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Sinqobizitha Mndebele

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**Nurse Escorts' Perceptions of Their Ability to Manage Patient  
Clinical Deterioration During Nurse-Led Inter-Hospital  
Ambulance Transfer in the Wheatbelt Region of Western  
Australia: A Mixed Methods Study**

Sinqobizitha Mndebele

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The University of Notre Dame Australia

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September 2021

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## Abstract

The Western Australia (WA) Country Health Service (WACHS) requires a ward or emergency department registered nurse (RN) to assume the responsibility of conducting inter-hospital nurse-led patient ambulance transfers. In WACHS, these nurses are usually generalist nurses with no specialised training. WACHS has various escalation policies, guidelines and support systems for nurses when they are located within the hospital and wards. However, despite these escalation protocols being clear in this setting, their relevance and practicality during patient transport is uncertain. This research explores how well equipped WACHS RNs in the Wheatbelt region of WA are in managing clinical deterioration of patients during inter-hospital nurse-led ambulance transfers.

The WACHS Wheatbelt has identified ‘failure to recognise the need to escalate clinical care’ as a clinical risk in the in-hospital setting. The risk outlines knowledge and skills deficits, lack of access to specialist advice, failure to recognise observations that fall into the parameters that require intervention, and failure by nurses to follow clinical deterioration policy as causes that result in treatment delay, increased morbidity and mortality, delay in transfer, and increased length of stay. It should be appreciated that during road transfer there are additional factors that will increase the risk of failure to adequately detect and manage acute clinical deterioration.

This study aims to

- explore nurses’ perceptions about caring for a patient during road ambulance transfer, acknowledgement of clinical deterioration, and its occurrence on patients being transferred, and how well equipped the nurse escort is in detecting and managing acute deterioration; and

- seek to support future policy formulation and decision-making with regard to nurses training, induction and ongoing education on inter-hospital transfer.

This study employed a mixed methods descriptive design using quantitative and qualitative data obtained in two phases. In Phase One using an online survey, the study explored the self-reported skills level of the RNs, the support available during transport, their perceptions of their role and abilities during transport, and their confidence and knowledge to enact policies that govern their practice away from the hospital setting. In Phase Two, the nursing leaders and policy makers were interviewed on an individual face-to-face basis, where they were requested to clarify, elaborate or comment on the quantitative and qualitative data from Phase One

Phase One respondents acknowledged that nursing a patient in an ambulance had associated risks that require advanced clinical skills and confidence that would not normally be as critical when working within a hospital and with a team. Ambulance transfer logistics and inherent challenges require a trained patient escort. Respondents highlighted different practices, use of different guiding tools, and processes that were not uniformly applied within the region. This variation was evidenced in the different documentation kept by nurses during transfer, different interpretation of available policies, escalation processes for deterioration, and general attitude towards conducting these transfers. Inter-hospital patient transfers were viewed as complicated with associated risks, most of which were expected and cannot be completely eliminated. However, there was an acknowledgement that some of the factors that negatively affect these transfers could be eliminated by clearer guidelines and support for the transferring nurse.

During Phase Two, a significant finding highlighted how the patient was in most instances safe, but the likely lack of support for the nurses due to ambiguity with

inadequate backup was reaffirmed. Phase Two also confirmed that if strategies were to be put in place to guide, support and prioritise not only patient safety but also nurses' welfare, then the model of using RNs to conduct inter-hospital nurse-led patient transfers would need to be sustainable and can be improved. This was important to note as it is unlikely that the RN will remain the most likely staff member to continue to meet the ever-growing demand to transfer patients intra-regionally and to metropolitan areas by road ambulance.

There was a general appreciation that inter-hospital transfers are complex and that the WA rural health setting is unique and challenging. The generalist RN was viewed as having vital transferrable skills to adequately care for patients being transferred. These RNs were reported to be skilful and resilient in a setting where there is limited support for their personal wellbeing or professional development. The policies relating to inter-hospital patient transfers were assessed as unfamiliar, irrelevant or impractical, leading to disparities between what the policy stipulates and the realities of practice. This study will be critical in supporting health service discussions about policy formation and decision-making with regard to nurses' training, induction, ongoing education and support in the ever-growing nurses' responsibility of transferring patients between hospitals.



## **Declaration of Authorship**

To the best of the candidate's knowledge, this thesis contains no material previously published by another person, except where due acknowledgement has been made.

This thesis is the candidate's own work and contains no material that has been accepted for the award of any other degree or diploma in any institution.

Sinqobizitha Mndebele

September 2021

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## **List of Abbreviations**

AAGBI	Association of Anaesthetists of Great Britain and Ireland
ABS	Australian Bureau of Statistics
ACSQHC	Australian Commission on Safety and Quality in Health Care
ALS	advanced life support
APLS	advanced paediatric life support
ARIA	Accessibility/Remoteness Index of Australia
DCT	data collection tool
ED	emergency department
ERP	estimated resident population
ETS	Emergency Telehealth Services
FTE	full-time equivalent
HREC	Human Research Ethics Committee
MET	Medical Emergency Team
MICU	mobile intensive care unit
MOU	memorandum of understanding
NHMRC	National Health and Medical Research Council
NMBA	Nursing and Midwifery Board of Australia
NSQHS	National Safety and Quality Health Service
NSW	New South Wales
RFDS	Royal Flying Doctor Service
RN	registered nurse
SJA	St John Ambulance
TNCC	trauma nursing core course
WA	Western Australia
WACHS	Western Australia Country Health Service



## Definitions of Terms

**Hub site:** Integrated district hospitals with diagnostic, ED, acute inpatient and minor procedure services; low-risk obstetrics (by GP/obstetrician and midwives); aged care services; and coordination for acute, primary and mental health services at district level.

**Nurse escort:** Registered nurse who assumes the responsibility of caring for the patient who is being transferred between two facilities.

**Full-time equivalent:** Unit of measure based on the total number of hours worked, which shows how many full-time equivalent employees a certain establishment employs within a fiscal year or needs to employ to be able to render comparative services to its clients.

**Scope of practice** is that in which nurses are educated, competent to perform and permitted by law. The actual scope of practice is influenced by the context in which the nurse practises, the health needs of people, the level of competence and confidence of the nurse, and the policy requirements of the service provider.

**Emergency Telehealth Service:** Telehealth service provided by emergency medicine specialists using high-definition videoconferencing equipment installed in participating small country hospitals and nursing posts with the aim of supporting doctors and nurses in these rural and remote sites by linking them to experienced, specialist emergency doctors to assist with the diagnosis, treatment and transfer of critically ill and injured emergency patients.

## Prologue

Working in small rural hospitals in Western Australia (WA) for the past 10 years has made me appreciate the resilience and dedication of nurses working in these areas. I have more experience working in larger tertiary hospitals, but there is something remarkable about a nurse that works in most cases in the middle of nowhere with very little support. These nurses are very versatile, multiskilled and, in most cases, very experienced and confident in their skills. I have been around rural nursing long enough to see nurses come and go because they felt vulnerable and unsupported compared with working in big metropolitan hospitals with doctors and other senior nurses around for clinical support. I am filled with immense pride to identify as a nurse that works in rural regional areas. This project was inspired by my lived experiences as a nurse who had come from a large tertiary hospital with extra clinical skills but still found the move to rural nursing challenging. Although these small hospitals look like very humble structures, they are often a pillar of the community's health portal, and rural nursing seems to attract some of the most dedicated and resilient nurses, who stay sometimes for many years to make a difference in these communities.

The responsibility of caring for patients who are being transferred is not a role that I was formally oriented to when I first came to work in a small hospital, yet it forms part of one of the most frequently carried out duties of a registered nurse in regional WA. WA Country Health Service (WACHS) is using telehealth services to support onsite nurses, especially when there is no doctor on site. However, these small sites may still need to transfer patients, even with growing support from the Emergency Telehealth Service (ETS) and specialist care, because there may still exist a lack of hands-on clinical skills, seniority or equipment to make accurate diagnostic decisions.

These extra support structures are very helpful for staff at the small site, but currently WACHS has not expanded these to include support for nurses en route.

Patient transfers are an integral part of ensuring that patient care is escalated to the right facility that is better equipped in terms of clinical skills, equipment and other related relevant resources. Safe transfer involves ensuring that the transfer is done in time and completed by a competent team where communication and documentation are of a high standard. For this to be possible, the transferring hospital must ensure that these are sourced, confirmed and available with each transfer. It is not necessary for the transferring hospital to directly provide these, but it is their responsibility to ensure that the patient does not deteriorate between point A and point B. The challenges of working in a rural regional area, mainly in a small hospital with limited resources, are a real threat to safe transfer of patients. When there is inadequate staffing levels of clinicians that can manage patients during transfer, the decision to transfer is sometimes based on whether remaining at the small hospital is more likely to cause adverse events compared with transferring the patient unaccompanied or with volunteer ambulance officers. In my experience, this rarely happens as very often the small hospital will take the last available nurse to transfer the patient even if it means leaving the hospital understaffed. This is not surprising as the system of triaging is applied to make sure that the patients who are at risk of deterioration are prioritised to prevent unfavourable patient outcomes.

