented health system so complex it is too difficult for most people to navigate; the high rates of chronic disease that are best managed with integrated care; and the reforms that have been trialled to achieve that. We then identify two international, evidence-based approaches that can prevent decline, and maintain or improve the health and wellbeing of older people in hospitals, residential aged care and in the community: the Institute for Healthcare Improvement's (IHI) 4Ms Framework, and the World Health Organization's (WHO) Integrated Care for Older People (ICOPE) guidelines.

Chapters Three to Five charts the course we took to assess the feasibility of these approaches for Australian rural health settings. Embedded in the principles of co-design, with National Health and Medical Research Council's advice on the development of guidelines steering the process, we crafted the IHI 4Ms Framework to best meet our needs.

Chapter Six presents the outcome of that endeavour. The Indigo 4Ms Framework combines the great strengths of the IHI 4Ms Framework with WHO ICOPE guidelines to deliver better care for all older people living in rural and regional Victoria. The Indigo 4Ms Framework operates as an heuristic, a mental strategy or 'rule of thumb', converting large amounts of complex information from research, practice and policy into a quick mental reference through which health and social care workers, in any setting, can structure and prioritise their care.

Chapter Seven confirms the economic benefits of delivering age-friendly care using the Indigo 4Ms Framework. Through a 'sliding doors' scenario approach, reflective of the everyday experiences of staff and patients in our region, we envisaged the potential differences between current and proposed care and the impacts these have on both costs and the outcomes experienced by patients. The cases provided plausible examples of adverse events that arise in systems that are less than age-friendly. The economic assessment showed considerable cost savings to health and social services if the Indigo 4Ms Framework was standard care.

The final chapters contain our understanding of the conditions necessary to implement integrated care, and our plan to do so, without the wait for the structural, financial, legislative or workforce reform that curtails innovation. We end by reflecting on the challenges faced in undertaking this work, focussing on the dynamic nature of collaborative partnerships, and the insidious nature of ageism and age-discrimination. Responses to COVID-19 have made these negative attitudes more visible.

Better Care Victoria enables and supports the identification, scaling and embedding of innovative practice across the Victorian health system. Their Innovation Fund made this work possible. We have one recommendation as an outcome of this report: to implement the Indigo 4Ms Framework.

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Introduction

Albert English is an active, energetic 72 year old who lives at home with his wife, Caroline and their 6-year-old grand-daughter. In the midst of an evening thunderstorm, Albert could hear the ominous sound of a gutter overflowing. While trying to wrestle the ladder into position, he slipped and fell, fracturing his neck of femur. Albert was transferred by ambulance to a regional hospital.

Not wanting to be a bother on a busy night, Albert stayed quiet in the Emergency Department despite increasing pain and an overwhelming thirst. He was delayed being assessed as people with trauma were prioritised. While his surgical procedure went smoothly, without adequate pre-anaesthetic hydration, or pain and electrolyte management in the Emergency Department, Albert developed delirium a week after surgery. The ward staff assumed Albert's sleepiness and confusion were signs of normal ageing. Albert never fully recovered his cognitive abilities.

In 2018, Better Care Victoria funded the Indigo Consortium[a] to develop an innovative, systems-based approach to the care for older people. Better Care Victoria enables and supports the identification, scaling and embedding of innovative practice across the Victorian health system. This approach is critical to managing the increasing demand and cost pressures on the Victorian health system. As the Travis Review[1] cogently argued, 'doing things better, differently and more effectively', with whole-of-system focus, will build capacity in the existing system and achieve better patient outcomes.

We are all living longer. On average, Australians are living thirty years longer than we did a hundred years ago. For the first time in our evolutionary history, five generations are alive together. These demographic changes are profoundly re-shaping the way our institutions and families operate. Our longer, healthy lives bring great personal, social and economic benefits. Good health and positive attitudes to ageing and older people are required to realise the benefits of longevity.

In 2017-18, in Victoria, people aged sixty-five and over (who make up about fifteen per cent of the population) accounted for almost half of all hospital separations.[2] While in hospital, older people suffer disproportionate harm with unnecessary admissions and longer lengths of stay. [3,4] There is also evidence that age stereotypes result in discrimination in health and social care settings contributing to poorer health outcomes. Building capacity across the health system to achieve best practice in safety and quality of care for older people is essential.

The Institute for Healthcare Improvement (IHI), in partnership with the John A. Hartford Foundation, the American Hospital Association, the Catholic Health Association of the United States and leading geriatric care experts, co-designed a measurable, feasible and sustainable approach to make the U.S. health care systems age-friendly.[5]

The IHI Age-Friendly Health System Framework comprises four evidence-based core elements known as the '4Ms' with associated high-level, evidence-based interventions. Evidence has shown that the 4Ms Framework improves physical and psychosocial outcomes for older people within health settings, while reducing harm and costs. [6]

In 2018, the Indigo Consortium agreed to work towards an age-friendly approach to care across their catchment. The Indigo Shire was at that time pursuing a goal to become a member of the World Health Organisation (WHO) Global Network for Age-Friendly Cities and Communities, a goal realised in November 2019.

Could a simple heuristic, 'the 4Ms', radically transform our care for older people? The Indigo Consortium hypothesised that the IHI Age-Friendly Health System approach, if modified for the local rural health and social context, would, to paraphrase Travis, provide better care for older people by doing things differently and more effectively.

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[a] The Indigo Consortium is a partnership between Upper Hume Primary Care Partnership, Indigo North Health, Yackandandah Health, Beechworth Health Service and Indigo Shire Council, , and Department of Health and Human Services Ovens Murray Region

With a grant from Better Care Victoria, the Consortium set out to answer four key questions:

1. Is the IHI Age-Friendly Health System applicable to Australian rural health conditions?

2. What existing models of care in the region align with the 4Ms Framework?

3. Would implementing an age-friendly rural health system be of economic benefit?

4. Can an acceptable implementation plan for the local health system be developed?

This report documents the work undertaken to develop an feasible Indigo Age-Friendly Indigo Health System approach and implementation plan. The work was grounded in transparent processes and decision making through co-design with experts, consumers and academics.

The report commences with an overview of the need to improve care for older people and to provide care in a different way. It then describes the work undertaken through the BCV Innovation Fund to develop the Indigo 4Ms Framework, including an economic assessment of applying the 4Ms Framework to usual care, and concludes with the implementation plan.

Improving Care for Older People

This project set out to develop a systems-based, innovative approach to the care for older people residing in Indigo Shire. We aimed to co-design a fit-for-purpose, age-friendly course of action to the care for older people living in rural communities that would reduce hospital acquired harm, improve health and wellbeing outcomes, and enhance the capacity of the regional health system.

This chapter provides the rationale for the need to reorientate the health system to improve the care for older people. It begins with an overview of the current experiences of older people in our health system, and the heath system reforms undertaken to provide better health and social care for older people. It then describes in more detail international approaches from the World Health Organization and the Institute for Healthcare Improvement in the United States, which form the basis for this work.

Older People & the Health System

Australia is part of the global shift to population ageing. Most Australians can now expect to live for twenty years or more after their 65th birthday. For the first time in our evolutionary history, five generations of one family are alive together; there are more people over sixty-five than children under five in our communities; less than one per cent of the population dies before the age of five and nearly forty per cent die after the age of eighty-five. These dramatic demographic changes have far-reaching consequences for every aspect of society.

In 2017, people aged sixty-five years and over comprised fifteen per cent of the national population. This is projected to increase to approximately a quarter of the population over the next forty years.[7] Proportionately, this sector is more than fifty per cent larger in regional areas compared with metropolitan centres. For instance, in Victoria, people aged over sixty-five years already account for a quarter of the population in regional areas, compared to sixteen per cent in metropolitan Melbourne. The correlation between age and regionality is even more marked in small rural communities where older people comprise around one third of the constituents.

Longer, healthier lives bring great benefits. Older people are the backbone of communities, providing volunteer emergency services, transport, sport and social services. They keep local, communities sustainable by operating and using local businesses, amenities, health and community services.[8] They provide assistance and support to families, neighbours and other community members. A long life is the pre-eminent source of perspective and moral wisdom.

Along with these vital, non-GDP contributions, older people are economic contributors, paying GST and other non-labour taxes,[9] while the stimulus from the 'silver economy' to building and housing, mobility and transport, travel, leisure, workforce training, IT and communications and the health and home services sectors, is well recognised.[10]

As we age, biological changes lead to a gradual decrease in physiological reserve. This decrease is neither linear, consistent, nor closely associated with age in years.[11] Along with biological changes, growing old is associated with psychological growth, changes in social roles and adaption to loss. To foster resilience, and to maintain and improve functional ability requires good primary health care and age-friendly environments. Indeed, age-friendly environments play a significant role in preventing or delaying many of the health problems related to ageing and chronic disease.[12]

According to the 2014–15 National Health Survey, nearly three-quarters (73%) of older Australians reported they

had good, very good or excellent health.[13] However, healthy ageing can still be associated with unintentional injury and hospitalisation. For an otherwise healthy older person, hospitalisation can be a sentinel event: Albert, who we met at the opening of this report, is one person in the staggering statistic that hospital-acquired delirium was associated with all-cause one-year mortality after hip fracture in older Australians without dementia.[14]

The most prevalent cause of ill-health in later life is chronic disease. Globally, chronic conditions are related to sixty per cent of disability adjusted life years.[15] In 2017-18, four in five (80.0%) Australians aged sixty-five years and over had one or more chronic conditions.[16] Living with chronic illness gives rise to complex health needs, multiple hospitalisations, a poorer quality of life and the early onset of functional decline.[17] Older people living with chronic illness rely on a range of health and social services, provided by public and non-statutory services (charities, social enterprises, community services and private providers), as well as informal support networks of families, neighbours and volunteers to maintain their quality of life.

Australia's health system is complex. Indeed, it has been described less as system than 'a complex set of services, with multiple providers and multiple payers generating complexity for both patients and providers alike'.[18]

The health system remains premised on episodic, short-term, and curative approaches to care.[19] Yet in Victoria, in 2017-18, people aged sixty-five and over (who make up about fifteen per cent of the population) accounted for almost half of all hospital separations, mostly associated with chronic disease (AIHW, 2018).[20]

For older Australians, the outcomes of a poorly designed health system are considerable. Along with the outcomes for otherwise well older people described earlier, research shows that older people are disproportionately harmed in ways that are preventable. Older people are hospitalised unnecessarily, their length of stay and rates of readmission significantly increase, with the additional burden of functional decline un-associated with the reason for their admission, and ending with higher mortality rates for patients and increased costs for health services.[21, 22, 23]

Older people are more likely to sustain a fall while in hospital. Between 2009–10 and 2015–16, the rate of falls increased by 0.8 per 1,000 separations. For all hospitals combined, people aged eight-five and over had the highest age-specific rate of falls within hospital (13 falls per 1,000 separations). Falls precipitate significant health decline and premature death.[24, 25]

Perceptions of older people and ageing also affect older people negatively in the health system.[26, 27] On average, old age is perceived to start at fifty-nine.[28] Compared with younger people, older people are likely to be stereotyped as frail, ill and dependent, having low social status, and a burden on health services.[29,30] Recent research supports previous studies that show medical decisions, made based on an implicit negative age bias, on the age of an older people results in poorer health outcomes for older people. [31]

Along with the work of Better Care Victoria (BCV) to build capacity through innovation, the Victorian government has placed a greater focus on strengthening quality of care and the elimination of avoidable harm in the health system. Safer Care Victoria (SCV) was established as part of the government's response to the review of the cluster of eleven cases of potentially avoidable newborn and stillborn deaths.[32]

However, as Duckett et al. argued,[33] health care reporting systems respond more readily to 'preventable conditions', especially those that generate media attention, than a broader view of patient outcomes:

> *... the most serious consequence of the focus on preventability was that it normalised harm to patients. Focusing safety improvement efforts on 'errors' that caused 'preventable' harm implied that other instances of harm to patients were acceptable, and less worthy of being tackled (p 9).*

Who are these older people harmed because of our health system? They are us: our parents and grandparents; our children, partners and friends; the people we work with; our neighbours; and they are the future for our children. It has been projected that one in three babies born today will live to be one hundred.[34] We have to do better.

Health System Reform

In 1995, the Council of Australian Governments (COAG) identified integrated, patient-centred care as the fundamental component of health system reforms. Its aims were four-fold: to 'improve health outcomes while at the same time delivering a higher quality service to patients, lowering costs and ensuring the wellbeing of the health workforce'. [35]

Australia, along with a considerable body of international evidence, has shown that integrated care meets these aims. [36, 37] Centrally, integrated care seeks to overcome the fragmentation of care by linking or co-ordinating the services of providers along the continuum of care. Yet, like the complex system it seeks to reform, navigating integrated care theory, design and implementation is equally fraught.

Integrated care in Australia has been trialled based on population cohorts, variously described as having chronic and/or complex conditions or illnesses, multi-morbidities, or at risk of preventable hospitalisation. Integrated care (however named) has been organised for First Nations people through Aboriginal Community Controlled Health Services, as well as people with cancer, mental illness, diabetes, pulmonary disease, palliative care, and organ and tissue donation. In Victoria, the Hospital Admission Risk Program (HARP) was developed based on the Wagner Chronic Care model for people described as 'at risk of preventable hospitalisation'.

At the patient level, integrated care has been tested through individual care planning, self-management and case management. While at the organisational level, integrated care initiatives between disciplines and service providers include the establishment of GP Superclinics, local hospital networks, health care homes, primary health networks and local health districts.

Integrated care has also transpired through changes to Commonwealth funding arrangements through block funding or pooled funding, adding items to the MBS to support care planning, the development of the electronic health record, health pathways and the integration of other 'backroom' functions such as IT systems.

At a governance level, national health reform agreements through COAG have set aims, frameworks and targets to achieve local or regional integrated models, most recently through the National Strategy for Chronic Conditions which focussed on the prevention and management of chronic conditions.

However, progress has been poor, impeded by the complexity of integrated care itself within a complex overall health system. [38] Funding silos, competition between services—public, private, health and social—a lack of long-term policy commitment, and strong leadership have all been identified as factors for the stalling of reform. [39,40] As Goodwin states; 'the rhetoric coming from Australia is... innovation cannot really be embraced until someone else higher up provides a solution – usually to do with finance, governance and accountability'. [41]

In a review of health services collaboration in the Upper Hume catchment, the Upper Hume Primary Care Partnership (UHPCP) reported that multiple care coordination models and definitions are utilised throughout the catchment, along with tension regarding staffing, accreditation and competency standards of care co-ordinators. This creates yet another layer of complexity. The review found that the workforce, striving to provide patient-centred integrated care, is increasingly frustrated and dissatisfied with these systems failures. [42]

WHO Integrated Care for Older People

The World Health Organisation (WHO) calls for the restructure of health services to improve the care for older people by:

Placing them at the centre of service delivery. Practically, this means that health care is organised around their needs and preferences, and designed for integration across service levels and types.[43]

WHO Integrated Care for Older People (ICOPE) [44] guidelines provide evidence-based direction and interventions to enable an older person to maintain, slow or reverse any declines in their physical and mental capacities.

The guidelines were developed through a guideline development group convened by WHO, synthesising the high-level evidence for six domains covering the priority conditions for community-level care for older people (Figure 1).

The ICOPE guidelines enable health and social care workers, using simple tools, to detect early declines in physical and mental capacities, and to deliver effective interventions to prevent and/ or delay progression. WHO developed a package of tools, including a digital application, to help health and social workers integrate the care they provide around the needs of older people, along with technical assistance for service system to develop supporting policies and structures. [45]

Vitality

Locomotor capacity

Vision capacity

Psychological capacity

Hearing capacity

Cognitive capacity

1. Improve musculoskeletal function, mobility and vitality
2. Prevent severe cognitive impairment and promote psychological well-being
3. Prevent falls
4. Maintain sensory capacity
5. Manage age-associated conditions such as urinary incontinence
6. Support caregivers

**FIGURE 1: THE DOMAINS OF INTRINSIC CAPACITY WHO ICOPE P5**

IHI Age-Friendly Health System

The John A. Hartford Foundation (JAHF) in partnership with the Institute for Healthcare Improvement (IHI), and in collaboration with the American Hospital Association and the Catholic Health Association of the United States, established the Age-Friendly Health System (AFHS) initiative.[a] IHI's Research and Development team led the AFHS development process working with geriatric experts to co-designed a measurable, feasible and sustainable approach to make the U.S. health care systems age-friendly.

The process comprised a systematic review of high-level evidence to identify the common design elements, an expert team review of the findings, and a synthesis of the outcomes. This led to the identification of the four core elements—mentation, mobility, medications, and (what) matters—with nine specific, high-level, evidence-based interventions that, if implemented, would reduce harm to older people, improve health outcomes and reduce unwanted or duplicated care (Figure 2).[46]

IHI describe the 4Ms as a framework to organise the efficient delivery of effective care. The 4Ms are not an overlay, or addition, to the care already being provided, rather, they ensure all essentials are covered, consistently, in every setting where care is delivered.[47] Age-friendly health systems are designed to close the gap between evidence-based care and the reliable practice of that care.

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[a] In 2016, JAHF awarded IHI US$3,190,452 to develop the 4Ms Framework. In 2019, IHI received a second grant of US$6,026,760 to further develop the Age-Friendly Health System movement.
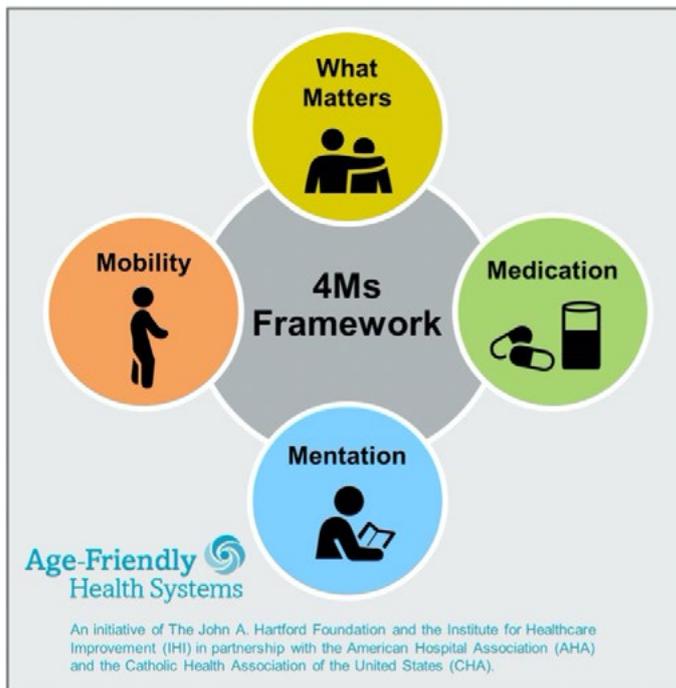
FIGURE 2: IHI AGE-FRIENDLY HEALTH SYSTEM 4MS FRAMEWORK

Implementation

In 2017, IHI worked with five health services (Ascension, Trinity Health, Anne Arundel Medical Center, Providence St. Joseph, Kaiser Permanente) to test the IHI 4Ms Framework. While implementation success varied across the five sites, there were significant improvements in a range of outcomes in those settings where the 4Ms Framework was embedded into clinical practice.[48]

PATIENT OUTCOMES

Implementation of the 4Ms Framework resulted in a reduction in patients experiencing delirium, a significant reduction in in-patient falls, and a seventy-five per cent reduction in medication prescription.

Kaiser Permanente found delirium was prevented by mobility, while at Anne Arundel bringing in sports drinking cups increased hydration with a concomitant reduction in their falls rate. Indeed, there were no falls with injury in the Unit that trialled the 4Ms compared to eighteen per month in the rest of the hospital. No restraints were used, there were no 'special attendants' employed, and patients were mobilised more often than the rest of the hospital.