As a senior registered nurse and director of nursing at a small site with postgraduate qualifications in clinical nursing and nursing management, I still become anxious just before and during a transfer of an unwell patient. The feeling of being alone is very real on a long country road. I hope that this work will empower all nurses that find themselves in the position of having to carry out the nursing duty of inter-hospital patient transfers to take time to prepare for the transfer and talk to the doctor looking

after the patient, their manager and other nurses before leaving site. I also hope that the findings of this research will encourage the nursing leaders to appreciate how resilient these nurses are, and that they are the cornerstone of positive outcomes for patients needing transfer and therefore need to be supported.

# Chapter 1: Introduction

Chapter 1 describes the research topic, research scope, significance and research questions. The research centres on inter-hospital nurse-led patient ambulance transfers conducted by registered nurses employed by Western Australia Country Health Service (WACHS) in the Wheatbelt region. Inter-hospital patient transfer via ambulance includes patients transferred both within the Wheatbelt region (intra-regional hospital transfer) and outside of the region to a metropolitan health service (inter-regional hospital transfer). This chapter provides an overview of WACHS, WACHS policies and procedures, stakeholder organisations, patient risk and best practice related to the topic. The potential significance of the research and the research questions are provided. The chapter concludes with an outline of the thesis.

## 1.1 Background

WACHS requires a hospital ward or emergency department (ED) rostered registered nurse (RN) to assume the responsibility of caring for the patient during nurse-led patient ambulance inter-hospital transfers, hereafter referred to as *nurse escort* (WACHS, 2016). The term ‘hospital transfer’ may also be described as inter-or intra-hospital transfer. An inter-hospital transfer involves the transportation of a patient between or involving two or more hospitals (Merriam-Webster, n.d.). An intra-hospital transfer refers to transport between different areas of the same hospital, such as from the ED to the intensive care unit of the same hospital (Merriam-Webster, n.d.). This study is focused on inter-hospital patient transfers (this being inclusive of inter- and intra-regional transfers).

This research explores how well equipped and supported WACHS RNs in the Wheatbelt region of Western Australia (WA) are in managing patient care, in particular clinical deterioration of patients during nurse escort hospital transfers. Clinical

deterioration, also known as the deteriorating patient, as defined by D. Jones et al. (2013) is “when a patient moves from one clinical state to a worse clinical state that increases their individual risk of morbidity, including organ dysfunction, protracted hospital stay, disability or death” (p. 1031). In WACHS, nurses are predominantly generalist nurses with no specialised training. WACHS has various escalation policies, guidelines and support systems to support these nurses when they are located within the hospital and wards. However, despite these escalation protocols being available in this setting, their relevance and practicality during hospital transfer is unclear.

Clinical deterioration, whether expected or unexpected, does occur (Hillman et al., 2005).

On the WACHS Wheatbelt risk register, clinical deterioration is an identified risk and is defined as ‘failure to recognise the need to escalate clinical care’ (WACHS, 2020).

Under this risk, WACHS identifies the following contributing factors: knowledge and skills deficit; lack of access to specialist advice; failure to recognise observations that fall into the parameters that require intervention; failure by nurses to follow clinical deterioration policy, which can cause treatment delay, increased morbidity and increased mortality; delay in transfer; and increased length of stay. During ambulance transfer, there are additional factors that can increase the risk of failure to adequately detect and manage clinical deterioration.

The ambulance is not considered a familiar work environment for the nurse. According to Kulshrestha and Singh (2016), mechanical effects of road transport may have a direct physiological impact on both the nurse and the patient. Physiological impacts involve those caused by noise, vibration, sudden acceleration forces, temperature and humidity, which may induce various physiological alterations such as those seen in motion sickness (Bertolini & Straumann, 2016). Other impacts include transient hypertension

due to venous pooling, nausea and headaches (Iskander et al., 2019), and vibrations due to driving on uneven roads with excessive motion from the vehicle's suspension (Kulshrestha & Singh, 2016). Depending on the severity of the symptoms, these can be incapacitating for the escorting nurse (Koch et al., 2018) and influence the ability to monitor the patient. Clinical deterioration is usually preceded by warning signs, which may be detected by monitoring vital signs (Duncan et al., 2012). Vital signs are difficult to monitor at the same frequency as they are monitored inside the hospital, with some vitals not being able to be monitored in motion (Ohashi et al., 2008).

To understand the role and support provided to escort nurses, this study will explore the self-reported skill level of these nurses, the support available during transport, the nurses' perceptions of their role and abilities during transport, and their confidence and knowledge to enact policies that govern their practice away from the hospital setting. This study comprises a mixed methods approach using surveys and interviews as data collection methods. The significance of this study relates to improved understanding of the knowledge, skills and nurses' perceptions of their role in hospital nurse-led patient ambulance transfers. The study will be critical in supporting health service discussion about policy formation and decision-making with regard to nurses' training, induction and ongoing education, in particular, nurse-led patient ambulance hospital transfers, to facilitate improved practice and patient outcomes.

The following sections describe the various stakeholders that are involved in hospital transfers from the WACHS Wheatbelt region in WA.

### **1.1.1 WA Health**

WA Health is the Government of WA, Department of Health, public healthcare system. The state of WA spans over 2.5 million square kilometres and is the largest area in the world covered by a single health authority (Government of WA Department of

Health, 2020). WA Health employs 44,000 dedicated staff in metropolitan, regional and remote areas of the state to attend to the health needs of its growing population. In the 2016–17 financial year, there were more than 1,000,000 attendances to EDs, 86,000 elective surgeries performed, and 25,000 babies delivered (Government of WA Department of Health, 2020). WA Health reports investment in hospitals, health services and public health programs to deliver its mission of quality healthcare to all Western Australians. WA Health is led by the Director General, who is responsible to the Deputy Premier, Minister for Health and Mental Health,

WA Health consists of the Department of Health, Child and Adolescent Health Service, North Metropolitan Health Service, South Metropolitan Health Service, East Metropolitan Health Service, WACHS, Health Support Services, PathWest and Quadriplegic Centre. The Department of Health, led by the Director General, provides leadership and management of the health system as a whole, ensuring the delivery of high-quality, safe and timely health services. Health service providers are governed by Health Support Boards. Each health service provider is responsible and accountable for the delivery of safe, high-quality, efficient and economical health services to their local areas and communities (Government of WA Department of Health, 2020).

WA Health is governed by the *Health Services Act 2016* (Government of Western Australia Department of Justice, 2016). The current 2016 legislation represents a significant reform in health, and was designed to modernise the way WA health services are structured, governed and delivered, to promote better health, better care and better value to all Western Australians. The legislation established the Department of Health as a ‘System Manager’ for WA Health, providing stewardship, guidance and support to all of its health services by using a collection of binding Policy Frameworks in 20 key areas, outlined in Table 1 (Government of WA Department of Health, 2019).



**Table 1***WA Policy Framework: 20 Key Areas of Service Delivery (Government of WA**Department of Health, 2019)*

Clinical governance, safety & quality	Clinical services planning & programs	Clinical teaching and training	Employment	Financial management
Infrastructure (asset management)	Integrity	Legal	Mental health	Outcome based management
Procurement	Public health	Purchasing & resource allocation	Risk, compliance & audit	Information management
Research	Communications	Information and communications technology	Performance	Statutory board operations

**1.1.2 WACHS**

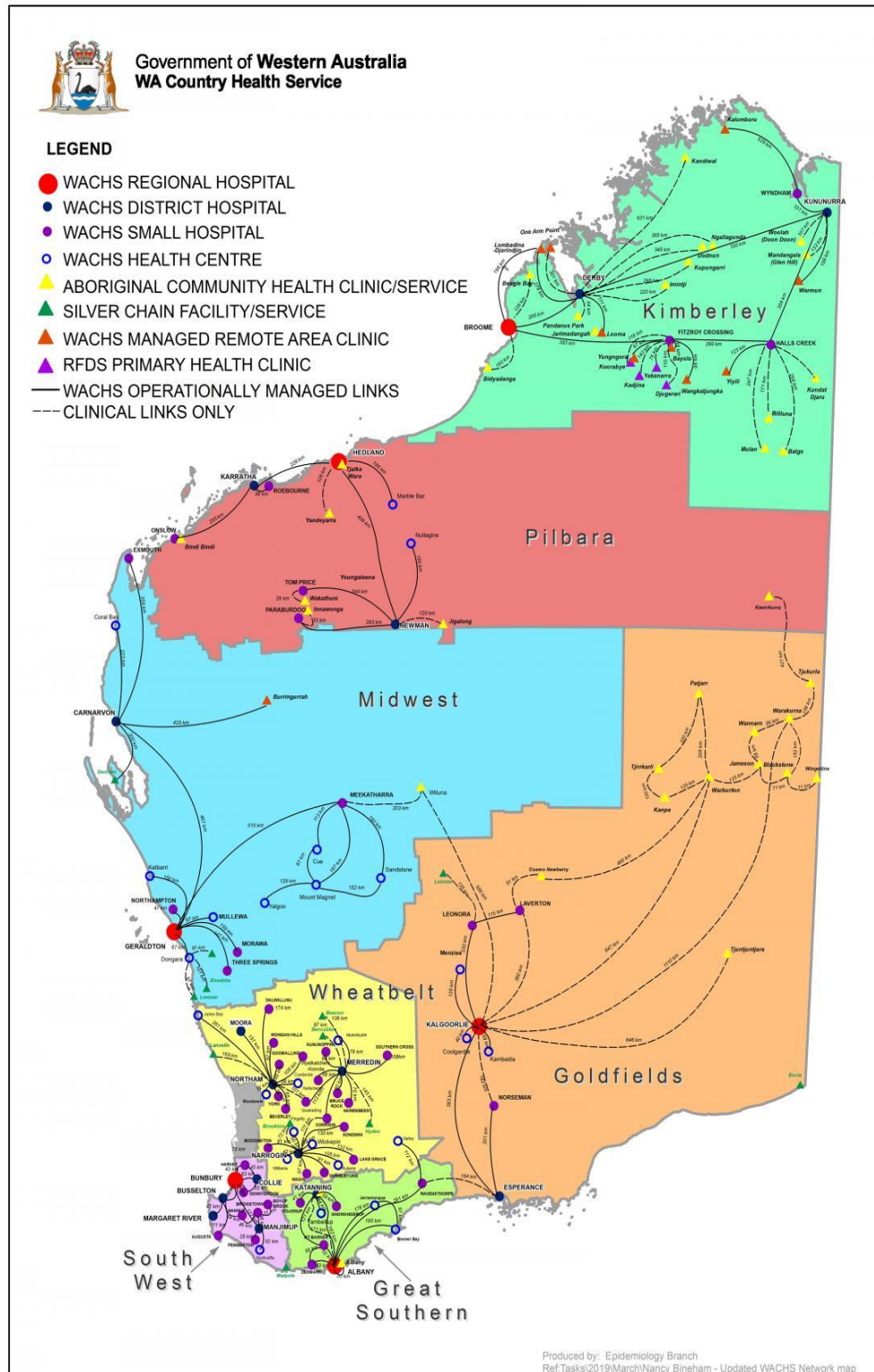
WACHS is the largest country health service in Australia, covering 2.5 million square kilometres. The WACHS mission states its commitment to providing a quality healthcare workforce and accessible health services to the regional population (Government of WA Department of Health, 2020). Across its seven regions are 70 hospitals, which manage almost as many emergency presentations as hospitals in the metropolitan area combined and almost as many births as the state's major maternity hospital (Government of WA Department of Health, 2020). According to the latest available Australian Bureau of Statistics (ABS) Estimated Resident Population (ERP) data (2017), the population of the WACHS catchment area is 531,510 people. Almost 11% of these people (57,716) identify as Aboriginal (ABS, 2017).

Across the state, there are six regional health campuses, located at country regional centres within each region, except in the Wheatbelt, the focus of this study. These regional centres provide complex care and are the hubs for all region-wide

services. Additionally, there are 15 district health campuses, which are the hubs for subregional health district services. These health campuses support a network of 46 small hospitals, 43 health centres and nursing posts, 24 community-based mental health services, 4 dedicated inpatient mental health services, 178 population health teams, 600+ residential aged care beds, and 1 nursing home (WACHS, 2020). The focus of this research, the Wheatbelt, is not serviced by a regional health campus; instead, it hosts four district services. This complex network of health service centres is articulated in Figure 1.

**Figure 1**

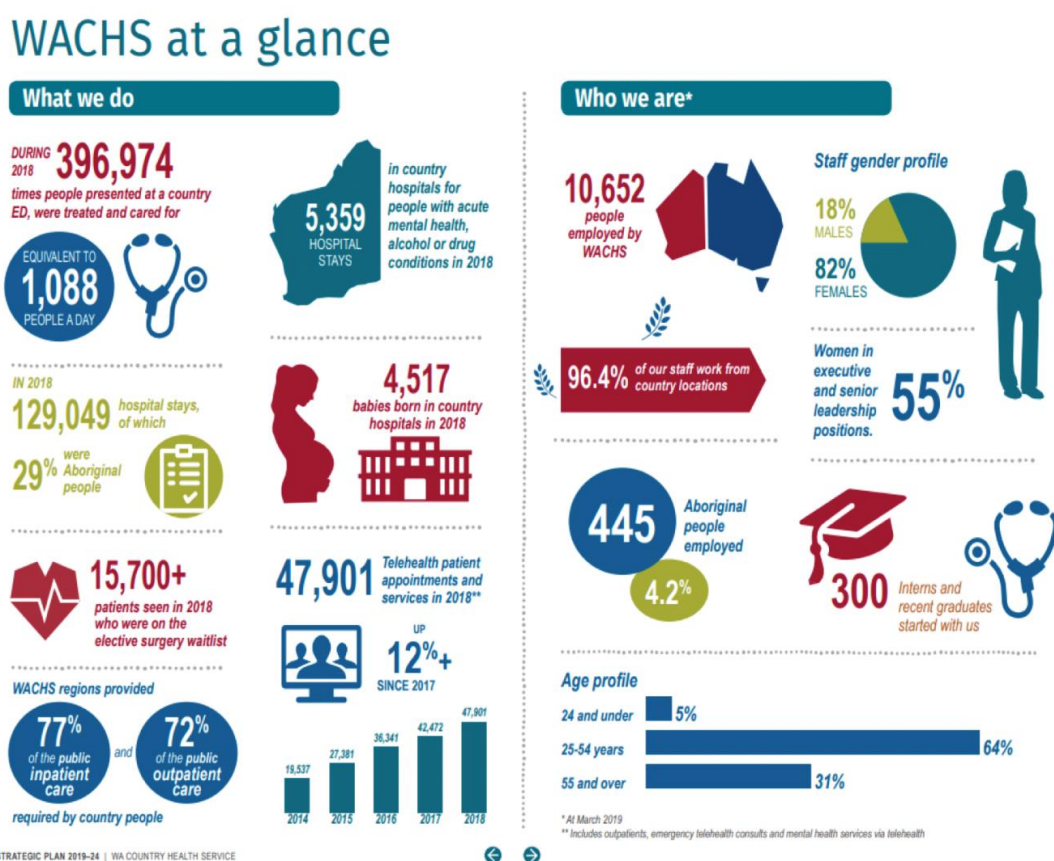
*WACHS Network Map: Epidemiology Branch (WACHS, 2019b)*



WACHS consists of seven administrative regions supported by the central office in Perth. These are the Kimberley, Pilbara, Midwest, Wheatbelt, Goldfields, South West and Great Southern regions. Figure 2 summarises the WACHS workforce and service delivery.

**Figure 2**

*WACHS Workforce and Service Delivery Summary (WACHS, 2020c)*



The WACHS Strategic Plan 2019–24 (WACHS, 2019b) sets the direction of WACHS for the next 5 years; the plan pays particular attention to laying the foundations to continue advancing country healthcare over the next 15 years. This is captured in Figure 3.

**Figure 3**

*WA Country Health Service Strategic Plan 2019–24 (WACHS, 2019b)*



In country WA, there is vast spread of the population and corresponding small population numbers (ABS, 2017). People living in rural and remote areas experience poorer general health than those in metropolitan areas, and Aboriginal health and life expectancy, in particular, is significantly less than that of non-Aboriginal people (ABS, 2017). Lack of service viability often leads to reduced health service choice and ease of access (Carey et al., 2019), and, in practice, there are fewer primary care services, pharmacies and health promotion services per capita (WACHS, 2019a). Further, limitations to service capability and capacity lead to some consumers not being able to stay in their home towns, especially as their care needs increase or become more specialised. Therefore, WACHS and its consumers are constantly challenged to find

innovative ways to navigate across the healthcare system for hospital transportation of patients to facilitate acute, inpatient and outpatient services from metropolitan health services or the non-government sector (WACHS, 2019a). The other challenge that WACHS faces is attracting permanent clinical staff to rural and remote locations (WACHS, 2019a) as recruiting and retaining staff becomes a challenge where there are limited local attractions for personal and professional development (Struber, 2004).

WACHS (2020) reports that government funding and industry investment over recent years through major and minor capital works has achieved an improvement in the delivery of healthcare. This includes expansion of hospital and health campuses, greater emergency service capacity, and modern facilities and equipment (WACHS, 2020b). In addition, telehealth services have enabled WACHS to deliver healthcare closer to home for more rural and remote Western Australians (WACHS, 2020b).

The current WACHS model for patient flow between rural and metropolitan health services began in October 2016 (WACHS, 2020f). This model caters for rural patients requiring unplanned emergency or urgent transfers to a tertiary metropolitan hospital, where each WACHS region is paired to a Perth Metropolitan Area Health Service, known as their 'linked hospital' (WACHS, 2020f). The Wheatbelt is in the East Link, which transfers to Royal Perth Hospital, and patients requiring specialist care, for example, paediatrics, obstetrics, mental health, stroke and burns, go to the appropriate specialist tertiary hospital in Perth (WACHS, 2020f). Importantly, any patient requiring unplanned transfer and with a known and treated condition by a specialist in Perth, regardless of the linked hospital, should be referred to the same specialist. If no bed is available in that facility, the patient is referred to that region's linked hospital. The previous process of transferring patients, prior to 2016, was not coordinated, and there

was no process in place, leaving clinicians spending time away from critical care trying to coordinate patient transfers (WACHS, 2020f).