IMPROVED QUALITY OF SERVICE

Overall, the care provided to patients was of a greater quality through a focus on 'what matters'. Anne Arundel increased their rates of mobilised patients and increased patient satisfaction rates, while at Ascension, there was a decrease in patient complaints with an increase in patient and families' understanding of their care.

HEALTH COSTS

At Ascension, assessments, communication and engagement with patients were structured through the 4Ms Framework giving rise to an increase in health service remuneration with a lowering health service costs through reduced readmissions and avoidable hospitalisations.

HEALTH WORKFORCE

At Anne Arundel, the combination of successful patient outcomes, comprehensive training and the development of a stronger team culture led to significant improvements in staff morale. Staff were motivated by seeing beneficial outcomes, reporting the highest staff satisfactions results across AAMC. While at Ascension, 'staff chemistry' notably improved with greater team involvement.

Providence reported medical staff felt re-engaged with their fundamental reasons for doing medicine, leading to 'an increased joy at work' by taking part in the implementation of the 4Ms Framework. There is now a waiting list to undertake the training.

At Trinity, despite the 4Ms Framework not being fully realised, feedback from the teams noted that they felt more engaged in their work.

In 2018, IHI launched the AFHS Action Communities to scale and spread the initiative. The goal was to create a 4Ms social movement.[49] To date, three intakes have been completed, with 284 hospitals taking part.

In Australia

Population ageing and the rising number of older people with chronic illness is often given as the rationale for a shift to integrated care. However, outside the Royal Commission into Aged Care Quality and Safety, there is an absence of evidence-based policy and systems reform specifically targeting older people.[50, 51] This may be due, in part, to the complexity of integrated care, the diversity of older people and rapid changes in their health status, or the collaboration needed across and between public and private health and social funders, providers and services.[52]

In Victoria, the HARP program was extended for older people, continuing its focus to prevent unnecessary hospitalisation. In NSW, the Agency for Clinical Innovation's (ACI) 'Building Partnerships: A Framework for Integrating Care for Older People with Complex Health Needs'[53] is limited in its scope to one whose underlying comorbidities and individual circumstances have a direct impact on their ability to function and maintain independence on a daily basis. Although not age dependent, this definition mostly pertains to those over 75 years of age (p1).

There have been multiple care pathways and resources provided to improve specific aspects of care to older people. For example, the Victorian government's web-based Older people in hospital resource, provides a considerable number of evidence-based resources across eleven areas, while Safer Care Victoria has targeted the management of delirium, patient engagement and activity, and variation in pre-operative hip fracture for investigation.[54,55]

Conclusion

The rise in chronic illness, concomitant with the dramatic shift to population ageing, requires a transformation of our health system. That transformation must be grounded in approaches that prevent decline, maintain, or improve the health and wellbeing of older people.

Both WHO and IHI have developed integrated, person-centred approaches to the care for older people. Both approaches consolidate considerable high-level evidence on successful interventions to improve health outcomes in primary, community and hospital care. Both are essential to meet the health and social needs of older people across the continuum of care.

The IHI Age-Friendly Health System offers a simple, pragmatic approach for in-patient, health and residential aged care services that may redress the disproportionate

harm experienced by older people because of our health system. It would benefit from examining the link between hospital and community approaches to care for older people. The IHI Age-Friendly Health System has not been tested outside of the United States, nor has it been implemented across a range of partnering health providers across the care continuum, or in a rural setting.

The BCV Innovation Fund grant offers the opportunity to be innovative in how we might deliver better care for older people, at every point of care. Developing an age-friendly health systems approach, drawing on the strengths of international methods, is a chance to do that. IHI and JAHF were encouragingly supportive of the work planned to localise the IHI 4Ms Framework for Australian rural health conditions.

Project Method

Creating an age-friendly health system is an essential, cost-effective step towards improving quality and safety of care, and enhancing the capacity of the Victorian health and social care system to meet the changing health needs of the population. The Institute for Healthcare Improvement (IHI) and the World Health Organization (WHO) have developed evidence-based approaches that may provide a mechanism to achieve this goal.

This chapter describes the approach taken by the Building an Age-Friendly Indigo Health System project to develop a fit-for-purpose, age-friendly approach to the care for older people living in rural communities. Research indicates strong leadership, governance and collaborative involvement of cross-disciplinary point-of-care clinicians in service design leads to the successful implementation and sustainability of evidence-based care.[56]

This project was conducted with co-design is its core principle. The National Health and Medical Research Council's (NHMRC) advice on the development of guidelines steered the process.[57] For the NHMRC, high quality, practical guidelines are based on systematic reviews of evidence, transparent development processes and decision making, and the judgement of evidence by experts, consumers and other end users.

There were four stages in the development process:

1. Assessment of the IHI Age-Friendly Healthy System 4Ms Framework against local conditions;

2. Assessment of current approaches to the care of older people in the region against the draft Indigo Framework;

3. An economic assessment of the Indigo 4Ms Framework; and

4. Development of an implementation plan.

The chapter describes in more detail the employment of independent academic reviews, governance and partnership arrangements that assisted with transparent development processes and decision making, and the formation of expert teams for clinical and lived experience judgement of the evidence to achieve the four stages.

Systematic Reviews of Evidence

Two separate groups of academics, both from La Trobe University, provided independent, rigorous appraisals of evidence, which was then reviewed by clinicians, consumers and health services' executives and policymakers.

From the John Richards Centre for Rural Ageing Research, Dr Rachel Winterton (lead), Assoc Prof Suzanne Hodgkin and Dr Samantha Clune completed an integrative review of Australian rural health research against the IHI Age-Friendly Health System (Chapter 4), and a review of key federal and state level policies, standards and guidelines and local geriatric care models that aligned with the draft Indigo 4Ms Framework (Chapter 5).

From the Department of Public Health, Professor Alan Shiell and Katherine Pye undertook an economic assessment of the Indigo 4Ms Framework against usual care (Chapter 6).

Governance & Partnerships

Within Indigo Shire there are two public health services, Beechworth Health Service and Indigo North Health, and Yackandandah Health, a community-owned facility, all of which provide primary and residential aged care services. Beechworth Health Service also provides urgent and sub-acute care.

Tertiary referral services are provided by two public hospitals; Albury Wodonga Health and Northeast Health Wangaratta. Few residents are transferred or present to Melbourne tertiary hospitals. Gateway Health provides community health services. Indigo Shire Council is integral to the development of age-friendly environments.

Given the interconnectedness of the health and social needs of older people, developing an approach to integrate care and improve outcomes required a collaboration that also transcended boundaries. Partnerships are collaborative working relationships where 'partners can achieve more by working together than they can on their own'.[58]

The Project Control Group (PCG) was the mechanism to develop and maintain collaborative partnership. Membership included CEOs or equivalents of health services and senior policymakers from the Department of Health and Human Services.

The organisations were:

- Albury Wodonga Health
- Beechworth Health Service
- Better Care Victoria
- DHHS Ovens Murray Area
- DHHS Rural Health Branch
- Gateway Health
- Indigo North Health
- Indigo Shire
- La Trobe University.
- Northeast Health Wangaratta
- Upper Hume Primary Care Partnership
- Yackandandah Health

The PCG included consumer engagement of two community members with significant, active experience as consumer representatives. The involvement of consumers in health care improves the quality and safety of health care.[59] In this project, the community representatives were essential partners, providing a consumer perspective, contributing real life experiences of using health services, and helping to shape a legitimate, effective age-friendly health system.

Effective partnerships produce synergy when the complementary skills, resources, perspectives and shared know-how of the partners lead to more effective solutions.[60] Building effective partnerships takes time and commitment. As the partner organisations had not worked together previously, nor had the community representatives worked with the range of health and social services, it took time to recognise each other's roles and expertise, and to develop trust. The challenges were considerable, especially in rural and regional communities where time and distance are added barriers.

A typology of stakeholders was developed[61] to assist the PCG address the diversity of roles required across the life of the project, the appropriate time to approach particular stakeholder, and the purpose for engaging with each stakeholder (Appendix 1).

In addition to the formal PCG meetings, the project manager met with all members of the PCG individually at various times throughout the project. A summary report of these meetings was tabled at the subsequent PCG meeting to encourage greater discussion.

The project also organised a series of informal evening dinners with guest speakers. PCG members, along with Board members (most of which are community members) and other executive and senior medical staff were invited to attend. These were held at George Kerford in Beechworth, a function venue set among the peaceful gardens of Mayday Hill's historic asylum.

Prof Alan Shiell from La Trobe University spent two days in Beechworth, delivering an overview of a systems approach to health economics over dinner, and leading a workshop the following morning on the components of an economic assessment of the Indigo 4Ms Framework.

Dr Doug Travis from Better Care Victoria (BCV) presented a highly engaging talk on the establishment and progress of initiatives funded by BCV. The following morning he met with a large number of community members over morning tea to talk more broadly about health sector reform.

Both of these informal gatherings assisted in developing an espirit de corps, along with a common frame of reference for the work. Importantly, they provided external validation of the importance of work and recognition of the contribution by the partner agencies building the commitment to the endeavour.

We did attempt to secure a member of Safer Care Victoria's executive to attend. Despite our best efforts to convince staff of the benefits such visits give the collaboration efforts of local health services across the region, we were unable to do so.

The development and maintenance of a collaborative partnership was tracked as part of the monitoring of the project. The findings are presented in Chapter Nine as outcomes of the project.

Expert Teams

Expert Teams, comprising consumers, health services' executives, policymakers, medical, nursing and allied health staff from across the region evaluated the academic findings through their clinical and lived experiences, creating the Indigo 4Ms Framework with actions and language to suit local conditions. Their involvement was fundamental to its successful development.

Similarly with the PCG, these meetings offered participants their first opportunity to work together on a shared project. For many, it was an opportunity for the first time, to meet face to face with colleagues from other health services in the region.

In addition to the dinner events, three other events were held at George Kerford in Beechworth to which the Expert Team members (and the PCG members) were invited. The first was the BCV workshop on transitioning quality improvement projects to 'business as usual'. Presented by Tristan Vasquez and Damon Grimwood, Industry Coaches with SCV, the event was held with thirteen participants. Second, a one-day workshop delivered the IHI Open School on-line course 'Improvement Capability 101-105' as a face-to-face training day. Forty-two people participated in the course. Third, marketing 'discovery workshop' was held in which the value proposition and key messages of the project were collaboratively identified.

These events provided unique professional development opportunities for rural and regional clinical staff, while also creating a shared space to learn more about the age-friendly project.

Community consultations were held with groups of older people at various venues across the region. This included Senior Citizen Centres, University of the Third Age, and Carers Network meetings. Health services' Community Advisory Groups were also consulted on the draft Indigo 4Ms Framework.

Conculsion

To ensure co-design principles were maintained, along with the systematic, transparent development process, the Building an Age-Friendly Indigo Health System project invested time and resources in developing strong governance, project management and partnership structures.

Partnerships were developed through the Project Control Group and the Expert Teams that formed to review the academic material, while the supporting events develop a common purpose.

Assessment of the 4Ms Framework

This project was grounded in the principles of co-design, and guided by the NHMRC Guidelines for Guidelines to ensure a rigorous, fit-for-purpose Age-Friendly Indigo Health System would be developed to meet the needs of all end-users.

This section describes the first step of that development process: the initial assessment of the suitability of the Institute for Healthcare Improvement (IHI) Age-Friendly Healthy System for the Victorian rural health system. It begins by reporting on the integrative review undertaken by La Trobe University. It then describes the appraisal of their findings by the first Expert Team. It ends with the integration of key components of the World Health Organization (WHO) Integrated Care for Older People (ICOPE) Guidelines into the first draft of an Indigo 4Ms Framework.

Integrative Review of Australian Rural Health Research[a]

Academics from La Trobe University undertook an integrative review of Australian rural health research against the IHI 4Ms Framework. Integrative reviews are advocated for their role in developing evidence-based practice through the inclusion of diverse experimental and non-experimental methodologies.[62]

Twenty-four articles addressing the review criteria were identified. The studies were generally of a low-level evidence. They had been conducted across a series of health settings with diverse older populations, a breadth of models of delivery and a wide range of outcomes. Most studies failed to define the term rural.

While there were limitations in the research identified, the review did find evidence for all four core elements. The strongest evidence was in relation to medication (level II study), while most evidence focussed on mobility and mentation. There was less evidence for 'what matters'.

Additional evidence was identified that was not an immediate 'logical' fit with the IHI 4Ms Framework including monitoring for infection, continence and screening for social support. The latter two are present in the ICOPE guidelines.

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[a] For further information see: Winterton R, Hodgkin S, Brasher K. Age-friendly care for older adults within rural Australian health systems: an integrative review. Australasian Journal on Ageing; forthcoming.

This work was presented as: How can we deliver age-friendly healthcare in rural Victoria? SCV Giant Steps; Melbourne; 20-21 November; poster presentation; Brasher K, Winterton R, Hodgkin S. Building an age-friendly health system in rural Victoria. 2nd Asia Pacific Conference on Integrated Care; Melbourne, 11 November; oral presentation
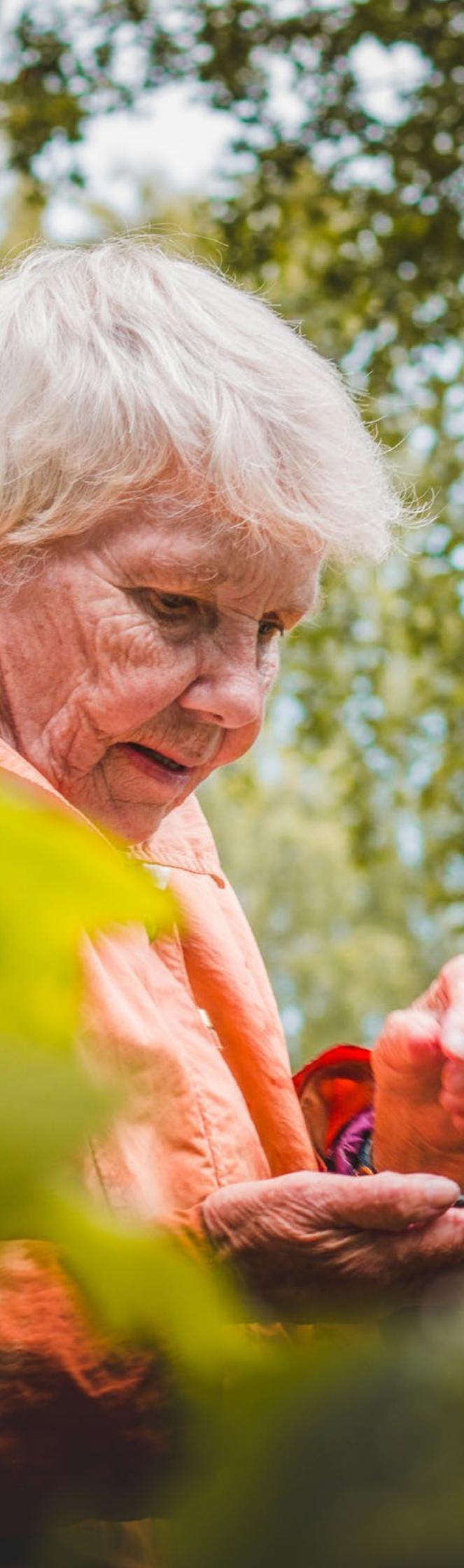
Expert Team Meeting

An Expert Team convened to assess the report by La Trobe University and the IHI 4Ms Framework against clinical and experiential knowledge. Sixteen participants from all partner agencies and community-based health providers participated in an interactive session including members of the community, a GP, two gerontologists, a community pharmacist, allied health staff, nurses, hospital administrators and policymakers.

Building on the La Trobe evidence review and the diversity of experiences in the room, participants provided confirmation for the 4Ms Framework, particularly in relation to the 'what matters' element. The additional evidence identified by La Trobe was deemed essential in the Australian context. The meeting also suggested the term 'mentation' be replaced with 'Mental Wellbeing'.

Given the findings of the La Trobe review were accepted by the Expert Team, those areas of additional evidence were later reviewed against the key actions from the ICOPE guidelines (see Appendix 2). Further discussion was had with the two local geriatricians and other clinicians, particularly clinicians working in the community sector. They gave strong preference for the inclusion of the ICOPE actions.

The first full draft of an Age-Friendly Indigo Health System 4Ms Framework was prepared for the next stage of the development process (Table 1).

Core Elements	Key Actions
WHAT MATTERS	Know what matters: health outcome goals and care preferences for current and future care, including end of life. Act on what matters for current and future care, including end of life.
MEDICATIONS	Implement standard process for age-friendly medication reconciliation. De-prescribe and adjust doses to be age-friendly.
MOBILITY	Implement an individualized mobility plan including multimodal exercises. Create an environment that enables mobility.
MENTAL WELLBEING	Ensure adequate nutrition, hydration, sleep, and comfort. Engage and orient to maximize independence and dignity, screen for vision and hearing impairment, screen for urinary continence, assess social connections & supports. Identify, treat, and manage dementia, delirium, and depression.

FIGURE 3: DRAFT 1 INDIGO AGE-FRIENDLY HEALTH SYSTEM 4MS FRAMEWORK

Conclusion

Through an independent academic review of rural health research, and the judgement of the evidence by experienced clinicians and people with lived experience, the IHI 4Ms Framework was endorsed as relevant and useful for local conditions.

A number of changes were recommended to reflect the particular health and social needs of older people in an Australian rural health setting, reflecting the evidence that 'off-the-shelf' interventions from other countries are seldom suitable without modification. Importantly, the additions matched the WHO ICOPE guidelines.

Assessment of Current Practice Against the Draft Indigo 4Ms Framework

Following the completion of the first draft of an Indigo 4Ms Framework, the project sought to ensure it was consistent with legislative or accreditation requirements of all participating health services, and the current best-practice models of care.

This chapter reports on the critical appraisal of current geriatric policies and practices or models of care relevant to the 4Ms Framework by La Trobe University. It then discusses the modified Delphi study which ranked the importance of key actions to be included, and ends with the Expert Team reviews of the findings to reach consensus on the final Indigo 4Ms Framework.

Identification of Current Practice

Academics from La Trobe University undertook the review of key federal and state level policies, standards and guidelines and local geriatric care models that aligned with the draft Indigo 4Ms Framework.

Federal and state-level health and aged care websites were searched to identify key policies, guidelines, or standards that underpin the Indigo health service delivery system. In-depth interviews were held with twelve key informants from the partner organisations. Key findings related to each of the 4Ms are presented below.

A full report is available on request to the Chief Executive Officer, Beechworth Health Service

WHAT MATTERS

What matters was referenced within policies and guidelines as 'person' or 'patient' centred care, and shared decision-making. Policies and guidelines recommended documentation of goals, needs and preferences, engagement of older people and their families in developing care plans, and clinician support for shared decision-making.

In clinical practice, 'What matters' was a priority for all organisations. Key informants emphasised that they employed a person or patient-centred approach in line with federal and state level policies, identifying patient goals and preferences through standard assessment procedures and organisational specific tools.

MEDICATION

Medication was strongly referenced in policy as 'safe' and appropriate prescribing, medication review and management, and the avoidance of polypharmacy. Policies and guidelines recommendations focused on de-prescribing medications associated with geriatric syndromes, ensuring appropriate antibiotic prescribing and use, reducing risk of adverse drug effects, and polypharmacy.

Models of care related to medication reconciliation and de-prescription (which were discussed as one action) primarily involved regular review of medication charts by pharmacists and other experienced clinical staff.