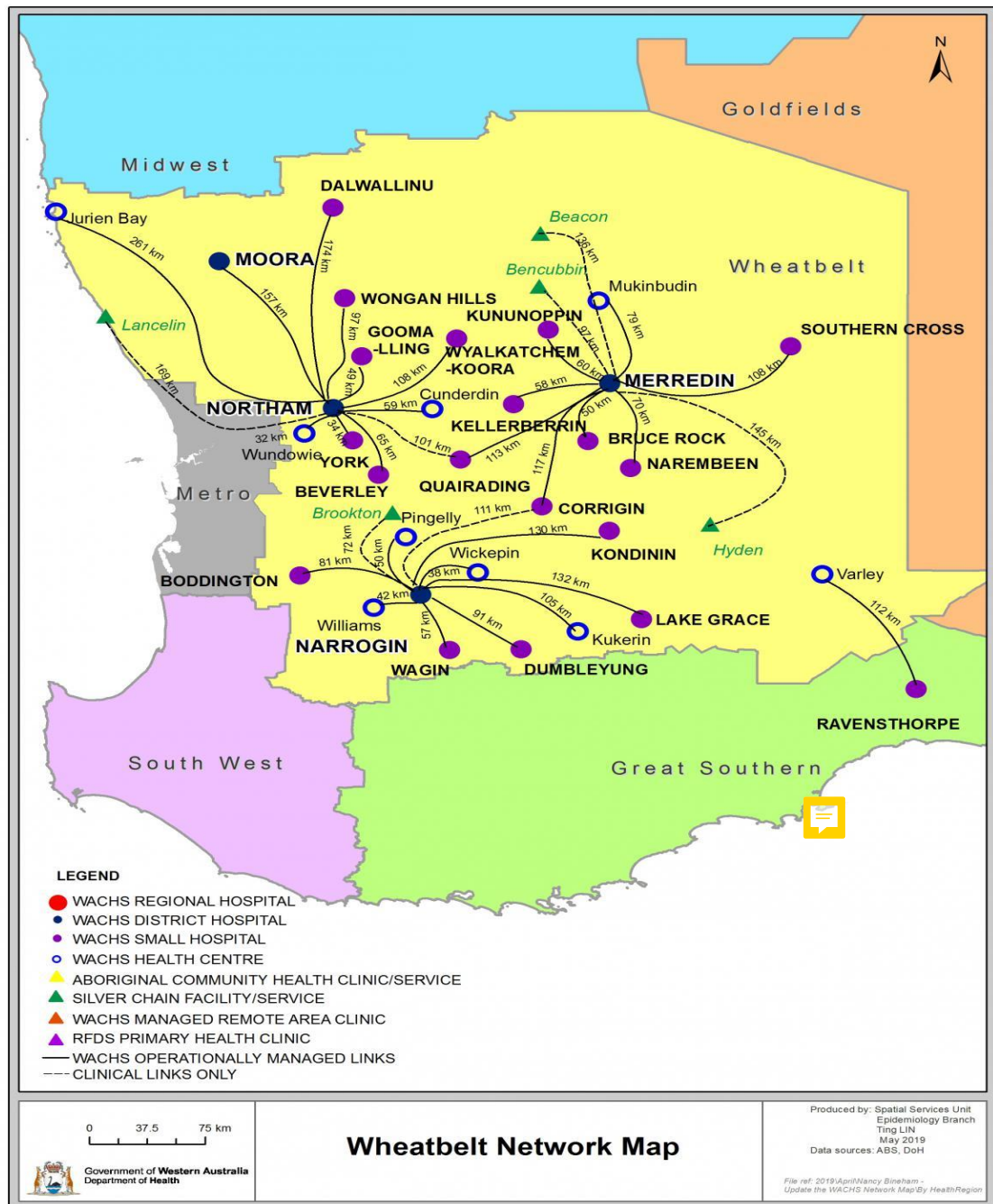
### **1.1.3 Wheatbelt**

The Wheatbelt region of WACHS covers the Wheatbelt region of WA. The WACHS Wheatbelt region extends from the coast north of Perth to the western boundary of the Goldfields and south from the Darling Scarp to the northern boundary of the Great Southern region (WACHS, 2020b). Figure 4 illustrates how the region is distributed. The region has 42 local government areas and covers an area of approximately 155,000 square kilometres (Department of Primary Industries and Regional Development, 2017).



**Figure 4**

*Distribution of the Localities within the Wheatbelt Region (Department of Primary Industries and Regional Development, 2017).*



The Wheatbelt’s economy has historically been based on agriculture, particularly cropping, which remains the most dominant industry in the region, but it is

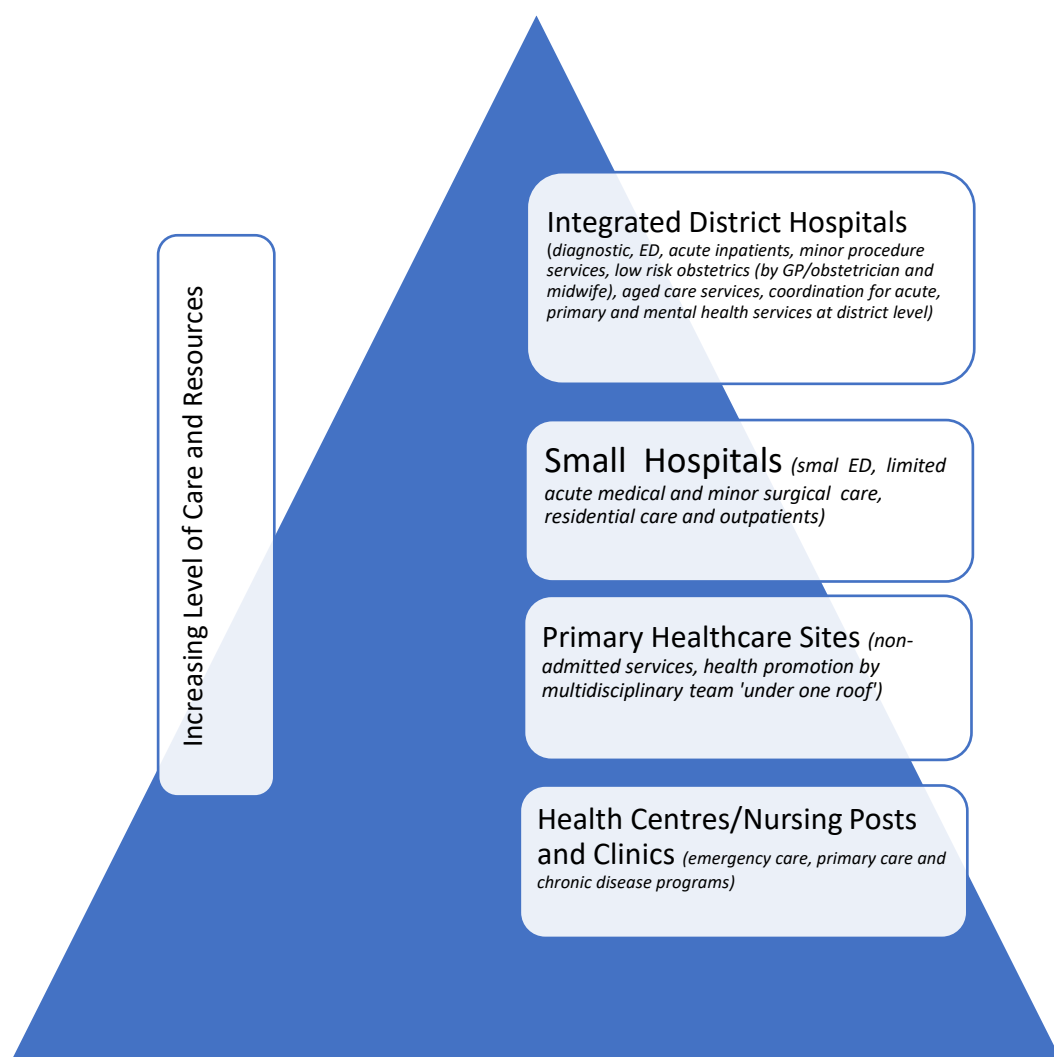


also supported by mining, commerce, manufacturing, fishing and tourism (Department of Primary Industries and Regional Development, 2017). The WACHS Wheatbelt has historically been split into three health districts, Eastern, Western and Southern; however, as the population growth is on the coastal strip, there has been a recent focus on planning for service in the coastal belt (Department of Primary Industries and Regional Development, 2017)

Current health services in WACHS include emergency care and retrieval, acute and subacute inpatient care, aged care, mental health, and population and community health (WACHS, 2020b). There are 4 integrated district hospitals (Narrogin, Northam, Merredin and Moora), 18 small hospitals, 2 primary healthcare sites, and 15 health centres/nursing posts and clinics. Four of the 15 health centres are managed by contract to the Silver Chain Nursing Association. Silver Chain is a not-for-profit organisation delivering community health and aged care services across Australia (Collins, 2021). Figure 5 shows how these health service points offer services to the region according to the level of services available at that health centre.

**Figure 5**

*Hierarchy of Clinical Services in WACHS Wheatbelt*



The Wheatbelt region had an ERP of 76,394 in 2016 based on the 2017 WA *Tomorrow* report (Department of Planning, Land and Heritage, 2017). The Wheatbelt has 4,579 Aboriginal people, who have a much younger age structure than the non-Aboriginal population, with over half the population aged under 20 (48% compared with 23% for non-Aboriginal people; WACHS Planning and Evaluation Unit, 2018). According to the Accessibility/Remoteness Index of Australia (ARIA), 57% of the Wheatbelt region is remote, 8% is very remote, 31% is outer regional and 4% is inner

regional (Government of WA Department of Health, 2011). Just over half of the deaths (53%) of Wheatbelt residents under the age of 75 years are potentially avoidable. These deaths occur as a result of conditions that could be prevented by implementing individualised care or treating reversible causes. According to the Australian Institute of Health and Welfare (2018), the avoidable mortality rate is significantly higher at 1.3 times the WA rate.

The Wheatbelt resident population is projected to grow by around 0.4% per annum between 2016 and 2026, despite the average growth rate over the last 5 years declining by 2%, with most growth in the Coastal Wheatbelt and a slight decline in the Eastern Wheatbelt. In addition, the Wheatbelt already has a high proportion of older people compared with the statewide average, and it is projected that there will be 48% (4,503) more people over 70 years old in 2026 than there were in 2016 (ABS, 2020).

In 2016–17, there were 43,397 ED attendances in Wheatbelt hospitals, of which 14% were visitors and travellers to the region (WACHS Planning and Evaluation Unit, 2018). Because of workforce shortages, there are documented insufficient general practitioners (GPs; WACHS Planning and Evaluation Unit, 2018), with many aged care residents using hospital services for primary care, adding an additional burden to health services. Two-thirds of ED attendances (65%) were classified as semi- or non-urgent (Triage 4 or 5; WACHS Planning and Evaluation Unit, 2018), suggesting issues that could be dealt with by GPs and primary healthcare services were being seen in the ED. In most small towns, the local GP is responsible for patients who present to the ED, admitted patients of all care types, and outpatients. The GP usually operates from their medical centre, which is walking distance, and is called in by the nurse on duty to review and manage patients as required. The integrated district hospitals, also referred

to as hub hospitals, have a GP on duty on site for the duration of the shift (Horsley, K, personal communication, 17 September 2020).

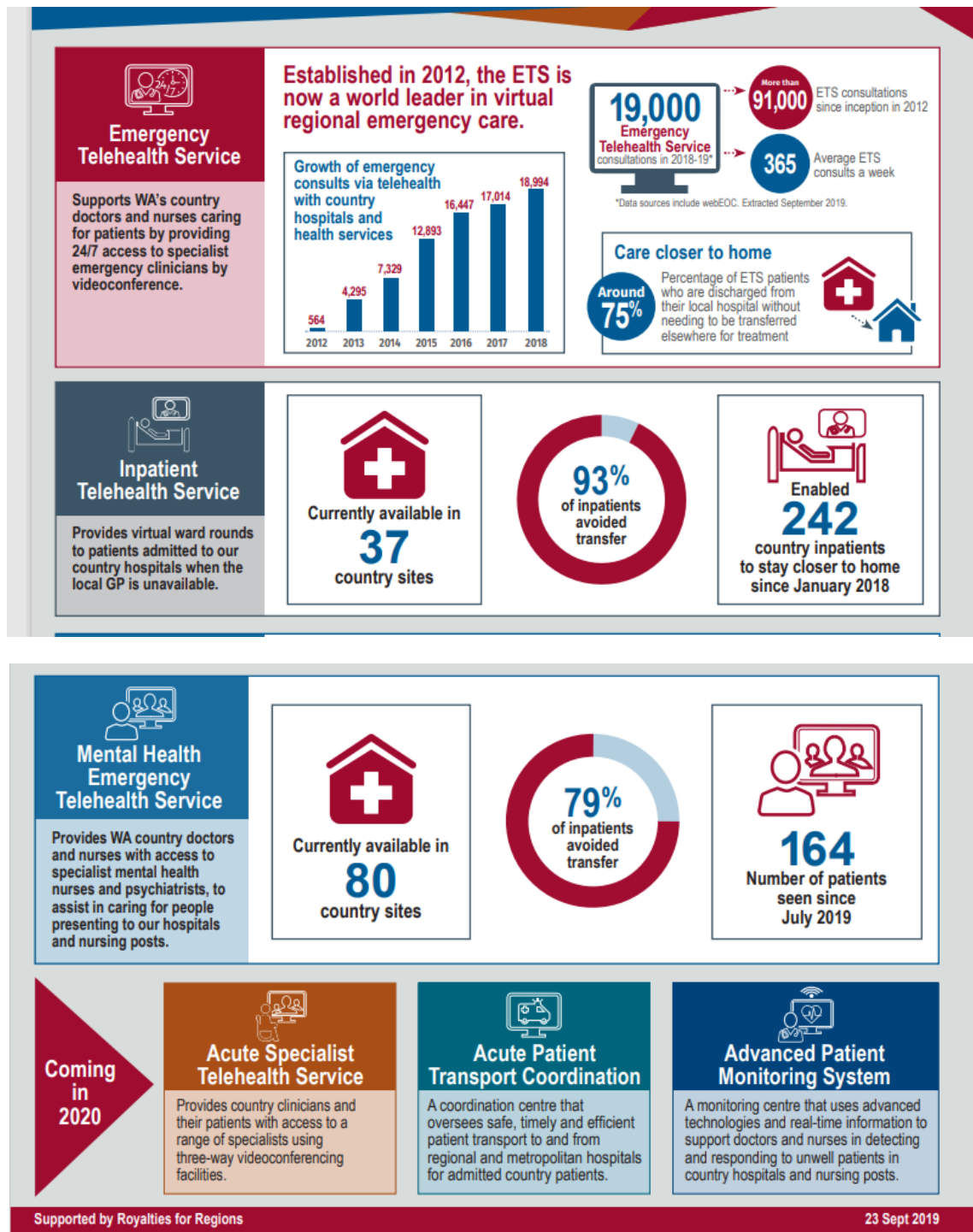
#### **1.1.4 WACHS Command Centre**

The WACHS Command Centre aims to provide rural Western Australians with care closer to home and family, reduce the need for unnecessary hospital transfers, and provide a more coordinated journey when patient transport is required. The WACHS Command Centre, introduced in 2012, utilises videoconferencing for telehealth services (Government of WA, 2020), and the WACHS Emergency Telehealth Service (ETS) has supported clinicians to care for patients presenting to rural and remote WACHS EDs, nursing posts and Silver Chain facilities (Government of WA Department of Health, 2019). The expansion of the ETS in 2018 saw the service extended to care for hospital-admitted inpatients in the absence of a local doctor via the Inpatient Telehealth Service (Government of WA Department of Health, 2019), and the introduction of the Mental Health Emergency Telehealth Service in July 2019 further expanded the number of specialised services available to local clinicians via telehealth by providing access to a psychiatrist or psychiatric liaison nurse (Government of WA Department of Health, 2019).

The Command Centre continues to evolve and expand, introducing new services that increase access and improve coordination of acute services available via telehealth across rural and remote WA (Government of WA, 2020). However, while the virtual specialist directs and guides rural and remote clinicians, this does not replace the need for competent locally trained staff that render onsite clinical care (Government of Western Australia, 2020). Figure 6 illustrates the services that the WACHS Command Centre has been able to assist WACHS with.

**Figure 6**

*Snapshot: WACHS Command Centre (Government of Western Australia, 2020)*



According to their website, the WACHS Command Centre reports that there is a positive correlation between ongoing staff support and reduced clinical incident

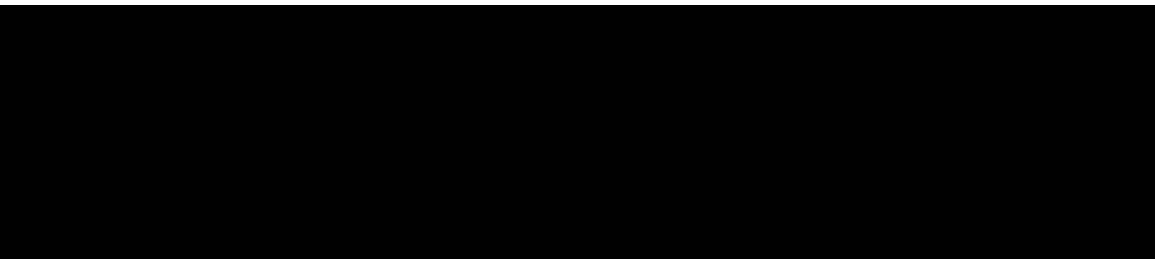
outcomes (Government of Western Australia, 2020). Evidence-based practice supports the introduction of advanced technologies to assist rural and remote clinicians in the delivery of care, and early detection of the deteriorating patient (M. Shaw & Chishti, 2016). In addition, past health reviews have recommended a patient transport coordination system be implemented to streamline hospital patient transfers (Lennox et al., 2019; Fong, 2017; Kulshrestha & Singh, 2016). However, currently there is no single organisation in WA with overview or responsibility for road hospital transfers (Government of Western Australia, 2020).

### **1.1.5 St John Ambulance**

St John Ambulance (SJA) Western Australia is a non-profit charitable organisation providing first-aid services and training, urgent care, patient transport, and ambulance and other medical services in WA. The organisation has provided the ambulance service in WA since 1922 (SJA WA, 2019). The WA Operations Centre is located in Perth metropolitan area, where SJA is responsible for receiving all statewide emergency triple-zero (000) calls requiring ambulance attendance. During 2017–18, SJA handled more than 335,000 ambulance cases (SJA WA, 2019). SJA WA covers the largest area of any single ambulance service in the world—2,525,500 square kilometres or 33% of the total landmass of Australia. In larger rural areas of WA where population and ambulance call-outs are high, career paramedics work alongside volunteer ambulance officers to provide the ambulance service. These locations are Albany, Australind, Broome, Bunbury, Busselton, Collie, Dawesville, Geraldton, Hedland, Kalgoorlie, Karratha, Kununurra, Northam, Norseman and Pinjarra. In smaller towns, the service is operated by volunteers. As outlined in Table 2, there are nine times more country locations provided through volunteer crews than there are mixed crews (SJA WA, 2019).