MOBILITY

Policies and guidelines predominantly recommended functional mobility screening and comprehensive falls assessment, the provision of functional mobility and therapy programs in the context of aged care reablement, and auditing environments to identify risk to mobility.

Similarly, key informants primarily discussed mobility in the context of falls prevention through the development of individual mobility programs, screening related to functional mobility, and falls risk assessment.

MENTAL WELLBEING

Mental Wellbeing was primarily described within policies and guidelines through a specific emphasis on screening, management and monitoring of cognitive impairment.

Key informants also placed a significant emphasis on screening and assessment of cognitive impairment along with ensuring the comfort and independence of older people.

Overall, the review found the regulatory framework and local models of care strongly aligned with the draft Indigo 4Ms Framework. The findings highlighted the greater emphasis placed on screening and assessment practices across all 4Ms rather than actions.

Delphi Consensus Process

Based on the data collected through the above academic review, a modified Delphi study was undertaken to refine and generate consensus on key actions underpinning the four core elements of the draft Indigo 4Ms Framework.

While Delphi techniques have evolved as a consensus tool, there is no common practice to measure consensus.[63] In this project, we applied a modified approach, building on the co-design principals of the project and previous Delphi studies on integrated care for older people.[64, 65]

A list of eighty-two possible key actions for the draft Indigo 4Ms Framework was empirically derived from the IHI 4Ms Framework, the WHO ICOPE Guidelines and the data collected by La Trobe University on current models of care.

A panel of health practitioners, policymakers and leaders were emailed a survey monkey to judge the level of importance of each action using an 11-point numerical rating scale (0 = lowest importance to 10 = highest importance). Twenty-two people participated.

Results

Based on previous studies, a priori, an element was determined as 'important' where the overall panel mean score was >9, median score >=8 and a range <3.[66, 67]

Of the eighty-two actions, twenty-nine were rated by the panel as important (Appendix 3). Fifty-three actions were deemed 'not important', fifteen of which were based on high-level evidence from WHO or IHI.

Expert Team Meetings

20 AUGUST, 2019

Two days after the Delphi survey was emailed, an Expert Team met to review the evidence from La Trobe, and to refine the key actions for the draft Indigo 4Ms Framework. Nineteen people participated from across the region, representing a diversity of sectors and disciplines. Each participant was invited to complete the Delphi survey prior to the meeting.

Working in four mixed groups, the experts took part in an interactive session to identify how they assessed and acted for each of the 4Ms using a rating scale of 100% (routine practice) to 0% (rarely or never practiced).

The Expert Team identified that the majority of their practices were assessments, irrespective of whether they worked in acute, sub-acute, residential aged care or community settings.

Participants agreed that 'What matters' is consistent with 'patient-centred care', however, there was considerable, animated discussion on how 'patient-centred care' is employed in practice. Asking 'What matters' was seen as a more appropriate way of placing older people and their families at the centre of care. Asking 'What matters' encourages staff to listen to and understand the patient or client's perspective. They strongly recommended that both phrases need to be in the final Framework. In the core element of Medication, 'age-friendly medication' was deemed not to be an acceptable phrase as it did not signify any known list of medicines.

On the basis of the judgements of clinical experts, and the evidence from the Delphi process, a second draft of the Indigo 4Ms Framework was developed with updated aims for the four core elements, and included actions reflective of routine practice. However, the actions identified by IHI and WHO remained absent.

Following a review by the PCG, a further Expert Team meeting was held on 5 March 2020.

5 MARCH, 2020

This Expert Team meeting provided the final clinical overview of the Indigo 4Ms Framework, with a particular focus on key actions that reflect evidence-based or best-practice models of care. Fifteen participants attended. Prior to the meeting participants were provided with a report on the above expert team meeting, the results of the Delphi study, and the draft Indigo 4Ms Framework.

Participants, in four mixed groups, discussed the actions under consideration and presented their responses to the whole group for a general discussion.

There was universal agreement to include all recommended actions from IHI and WHO. The group also agreed to only include actions that would be appropriate to every clinical encounter with an older person, irrespective of the setting. This would ensure continuity across the care continuum for older people, and provide a shared communication tool across settings and disciplines. Organisations could modify actions to be relevant to their specific setting as part of their local implementation process.

Further consultations on the draft were held by telephone and email with gerontologists and clinical experts in nursing and allied health. Community meetings were also held with groups of older people. The Project Control Group endorsed the final Indigo 4Ms Framework at its meeting on 18 April 2020.

Conclusion

The transparent, systematic process for the development of guidelines has resulted an evidence-based, integrated Indigo 4Ms Framework. The process required the independent analysis of rural health research, policy and standards, and the contribution of older people, policymakers and experienced, knowledgeable clinicians from the acute, sub-acute, residential aged care, primary and community care sectors.

The 4Ms Framework provides a mechanism to integrated care for older people. It can slow or prevent decline in physical or mental capacity for people currently living well in the community and provide person-centred, holistic care for people living with illness and/or disability.

Age-Friendly Indigo Health System 4Ms Framework

Better Care Victoria (BCV) endorsed the Indigo Consortium's aspiration to develop an innovative tool that would provide a whole-of-system method of reducing the unnecessary, harmful and expensive variation in care of older people at all points of care— acute hospitals, ambulatory care, residential aged care, primary care, community services—without increasing hospital costs or clinical burden.

Through codesign with community members, partner agencies, health and social care workers, policymakers, and academics, and by diligently employing the National Health and Medical Research Council's (NHMRC) advice on the development of high quality, practical guidelines, we have produced the Age-Friendly Indigo Health System 4Ms Framework.

We have adapted for an Australian health system, the best international English-language evidence available: the Institute for Healthcare Improvement (IHI) 4Ms Framework and the World Health Organization (WHO) Integrated care for older people (ICOPE) guidelines to deliver better care for all older people living in rural and regional Victoria.

This brief chapter presents the Indigo 4Ms Framework (Table 2).

INDIGO 4Ms FRAMEWORK

WHAT MATTERS
Provide person-centred assessment and care planning

MEDICATION
Eliminate unnecessary, ineffective and duplicative medicines

MENTAL WELLBEING
Promote psychological wellbeing and prevent cognitive impairment

MOBILITY
**Improve musculoskeletal function and mobility**
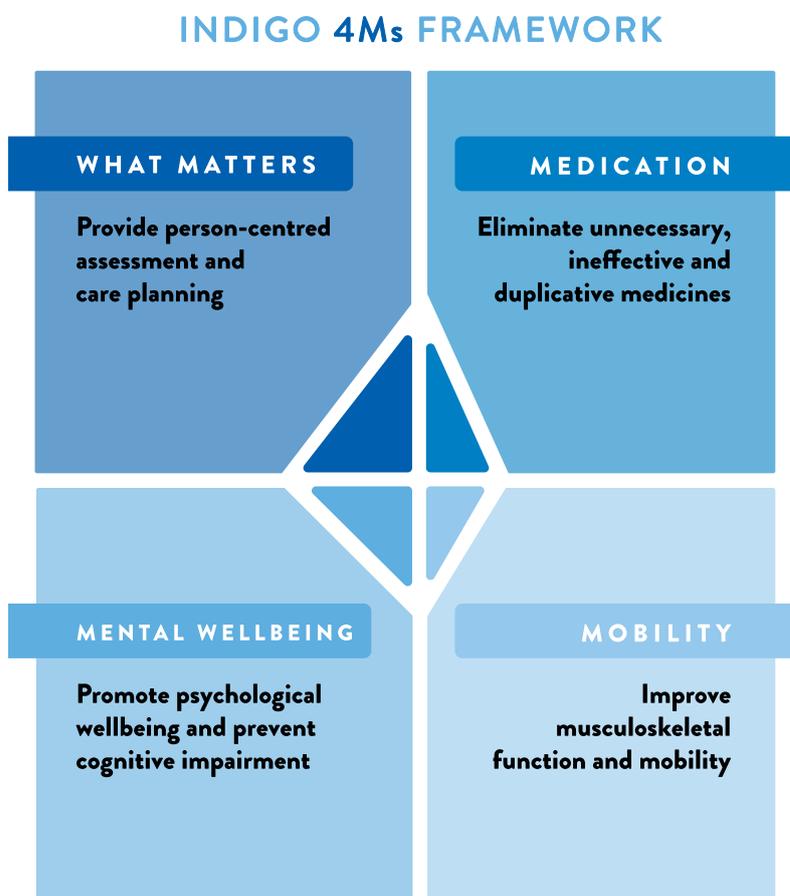
TABLE 2. AGE-FRIENDLY INDIGO HEALTH SYSTEM 4MS FRAMEWORK

What is the Indigo 4Ms Framework?

The Indigo 4Ms Framework is a tool that brings together in one Framework the essential elements of the best care for older people—What matters, medications, mobility and mental wellbeing. These four elements must be considered as a whole in every interaction with every older person, irrespective of setting, health or social care worker, or the reason for the interaction.

A set of key actions for the four core elements have been developed as part of the development process (Appendix Four).

For health and social care workers in primary and community care, along with relevant existing procedures and models of care, ICOPE has simple screening questions or prompts and validated tools for most of the actions in the Indigo 4Ms Framework. These may also be pertinent to hospital and residential aged care settings. Developed with the needs of low resource countries in mind, they are relevant for rural and regional settings.

For acute and sub-acute hospital and residential aged care, existing models of care are directly related to the core elements and key actions of the Indigo 4Ms Framework. The implementation of this approach will enable more specific tools and resources to be developed.

What does the Indigo 4Ms Framework do?

The 4Ms Framework gives overall structure to the care of older people, irrespective of the setting for the care and the level of functional ability of the person. This enables a single framework to be used for health assessments and prevention at the community level, across the care continuum, to organising the care of people with significant decline in capacity.

The 4Ms Framework expounds the interconnectedness between the essential elements of better care for older people, noting the interdependency between each element. The Framework does not replace existing models of care, care pathways or other processes used to deliver care, rather, it enables older people, carers, family members and health and social care providers to ensure they are receiving and providing the core elements that may prevent decline and maintain and/or improve health and wellbeing outcomes.

How Does It Achieve Its Aim?

The 4Ms Framework operates as an heuristic, a mental strategy or 'rule of thumb', translating large amounts of complex information from research, practice and policy into a quick mental reference to structure and prioritise a clinical interaction. The 4Ms come to mind easily, enabling providers and patients alike to bring act on what matters most when deciding on actions, paradoxically leading to a 'less-is-more-effect' where less information leads to greater accuracy.[68]

An heuristic is not meant to be a comprehensive program for the care of every individual older person. Rather, it practically and succinctly frames the essential areas that must be considered in each clinical interaction at every point of care. As such, the Indigo 4Ms Framework responds to the call to produce

> *tools that help clinicians to understand and share decisions on the basis of best evidence. Rather than prespecifying the outcome of such dialogue, and trying to get medicine "just right," they should try to ensure that decisions are based on the best match between what is known about the benefits and harms of each intervention and the goals and preferences of each patient.* .[69]

The Indigo 4Ms Framework integrates care through communication. Good conversations have the potential to increase patients, consumers and health and social care workers' feelings of influence and self-efficacy. Effective collaboration by the capturing and sharing of essential information about older people across all health and social care settings, enhances the culture of organisations and reduces health services' costs.

How can older people, their family or carers make use of the Indigo 4Ms Framework?

Through community consultations we have begun the process of developing an Indigo 4Ms Framework through the lens of the older person (Appendix Five). The community members and community groups we have consulted throughout this work strongly endorse the Framework.

Conclusion

The Indigo 4Ms Framework provides a mechanism to integrated care for older people. It can slow or prevent decline in physical or mental capacity for people currently living well in the community and provide person-centred, holistic care for people living with illness and/or disability.

The Indigo 4Ms Framework has the endorsement of clinicians and consumers. What is now required is to gain the support of health services' leaders and policymakers for its implementation.

Economic Illustration of the Indigo 4Ms Framework

This chapter was written by Prof Alan Shiell and Katherine Pye. Slight changes were made to the original to ensure consistency of language within this report.

An age-friendly approach to the care for older people is likely to reduce preventable illness and improve length and quality of life for many older people. The Indigo 4Ms Framework is a tool that can provide evidence-based, age-friendly health care at every point of care across the care continuum.

Health services' executives and policymakers have called for an economic illustration of the difference if the Indigo 4Ms Framework was implemented. Evidence from the United States supports the hypothesis that, if implemented, the Indigo 4Ms Framework will improve health and wellbeing outcomes while reducing hospital costs.

This chapter explores the economic case for an Age-Friendly Indigo Health System. Three individual case studies were developed to illustrate the economic implications of building an Age-Friendly Health System in Indigo Shire. Each case study compared two different scenarios, contrasting the trajectories of patients who do, and do not, experience age-friendly care.

The chapter begins with the method for the economic assessment. It then presents the 'sliding doors' approach in which alternative trajectories of care experienced by three different patients were compared and contrasted. The impact of age-friendly care on the costs of each patient's care and on some of the health and broader social outcomes is tracked. While the case studies have a basis in real experience, they are clearly fabricated. They do not represent current care, but rather reflect the potential adverse effects of a care system that is less than age friendly.

Method

Three cases were created by the project manager based on in-depth interviews with experienced clinicians in health and aged care (Appendix 6). Each case was set out with a current and proposed scenario to illustrate likely differences that might result from implementing the Age-Friendly Indigo 4Ms Framework.

As the purpose was to demonstrate the broad economic impact the Indigo 4Ms Framework could have, a societal perspective was taken. Therefore, the cost of each aspect of care was included, regardless of funding source or payer. A short-medium time horizon was applied to each case to compare the most immediate costs resulting from the initial incident/illness, while also avoiding complications and unpredictable events likely to occur with a longer

Synopsis of Scenarios

👤 ALBERT

Albert, 72 years old, lives at home with his wife and their 6 year old granddaughter. He is a former mechanic and captain of the local CFA. Now retired, he volunteers with the CFA and maintains the vehicles, grows and shares vegetables with the local community, and provides after school care for two other grandchildren. Albert slips while moving a ladder, falls and fractures his hip. He is taken to the emergency department and requires surgery.

👤 MONICA

Monica, 92, lives in residential aged care in the room next to her sister. Formerly a local school teacher and farmer, Monica helps to care for her sister and enjoys regular visits from their grandchildren, who she helps with their homework. Monica develops pneumonia and is transferred from residential aged care to the regional base hospital.

👤 LUCA

Luca, 87, lives at home on his own since his wife died four years ago. In the past, he ran a vineyard, which his son now owns. Luca helps out on the vines, and recently built up a small business repairing clocks. He receives in-home support with insulin administration and personal care, but it is unreliable. His condition is deteriorating due to diabetes, and he is showing signs of depression. He receives care from his local GP clinic.

Assumptions

Any uncertainty was approached with a conservative bias, favouring lower costs in current care and higher costs in the Age-Friendly scenarios. Examples of the assumptions applied are provided in Appendix 7.
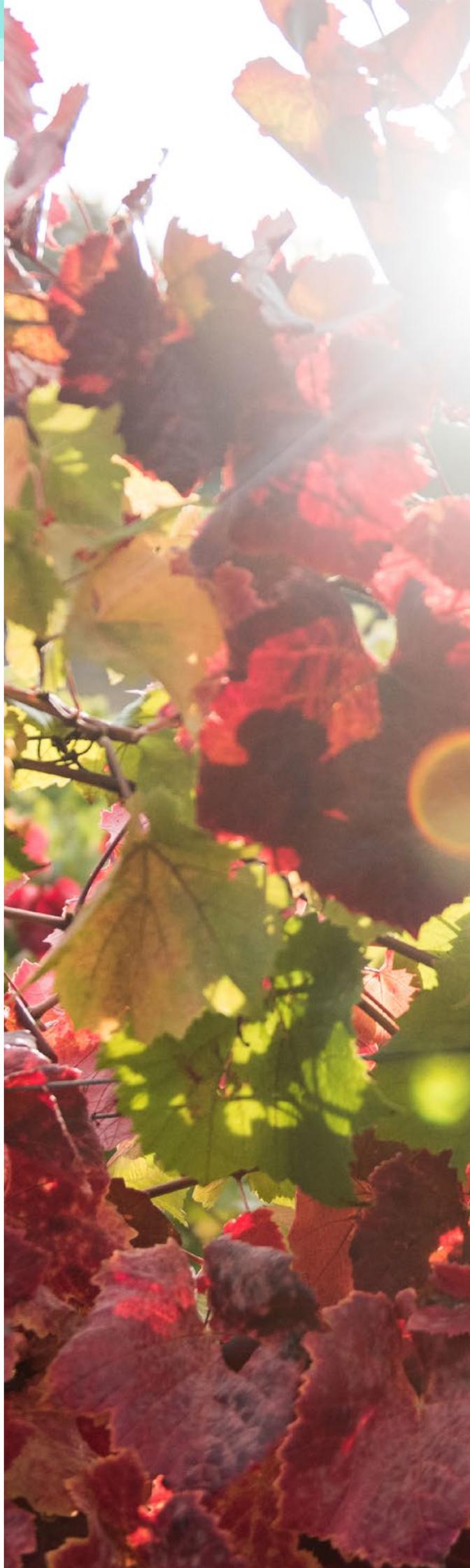
Data Sources

Hospital costs: Costs of standard episodes of care were found using National Weighted Activity Unit calculators provided by the Independent Hospital Pricing Authority (IHPA).[70] These tools calculate the National Efficient Price (NEP) weightings and adjustments described in the National Pricing Model Technical Specifications. Weightings were converted to costs using the 2020-21 NEP, set by the IHPA at $5320. At times, different calculators or codes could have feasibly been applied to NWAU calculators. In these cases, the most conservative option was used.

Patients were assumed to have no other health issues or complications, and were not of indigenous descent. When required by the tool, length of hospital stay was based on averages reported for each condition.

The following 2020-21 calculators were used:

- Emergency department services (AECC shadow model)
- Admitted acute
- Admitted subacute & nonacute services
- Non-admitted outpatient services

The incremental cost of hospital acquired delirium was documented in the IHPA's Pricing and Funding for Safety and Quality (Risk Adjustment Model for Hospital Acquired Complications 2020-21, p4).

STAFF

The project manager consulted with colleagues in the Indigo region to provide most likely salary levels. The Fair Work Australia Pay And Conditions Tool[71] was used to identify relevant awards and hourly wages. Staff were assumed to work full time, and 30% was added for overhead costs.

The following awards were applied:

- Medical Practitioners Award 2010
- Nurses Award 2010
- Health Professionals & Support Services Award 2010
- Miscellaneous Award 2010
- Vehicle Manufacturing, Repair, Services and Retail Award 2010

MEDICATION

Medications were only costed when they clearly differed between scenarios (e.g. administration of pain relief and hydration in the proposed scenario, when it had not been provided in the current care scenario).

Standard episodes of care using NWAUs were assumed to included costs of medication expected in each case. When included, additional medications were costed using the Pharmaceutical Benefits Schedule (PBS) manual of resource items and their associated unit costs.[72] Inflation in this case was considered negligible and was not applied.

IN-HOME SUPPORT & RESIDENTIAL AGED CARE

Costs were estimated using the My Aged Care website and prices made available by large service providers (e.g. Bolton Clarke). Travel to home (e.g. for insulin administration or personal care) was not added as this was built into prices quoted. In-home care providers reported a minimum of 30 mins charged per visit.

SUICIDE

Direct costs were sourced from KPMG.[73] Inflation was applied.

PRICE BASE

All costs are expressed in terms of 2020 prices. Costs from prior years were adjusted to 2020 prices using the Reserve Bank of Australia (RBA) inflation calculator.[74]

Local service costs were applied when available: e.g. local gym fees.