## Table 2

### *Rural Ambulance Services and Cases (2019)*



*Note.* Adapted from [www.wacountry.health.wa.gov.au](http://www.wacountry.health.wa.gov.au).

The hospital transport agreement between WACHS and SJA states that there are 16 paramedic depots out of a total of 160 depots across rural WA, which indicates that 144 depots are manned by volunteer ambulance officers (WACHS, 2018). In 2002, the WA SJA Patient Care Record database indicated that Royal Perth Hospital alone received 580 rural ambulance transfers in 6 months (SJA WA, 2017). In the past decade, the increase in injury and trauma hospitalisation across WA has been 3.2% per annum (SJA WA, 2017). In 2017–18, WA SJA responded to 67,746 call-outs in rural areas. The recent (July 2019) *General Auditors Report on Delivering Western Australia's Ambulance Services* outlined an increase in average cases per ambulance by 27% from 552 in 2012–13 to 699 in 2017–18 (Office of the Auditor General Western Australia, 2019). It should be noted that WA remains the only Australian jurisdiction where there is no policy or legislation describing ambulance services as an essential emergency service (Office of the Auditor General, 2019). This means that there is no minimum response time standard that the community can reasonably expect or a contractual agreement for SJA to respond to a request for either a hospital patient transfer or a primary response request. Therefore, communities cannot be assured that when they call an ambulance, the closest sub-centre location will respond to that call (WACHS, 2019).

### **1.1.6 Royal Flying Doctor Service**

The Royal Flying Doctor Service (RFDS) is a not-for-profit organisation. While supported by Commonwealth, state and territory governments, the RFDS depends on bequests, fundraising and donations to bridge the gap in operational funding and to finance its capital-raising program for the replacement of aircraft, medical equipment and other major capital initiatives (RFDS, 2019b). In WA, the RFDS supports over 2.5 million square kilometres, with five aeromedical bases located at Broome, Port Hedland, Meekatharra, Kalgoorlie and Jandakot, and RFDS Western Operations have an integrated aeromedical fleet of 16 aircrafts and 2 jets. The RFDS runs emergency and retrieval, telehealth, medical chests (steel containers with a variety of emergency and non-emergency medications for people in extreme isolation from professional medical care), flight nursing, dental services, rural and remote general practice, and hospital patient transport (RFDS, 2019a).

The RFDS provides not only emergency and primary healthcare services, but also health-related support and activities such as education, training and directing health professionals and consumers of WACHS to health information (RFDS, 2019b). In WA, the RFDS assists over 60,000 people each year, flying almost 8 million kilometres and transporting over 9,000 patients (WACHS, 2020b). Aircraft are staffed with a pilot and flight nurse, and when required a doctor, and depending on the case, can carry two stretchered patients at a time. WACHS and the RFDS have a relationship that extends further than hospital patient transfers; for example, WACHS endorses the RFDS *Clinical Manuals* as evidence-based recommended practice for use by medical, nursing, midwifery and allied health staff (WACHS, 2016).

Recently, a memorandum of understanding (MOU) between WACHS and the RFDS was signed in April 2020 to recognise each organisation's credentialing during



the COVID-19 pandemic (WACHS, 2020e). Credentialing is a formal process of verifying the qualifications, experience and professional standing of clinical staff against a well-defined scope of clinical practice for the purpose of forming a view about their competence, performance and professional suitability to provide safe, high-quality healthcare services within specific organisational environments (WACHS, 2019). In planning for a possible surge in the number of COVID-19 patients that require treatment and evacuation and the possibility of staff incapacity due to ill health or isolation, MOUs have been established so that RFDS clinicians can be called upon to support and work within WACHS (and vice versa) to support rural and remote services where there is capacity within the respective organisation and the clinicians' temporary release is possible (WACHS, 2020d). COVID-19 is a respiratory condition caused by a novel coronavirus, which is an infectious pathogen that is mainly transmitted through droplets generated when an infected person coughs, sneezes or exhales. Initially, cases of COVID-19 were reported in China in December 2019 (Li et al., 2020).

The average response rate for the RFDS is 2 hours for the highest priority (Centre for International Economics, 2015). Time is taken to assess the flight requirements and assign a priority, to task the crew, and for the crew to prepare for the flight to depart. This preparation time does not include the time already spent by the referring facility to refer (RFDS, 2019). Call-out times have extended in recent years, with reports that the RFDS is in crisis and could not respond to all life-threatening emergencies following a 50% jump in demand in the past 5 years, a notice that was discussed in the WA parliament (Commonwealth, Parliamentary debates, Senate, 18 June 2008, 2642–2644 (Bob Brown)). In practice, this delay sometimes necessitates the road transfer of the patient to the nearest higher-level regional hospital to receive prompt care, thereby exposing the patient to a secondary transfer.

In their endeavour to assist hospital clinicians to prepare for safe and effective transportation of patients by air, the RFDS has formulated patient transfer guidelines. In these guidelines, RFDS Western Operations (2015) cite four main issues that contribute to poor patient outcomes during air transportation: poor preparation, inadequate diagnosis and initial management, failure to recognise potential complications during transport, and—most importantly—the use of inexperienced or inappropriate escorts (RFDS Western Operations, 2015). This will be explored further in Chapter 2.

### **1.1.7 Road Ambulance Patient Transfer in WACHS**

The current road transport provider for WACHS is the SJA Association or WACHS in Derby, Fitzroy Crossing and Halls Creek (SJA WA, 2017). Patients being transferred with nurse escorts often require monitoring or treatment during transfer (WACHS, 2017). WA Health has a web-based patient administration platform that provides patient demographic data and their journey through the WA public health system (Mkhutha, 2021). This platform is known as web-based Patient Administration System (webPAS). Data from webPAS show that in the period 2020–21 (from 1 July 2020 to 30 June 2021), there were 2,486 hospital ambulance transfers from the WACHS Wheatbelt. This number is lower than usual because of the effects of the COVID-19 pandemic and associated strict screening of patients for transfer to metropolitan hospitals. WACHS currently does not have a reliable way of capturing transfers that require nurse escorts (Bosich, K. personal communication, 2021). There were 729 RFDS transfers from the Wheatbelt region to tertiary hospitals in Perth in 2018–19, and 36% of those transfers involved a Wheatbelt nurse transferring the patient from the hospital to the airstrip (RFDS, 2020). In comparison, for the whole of WACHS, there are approximately 20,000 transfers by road and approximately 6,500 transfers by air every year (RFDS, 2020).

In regard to WACHS, when a nurse escort is required, there are no stipulations as to which RN conducts the hospital transfer. In WACHS, the attending doctor, who is usually the local GP or the ETS doctor, makes the decision to transfer a patient and consults with the patient and their family or carer. The WACHS Wheatbelt Regional Risk Management Coordinator confirmed that although clinical deterioration during hospital transfer is not commonly reported, when it does happen, the outcome is usually poor (Paulose, B. personal communication, 18 November 2020). The following sentinel event was tabled at the March 2020 Clinical Event Management Network:

*An 82-year-old female with chest pain presented to a small hospital. The patient was transferred in a stable condition to an Integrated District Health Service (IDHS) for management of a non-ST elevation myocardial infarction (MI). The patient was admitted to the IDHS for road transfer to a tertiary hospital in the morning as advised by tertiary cardiology. During the ambulance transfer the patient's condition deteriorated and she was brought back to the IDHS but was dead on arrival. (Paulose, 2020)*

### **1.1.8 WACHS Guidelines**

The WACHS Assessment and Management of Interhospital Patient Transfers Policy outlines that when there is more than 200 km distance each way, road transfer is not recommended (WACHS, 2017). There are many WACHS facilities/hospitals that are outside this radius from tertiary hospitals because of the geographic vastness of the rural areas in WA and the Wheatbelt. This results in small sites transferring to local larger district hospitals (hub hospitals) such as Northam or Narrogin and from there the patient is transferred to a major tertiary hospital in Perth, such as Royal Perth Hospital. Therefore, patients are exposed to multiple ambulance transfers; however, this reduces

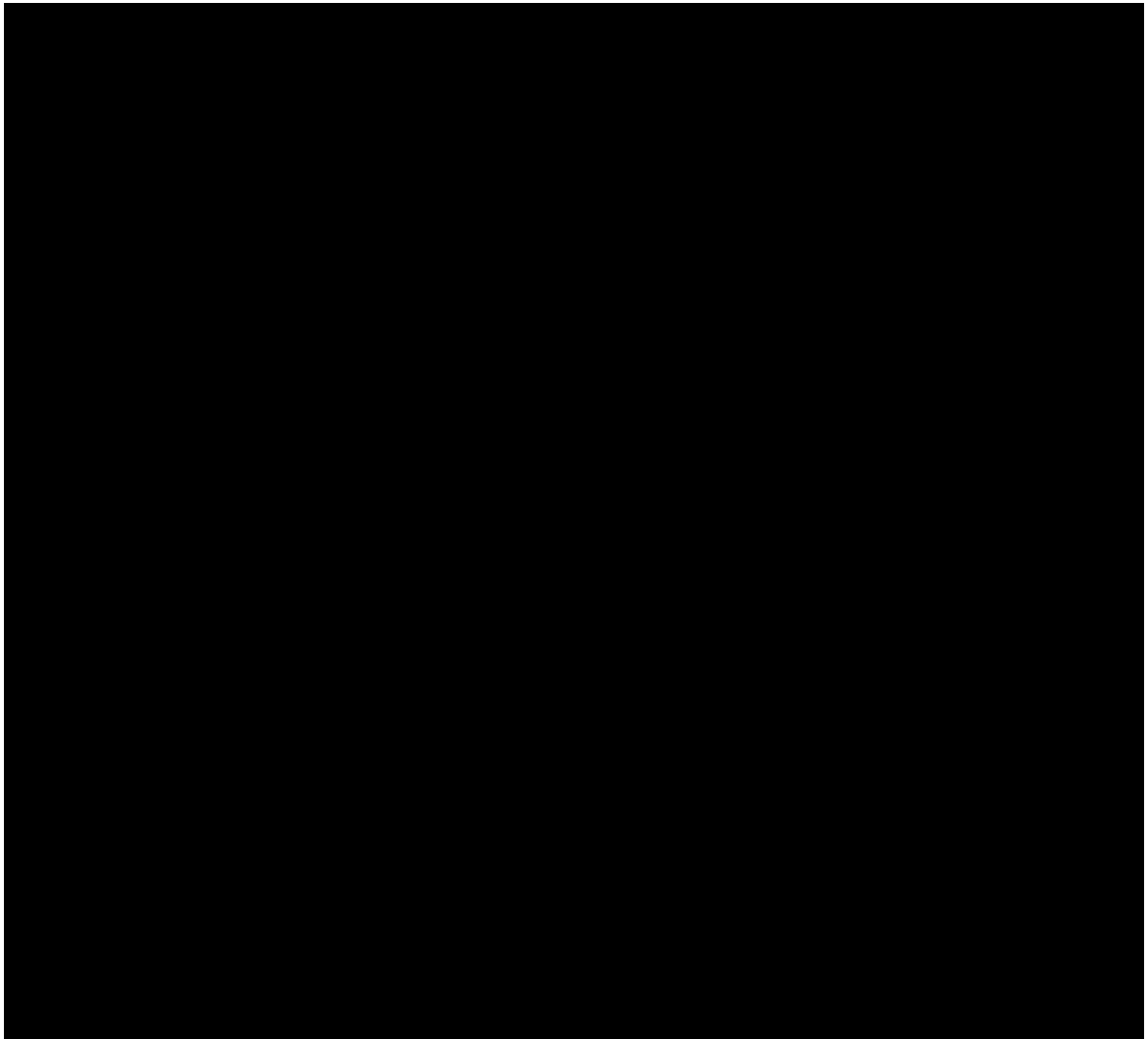
the distance travelled and prevents the RFDS from becoming overwhelmed with fly-outs from these smaller hospital sites.

The impact of this strategy is the increased demand on the ambulance service, when there is a recognised shortage of paramedics in rural WA and one community paramedic may service more than five small towns (SJA WA, 2017). In comparison, metropolitan depots are fully staffed by paid trained paramedic and transport officer crews (Office of the Auditor General Western Australia, 2019). Therefore, an RN is often the most appropriate patient escort when paramedics are not available.

The consequence of this strategy is that potentially the referring doctor (often an ETS doctor) is left with a challenging decision of keeping an unstable patient in an inappropriate facility or transferring an unstable patient with a nurse escort, with limited resources via road ambulance (Government of WA Department of Health, 2015). This local decision-making is dependent on the treating doctor, as supported by the following statement: ‘There are many policies, contracts, price schedules, directives and practice guidelines across the WA health that support localised clinical decision making’ (Government of WA Department of Health, 2015, p. 5). Therefore, the doctor is given the power to make that clinical decision according to the current situation. When speaking with the acting eastern WACHS Wheatbelt operations manager (Hooper, W. personal communication, 17 September 2019), the doctor usually faces the difficult position of either leaving the patient at the host site, ill-equipped to provide the necessary care, versus transport in an ambulance without trained paramedic staff. Table 3 illustrates the general care a paramedic can provide versus a generalist level 1 RN.

### **Table 3**

#### *Scope of Practice for General Care Paramedics*



*Note.* Adapted from Paramedics Australia (n.d.).

In the Wheatbelt region of WACHS, there is an Assessment and Management of Interhospital Patient Transfer Policy (2017); its purpose is to establish minimum practice standards for the assessment, care and management of the patient requiring hospital transfer from a WACHS facility (WA Country Health Service, 2018). In the WACHS region, the list of patient conditions requiring a nurse escort is broad and the exclusion criteria small, vague or not mentioned at all (WACHS, 2016; WACHS Kimberley, 2015). Patients requiring a nurse escort include those with the following conditions: potential for compromised airway; transfer directly to the operating theatre;

GCS (scale of consciousness) of less than 14; oxygen saturation of less than 92%; requiring cardiac or continual observations to be monitored; intravenous infusion with any medication additive; have had intravenous or intramuscular narcotic or sedative within 30 minutes prior to transfer; all maternity patients in active labour; and any patient at the request of the medical officer. The policy documents are designed to guide decision-making when utilising a nurse escort. According to WACHS (2018), mental health patients can also be transferred via ambulance with a nurse escort when the patient is medically acute and unstable or requires observation, management and intervention, such as when sedation has been given or mechanical restraints are used to prevent self-harm.

Clinical handover is another important factor to be considered when conducting hospital patient transfer (Reimer et al., 2018). Clinical handover is the transfer of professional responsibility and accountability for some or all aspects of care for a patient or group of patients to another person or professional group on a temporary or permanent basis (Eggins et al., 2016). According to WACHS Learning and Development department (2018), clinical handover is the most critical step in hospital transfers to ensure continuity of care and patient safety. WACHS hospitals use the Interhospital Transfer Form (MR184) as a tool to ensure shared communication, understanding of the patient's condition and requirements of transfer, and to document acceptance of care. This form is based on the ISOBAR (identify, situation, observations, background, agreed plan, read back) model of clinical communication (WACHS Learning and Development, 2018).

The other WACHS guideline that deserves to be mentioned here concerns itself with fatigue management. The WACHS Fatigue Management Policy acknowledges that work factors like task type, work scheduling and planning and environmental conditions

may contribute to staff fatigue (WACHS 2020). During interhospital transfers the escort nurses face a possibility of working more than contracted hours, they are subjected to sudden environmental changes from stationary to moving, differences in lighting, ventilation, equipment and organisational culture. Interestingly these factors are all listed in this policy as possible causes of fatigue. Although this policy was written for general application in all settings it is of useful interest in interhospital transfers for obvious reasons. The policy clearly articulates that it is the responsibility of both the employer and the employee to ensure that the behaviours and practices that cause fatigue are avoided.

### **1.1.9 National Standards**

The National Safety and Quality Health Service (NSQHS) Standards were developed by the Australian Commission on Safety and Quality in Health Care (ACSQHC, 2021) in collaboration with the Australian Government, states and territories; the private sector; clinical experts; patients; and carers. The primary aims of the NSQHS Standards are to protect the public from harm and to improve the quality of health care (ACSQHC, 2021). They provide a quality assurance mechanism that tests whether relevant systems are in place to ensure that expected standards of safety and quality are met. There are eight newly revised NSQHS Standards, which cover high-prevalence adverse events, healthcare-associated infections, medication safety, comprehensive care, clinical communication, prevention and management of pressure injuries, prevention of falls, and responding to clinical deterioration (ACSQHC, 2021). These standards are represented in Figure 7. Importantly, these NSQHS Standards have provided a nationally consistent statement about the standard of care consumers can expect from their health service organisations.

Standard 8, which is titled ‘Recognising and Responding to Acute Deterioration’, is of particular importance to this study. The standard outlines that serious adverse events, such as unexpected death and cardiac arrest, suicide or aggression, are often preceded by observable physiological, clinical abnormalities or changes in mood and behaviour (ACSQHC, 2021). The warning signs of clinical deterioration are not always identified or acted on appropriately (ACSQHC, 2021). National Standard 8 recognises that deterioration can be physiological, mental or both (ACSQHC, 2021).

**Figure 7**

*The Eight National Standards from the Australian Commission on Safety and Quality in Health Care (2021)*

**National Standards**



The Recognising and Responding to Acute Deterioration Standard aims to ensure that a person’s acute deterioration is recognised promptly, and appropriate action



is taken. Early identification of deterioration in any setting may improve outcomes and lessen the intervention required to stabilise patients whose condition deteriorates (ACSQHC, 2021). Nurses play a critical role in meeting these standards, and especially Standard 8, in order to improve the quality of patient care. Several of the standards are influenced by nursing interventions, which incorporate any direct-care treatment that the nurse performs for a patient that may be nurse or physician initiated (Twigg et al., 2013). The ability for nurses to undertake these interventions is influenced by the hours of care available, the skill mix of the nursing workforce, and the environment in which they practice (Twigg et al., 2013). The need by health professionals to reduce harm, and improve efficiency and the delivery of care—an orientation that is reinforced by consumer demands for improved patient safety (Greenfield et al., 2015)—makes adherence to the Australian NSQHS Standards of notable relevance to this study.