Results

The three trajectories are summarised in Table 3 below. They can be viewed in more detail in Appendix 6 (scenario descriptions as provided by the project manager) and Appendix 8 (costing data).

	👤 Albert	👤 Monica	👤 Luca
AGE (YRS)	72	92	87
RESIDENCE	Home with wife and 6yo granddaughter	Residential aged care, next to her sister	Home on his own
OCCUPATION	Former mechanic and CFA captain. Grows vegetables and shares with local community Volunteers with local CFA, maintaining fire vehicles Provides after school care for 2 other grandchildren	Former farmer and school teacher Helps to care for her sister Sees grandchildren and helps with their homework	Former wine maker Helps son on his vineyard Recently built a small business repairing clocks Receives in-home care that is not well coordinated to meet his needs
HEALTH EVENT	Fall, fractured hip	Pneumonia	Deteriorating diabetes, depression
CARE SETTING	Emergency department	Residential aged care (RAC) + acute regional hospital	Primary care
CURRENT CARE	Admitted for surgery without hydration or analgesia. Becomes disorientated and develops delirium during recovery. Returns home with reduced capacity and recurring episodes of delirium and develops dementia. Unable to resume previous occupations. Moves into psychogeriatric residential care and dies 2.5 years after his fall.	Transferred from RAC to hospital. Her medications list from RAC is misplaced and she has difficulty resting and loses her appetite in the busy ward. Returns to RAC after 5 days, pneumonia improved but otherwise in a dishevelled state. Commences community rehab program and is unable to care for her sister in the short term.	GP completes routine check-up and sends Luca to hospital. Returns home with referrals to the in-home care he already receives. Condition continues to deteriorate. Returns to hospital to receive the same care as before, which did not meet his needs. Isolated, Luca struggles with grief over his wife's death and his loss of independence. Luca takes his own life 5 weeks after his GP check-up.
AGE-FRIENDLY CARE	Nurse completes Age-Friendly assessment and Albert receives hydration and analgesia prior to surgery. Volunteers are trained to monitor his condition for changes in mental state. Returns home and completes rehab program following surgery, and resumes occupations within 2 months of his fall.	Transfer from RAC to hospital is supported by 4 Ms transfer document. Nurses enforce visiting hours, staff and volunteers are coordinated to ensure that Monica is supported to eat and walk, and is able to rest. Returns to RAC 2 days later a little tired but otherwise well. Resumes care for sister.	Practice nurse at GP clinic completes Age-Friendly assessment and identifies other options for support and social connections. Helps to coordinate these and refers Luca to other health services related to his diabetes. Luca is trained to self-administer insulin, connects with local social group and starts at the local gym. Manager from residential aged care meets him to talk about options, including staying overnight and returning home to his garden and clocks during the day.

TABLE 3: SUMMARY OF SCENARIOS

Costs & Savings

Across all three cases, the Age-Friendly scenario resulted in cost savings, both in healthcare (medical, allied health and aged care) and other (mainly lost productivity) costs. Detailed costing data is provided in Appendix 7, and is summarised in Table 4.

	Healthcare Costs		Other Costs		Total Costs		Cost Savings
	Current	Age-Friendly	Current	Age-Friendly	Current	Age-Friendly	(Current - Age-Friendly)
ALBERT Emergency-acute; 2.5 yrs	$72,880	$27,605	$12,578	$686	$85,458	$28,291	$56,168
MONICA Residential care-acute; 20 days	$17,266	$10,319	$719	$138	$17,986	$10,457	$7,528
LUCA Primary care; 6 weeks	$15,830	$7,575	$8,555	$0	$24,384	$7,575	$16,809

TABLE 4: TOTAL CARE AND OTHER COSTS. FIGURES ROUNDED TO WHOLE DOLLARS

Discussion

All three case studies indicated cost savings when the age-friendly approach to care was implemented, with improved social and health outcomes for individuals. If these individual cases are representative of health and aged care in Indigo Shire, this suggests that the Indigo 4Ms Framework would dominate in an economic analysis.

The conservative estimates applied throughout these case studies – underestimating current care and overestimating proposed care costs – would suggest that cost savings could be greater than those reported here.

Each case study illustrated potential cost-savings and improved health outcomes that could arise should health and community agencies implement the Age-Friendly Indigo Health System. Note that a full economic appraisal would need to consider both the costs of transforming the health systems and the probabilities that scenarios like those modelled would actually occur under each model of care.

There are several limitations to this approach:

- This is a comparison of costs (and subsequent savings) in three individual cases chosen specifically to illustrate plausible examples where care could break down when it is less than age-friendly. A full economic appraisal of the Age-Friendly Indigo Health System would need to factor in the rate at which these and other breakdowns in care happen with current practice and the effectiveness of the Indigo 4Ms Framework to prevent their occurrence.

- While the scenarios include the costs of Age-Friendly care, we have not included the costs associated with the cultural and system transformations needed to shift from current practice to the new model.

- Health outcomes were noted but not quantified; impact on quality of life was not measured in any way. This is therefore not an economic analysis (cost-effectiveness study). However, the outcomes described in these cases are clearly better with the proposed Indigo 4Ms Framework.

- We have been conservative in our estimates of the costs of Age-Friendly care and its potential cost-offsets but no form of sensitivity analysis was completed. While this allows some confidence in the findings, the potential range of costs (and likely greater cost savings) is not illustrated.

Conclusion

The scenario approach that we have adopted here was chosen to help envisage potential differences between current and proposed care and the impacts these have on both costs and the outcomes experienced by patients. It is intended to help motivate system-wide efforts to consider and possibly implement and evaluate more fully the Age-Friendly health system approach.

The cases provide plausible examples of adverse events that can arise in systems that are less than age-friendly. They are not representative of the care experienced by the average patient, but neither are they totally unrealistic. They are examples of what does happen to a small but significant number of patients in many health care systems currently, and they suggest considerable cost savings and improved health outcomes in these cases.

Development of the Implementation Plan

The Building an Age-Friendly Indigo Health System project has developed an evidence-based Indigo 4Ms Framework to improve the quality and safety of care for older people in our health and social care system. It is based on world's best practice, tailored to enhance its suitability for implementation into the Australia health and social care system. An economic assessment of the Indigo 4Ms Framework has shown significant healthcare cost savings.

Despite the presence of standards, guidelines, policies, evidence-based models of care and clinical pathways, older people continue to suffer disproportionate harm because of our health system. Integrated, patient-centred care has been shown to improve the quality and safety of care and the wellbeing of the health workforce, while lowering demand and costs. The Indigo 4Ms Framework is such an approach, with the potential to realise health, social and economic benefits.

This chapter summarises the evidence on the conditions necessary to implement integrated care, focussing on those components that were most effective in the successful implementation of the IHI 4Ms Framework. It then describes the potential areas of consensus by the PCG on the development of this implementation plan. These remain potential rather than realised as the project stalled in its efforts to seek consensus as a consequence of the combined impact of bushfire and the COVID-19 pandemic.

Implementing Integrated Care

The transition to integrated care is regarded as a highly complex process in its design, implementation and evaluation. As WHO Regional Office Europe cogently states,[75]

> This complex task will involve a diverse set of processes to bring about the necessary changes in leadership and management, information systems, methods to improve quality, reorientation of the workforce, legislative frameworks, financial arrangements, and incentives (p1).

In Australia, national strategies and agreements endorse the shift to integrated care,[76] however there is little direct guidance in the 'how to' of implementation. The NSW Integrated Care Strategy provided funding of over $180 million, leaving Local Health Districts, Specialist Health Networks and Primary Health Networks to develop their own solutions. In 2016, the Victorian government established the HealthLinks: Chronic Care initiative making available a grant to hospitals to develop a flexible suite of services to people with chronic and complex health needs who have a high risk of multiple unplanned hospitalisations.[77]

However, the Productivity Commission cautions that the danger of seeing integrated care 'just in terms of 'who does what to who', risks losing sight of the person.[78] This caution highlights the central distinction in integrated care; that is, the difference between integrating the health and social care given to an individual person, and integrating the delivery of care systems that are fragmented.[79, 80]

There is a comprehensive body of systematic, high-level evidence providing lists of the multiple building blocks,[81] dimensions,[82] determinants,[83] and elements[84] important for the effectiveness of integrated care interventions to reduce fragmentation in the health system. Moreover, there are multiple theories employed to structure the design and evaluation of integrated care ranging from organisational culture, change management, strategy, performance, leadership, systems design, networks, structure and agency, institutionalism, organisational ecology, and complex-adaptive systems theory.[85]

Long lists of complex items, many of which are outside the control of any organisation or region, provide little guidance to clinicians, policymakers and leaders seeking advice on where to start, what needs to be in place, and where best to aim scares resources. Such lists are more likely to overwhelm rather than inform, especially as the same people who have been tasked with designing an integrated care strategy are also continuing their daily work.

What is helpful to policymakers, clinicians and executives is clarity about the intervention,[86] the provision of support to organisations in their implementation, [87] knowledge of the local context,[88] and a focus on what is described as the 'softer components', culture, engagement and leadership.[89, 90]

Clarity on the Intervention

Innovations that are more readily adopted have a range of attributes. They provide a relative advantage over usual practice; are compatible with the intended adopters' values, norms, and perceived needs; are considered simple to use; the intended users can experiment on a limited basis; the benefits of an innovation are visible to intended adopters; and, the innovation can be adapted, refined or modified by the adopter to suit their needs.[91] The evidence also reminds us that these attributes are not stable or fixed and, importantly, are judged by the adopter.

When considering innovations that are adopted by health workers and patients, across disciplines, in multiple settings and by a range of users, they need to have the capacity to be 'plastic enough to adapt to local needs ... yet robust enough to maintain a common identity across sites.'[92]

The Indigo 4Ms Framework has many of the attributes associated with successful adoption, and has been shown to be both robust and plastic. The Indigo 4Ms provide an essential set of actions for high-level care for all older people, irrespective of their age, health status, ethnicity, level of health literacy or location. It can be used by any health and social care provider, in any setting and any organisation.

Clinicians in the pioneering health services perceived the 4Ms Framework as giving them a simple tool to provide effective, person-centred care. It aligned with their values. As one senior geriatrician reported, 'it is what we as geriatricians have been doing for thirty years, but now [the 4Ms] makes it digestible and therefore a great way to structure assessments, communication and engagement with patients'. Importantly, while health services must reliably provide care through all the 4Ms, the staff are able to modify actions to suit their local conditions.

The cross-disciplinary, point-of-care clinicians who contributed to the design of the Indigo 4Ms Framework concur.

Organisational Support

Organisational capacity to implement transformational reform is critical. Indeed, the extensive literature on the implementation of integrated care speaks to this key issue. However, organisations are not required to be 'implementation ready'. [93] Organisational capacity can be strengthened with support over time through targeted strategies to build motivation and capacity. These strategies are reciprocal, and interdependent on leadership.[94, 95]

IHI Age-Friendly Health Systems team, with the support of the John A. Hartford Foundation, provided the pioneering health services with an organisational support team. Using IHI's existing web-based learning environment and improvement science approach, the health services were supported to build their capacity and motivation to the implement the 4Ms Framework.

This structural support has developed into the IHI Age-Friendly Health System Action Community. The Action Community comprises seven monthly webinars, drop-in coaching sessions, access to on-line material that guides implementation, a data collection method, a community of practice, and access to a Faculty of experienced clinicians.

IHI has an Age-Friendly Health System Committed to Care Excellence recognition program for individual hospitals and practices in a health system that meet specific outcome requirements, and an quarterly webinar program to enable health services who have completed the Action Community to stay current.

From September 2018 to March 2019, 124 teams from seventy organisations across the US participated in the Wave 1 Action Community. Wave 2 began in April 2019 and included 153 sites of care from ninety-four organisations. A third Action Community commenced in March 2020.

As of April 2020, 162 hospitals and Health Care Practices have been recognised by IHI as Age-Friendly Health Systems.

Soft Skills

Culture, engagement and leadership are essential components of successful implementation. Strong leadership establishes a shared vision, fosters an organisational culture that promotes respectful, multidisciplinary professional relationships, and provides the time and resources to build capacity.[96] Leadership enables staff from a range of organisations to work together productively to improve care.

Soft skills were evident in the pioneering health services that successfully trialled the implementation of the IHI 4Ms Framework. Both Anne Arundel and St Vincent Hospital showed clear organisational commitment, with their health services' strategic plans linked to improving care for older people. In these institutions, leaders engaged staff in the shared vision of better care for older people at every opportunity.

Leadership created and supported the conditions for culture change. In day-to-day engagement at the bedside at Anne Arundel, physicians, nurses and care managers considered each patient through 4Ms Framework. New ideas were tested every two weeks through PDSA cycles, with support when interventions made a positive change. While at St Vincent's, the 4Ms Framework allowed the development of a system-wide standard of care, increasing team involvement and positive staff working relationships.

Resources were committed to enable comprehensive staff training. At Anne Arundel, their Nurse Educator provided training in each unit as well as promoting the 4Ms Framework through monthly posters for each element on the Unit and on the hospital coffee cart.

Engagement from executives, clinical and non-clinical staff was manifest in the provision of infrastructure support. At Anne Arundel, ICT staff worked extensively with staff to integrate the core elements of the 4Ms Framework into their electronic medical records. Data collection, analysis and utilisation of the 4Ms Framework were tracked with public displays of progress and future plans.

At St. Vincent, geriatricians received financial incentives for both the 4Ms training program and undertaking 4Ms geriatric assessments. The 4Ms Framework was integrated into the electronic medical record.

Deciding on Implementation Strategies

The BCV Building an Age-friendly Indigo Health System is a collaborative partnership project. As discussed in Chapter Three, effective partnerships produce synergy when the complementary skills, perspectives and shared know-how of partners leads to more effective solutions. Collaborative partnerships are essential to effective implementation.

Sharing perspectives and know-how can be complex. The PCG comprises people from a range of different backgrounds, experiences, world views and social norms. There can easily be mutual incomprehension in conversations, even between health professionals, given the complexity of ideas needing to be expressed in language. Words are flexible. Language changes. Terms are used interchangeably, and within disciplines assume different uses, and well-used phrases can signify very little.[97] We shift between logico-scientific knowing and narrative knowing,[98] sometimes in the same sentence.

People are purposeful. Our behaviour is meaningful within our understanding of how things work and come together. We notice particular aspects of the health system, work towards changes we see are important and match our values. We judge our own actions and the actions of others against our particular understanding.[99]

Implementing interventions to bring about change has been hampered when the multiple understandings and reasoning of those involved are neither shared, complimentary nor aligned.

Soft systems methodology (SSM) is a seven-step, iterative, facilitated process for examining differing views on complex situations.[100] SSM was applied in this project to gain insight into the perspectives and reasoning of members of the PCG regarding implementation of the Indigo 4Ms Framework.[a] This was undertaken to realise a consensus position for the implementation plan that can have the support of all members. However, this was not fully realised in this project due to two major events outside our control: bushfire and the COVID-19 pandemic.

[a] A full report is available on request to the Chief Executive Officer, Beechworth Health Service'

Impact of Bushfire & COVID-19

Following record-breaking high temperatures and months of severe drought, vast areas of northeast Victoria—stretching from Corryong in the north-east, to the outskirts of Wangaratta in the west, Whitfield in the south, and including Bright, Harrietville and the Alpine ski towns of Mount Hotham, Falls Creek and Mount Buller—experienced extensive, devastating bushfire. Hospitals and aged care facilities were evacuated. On 2 January 2020, a State of Emergency was declared, restricting travel around the region. Air quality was 'very unhealthy' on the air quality index for weeks. While the Shire of Indigo was not directly impacted by fire, PCG members were directly involved in emergency management, along with their community roles as frontline responders.

The risk of bushfire on the project was identified in our Risk Management Strategy at the beginning of the project. Meetings were postponed throughout January while staff focussed on the emergency. We anticipated that there would be time to refocus the PCG and clinicians on this work by the end of February. Time would be tight for an end of April completion date, but we predicted that developing a shared implementation plan was still achievable.

The first confirmed case relating to the COVID-19 pandemic in Australia was identified on 25 January 2020, in Victoria, when a man who had returned from Wuhan, China, tested positive for SARS-CoV-2. A month later, Australia declared the coronavirus a global pandemic, and within six weeks of the first case, on 16 March, a State of Emergency was declared in Victoria.

The impact on the health sector was profound and immediate. Preparations for the capacity of our health system to care for COVID-affected patients were abrupt and pressing: establish telehealth, addressing the anticipated surge in numbers and training of the workforce, supporting contact tracing, ensuring the availability of supply chains, all while maintaining COVID-safe workplaces for caring for existing patients and residents in aged care, along with the mental and psychological impacts of a pandemic.

All meetings with health services were cancelled.

Method

Soft Systems Methodology (SSM) is a staged learning process to facilitate improvements in complex problems.[101] The first stage of the process—exploring the problem—was undertaken through the development processes described in Chapters Three to Six. The second stage—expressing the problem—was completed by the project manager as a diagram depicting the current situation, key tasks to be addressed, and the vision for an age-friendly Indigo health system. The third stage is critical in SSM, and the reason for using this approach. It seeks to elicit the multiple perspectives of the issue at hand, capturing the essence of actions to guide transformation.[102]

For this stage, structured interviews were conducted with fifteen participants from eight different PCG organisations, including the community representatives. The outbreak of COVID-19 prevented meeting with senior executives from two organisations.

The interviews began with the project manager describing the 'problem situation' using the prepared diagram. In a conversational manner, a series of structured questions elicited information on the six key areas integral to understanding:

Customers
Who benefits from creating an age-friendly health system?

Actors
Who needs to be involved to ensure the implementation occurs?

Transformation
What needs to happen in the intervention?

Worldview
How should it be done?

Owners
Who owns this? Who can change it or stop it?

Environmental constraints
What might get in the way?

Results

Interviewing PCG members through the structured conversation of SSM allowed both similarities and significant differences in the perceptions of members to be made explicit. While the analysis provided details of differences, we sought to identify areas of shared understanding as the platform for a collaborative implementation plan. These areas have not been subject to discussion at the PCG due to the pandemic.

Why Implement the Indigo 4Ms Framework?

PCG members held the irrefutable position that implementing the Indigo 4Ms Framework would deliver better care for older people, their families and carers. Participants advocated that the 4Ms would take away the exhaustive burden of navigating the heath system felt by older people, families and carers, reflecting the view of the OECD that the Australian health system is too complex for patients.[103]

The improved health and wellbeing for older people would translate into improved regional health and community wellbeing outcomes. With significant numbers of older people in rural communities, implementation of the Indigo 4Ms Framework, participants recognised, would have a population-level impact.

Taking a shared regional approach to implementation was seen as a benefit in and of itself. This supports the Productivity Commission recommendation that integration takes place at a regional level, arguing this provides 'an efficient scale for managing health service delivery and integration.'[104] Additionally, the health system would benefit through interconnected funding, reduce costs and reduce financial strain for clients and clinicians, a view bolstered by the results of the economic assessment.

Within and between treating clinicians, social care workers, and organisations, the 4Ms Framework was seen as an opportunity to streamline care, improve clinical interactions, improve coordination of care and improve staff satisfaction.

What Implementation Strategies Should Be Used?

A broad range of implementation strategies were suggested (or transformations in SSM language).

The shared strategies have been clustered in line with the Expert Recommendations for Implementing Change project:[105]

1. Developing stakeholder interrelations,

2. Train and educate stakeholders, and

3. Engage consumers

The first constellation of strategies around 'developing stakeholder interrelations' highlighted identifying and preparing champions and strong leadership. Participants spoke about the need to have formal commitments or strategic alignment between the Indigo 4Ms Framework and their organisation, and with their executive sponsorship. The existing Rural and Regional Health Partnerships structure was proposed as a mechanism for this strategy. 'Stakeholder interrelations' also includes strategies which aim to change culture and develop a shared language for the Indigo 4Ms Framework.

Providing 'training and education for the range of stakeholders' was the second grouping of a number of related implementation strategies the participants perceived to be essential. This encompassed education of, and consultation with, health services' boards and executive staff, older people and clinicians. Developing and sharing resources such as a gap-analysis tool, standards, monitoring and evaluation tools, policies and procedures, along with creating and maintaining a learning collaborative or community of practice were also recognised as important strategies to support implementation.

The third cluster of implementation strategies focussed on 'engaging consumers' through a social marketing campaign and preparing older people, their families and carers to be active participants in the 4Ms Framework.

Who is Responsible for Implementation?

Participants reasoned that the locus of ownership of the implementation was with leadership. While one group of participants acknowledged that leadership started with the Minister for Health, most remained at the regional level, identifying that the PCG members are health service executives. In addition, health services' managers and Department of Health and Human Services (DHHS) managers both at the Ovens Murray area and in Melbourne at Rural Health Branch and Safer Care Victoria were perceived as holding responsibility for implementation.

The benefits of SSM were realised through the shared conversations made possible because the method permitted a collective pulling back from daily imperatives to respond immediately to complex problems, to a more in-depth inquiry into the system we are trying to change. It enabled PCG members to recognise the different values and ways of understanding people bring to the same work, to see the points of connection in a complex system, and the strengths in a collective response.

Although this process was curtailed, it also shows that PCG members identified multiple, interdependent implementation strategies that require their shared endeavour. Importantly, they are strategies within their control. As Martin Luther King Jn. affirmed, 'Power properly understood is nothing but the ability to achieve purpose.'[106]

Conclusion

For the Building an Age-Friendly Indigo Health System, leadership and organisational support will be critical to effectively implement the Indigo 4Ms Framework. These key factors support and reinforce organisational capability to implement and sustain integrated care.

SSM made explicit the understandings and perceptions of PCG members towards the significant, long term benefits of implementing the Indigo 4Ms Framework. The implementation strategies they identified can establish a sound structure for the implementation. This transparent, systematic process has been integral to the development of a feasible implementation plan.
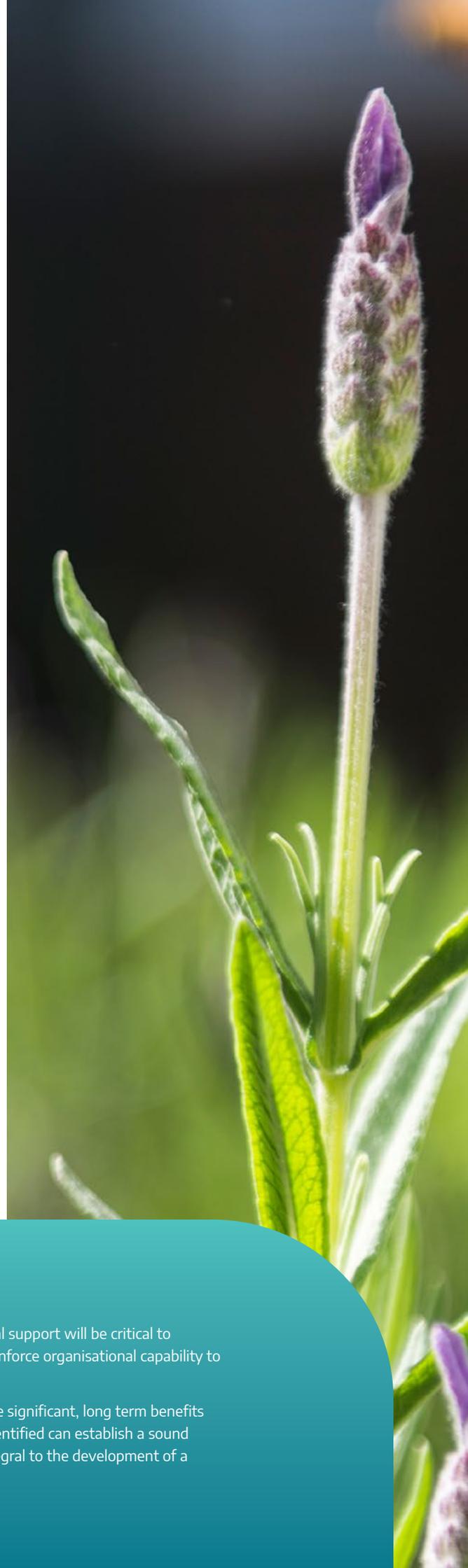
Implementation Plan

Transforming the health system to readdress the entrenched disadvantages experienced by older people is daunting. Implementation science can feel overwhelming. Yet, the Indigo 4Ms Framework—a simple, evidence-based, heuristic—can ensure, at every interaction, at every point of care, older people receive better care, more effectively and more efficiently. This project has identified a range of implementation strategies that can transform health care for older people without requiring, or waiting for, structural, financial, legislative or workforce reform. It does require the power of action through leadership, organisational support and courage.

This chapter presents a plan for the implementation of the Indigo 4Ms Framework. It is outcome of the structured thinking and conversations that occurred throughout this project. As NHMRC notes, it is more helpful to clinicians to have an implementation plan that documents 'the structured thinking and interactions between the guideline development group, stakeholder consultations and surveys and public consultations' than the completion of a checklist or template.[107]

These conversations were forestalled by the critical daily impact of responding to COVID-19. PCG members, clinicians and older people have not yet met to think afresh about implementation of the Indigo 4Ms Framework.

Terry Symonds, Deputy Secretary Health and Wellbeing for DHHS Victoria, has taken the opportunity of the COVID-19 pandemic to ask the health sector 'how might we reintroduce care differently, instead of just returning to business as usual?' Reintroducing care through the Indigo 4Ms Framework would make a transformative difference to the Victorian health sector.

However, experience cautions against waiting until 'someone else higher up provides a solution'.[108] There are local services who find it compelling. Beechworth Health Service, Northeast Health Wangaratta (NHW) and Gateway Health have made explicit commitment to this work. Beechworth Health and NHW have supported professional development opportunities for executive staff to travel to the United States to learn more about IHI Model of Improvement and the IHI Age-Friendly Health System.

Immediately prior to the State of Emergency, this work was presented at the Regional Health Partnerships meeting. While there was limited discussion as the meeting was planned to discuss responses to COVID-19, there was interest expressed by a number of small rural health services to be included in future discussions regarding implementation.

Therefore, this implementation plan is, necessarily, without a governance structure or the specific settings, programs or practices that will be involved. The plan is grounded in implementation science[109] with a pragmatism derived from understanding the realities of leading change in regional and rural health services.

Once agreement has been reached on when and by whom, this implementation plan can guide people through the stages and strategies in the implementation process. It has been designed to assist health services' executives, policymakers, clinicians and consumers plan, initiate and evaluate the implementation activities necessary to put into action the Indigo 4Ms Framework.

There are four stages to the Indigo 4Ms Framework Implementation Plan

1. Establish structures to support implementation

2. Plan and prepare local settings

3. Initiate and refine

4. Monitor and evaluate

Implementing the 4Ms Framework requires a sound structure. There is wisdom in the phrase, 'good structure increases the likelihood of good process, and good process increases the likelihood of good outcome.'[110] The next two stages—Plan and prepare, and Initiate and refine—are the process stages which will employ the IHI Model of Improvement at local sites. The fourth stage—monitoring and evaluation—will furnish the evidence for the outcomes of both the structure and the process of implementation. It is imperative that the structure, and monitoring and evaluation processes, are in place prior to implementation.

Each stage of implementation plan described below ends with a list of strategies clustered in line with the Expert Recommendations for Implementing Change project [111] to ensure consistency in language and conceptual clarity.

No timelines are given for this Plan. Evidence suggests it takes two to four years for a well-structured intervention to be implemented.[112]

1. Establish the Structure

Building a solid structure addresses one of the limitations of the PDSA quality improvement approach:

> *PDSA is a powerful approach, and projects that make successful use of PDSA can solve specific quality problems and also help shape the culture of healthcare organisations for the better. So, the effort required to apply PDSA successfully has a substantial return on investment. But the resources and supportive context required for success are often underestimated... It is therefore crucial that the resource requirements for successful application of PDSA for a given project are well understood and that the process is well managed.*[113]

Good governance is the foundation of good structure. As considered by Project Control Group (PCG) members, governance could be part of the existing structure of Rural and Regional Health Partnerships. The Indigo 4Ms Framework is consistent with the Statewide Plan priority areas, the purpose of the Health Partnerships and the principles that apply to all Health Partnerships. Implementing the 4Ms would address the key activity area of clinical governance, which aligns with Safer Care Victoria's (SCV) Clinical Governance Framework. The governance board must include all partner agencies in both health and social care sectors and consumer representatives as equal members. It requires organisational and administrative support.

Together with the physical and organisational characteristics of the health services that will be involved, structure includes the 'softer components' of leadership, culture and engagement, and the strategies to increase organisational capability.[114] Organisational readiness has three specific, dynamic and reciprocal components: motivation, general capacity, and innovation-specific capacity.[115] Because these components are dynamic, it is not a requirement that organisations or individuals be implementation-ready.

This plan recommends establishing an Implementation Support Team as a core structural requirement. The Implementation Support Team should be locally-based, and led by a project manager with University training in a health-related discipline, project management skills and experience in ageing, research and teaching. A high-level of interpersonal and communication skills will be essential. The team should include administrative support, the flexibility to recruit additional project staff and direct connection with academic partners and local SCV Improvement Officers. It should provide secretariat functions for the governance board.

The Implementation Support Team will provide targeted strategies to build organisational capacity by developing tools and resources, delivering training, providing technical assistance, and developing quality assurance/quality improvement processes. This current project has already developed a marketing strategy with value propositions, key messaging and a logo that have been endorsed by the PCG.

John A. Hartford Foundation (JAHF) and Institute for Healthcare Improvement (IHI) Age-Friendly Health Systems team are highly supportive of this work. There is an opportunity to continue to collaborate with the US to learn from them regarding the establishment of their Action Community. SCV also has a formal relationship with IHI, augmenting the opportunities for knowledge exchange.

Similarly, World Health Organization (WHO) has resources for the implementation of its Integrated Care for Older People (ICOPE) guidelines including a digital application that offers data collection capabilities.

The implementation strategies to be undertaken in this stage of the implementation are:

DEVELOP STAKEHOLDER INTERRELATIONSHIPS

- Identify early adopters
- Establish governance structure including consumer engagement
- Conduct local consensus discussions
- Involve health and social care services' boards
- Obtain formal commitments from participating health and social services
- Develop academic partnerships
- Develop partnerships with IHI & JAHF
- Develop an implementation glossary
- Establish the Implementation Support Team
- Identify and prepare local health and social service champions
- Inform local opinion leaders
- Organise clinician implementation team meetings
- Recruit, designate, and train for leadership

TRAIN AND EDUCATE STAKEHOLDERS

- Conduct educational meetings
- Conduct educational outreach visits
- Develop educational materials
- Visit SCV improvement sites
- Liaise with IHI & WHO ICOPE team
- Conduct ongoing training
- Create a learning collaborative
- Distribute educational materials
- Make training dynamic
- Provide ongoing consultation
- Use train-the-trainer strategies
- Work with educational institutions

ENGAGE CONSUMERS

- Increase demand
- Intervene with patients/consumers to enhance uptake and adherence
- Involve patients/consumers and family members
- Prepare patients/consumers to be active participants
- Use mass media

2. Plan & Prepare Local Settings

This stage of the implementation moves from the overarching structure into the local process of using the Indigo 4Ms Framework in clinical settings.

The local settings will be determined by those organisations who are committed to furthering this initiative. The timing for this commitment will depend on the resources needed to address COVID-19 responses. Local organisations will be part of the governance board.

The Implementation Support Team will work with participating health services to identify specific settings for implementation, and the members of their clinical implementation team. The monitoring plan will be also integrally linked to this planning stage. Whatever settings are selected, the following strategies will be employed:

USE EVALUATIVE & ITERATIVE STRATEGIES

- Assess for readiness and identify barriers and facilitators
- Audit and provide feedback
- Conduct local needs assessment
- Develop a formal implementation blueprint

PROVIDE INTERACTIVE ASSISTANCE

- Facilitation
- Centralize technical assistance
- Provide clinical supervision
- Provide local technical assistance

3. Initiate & Refine

The overarching process for implementation will be the IHI Model for Improvement. We have already developed a one-day course on the Model for Improvement that can assist with training. IHI have resources specifically supporting their 4Ms Framework, some of which may be able to be adapted.

Throughout this project, PCG and Expert Team members identified a number of applications for the Indigo 4Ms Framework including as a transfer form between regional hospitals, small rural health services and residential aged care; an assessment form for allied health services; a mechanism for people living with pulmonary disease to organise their care; and a way to restructure care plans.

The Implementation Support Team will continue to collaborate closely with organisations. This is particularly important in rural and regional settings. Unlike our metropolitan counterparts, clinicians and executive staff usually have multiple roles to perform in one substantive position without the support of a suite of corporate services such as media, communications, research teams, and data experts.

An important role for the academic partners will be to create ways for clinicians to apply analytical methods, use validated measures where possible, and visualise data to understand the impacts of their interventions on the aspects of care that most matter to their patients, the organisation and themselves.

Through the Model for Improvement, implementation strategies in this stage consist of:

ADAPT & TAILOR TO THE CONTEXT

* Stage implementation scale up
* Conduct cyclical small tests of change
* Promote adaptability
* Tailor strategies
* Use data experts
* Use data warehousing techniques

SUPPORT CLINICIANS

* Create new clinical teams
* Develop resource sharing agreements
* Facilitate relay of clinical data to providers
* Remind clinicians
* Revise professional roles

4. Monitor & Evaluate

The IHI Model of Improvement has been criticised for failing to produce sound evidence for the effectiveness of improvement interventions.[116] This must be redressed in this work, particularly as older people have traditionally been excluded from research and data collection.[117] Given the dearth of evidence in the rural ageing research, and to meet our member state obligations as part of the UN Decade of Healthy Ageing which commences on 1 October 2020, a monitoring and evaluation framework must be developed with accountability at the governance board.

To establish an evidence-base for the effectiveness of the Indigo 4Ms Framework, in a way that respects the iterative method of PDSA, requires a systematic, considered data collection by independent observers. This needs to be a methodology enquiry,[118] to examine what can be known from the implementation of the 4Ms Framework. We need to understand how the use of the Indigo 4Ms Framework was adapted and implemented to fit the local context and needs. We need evidence to show what works, for whom, and in what circumstances.[119] We need to know what it cost, and if efficiencies were made. And we need to know we are doing no harm.

Monitoring and evaluating the implementation of the 4Ms Framework will require a multipronged approach. It requires a rigorous study with measurable outcomes of structure and process embedded with qualitative inquiry. The outcomes will be shared measures of effectiveness and efficiencies including patient-reported measure of outcomes and experience, staff-related satisfaction and joy at work, health system measures such as rates of hospital-acquired complications, falls, medication errors, and delirium. Important community measures may include the incidence of multimorbidity and care dependency.

In collaboration with academic partners from a range of disciplines, clinicians, older people, policymakers and funders, the implementation strategies encompass:

USE EVALUATIVE & ITERATIVE STRATEGIES

* Develop and implement tools for quality monitoring
* Develop and organise quality monitoring systems
* Obtain and use patients/consumers and family feedback
* Purposefully re-examine the implementation

Conclusion

The implementation plan presented here is the outcome of the systematic processes used throughout this project. Specifically, it draws on the SSM approach described in Chapter Seven to capture the perceptions and reasoning of PCG members regarding implementation. This map provides clarity on the stages of implementation and suggests where the priorities should be placed.

More detail is needed. Along with a budget, project management systems, the human, technological and capital resources required, and the considerations of risk and stakeholder engagement, health and social services must identify their commitment to becoming age-friendly through the implementation of the Indigo 4Ms Framework.

Outcomes

In late 2018, the Indigo Consortium commenced an ambitious project to codesign an age-friendly health system approach that could be implemented in the region. The Better Care Victoria (BCV) Innovations Fund financed the Consortium to establish a collaborative partnership with clinicians, older people, policymakers and health service executives to realise their vision.

The Indigo 4Ms Framework, if implemented, has the potential to prevent, slow or reverse declines in older people's capacity, reduce the shocking amount of harm older people experience because of our health system, bolster staff morale, and improve the capacity of the health system to care effectively and efficiently for the majority of its patients while reducing costs. They are ambitious claims.

When the project commenced, we recommended that the ultimate success of this project be judged in terms of 1) the measurable improvements in partnerships, 2) the successful completion of each step in the execution of the project, and 3) the degree of agreement that the Age-Friendly Indigo Health System Model is feasible and worth implementing.

Bushfire was an identified risk to the outcomes of this project. This risk was realised in January with the worst bushfires in Australia's history.[120] However, no-one could foresee the effect the COVID-19 pandemic would have on every aspect of life.

This chapter continues to presents the outcomes of the project through the three criteria we identified at the outset, accepting that agreement on implementation is partial.

1. Partnerships

Partnerships were crucial to the execution of this project, and its ultimate success. As discussed in Chapter Three, partnerships were established structurally through the Project Control Group (PCG) and the formation of Expert Teams. Throughout the project, both these partnerships were monitored.

PCG members were asked to complete two tools on a quarterly basis. The Canadian Coalition for Global Health Research Partnership Assessment Toolkit[121] was modified, with permission, to monitor the partnerships through the different stages of the project. On the advice of BCV we tracked changes to perceptions of sustainability of the 4Ms Framework as an intervention using the NHS Sustainability Model.[122]

In addition, the Upper Hume Primary Care Partnership (UHPCP) independently emailed a standard Survey Monkey to all participants aimed at identifying people's experience of participating in meetings or activities. Survey responses were collated by UHPCP. A de-identified report was presented to the project manager to ensure continuous improvement.

PCG Partnership Assessment

Across the life of the project there was a strong collective view on the benefits and success of the partnership approach expressed in the survey results. There was a change from commitment solely to the end result of the project, to a commitment to the process of working collaboratively: 'All members participate in the development of a model of care of older people and there is consensus in decision-making'.

However, in interviews with members of the PCG twelve months into the project, feelings were more mixed. A number of members commented on what they saw as a lack of engagement, summed up in this quote: 'We have great minds around the table yet I have no clue about what they are thinking. They keep quiet, don't say anything so I don't know if there's commitment'.

Other members were more dismissive of the actions being undertaken to develop a collaborative partnership. As one person said, 'Partnerships exist already. We should use existing structures rather than create another meeting. It could be done through an MOU.'

Moreover, two PCG members described the project partnership as one-way, with their organisation not benefiting from the partnership; rather, they provided 'advice and legitimacy' to others.

These findings reflect the differences in values between health and social care organisations, and between professionals and consumers that are often unexpressed but find their voice in actions and behaviours that may be contrary to partnership agreements.

Sustainability Outcomes

In tracking attitudes to sustainability, the NHS tool was not well received by PCG members and, therefore, seldom completed. For those who did complete it, findings remained largely unchanged. Overall, PCG members who completed the form reported a greater confidence in the ability of clinical leaders to support and influence change, and less certainty that their organisations were ready for change. While most believed this project was consistent with the goals and culture of their organisation, fewer believe the infrastructure exists to sustain the change.

The definition of sustainability used as the basis of the NHS tool is 'the continuation of the integration of new practice within an organisation whereby it has become a routine part of care delivery and continues to deliver desired outcomes'.[123] This definition is difficult to apply to this multi-partner, collaborative project using co-design to develop a systems-wide implementation plan.

Our feedback to BCV was that the tool is not appropriate for this project.

Sustainability, like integrated care, is complex, with a vast literature articulating definitions and mechanisms through which an intervention or program may achieve 'sustainability'. Health system sustainability has been defined as the capacity to deliver affordable, cost-effective outcomes over time.[124] This reflects the internationally recognised 'quadruple aim of healthcare': patient experience; staff engagement; quality, safety and population health; and cost and waste reduction.

Sustainability then, requires the structures and processes established in this project: co-design, partnerships and collaboration across boundaries, the equal involvement of consumers, a systems approach, and a clear evidence-base.

For the sustainability of the Indigo 4Ms Framework, we need to answer the questions:

- What needs to be sustained?
- How long does this element need to be sustained?
- How do we secure the financial and human resources over a long enough period to make progress?

There is an assurance from Beechworth Health Service and Northeast Health Wangaratta to continue progress in building an age-friendly health system in northeast Victoria. Further discussion is required to identify which structures and processes from this project will be sustained.

Expert Team's Outcomes

The formation of, and activities undertaken by, Expert Teams enabled collaboration and commitment between consumers and clinicians from a range of organisations and disciplines. Their commitment was expressed in their willingness to travel considerable distances, giving up valuable time to attend meetings. There was also a generous response to emails and phone calls, contributing ideas, references and encouragement.

Survey responses reflected favourably on the Expert Team meetings as an effective vehicle for participation:

'I have felt comfortable and welcomed.'

'This is an exceptionally well organised team and the meetings are always well managed.'

Results also enabled participants to describe their difficulties in engaging within their home organisations and the competing priorities that placed a strain on their participation.

2. Completing the Four-Step Development Process

The first three steps in the development process were completed, answering the questions asked at the beginning of the project. The fourth question is answered through data analysis that has yet to be tested due to the COVID-19 pandemic.

Overwhelmingly, following the development process—the NHMRC guidance for developing guidelines—provided those involved with a unique opportunity to step away from their pressing daily demands to reflect more deeply, and with a broader perspective, on how to break the persistent cycle of: poor health outcomes for older people, investment in research and development, piecemeal reform, and a return to business as usual. Essentially, this was done on a regional level with a people from multiple services working alongside older people. This was a rare occasion to create a collective vision for transformative care.

Is the IHI Age-Friendly Health System applicable to Australian rural health conditions?

With adaptions on the basis of a review of the literature and the judgement of clinicians and older people, and the incorporation of key domains from the WHO Integrated Care of Older People (ICOPE) approach, the IHI Age-Friendly Health System is applicable to Australian rural health conditions.

What existing models of care in the region align with the 4Ms Framework?

Federal and state health and aged care policies, guidelines, and standards, and local models of care that are in routine practice align with the Indigo 4Ms Framework, supporting the Productivity Commission call that reform should build on existing work.[125]

Would implementing an age-friendly rural health system be of economic benefit?

Cmphatically, yes. The economic assessment, undertaken by an internationally recognised health economist, reported that using the Indigo 4Ms Framework to structure care 'resulted in cost savings, both in healthcare (medical, allied health and aged care) and other (mainly lost productivity) costs'. Moreover, the conservative estimates would suggest that cost savings could be greater than those reported in the economic assessment.

Can an acceptable implementation plan for the local health system be developed?

A plan has been developed, based on implementation science, the experiences of IHI and WHO, and the views of PCG members through structured conversations. In a post-COVID environment, there will be confirmation of its acceptability.

Acceptability of the Indigo Age-Friendly Health Systems 4Ms Framework

Overall, the project sought to develop an acceptable Age-Friendly Indigo Health Systems 4Ms Framework. Throughout the project, many people contributed ideas, views and perspectives on the adequacy of a simple tool to deliver effective, evidence-based care, at a lower cost, that meets the needs of the heterogeneity of older people. Resoundingly, people saw in the Indigo 4Ms Framework an opening to better care.

The proof of the pudding is in the eating. If implemented, its acceptability will be judged by all those who find it helpful to structure their thinking and organise the best care they can provide for themselves, and every older person, now and in the future.

Conclusion & Recommendation

Evaluating the Building an Age-Friendly Indigo Health System project has highlighted the benefits of establishing systematic, transparent processes, using the best available guidance, in concert with co-design. A local, evidence-based version of international best practice for the care for older people has been developed. If implemented, the Indigo 4Ms Framework will bring considerable cost savings to the public health and social care systems.

This brief chapter concludes the report by reflecting on the project overall. Three key features of the project are noteworthy: the development process we utilised, the nature of collaborative partnerships and the impact of negative attitudes to ageing and older people.

Development Process

The method for this project closely followed the NHMRC Guidelines for Guideline development. These guidelines are consistent with the processes undertaken by IHI and WHO in their respective work. We have confidence, given the systematic, transparent process and the contribution of older people, that the resultant Indigo 4Ms Framework offers high quality, evidence-based, guidance to older people, policymakers, clinicians and health service executives on how to deliver care that may prevent decline, maintain and/or improve health and wellbeing outcomes for older people. It enables health and social care workers to provide health assessments and prevention from the community level through to highly technical acute care settings.

This project does not require replication in other Australian settings. The four core elements, adapted for Australian conditions, are robust, while the actions for each element are flexible for the setting in which the Indigo 4Ms Framework is used.

Collaborative Partnerships

This was the first time the group of people who formed the Project Control Group (PCG) had worked together. Developing interdisciplinary, cross-organisation, collaborative partnerships between people from health services of various sizes with complex histories, differences in status, and existing organisational power relationships is challenging, and to do so on an equal footing with consumers, academics and policymakers takes time, energy, a high level of emotional intelligence and communication skills from all those who participate in such endeavours. It is inevitable that there will be misunderstandings, a lag time for openness to develop, and a sense of caution when putting views forward. In rural communities there is always the added challenge of past experiences structuring attitudes and behaviours in the present.

These partnerships must be purposeful, with the active engagement of all partners. Health services need to acknowledge that the health system extends beyond hospitals. The interdependency between hospitals and primary, community and social care services, and the expertise of all staff and consumers, must be recognised. Collaboration between different types and sizes of health and social care services is vital if we are to provide better and different care for older people across our region. It is often the implicit attitudes, values and cultures that disrupt the ability to do so.[126]

Partnership development and engagement happens across the life of the project. It is dynamic, fluid and ephemeral; it needs to be recognised and nurtured. The choice of Safer Care Victoria executive to find neither time nor reason to visit the partnership impacted negatively on its fragile development. People judge their worth, and the worth of their enterprise, by the actions of those who are perceived to bestow value or esteem.

Despite these challenges a collective vision for the benefits of the Indigo 4Ms Framework was realised. Participants recognised they were creating an approach to the care for older people that can make a significant difference to their patients or clients, parents, partners and their future selves. And to the efficient and effective running of the health system they are committed to.

Attitudes to Ageing & Older People

Older people and, by extension, their parents, partners, siblings, children and grand-children are harmed every day because of the way our health system is structure. The number is unknown. We do not collect the data.

In Chapter Two, we documented what is known about the harm suffered by older people who seek our care. We identified the significant impact of pervasive negative stereotypes of ageing, prejudice and discrimination on the health and wellbeing of older people. Those impacts extend to the demoralisation of the staff who do provide a high level of care to older patients in a health system biased against them.

Throughout this project, in attempting to gain support for this work from health services' executives and policymakers both locally and in Melbourne, we were asked to make the economic case for their involvement, or to provide data to answer their question, 'what's in it for us?' The evidence, seemingly hidden in plain sight, is that the majority of people we care for across our health system are 'older people' and most of the time we do not doing it well.

The Victorian Government established Safer Care Victoria in response to the inadequate clinical governance, poor monitoring and lack of response to adverse clinical outcomes that led to seven perinatal deaths.

Why do we not deliver the same frank assessment of our care to older people? Is it a collective fear of seeing our future selves or our own mortality? Is it anxiety about exposing the 'othering' that has hidden our shaming and judgement of older people? Is it a failure to challenge the insidious, deeply held negative attitudes to ageing and older people; that getting older means decline, deterioration, decay and dependency? Do we dread those attributes being transferred to us?

Oliver Sacks, on the occasion of his eightieth birthday wrote:[127]

At 80 the marks of decay are all too visible. One's reactions are a little slower, names more frequently elude one, and one's energies must be husbanded, but even so, one may often feel full of energy and life and not at all "old."

My father, who lived to 94, often said that the 80s had been one of the most enjoyable decades of his life. He felt, as I begin to feel, not a shrinking but an enlargement of mental life and perspective.

The Indigo 4Ms Framework is implementation-ready. It will require courage, a commitment to provide age-friendly care for older people, and leadership. The Indigo 4Ms Framework is the best prospect we have to care for older people 'better, differently and more effectively'.

Our single recommendation is to implement the Indigo 4Ms Framework.

Appendix 1: Typology of Engagement

Category	Role in Project	Stakeholder
INITIATORS	Instigating the project, developing the Business Case, funding.	Indigo Consortium CEOs; BCV Board & team; SCV Care of Older People Insight Committee; BHS CAC, Kathleen Brasher; IHI; WHOfl08h/8.
SHAPERS	Developing, supporting, directing or consolidating the Execution Plan at an early stage.	Indigo consortium CEOs; Partner Agencies; BCV Project Lead; Project Manager; SCV Care of Older People Network Lead
INFORMANTS	Input and skilled advice into the project.	DHHS; DoH; Data managers; SCV Care of Older People Governance and Insight Committee.
CENTRAL	Input throughout the project with a focal role in the governance, implementation and outputs of the project; contribute guidance, knowledge, skills and insight.	BHS as Lead Agency, Project Control Group; Innovation Teams; Project Board; Project Team.
REVIEWERS	Consultation on draft reports from each step in the project and/or the Implementation Plan .	IHI; WHO; DHHS; SCV; Clinical peak bodies; Consumer Advisory Groups of hospitals.
RECIPIENTS	Those who show an interest in the project and wish to be kept informed about the outcomes.	Relevant government departments and agencies; NFP organisations; residents of Indigo Shire; Clinical groups; WHO; IFA.
REFLECTORS	Provide project review, feedback and learning on the project processes.	Fellow BCV grant recipients; CAG of Partner Agencies; BCV Board.
INDIRECTS	Those ultimately affected by the results of the project.	Ministers of Health and Ageing; MAV; Indigo Shire Ageing Well list; older people receiving care in the Victorian health system; the Victorian health system.

Appendix 2: IHI Core Elements & WHO ICOPE Actions

IHI 4Ms	WHO ICOPE
WHAT MATTERS	**CAREGIVER SUPPORT**
Know what matters: health outcome goals and care preferences for current and future care, including end of life. Act on what matters for current and future care, including end of life.	Psychological intervention, training and support should be offered to family members and other informal caregivers of care-dependent older people, particularly but not exclusively when the need for care is complex and extensive and/or there is significant caregiver strain.
MEDICATION	
Implement standard process for age-friendly medication reconciliation. De-prescribe and adjust doses to be age-friendly.	Medication review and withdrawal (of unnecessary or harmful medication) can be recommended for older people at risk of falls.
MOBILITY	
Implement an individualized mobility plan.	Multimodal exercise, including progressive strength resistance training and other exercise components (balance, flexibility and aerobic training), should be recommended for older people with declining physical capacity, measured by gait speed, grip strength and other physical performance measures. Multifactorial interventions integrating assessment with individually tailored interventions can be recommended to reduce the risk and incidence of falls among older people.
Create an environment that enables mobility.	Following a specialist's assessment, home modifications to remove environmental hazards that could cause falls should be recommended for older people at risk of falls.
MENTATION	
Ensure adequate nutrition, hydration, sleep, and comfort.	Oral supplemental nutrition with dietary advice should be recommended for older people affected by undernutrition.
Engage and orient to maximize independence and dignity.	Pelvic floor muscle training (PFMT), alone or combined with bladder control strategies and self-monitoring, should be recommended for older women with urinary incontinence (urge, stress or mixed). Screening followed by provision of hearing aids should be offered to older people for timely identification and management of hearing loss. Older people should receive routine screening for visual impairment in the primary care setting, and timely provision of comprehensive eye care.
Identify, treat, and manage dementia, delirium, and depression.	Older adults who are experiencing depressive symptoms can be offered brief, structured psychological interventions, in accordance with WHO mhGAP intervention guidelines, delivered by health care professionals with a good understanding of mental health care for older adults. Cognitive stimulation can be offered to older people with cognitive impairment, with or without a formal diagnosis of dementia.

Appendix 3: Delphi Process Results

Core Elements/Existing Models of Care	Mean	Median >=8	Mode	Range <3	WHO or IHI
WHAT MATTERS Provide person-centred assessment and care planning					
Know What Matters					
Use a person-centred approach with goal setting in client/patient's words	9.5	10	10	3	
Assess goals as part of comprehensive geriatric assessment	9	9	10	3	
Questions addressing 'what matters' are asked a minimum of once per stay and do not only address end-of-life or advanced care	8.6	9	10	5	IHI
Patient/persons goals, preferences are documented clearly at the front of medical records in paper and electronic forms	9.1	9.1	10	3	
Act on What Matters					
Place patient centred care at the forefront of care planning	9.4	10	10	3	
Care plans aligned with responses to 'what matters' questions	9.1	10	10	5	IHI
Provide a physical environments that enable 'minimal intervention' from staff, to enable autonomy and self determination	8.5	8.7	9	3	
Information is routinely collected on patient/person-reported outcomes and experiences	8.8	9	8	2	
Provide social and physical activities that are meaningful to the individual, both within and external to the service	9.1	9.6	10	3	
MEDICATION Implement standard process for age-friendly medication reconciliation					
De-prescribe & Adjust Doses to Be Age-friendly					
Undertake routine medication reviews by pharmacist. In RAC Older Person Nurse Practitioner provides in-reach	9.6	10	10	2	
High-risk medications are de-prescribed or not prescribed	7.6	7.8	10	9	IHI
Medication reviewed and withdrawal post-falls incident	8.8	9.5	10	4	WHO
Medication reviews focus on medicines associated with geriatric syndromes	8.9	9	10	3	
MOBILITY Implement an individualized mobility plan including multimodal exercises (strength, balance, flexibility, aerobic and functional training)					
Screen for functional mobility and falls with validated tools for those deemed as at risk of falls and/or with evidence of dementia/delirium	9.4	10	10	3	
Screen for functional mobility at admission and at regular, identified intervals according to care plans and care need changes	9	10	10	3	
Multimodal exercises recommended for all older people at risk of falls	9.1	10	10	3	
Physiotherapists/ allied health develop personalised mobility plans including multimodal exercised for all older patients/people	9.1	9.6	10	3	
Medication review and withdrawal for older people at risk of falls	8.6	8.6	8	5	WHO
Mobility goals are established with patients	9.4	10	10	2	
Patients are ambulated 3 times a day unless contrary to care	8.3	9	10	6	IHI
Patients are out of bed or leave room for meals	7.6	7.8	10	6	IHI

Core Elements/Existing Models of Care	Mean	Median >=8	Mode	Range <3	WHO or IHI
Provide external activities that encourage desired mobility activities (e.g. swimming)	8.9	9	10	3	
Create an Environment that Enables Mobility					
Home assessments and modifications are recommended for all older people at risk of falls	9	10	10	7	WHO

MENTAL WELLBEING
Ensure adequate nutrition, hydration, sleep, and comfort

Core Elements/Existing Models of Care	Mean	Median >=8	Mode	Range <3	WHO or IHI
Screen for nutrition and diet using a validated tool	9.6	10	10	2	
All people at risk of under nutrition are reviewed by dietician	9.4	10	10	3	
Oral hydration is maintain at all times	9.3	10	10	4	IHI
Non-pharmacological interventions to support sleep are in place in in-patient settings	8.7	9	10	5	IHI
Engage & Orient to Maximize Independence and Dignity					
Communication board in each patient room articulating all relevant info about, and for, each patient, visible at a distance for the older person to read and re-orient if needed	9	9	10	3	
Older patients are orientated to time, place and situation every nursing shift	9.1	10	10	3	
Screen Vision & Hearing					
Screen annually as part of general health check-up for timely identification and management of vision and hearing loss	9.	10	10	5	WHO
Older patients/persons have their personal adaptive equipment	9.3	10	10	3	
Screen for Incontinence					
Pelvic floor training offered to all older women with urinary incontinence	8.8	9	10	4	WHO
Screen for urinary and faecal incontinence as part of comprehensive geriatric assessments and aged care assessment using validated tool	9.4	10	10	2	
Prompt voiding offered to all older people with cognitive impairment to manage urinary incontinence	9	9.5	10	5	WHO
Assess Cocial Connections & Supports					
Assess as part of comprehensive geriatric assessments and aged care assessment	9.4	10	10	2	
Psychological intervention, training and support offered to family members or informal caregivers of care-dependent older people	9.1	9.5	10	3	
Assess community engagement and support, caregiver burden	9.2	10	10	3	
Identify, Treat and Manage Dementia, Delirium & Depression					
Cognitive screening of older adults using validated tools	9.4	10	10	3	
All older patients are assessed for delirium using a validated tool every 12 hours	8.6	8	10	5	IHI
Cognitive stimulation offered to all older people with cognitive impairment with or without a diagnosis	9.1	10	10	3	
Older people with depressive symptoms are offered brief, structured psychological interventions	8.6	9	9	5	WHO
Older people and/or their carers are given information on the prevention and management of depression and cognitive impairment	8.8	9	9	3	
Refer to Geriatric Evaluation and Management Unit	7.8	8	9	3	
Medication review to remove possible pharmacological cause of delirium	7.7	8.5	9	5	IHI

Appendix 4: The Indigo 4Ms Framework Core Elements & Key Actions

Aim	Core Elements	Key Actions
WHAT MATTERS		
Provide person-centred assessment and care planning		
Assess and understand what matters including individual values, priorities, goals and care preferences, and social context. Act on what matters for current and future care, including end of life.		• Ask questions addressing 'what matters' a minimum of once per stay and do not only address end-of-life or advanced care. • Document 'what matters' clearly at the front of medical records in paper and electronic forms. • Describe and align care plans to responses to 'what matters' questions. • Routinely collect information on patient/person-reported outcomes and experiences.
MEDICATIONS		
Eliminate unnecessary, ineffective and duplicative medicines		
Screen and assess for high-risk medications. Rational prescription.		• Prescribe appropriate medication and de-prescribe and adjust doses to be age-friendly. • Conduct regular medication reviews by pharmacist. • Reconcile all medicines at all transitions in points of care. • Reviewed medication post-falls incident. • Focus medication reviews on psychotropic medicines and those associated with geriatric syndromes.
MOBILITY		
Improve musculo-skeletal function and mobility		
Screen and assess locomotor capacity. Provide an individualised mobility plan .including multimodal exercises. Create a social and physical environment that enables mobility.		• Screen for functional mobility and falls with validated tools at admission. For those deemed as at risk of falls and/or with evidence of dementia/delirium, screen at regular, identified intervals according to care plans and care need changes. • Assess the need of a gait aid to optimise mobility, review every monthly for adjustments or alternatives. • Develop personalised mobility plans including multimodal exercises for all older patients/people. • Implement personal mobility & exercise plan. • Ambulate in-patients/residents 3 times a day unless contrary to care. • Ensure in-patients/residents are out of bed or leave room for meals. • Recommend home assessments and modifications for all older people at risk of falls. • Develop community mobility groups and promote ownership of the program.
MENTAL WELLBEING		
Promote psychological wellbeing and prevent cognitive impairment		
Assess and ensure adequate hydration, nutrition and sleep. Screen, assess and manage vision and hearing. Screen, assess and manage incontinence. Assess and support social connections & carers. Screen, assess and manage cognitive decline and depression.		• Maintain oral hydration at all times. • Screen for nutrition and diet using a validated tool. • Dietician review of all people at risk of under nutrition. • Provide non-pharmacological interventions to support sleep in hospital/residential care settings . • Screen vision and hearing annually as part of general health check-up for timely identification and management of vision and/or hearing loss. • Ensure older patients/persons have their personal adaptive equipment. • Screen for urinary and faecal incontinence as part of assessments using validated tool. • Offer pelvic floor training to all older women with urinary incontinence. • Offer prompt voiding to all older people with cognitive impairment to manage urinary incontinence. • Offer psychological intervention, training and support to family members or informal caregivers of care-dependent older people. • Screen and assess cognition and depression using validated tools. • Assess for delirium using a validated tool every 12 hours when in hospital. • Orientate in-patients to time, place and situation every nursing shift. • Review medication to remove possible pharmacological cause of delirium. • Assess all in-patients for delirium using a validated tool every 12 hours. • Offer cognitive stimulation to all older people with cognitive impairment with or without a diagnosis. • Offer brief, structured psychological interventions to all older people with depressive symptoms. • Provide information to older people and/or their carers on the prevention and management of depression and cognitive impairment.

Appendix 5: The Indigo 4Ms Framework for Older People

Core Elements	Actions
WHAT ELEMENTS	• Know what matters to you; your values, priorities, goals and care preferences. • Act on what matters for you regarding your current and future care, including end of life.
MEDICATIONS	• Ask for your medicines to be reviewed regularly. • Talk to your doctor and pharmacist about de-prescribing or adjusting doses as your health changes.
MOBILITY	• Ensure you have a personal exercise plan mobility plan including activities that plan including build and maintain muscle strength, heart health, flexibility and balance. • Create a social and physical environment that enables mobility.
MENTAL WELLBEING	• Ensure you have adequate hydration, nutrition and sleep. • Have your vision and hearing screened regularly. • Prevent or limit the impact of incontinence. • Maintain and build your social connections. Ensure your carers receive the care they need. • Seek assistance to prevent, identify, treat and manage cognitive decline and depression.

Appendix 6: Scenarios for Economic Analysis

SCENARIO 1

Emergency Department

Albert English is 72, living at home with his wife, Caroline, in Beechworth. He and Caroline have full-time care of their 6-year-old grand-daughter and provide weekly after-school care for two other grandchildren. They operate an 'open-door' policy for family and friends.

Albert is the immediate past captain of his local rural fire service. He still 'jumps on the truck' and his skills as a mechanic are regularly put to use by the brigade, as is the produce from his considerable vegetable garden which helps support neighbours, children and his church. A local from birth, Albert believes in giving back to the community he knows has given him and his family a good life.

In the midst of an evening thunderstorm, Albert could hear the ominous sound of a gutter overflowing. While trying to wrestle the ladder into position, he slipped, fracturing his neck of femur. Albert was transferred by ambulance to a regional emergency department.

Current Care	Using the 4Ms Framework

Current Care

Not wanting to be a bother on a busy night, Albert stayed quiet despite increasing pain and an overwhelming thirst. He was delayed being seen as people with severe trauma were prioritised.

Without pre-anaesthetic hydration, pain management and electrolyte management in the Emergency Department, Albert will almost inevitably develop delirium a week after surgery. Once delirious, Albert has double the likelihood of developing a cognitive impairment and the same likelihood of death within two years of the fall than patients who do not develop delirium.

According to one specialist nurse practitioner who managed the ED Albert attended, there is no specialist geriatric trauma sub-specialty, nor are trauma centre staff trained in, or aware of, the sequela of 'minor trauma' in geriatric patients. There is also a perception that success in trauma management is measured by productive life years lost and the negative economic impact of not returning to work (personal communication).

The Victorian State Trauma Registry (VSTR) excludes cases of isolated fractured neck of femur.

WHAT MATTERS

On admission to ED, a geriatric trained nurse assesses Albert, beginning by asking 'What matters to you most at the moment?' Through spending these focusses few moments, the nurse recognises Albert is in pain, he is distracted by the busyness of ED and he is stoic. The nurse records Albert's desire to 'get this leg fixed and get back home to help take care of the little ones'. He also is concerned his wife will be anxious as she needs to stay home to care for their granddaughter.

MEDICATION & MENTAL WELLBEING

The nurse is cognisant of the links between pain, dehydration and post-surgery delirium. The nurse assesses Albert's hydration and cognitive state.

The nurse documents the findings, reports to the appropriate physician for a quick review enabling pre-operative management to begin without delay.

A volunteer service operates in the ED. Volunteers are trained to notice and report changes in condition.

The nurse requests a volunteer to pop in on Albert regularly to provide reassurance and to keep Albert orientated to time, place and situation. The volunteer is also able to assist Albert to ring his wife for a conversation.

Transfer from Residential Aged Care to an acute regional hospital

Monica Cody has lived at her local residential aged care facility for the past eight months. Now 92, her arthritis increasingly prevented her from managing life on her small acre farm on the outside of town on her own. A school teacher at the local primary school for her whole life, the farm had given her the solitude she delighted in. Her sister recently moved into the nursing home following a fall and a failing memory. It seemed like the best idea for Monica to join her, moving into the room next door to Carmel. The staff were known to her, some of whom she had taught. She could provide company for her sister, attending to her needs, and enjoy the visits of her sister's grandchildren, often helping with homework.

Monica developed pneumonia. Her health deteriorated over the weekend leading to her transfer to the regional base hospital for close monitoring of her condition, intravenous antibiotics and pain management.

Current Care	Using the 4Ms Framework
The acute ward environment, busy, constant, noisy, was disorientating. Nurses seemed to buzz constantly, waking her to check her temperature; the drip regularly beeped for attention; visitors for other patients ignored signs to only visit in certain times. Her medication list from the nursing home seemed to have been misplaced along with her notes. Medical staff spoke quickly to her x-rays, rushed to change medicines, left her gown in disarray on their departure. Monica lost her appetite, and despite the nurses calling out for her to drink, the water seemed out of reach; a hot cup of tea seemed an impossibility. After five days Monica returned to her home with Carmel. She arrived confused, dishevelled, pale and exhausted. She had not been out of bed for days. Nurses now needed to commence a rehabilitation program to improve her functional decline.	The key transfer document between residential aged care and the acute system is a single page form structured by the 4Ms. Nurses in the acute ward have immediate knowledge of the long-term care goals and advance care directives, a summary of medication, a mobility plan, and mental health status. **WHAT MATTERS** The nurse admitting Monica notes that Monica wants active treatment, with the exception of a cardiac arrest or major brain incident such as a stroke or bleed. The nurse begins by asking Monica what matters most to her for this admission as a way of beginning to develop a relationship with Monica. She notes that Monica is keen to return home as soon as possible and to 'keep strong' so she can help care for her sister and their grandchildren. She reconfirms Monica's goals if her health suddenly deteriorates while in hospital. This conversation, although brief, helps Monica feel connected to the staff. **MEDICATION** Monica is cared for by a multi-disciplinary team that reviews her history together, then meets with her. The hospital pharmacist contacts the pharmacist who visits the RAC to confirm current medications. The pharmacist notes that choice of analgesia is not on the high-risk list for older people. **MOBILITY** The physio provides specific chest physiotherapy and techniques to maintain Monica's general strength while she is in bed. **MENTAL WELLBEING** Monica's nursing care is clustered and visiting hours are strictly enforced to enable Monica to rest. A drinking cup with a straw is provided and always in reach, and Monica is assisted to walk twice a shift, timed with pain management. Monica is reminded that walking and drinking will ensure she is able to return home sooner. A volunteer visits for general conversation, timed with her care plan, to keep Monica orientated, to explain the new environment, and to connect her with staff. The volunteer is also able to make Monica a cup of tea. Monica is transferred home two days later, a little tired but otherwise well.

Primary & Community Care

Luca Mazzotta is a proud Italian-Australian. He arrived in Australia as a child migrant with his parents. They moved to rural Victoria, living their dream of a secure, prosperous life. Luca worked on his parents' tobacco farm converting it to a small vineyard when the tobacco industry closed. He returned to Italy to marry his wife, Louisa. They had three sons, one of whom now runs the family wine business locally. The other sons live in Melbourne. Louisa died four years ago.

Luca's great love, apart from wine and family, is clocks. Once he retired from the day-to-day management of the vines, he moved into town, building a small business repairing old clocks in a converted shed. Clock dealers from around the country know of his skill.

Luca has diabetes. Now 87, he worries the 'sugars' will damage his eyesight or the sensitivity in his fingers. He also needs help to manage the house, and the report from the doctor also said he should have someone with him when he showers.

Current Care	Using the 4Ms Framework
Luca requires twice-daily insulin, but the nurses are unable to come in the evening at the same time, and sometimes not at all. The best they can manage is 3PM. When his family are staying they help, but he doesn't want neighbours helping with something so personal. Home help will only come in the mornings. He likes to shower at night so he tells the visiting nurse he has help organised. He finds the evenings long and lonely. He feels the shame of eating alone mingled with the grief of Louisa's absence. He loses his appetite along with his enthusiasm for his clocks. He seldom goes out. His diabetes becomes unstable. At a routine checkup the doctor notes his weight loss and poor blood sugars. Luca doesn't say anything about his swirling vision. He is admitted to the local hospital for stabilisation. Luca feels lost, a burden to his family, no longer in control of all that matters to him, unable to give voice to his fears. Days later, with regular meals and insulin, he is discharged home with the same referrals for district nurse and home help. Moving into the nursing home is suggested but he can't bring himself to leave the house that still holds Louisa's memory and his clocks, or face the stigma of ageing. Once more his health deteriorates, he is readmitted, only to be discharged with the same set of referrals. Unable to face the shame of his illness, full of grief, Luca takes his own life. His family mourn his loss and are traumatised by the manner of his death.	Luca's GP practice has recently been trained in providing health assessment for people over 75 years using the 4Ms Framework. The Practice nurse, John, assesses Luca, beginning with a focus on 'What matters to you?' this time directly asking about his health outcome goals rather than physical ailments. **WHAT MATTERS** John learns about Luca's desire to stay independent, to work on his clocks, perhaps even passing on his skills, to be back among the vines, and to be useful for his grandchildren. He notes Luca struggles to find words to talk about Louisa. With Luca's health goals clear, John bases planning around those goals. **MEDICATION** Luca explains the nurses can't come regularly for his insulin. John asks if Luca would like to learn to self-administer, contemplating that it might be worth giving it a try to help him remain independent and well. They also discuss Luca's neighbour who is very supportive. John asks Luca if perhaps they could all meet for a discussion about this. Luca agrees. **MOBILITY** John tests Luca's with the Chair rise test and balance. He explains the importance of strength training, telling Luca about other patients older than Luca who attend the gym the local hospital and are now stronger than ever. John makes the link between Luca's goals to be in the vines and flexibility and muscle strength. John offers to take Luca to visit the gym and meet some of the team. **MENTAL WELLBEING** John asks Luca about his vision and hearing, noting it's been sometime since he had both tested by specialists. He makes appointments for Luca when the specialists will be in town. He asks about how Luca sees to repair the clocks, linking actions with outcomes that matter to Luca. They talk about food and nutrition. Luca understands the foods he needs to eat for his diabetes but he was used to Louisa doing the cooking. His sons and family bring food weekly and he visits them regularly too. John weaves in questions of mood, screening for depression. He also checks cognitive ability telling Luca checking for brain health is the same as checking his blood pressure. John asks about who Luca goes to for help, noting that Luca is a bit disparaging about his need for help. John's assessment is that Luca may be depressed, complicated by his chronic illness, ageing and grief. John refers Luca to a psychologist. He also talks about the local historical society's interest in clocks. He connects Luca with a local who attends a weekly dinner for Italians in the neighbouring town. Luca's neighbour feels more confident to pop in again, on one visit her grandson shows Luca YouTube videos by clockmakers around the world, beginning a new way for Luca to share his knowledge. Over the next few weeks Luca attends the clinic to learn how to self-administer insulin. He begins regular sessions at the gym, meeting new people who live close by. At one visit, the nurse in charge of the nursing home chats to him, telling him about a fellow who stays overnight but goes back home every day to do his gardening, inviting Luca to perhaps visit when he's ready.

Appendix 7: Economic Assumptions

Assumption or Principle	Example
CONSERVATIVE ESTIMATES When there was uncertainty, costs at the lower end of a likely range were applied in the current care scenarios. In proposed care scenarios, costs at the higher end of the likely range were used. If a cost was equivalent across scenarios, the same estimate was used on both sides.	• Pay grades • Diesel mechanic costed using hourly wage rather than the likely purchase price. • 4 Ms assessment in primary care: costed as Medicare item 707 (75+ assessment) when cost of practice nurse administration is likely to be lower.
COST OF VOLUNTEERS It was assumed that, if unavailable or in poor supply, volunteers would be replaced with paid staff or services.	• Nursing assistants were assumed to replace volunteers supporting patients in hospital. • After school care was substituted for Albert and Caroline's care of their grandchildren. • Diesel mechanic to replace Albert's contribution to CFA, for 12 months only.
TRAINING COSTS These were represented by applying a slightly higher hourly wage for staff who had completed age-friendly training.	• Nursing assistants to replace volunteers: with no age-friendly training, 1st year wage; with age-friendly training, 4th year wage.
Implementation of age-friendly processes was assumed to increase costs. However these processes are likely to result in efficiency savings and better outcomes, reducing costs overall.	• 4 Ms transfer form: completing and reading • Better collaboration of multidisciplinary team on wards • Stricter adherence to visiting hours

Appendix 8: Costing Data

Current Care

ALBERT

72 yo lives at home with wife. Cares full time for 6yo granddaughter and weekly after school. Involved in local CFA, mechanic skills. Grows own vegetables and shared with neighbours, family and friends. Falls at home and fractures NOF. Taken by ambulance to regional ED.

Care Provided	Award/Level	Rate	Per	Time Unit
EMERGENCY DEPARTMENT				
Admitted to ED and waits 4 hours to be seen.				
Does not receive hydration or pain management or electrolyte management before surgery.				
ACUTE CARE				
Surgery for fractured NOF. While recovering, develops delirium 1 week post surgery.	NWAU calculator - acute 2020-21. DRG 160Z			
Volunteers with standard training on ward visit regularly to support with meals etc - not to monitor for changes to his mental state.	Replaced with nursing assistant (1st yr) - Nurses Award 2010			30mins/ day

RETURNS HOME

	Award/Level	Rate	Per	#Sessions
Returns home and begins physiotherapy to aid recovery from surgery.				10
Health deteriorates in the 2 years following the fall: develops cognitive impairment, poor episodic memory and depression. Unable to continue with CFA and can no longer care for his grandchildren on his own.				6
				6
				10
Remains at home with his wife as main carer, with outpatient services and GP care, and home support (My Aged Care).				8
				8
				24
				5
Home help with daily routines and around the house - until he goes into res care (ie for 2yrs).		$55.00	hour	312
26 months after the initial fall, health deteriorates further. Admitted to hospital twice for dementia-related delirium, and finally admitted into residential aged care for final 2 months before his death.	Acute NWAU calc. DRG B64B			2
		$304.45	day	61

PRODUCTIVITY

Grandchildren (2) afterschool care (2 months incapacitated).	Average after school care fee	$20	per child per session	2 kids
Full time care of 6yo granddaughter (nanny required 2 hrs/day, 3 times/week for 8 months).	Misc Award 2010	$133.24	per week	
Contribution to CFA (mechanical skills) (12 months).	Vehicle Manufacturing, Repair, Services and Retail Award. RS&R tradesperson level 1	$29.51	hour	Average 1 hr/week
Carer allowance accessed.		$131.90	fortnight	47
Albert dies 2.5 years after the fall .				

NWAU	Notes	Cost
0.275	Emergency dept episode of care (NWAU calculator 2020-2021). Weighting 0.2750	$1,463
2.5108	16 or 20 day stay (no delirium) is 2.2909 (no change if 3 day longer stay). Incremental cost of delirium = 9.6%. Therefore 2.2909*1.096 = 2.5108 NB calculator weighting with delirium reflects penalty to hospital for HAC: 2.0916 ($11,127.31 reimbursed, cost to hospital = $2,230.14	$13,357.46
LOS 16 days	Sat rate ($31.92+30%=$41.50/hr*1), Sun rate (37.24+30%=$48.41/hr*1) and week rate (21.28+30%=27.66/hr*6=$165.96) Lower level of experience used to reflect standard training of these volunteers.	$255.87
	COSTS TO DATE:	**$15,076**

NWAU		Total Cost
0.026	Physio program: PT visits twice weekly for 4 weeks, then 4 follow-ups (10 visits total)	$1,383.20
0.0493	Low estimates: Geriatric evaluation & management	$1,573.66
0.0468	Social worker	$1,493.86
0.0338	Occupational therapy	$1,798.16
0.0375	Falls prevention	$1,596.00
0.0477	Cognition & memory	$2,030.11
$13.17	Antidepressant medication (100mg/day sertraline; 30 packs). Used DPMQ, assumed 1 pack/month for 2 yrs.	$316.08
0.0477	GP: 2 visits per year (5 visits)	$1,268.82
	Costed based on service provider quotes, standard rate (higher for weekends etc). 3x/week for 1 hour each: personal care and household help. No travel costed as reported to be included in price. Would likely increase during this time but left flat for conservative estimate.	$17,160.00
0.9974	Admitted to hospital with delirium twice (2 days per visit, acute, delirium w minor complications). Subacute NWAU calculator used. More conservative option than subacute calculator psychogeriatric care (1.0188).	$10,612.34
	Moved into residential aged care for 2 months - Basic/conservative rate applied: more likely to be in high level psychogeriatric care, costing significantly more. Medications not calculated.	$18,571.45
	Costs once home:	**$57,803.67**
	HEALTHCARE COSTS TOTAL:	**$72,880.00**

8 weeks	Averages reported by DET (2018/19 fin yr, inflated to $8/hr). Assuming wife can't do this on her own, so after school care would be used for 2 months until nanny is employed by wife (below).	$320
$20.82/hr (weekdays, 4hrs/week); $24.98 (Saturdays, 2hrs/week)	Assume that Caroline would manage on her own for 2 months, but not sustainable for longer and part time nanny is required to help before and after school until child is 7 (8 months).	4,583.46
	Vehicle Manufacturing, Repair, Services and Retail Award (MA000089): RS&R tradesperson level 1 $22.70/hr+30%. Assumed 1 hr/week, costed conservatively at diesel mechanic wage (not purchase price). (Diesel mechanic may charge approx $70/hr).	$1,475.50
	Carer allowance accessed by Caroline 6 months after surgery, as Albert's condition declines. Total 47 fortnights until he moves into residential care.	$6,199.30
	PRODUCTIVITY COSTS:	**$12,578**

TOTAL COSTS	$85,458
Time Period	2.5 years

4Ms Framework

ALBERT

72 yo lives at home with wife. Cares full time for 6yo granddaughter and weekly after school. Involved in local CFA, mechanic skills. Grows own vegetables and shared with neighbours, family and friends. Falls at home and fractures NOF. Taken by ambulance to regional ED.

	Award/Level	Rate	Per
EMERGENCY DEPARTMENT			
Admitted to ED			
Geriatric trained nurse assesses and completes 4Ms interview.	RN2 level 4	41.67	hour
Brief physician review enables prompt pre-operative management: hydration, electrolytes, pain management.	Med Pracs Award 2010: Community Medical Practitioner pay point 8. $51.33+30%/hr	66.73	hour
Morphine hydrochloride trihydrate 10 mg/mL injection.	PBS	20.91	pack (5)
Electrolytes: Sodium chloride + potassium chloride + glucose monohydrate + citric acid (1000mL: need 5 sachets of ORS). Info sourced from PBS.		16.29	pack (10*200mL)
Nurse to administer prep: 15mins.	RN2 level 4	41.67	hour
Volunteers with additional training on ward visit regularly and monitor Albert's condition, help him remain orientated. Replacement with nursing assistant.	Nurses Award 2010. Nursing asst, 4th year, Sat rate. $34.05+30%	44.27	hour
ACUTE CARE			
Surgery for fractured NOF.	NWAU calc - acute 2020-21, DRG 160Z		
Volunteers with additional training on ward visit regularly and monitor Albert's condition, help him remain orientated and in communication with his wife and family while in hospital.	Replaced with nursing assistant (4th year) -Nurses Award 2010		

RETURNS HOME

	Role/Award	Award	Hourly Rate
Returns home for community-based rehab, and is able to resume caring for grandchildren on his own after 2 months, and participating in CFA after 3 months.	Physio		
	AHA: HPSS Award 2010. Supp Servs Employee 8/3	28.59+30%	37.17
	Orthopedic		
	GP		
Home help with daily routines and around the house - until he goes into res care.			$55.00

PRODUCTIVITY

Grandchildren (2) afterschool care (2 months incapacitated).	Average after school care fee	$20	per child per session
Full time care of 6yo granddaughter (2 months incapacitated).			
Contribution to CFA (mechanical skills) (3 months incapacitated).	Vehicle Manuafcturing, Repair, Services and Retail Award. RS&R tradesperson lev 1 Cas	$28.38	hour

Time Unit	NWAU	Notes	Cost	Paid By
	0.275	Usual emergency dept episode of care (NWAU 2020-21).	$1,463	
0.25		$32.05 hourly wage + 30% on-costs: 41.67/hr https://services.anu.edu.au/human-resources/salaries-benefits/salary-on-costs	$10.42	
0.25			$16.68	
0.2			$4.18	
0.5			$8.15	
0.25		Would possibly be lower	$10.42	
0.25		Higher level of experience used to reflect additional training of these volunteers.	$11.07	
	2.2909		$12,187.59	
30mins/ day	LOS 16 days	Sat rate ($34.05+30%=$44.27/hr*1), Sun rate (39.73+30%=$51.65/hr*1) and week rate (22.70+30%=$29.51/hr*6=$177.06) Higher level of experience used to reflect additional training of these volunteers.	$272.98	
		COSTS TO DATE:	**$13,984**	

#Sessions	NWAU	Notes	Cost	
6	0.026	Physio program: PT visits 6 times in 2 months	$829.92	
8		Physio program: AHA visits 8 times (1hr each) to administer exercise program	$297.36	
2	0.0274	Orthopedic review (2 visits)	$291.54	
3	0.0477	GP: 1 visits per year (3 visits)	$761.29	
208		Costed based on service provider quotes, standard rate (higher for weekends etc). 2x/week for 1 hour each: personal care and household help. No travel costed as reported to be included in price.	$11,440.00	
		Costs Once Home	**$13,620.11**	
		HEALTHCARE COSTS TOTAL:	**$27,604.59**	
2 kids	8 weeks	Averages reported by DET (2018/19 fin yr, inflated to $8/hr). Assuming wife can't do this on her own, so commercial services would be required while Albert recovers.	$320	
		Assume that Caroline would still manage this while Albert is in hospital and recovering at home, then Albert is able to do this once recovered - no cost allocated.		
Average 1 hr/week	28.39	Vehicle Manufacturing, Repair, Services and Retail Award (MA000089): RS&R tradesperson level 1 casual paid $28.39/hr. Assumed 1 hr/week, costed conservatively at diesel mechanic wage (not purchase price). (Diesel mechanic may charge approx $70/hr)	$366.10	CFA
		PRODUCTIVITY COSTS	**$686**	
		GRAND TOTAL	**$28,291**	
		Time Period	2.5 years	
		Difference in cost (Current - 4Ms)	**$57,168**	

Current Care

MONICA

92 yo former teacher and farmer. Moves into residential care to be with sister. Helps to care for her sister and helps sister's grandchildren with homework. Develops pneumonia.

Care Provided

ADMISSION TO EMERGENCY DEPT (BASE HOSPITAL)

Admission into ED: coded as AECC E0450B (lower respiratory tract infections complexity level B).

ADMISSION INTO SUBACUTE WARD

Stays 5 days in GEM subacute care (coded as subacute GEM care. Daily rate calculated using NWAU subacute calc.

Volunteers (standard training) visit her 2x15mins/day for conversation and short walks an the ward. Costed as replacement with year 1 nursing assistant, Sat rate ($31.92+30%=$41.50/hr), Sun rate (37.24+30%=$41.41/hr) and week rate (21.28+30%=$27.66/hr).

RETURNS HOME TO RESIDENTIAL AGED CARE REQUIRING REHAB

Residential aged care: daily fee (accessed from My Aged Care website): $304.45 per day. Costed throughout, including during hospital stay (assumed paying for place even if temporarily absent).

Monica commences rehab program in RAC, gradually returns to normal over the next 2 weeks.

Physio: visits twice daily for 1 week (weekdays), then 4 visits in 2nd week - (14 visits).

AHA visits 4 times in 2 weeks, (45mins each).

Nursing assistant takes to gym daily (30mins each) .

Caring for Monica's sister - replacement nursing assistant care. Costed for 20 days while Monica is in hospital and rehab (2 weeks following return to RAC). Replacement with nursing assistant (year 1): 60mins/day.

Helping grandchildren with homework: costed as replacement with babysitter/nanny, 1 hr/week for 3 weeks.

Staff Level/Award	Rate/	Per	Time/Dose	NWAU	COST
				0.1807	$961.32
				Subtotal	$961.32
				1.4755	$7,849.66
Year 1 nursing asst, Sat rate	41.5	hr	0.25		$10.38
Year 1 nursing asst, Sun rate	48.41	hr	0.5		$24.21
Year 1 nursing asst, week rate	27.66	hr	2		$55.32
				Subtotal	7,939.56
	$304.45	day	20		$6,089.00
Physio episodes via NWAU non-admitted care calculator			14x	0.0260	$1,936.48
AHA: Support Services Employee level 8/3 (HPSS Award 2010) = $28.59+30%	37.17	hr	3		$111.51
Year 1 nursing asst, week rate	27.66	hr	5		$138.30
Year 1 nursing asst, Sat rate	41.5	hr	1		$41.50
Year 1 nursing asst, Sun rate	48.41	hr	1		$48.41
				Subtotal	$8,365.20
				HEALTHCARE TOTAL	$17,266.08
Year 1 nursing asst, week rate	27.66	hr	14		$387.24
Year 1 nursing asst, Sat rate	41.5	hr	3		$124.50
Year 1 nursing asst, Sun rate	48.41	hr	3		$145.23
Miscellaneous Award 2010	20.82	hr	3		$62.46
				Subtotal	$719.43

GRAND TOTAL	$17,985.51
Time Period	20 days

4Ms Framework

MONICA

92 yo former teacher and farmer. Moves into residential care to be with sister. Helps to care for her sister and helps sister's grandchildren with homework. Develops pneumonia.

Care Provided

ADMISSION TO EMERGENCY DEPT (BASE HOSPITAL)

Residential care nurse completes 4Ms transfer form. Additional time costed here (15mins), although this process is likely to result in efficiency savings.

Triage nurse reads 4Ms transfer form (2mins).

Admission into ED: coded as AECC E0450B (lower respiratory tract infections complexity level B).

ADMISSION INTO SUBACUTE WARD

Nurse reads 4Ms transfer form and reviews What Matters with Monica (5mins).

Multidisciplinary team reviews Monica's history together, then meets with her together.

Assumed Community Med Practitioner, RN3 nurse, pharmacist, OT, physio (5 staff) would meet for 5min briefing, then see Monica for 20mins. This staff assumed to be involved in current care, but poorly coordinated. Time to coordinate and brief adds 25mins, but joint meeting with Monica saves 5mins per individual meeting (ie 25mins total) AND provides better coordinated care and a less stressful experience for Monica.

No additional costs allocated.

Hospital pharmacist consults with the RAC pharmacist to confirm current medications, confirming that hospital's choice of analgesia is not high risk for her age. (10minsx2pharmacists = 20mins).

Subacute stay (2 days) - costed as GEM (AN-SNAP).

Nursing care is clustered and visiting hours strictly enforced - Monica is able to rest. 15 mins per day costed.

Volunteers with additional training visit her 2x15mins/day for conversation, short walks, monitoring her state for changes in condition and getting her a cup of tea. Costed as replacement with experienced nursing assistant, Sat rate ($34.05+30%=$44.27/hr), Sun rate (39.73+30%=$51.65/hr) and week rate (22.70+30%=$29.51/hr).

RETURNS HOME TO RESIDENTIAL AGED CARE IN TIRED BUT HEALTHY STATE

Residential aged care: daily fee (accessed from My Aged Care website): $304.45 per day. Costed throughout, including during hospital stay (assumed paying for place even if temporarily absent).

Caring for Monica's sister - replacement care. Costed for 3 days while Monica is in hospital. Replacement with nursing assistant (year 1): 60mins/day.

Helping grandchildren with homework: costed as replacement with babysitter/nanny, 1 hr/week for 1 week.

Staff Level/Award	Rate/	Per	Time/Dose	NWAU	COST
RN2 Lev 1, Sat rate. $45.77+30% = $59.51	$59.50	hr	0.25		$14.88
RN2 Lev 4, Sat rate (48.06+30%)	$62.48	hr	0.033		$2.06
				0.1807	$961.32
				Subtotal	**$978.26**
RN2 Lev 1, Sat rate. $45.77+30% = $59.51	59.5	hr	0.083		$4.94
Health Professional & Support Services Award 2010; Level 3/1, Sat rate (53.06+30%=68.98/hr)	68.98	hr	0.333		$22.97
				0.5902	$3,139.86
RN2 Lev 1, Sat rate. $45.77+30% = $59.51	59.5	hr	0.25		$14.88
RN2 Lev 1, Sun rate. $53.39+30% = $69.41	69.41	hr	0.25		$17.35
Experienced nursing asst, Sat rate	44.27	hr	0.25		$11.07
Experienced nursing asst, Sun rate	51.65	hr	0.5		$25.83
Experienced nursing asst, week rate	29.51	hr	0.5		$14.76
				Subtotal	**$3,251.65**
	$304.45	day	20		$6,089.00
				Subtotal	**$6,089.00**
				HEALTHCARE TOTAL	**$10,318.91**
Year 1 nursing asst, week rate	27.66	hr	1		$27.66
Year 1 nursing asst, Sat rate	41.5	hr	1		$41.50
Year 1 nursing asst, Sun rate	48.41	hr	1		$48.41
Miscellaneous Award 2010	20.82	hr	1		$20.82
				Subtotal	**$138.39**

GRAND TOTAL	$10,457.30
Time Period	20 Days
Difference in cost (Current - 4Ms)	**$7,528.22**

Current Care

LUCA

87 yo Italian-Australian, retired vineyard owner. Now lives in town. Has 3 adult sons (1 local, runs the wine business, 2 in Melb). Wife died 4 years ago. Loves wine, family and clocks. Runs a small business repairing old clocks - very skilled. Has diabetes. Needs home visit nurse to administer insulin twice daily. Needs help around the house and with showering.

Care Provided

LIVING AT HOME (NO DIFFERENCE IN SCENARIOS; THIS SECTION DEMONSTRATES PREMORBID SUPPORTS)

Personal care (showering) & household help.

Costed as though delivered reliably in the mornings. Prices from major service provider.

Insulin administration.

Costed as though delivered reliably. WCuld cost less due to missed appointments.

DIABETES BECOMES UNSTABLE; SIGNS OF DEPRESSION

GP routine checkup.

ADMITTED TO HOSPITAL: EMERGENCY DEPT.

ED admission: NWAU calculator with AECC code E1010A: diabetes complexity level A.

ADMITTED TO ACUTE WARD

Acute admission, 3 days: NWAU calculator with DRG K60B (diabetes with complications)

RETURNS HOME WITH SAME REFERRALS FOR IN HOME SUPPORT (2 WEEKS)

Personal care (showering) & household help.

Costed as though delivered reliably in the mornings.

Insulin administration.

Costed as though delivered reliably. Would cost less due to missed appointments .

HEALTH DETERIORATES. ADMISSION TO ACUTE WARD VIA ED

ED admission: NWAU calculator with AECC code E1010A: diabetes complexity level A.

Acute admission, 3 days: NWAU calculator with DRG K60B (diabetes with complications).

Medication: 100mg/day sertraline; 30/pack. Used DPMQ, costed 1/2 pack.

RETURNS HOME WITH SAME REFERRALS (2 WEEKS)

Personal care (showering) & household help.

Costed as though delivered reliably every morning.

Insulin administration.

Costed as though delivered reliably. Would cost less due to missed appointments.

LUCA TAKES HIS OWN LIFE 5 WEEKS AFTER HIS ROUTINE GP VISIT

OTHER COSTS

Family traumatised by Luca's sudden decline and suicide. Costs from KPMG report (2013)

Repairing clocks / income through small business.

Not costed - assumed minimal income generated through this very small business, which may not be sustained for long in the alternative scenario either.

Helping on vines also not costed: conservatively assumed Luca did this primarily for pleasure and his contribution would not have been replaced.

Staff Level/Award	Rate/	Per	Time/Dose	NWAU/Freq	Subtotal	COST
Weekdays	$55	hour	0.5	daily*5	$137.50	$216.00
Saturday	$70	hour	0.5	daily	$35.00	
Sunday	$87	hour	0.5	daily	$43.50	
				WEEKLY	$216.00	
Weekday day	$99	hour	0.5	once daily*5	$247.50	$798.50
Weekday evening	$108	hour	0.5	once daily*5	$270.00	
Saturday	131	hour	0.5	twice daily	$131.00	
Sunday	150	hour	0.5	twice daily	$150.00	
				WEEKLY	$798.50	
				0.0477		$253.76
				0.2616		$1,391.71
				0.7707		$4,099.93
Weekdays	$55	hour	0.5	daily	$27.50	$212.00
Saturday	$70	hour	0.5	daily	$35.00	
Sunday	$87	hour	0.5	daily	$43.50	
				WEEKLY	$106.00	
Weekday day	$99	hour	0.5	once daily*5	$247.50	$1,057.00
Weekday evening	$108	hour	0.5	once daily*5	*5	
Saturday	131	hour	0.5	twice daily	$131.00	
Sunday	150	hour	0.5	twice daily	$150.00	
				WEEKLY	$528.50	
				2 weeks	$1,057.00	
				0.2616		$1,391.71
				0.7707		$4,099.93
	$13.17	pack (30)	0.5			$6.59
Weekdays	$55	hour	0.5	daily*5	$137.50	$712.00
Saturday	$70	hour	0.5	daily*5	$175.00	
Sunday	$87	hour	0.5	daily	$43.50	
				WEEKLY	$356.00	
Weekday day	$99	hour	0.5	once daily*5	$247.50	$1,597.00
Weekday evening	$108	hour	0.5	once daily*5	$270.00	
Saturday	131	hour	0.5	twice daily	$131.00	
Sunday	150	hour	0.5	twice daily	$150.00	
				WEEKLY	$798.50	
				TOTAL HEALTHCARE COSTS		**$15,829.55**
Coronial costs	2531				$2,531.00	$8,554.84
Ambulance	718				$718.00	
Police	2532				$2,532.00	
Grievance/counselling	1910				$1,910.00	
					Subtotal	**$7,691.00**
		With inflation (average 1.8%pa - RBA calculator)			$8,554.84	
				TOTAL COSTS		**$24,384.39**
				Time Period		6 weeks

4Ms Framework

LUCA

87 yo Italian-Australian, retired vineyard owner. Now lives in town. Has 3 adult sons (1 local, runs the wine business, 2 in Melb). Wife died 4 years ago. Loves wine, family and clocks. Runs a small business repairing old clocks - very skilled. Has diabetes. Needs home visit nurse to administer insulin twice daily. Needs help around the house and with showering.

Care Provided

LIVING AT HOME (NO DIFFERENCE IN SCENARIOS; THIS SECTION DEMONSTRATES PREMORBID SUPPORTS)

Personal care (showering) & household help.

Costed as though delivered reliably in the mornings.

Insulin administration.

Costed as though delivered reliably. Could cost less due to missed appointments.

DIABETES BECOMES UNSTABLE; SIGNS OF DEPRESSION

GP routine checkup.

4 Ms assessment completed by practice nurse, with follow-up referrals to diabetes educator, gym, vision & hearing specialists, local Italian social group and meeting with neighbour.

OR 75+ assessment by GP - Medicare item 707 - think this has to be done by GP? Using this as most conservative.

Insulin education: 6x30min sessions with diabetes educator.

Optometrist appointment.

Audiologist appointment.

Psychologist appointment.

Gym fees: local gym pay as you go fee: $130 per 10 sessions.

Physiotherapist sessions x4.

Nurse in charge of nursing home meets Luca at the gym.

Personal care (showering) & household help.

Costed for 6 weeks.

Daily insulin administration.

Costed for 4 weeks until Luca self-administers at home.

5 WEEKS AFTER HIS ROUTINE GP VISIT, LUCA IS HELPING OUT ON THE VINES, REPAIRING CLOCKS AND CONNECTING WITH A LOCAL ITALIAN SOCIAL GROUP.

Staff Level/Award	Rate/	Per	Time/Dose	NWAU/Freq	Subtotal	COST
Weekdays	$55	hour	0.5	daily*5	$137.50	$216.00
Saturday	$70	hour	0.5	daily	$35.00	
Sunday	$87	hour	0.5	daily	$43.50	
				WEEKLY	$216.00	
Weekday day	$99	hour	0.5	once daily*5	$247.50	$798.50
Weekday evening	$108	hour	0.5	once daily*5	$270.00	
Saturday	131	hour	0.5	twice daily	$131.00	
Sunday	150	hour	0.5	twice daily	$150.00	
				WEEKLY	$798.50	
				0.0477		$253.76
RN2 level 4+. $32.05/hr +30% = $41.67/hr	$41.67	hour	1		$41.67	
					$273.10	$273.10
Clinical nurse consultant RN3 level 2. $33.69/hr+30%=$43.80.hr	$43.80	hour	3			$131.40
				0.0405		$215.46
				0.0467		$248.44
				0.0544		$289.41
	$13	visit	6			$78.00
			4	0.0260		$553.28
NUM: RN4 grade 3 (top): $42.82/hr+30%=$55.67/hr	$55.67	hour	0.5			$27.84
Weekdays	$55	hour	0.5	daily *5	$137.50	$1,296.00
Saturday	$70	hour	0.5	daily	$35.00	
Sunday	$87	hour	0.5	daily	$43.50	
				Weekly	$216.00	
				6 weeks	$1,296.00	
Weekday day	$99	hour	0.5	once daily*5	$247.50	$3,194.00
Weekday evening	$108	hour	0.5	once daily*5	$270.00	
Saturday	131	hour	0.5	twice daily	$131.00	
Sunday	150	hour	0.5	twice daily	$150.00	
				WEEKLY	$798.50	
				4 weeks	$3,194.00	

TOTAL HEALTHCARE COSTS	**$7,575.19**
The difference in healthcare costs (current - proposed)	$8,254.35

OTHER COSTS	
No other costs included	
The difference in healthcare costs (current - proposed)	**$8,554.84**

TOTAL COSTS	**$7,575.19**
Time Period	6 weeks
Difference in cost (Current - 4Ms)	**$16,809.19**

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