#### **1.1.10 Nurse Escort Standards**

In regions such as New South Wales (NSW), there are dedicated patient transport RN escort positions within the healthcare system (NSW Health, 2016). The nurse assumes the responsibility of assessing the suitability of the patient for road transport and is accountable for the safe and appropriate clinical patient care from point of collection to point of delivery (NSW Health, 2016). The selection criteria for these positions require that the RN has currency in advanced life support and accreditation in intravenous cannulation (NSW Health, 2016). In Victoria, ambulance transport attendants need to have current qualifications in paramedicine. Diploma of Paramedical Science, Bachelor of Paramedicine or RN Division 1 nurses (nurses may need to complete additional bridging training provided by National Patient Transport) must evidence completion of 400 supervised on-road clinical practice hours in either an emergency or a non-emergency setting (Seek, 2020). The Association of Anaesthetists

of Great Britain and Ireland (AAGBI) guideline (2009) recommends that escorts conducting patient transfers should have demonstrated appropriate advanced care competency, which should include participation in a suitable patient transfer course. In the UK, the escort nurse (Cook & Allan, 2008) should have:

- knowledge of the principles of the safe transfer of patients and an understanding of relevant monitoring systems;
- skills to care for patients being transferred who do not have life-threatening conditions or a severe head injury; and
- attitudes and behaviour: can assist with stabilisation before transfer and undertake a pretransfer check of kit and personnel.

WACHS does not require specialised training for nurses to care for a patient in ambulance transport. However, WACHS does have a learning portal, which includes a range of self-directed learning topics including patient transfer (WACHS, 2016). The self-directed learning package Interhospital Patient Transfer (CL83 EL1) is available for all staff and provided through the learning management system Capabiliti (WACHS Learning and Development, 2019a). This learning package is for all interested WACHS employees and is especially relevant to staff who arrange hospital patient transfers (WACHS Learning and Development, 2019a). The self-directed online learning package takes 30 minutes to complete, is not mandatory and does not fall under the 18 WACHS training requirements allocated to the nursing and midwifery framework for practice, as depicted in Figure 8.

## Figure 8

*WACHS Allocated Nursing and Midwifery Learning Framework (WACHS Intranet: Nursing & Midwifery Requirements (health.wa.gov.au), 2021)*

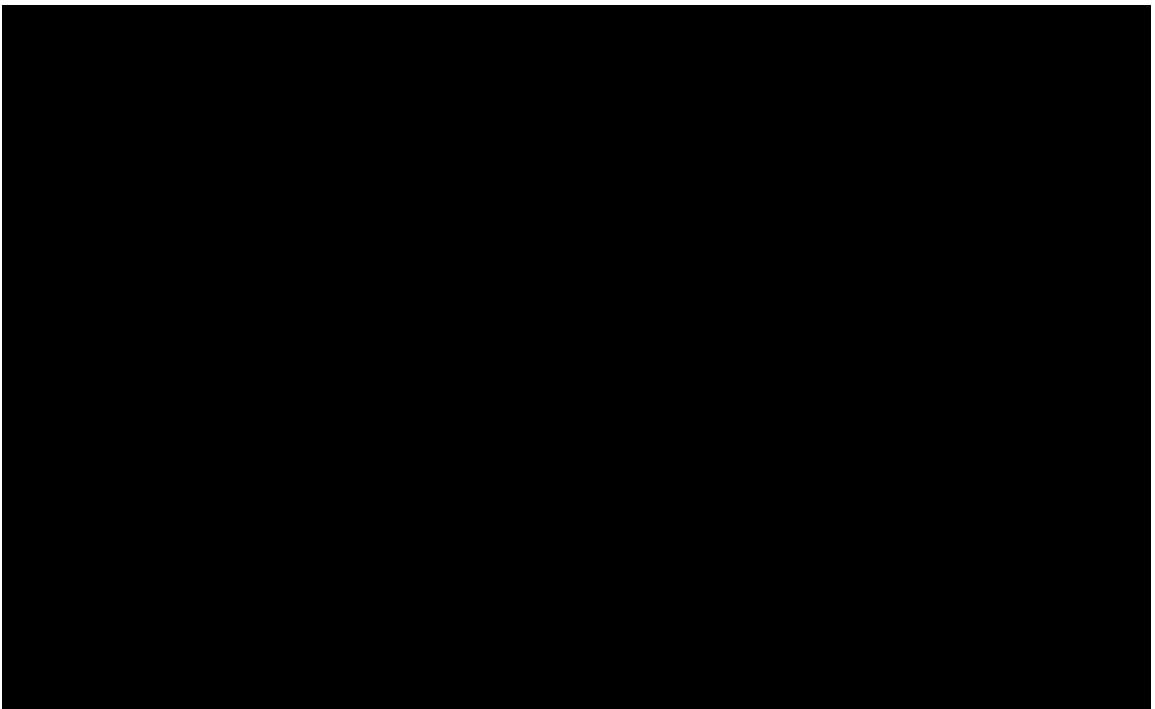
NSQHS (V2)	PROGRAM TITLE + (CODE, LEVEL)	Requirement	Program Length
5	Aggression Management (MA1 EL2) Annual	Annual	1 hour
8	Basic Life Support Practical (REABL & REPBL 003)	Annual	20 minutes
5	Brief Advice for Smoking Cessation (CL98 EL2) <i>Program updated in October 2020</i>	Once only	40 minutes
1	Bullying in the workplace, prevention & response (MA2BL EL2)	Once only	30 minutes
6	Clinical Handover using ISoBAR (ISOBA EL2)	Once only	1 hour
3	Basics of Infection Prevention and Control Orientation Module (CICB EL2) <i>This program replaced Infection Control Orientation (CIC EL2) in March 2020.</i>	Once only	1 hour
1, 2	Datix Clinical Incident Management System (CIMS) Introductory Module (DATNO EL1)	Once only	25 minutes
1, 2	Datix Clinical Incident Management System (CIMS) Closing the loop (DATSS EL1)	Once only	25 minutes
3	Hand Hygiene (CICHH EL2)	Annual	1 hour
1	Policy Awareness (APOLY EL2)	Once only	1 hour
1	Mandatory Reporting of Child Sexual Abuse (MRCSA COM)	Once only	30 minutes
4	Medication Safety (MDSWA EL2)	Once only	1 hour
4	Medication: Get it Right! Taking the Best Possible Medication History (MDGIR EL2)	Once only	1 hour
4	Medication National Standards Medication Charts (NMCWA EL2)	Once only	30 min each module x 7
1, 2	The Initial Open Disclosure (ODDIS EL2)	Once only	2 hours
8	Recognition and Response to Clinical Deterioration (ERRCD EL2)	Once only	1 hour
5	Falls Prevention (FALWA EL2) <i>This program area was added to the Learning Framework on 16th April 2019.</i>	Once only	25 minutes
5	Family & Domestic Violence: WA Health Program (RDVWA EL2) <i>This program area was added to the Learning Framework on 8th August 2019.</i>	Once only	30 minutes
<b>Total</b>	<b>No of areas: 18 Time to complete: Once Only: 13.5 hours   Annual: 2.5 hours</b>		

Another relevant learning tool provided through the learning management system is clinical handover using ISoBAR (WACHS Learning and Development, 2018) which takes 1 hour to complete and is targeted at all clinicians engaged in patient handover. This learning package is automatically allocated to all RNs and midwives and

is part of the Nursing and Midwifery Scope of Practice Tool Part 1, which is a mandatory requirement for all WACHS nurses and midwives (see Appendix A). Line managers are required to check compliance or proof of completion of these mandatory training requirements. Recognition and response to clinical deterioration (ERRCD EL2) is another required program, which also takes 1 hour (WACHS Learning and Development, 2019b). Nurses and midwives are required to complete the elements as identified within this resource, including a 100% pass mark for the theory assessment (WACHS Learning and Development, 2019b). This is a scope of practice framework learning resource, as illustrated in Figure 9, and an inter-disciplinary education program designed to enhance understanding of deterioration and the significance of altered observations.

**Figure 9**

*Recognition and Response to Clinical Deterioration Online Training (WACHS, 2019)*



The online package also seeks to improve communication between health professionals and enhance timely management of patients. Advance life support is not listed as Part 1 for all nurses and midwives; however, there is an expectation that all ‘relevant clinical staff’ complete the training in accordance with WACHS policy (WACHS, 2019). This will include all nurses and medical doctors working in acute areas (e.g. the wards and ED). This is an annual competency, and the practical component takes approximately 16 hours to complete; however, thereafter staff can complete the assessment task only.

WACHS sites are also encouraged to undertake code blue drills as often as possible. Code blue drills are simulated training or practice of a chain of events in response to a medical emergency, aimed at testing the local emergency response systems throughout the hospital or healthcare setting in the day-to-day environment (Southern Country Health Service, 2012; Muacevic, 2021). These drills usually do not involve using an ambulance.

All nurses are encouraged to refer to their scope of practice according to their level. The overarching scope of practice also acts as an individual guide for one’s professional practice and need to maintain currency and competence, as illustrated in Appendix B.

#### **1.1.11 WACHS Nursing Workforce**

The following information on the WACHS nursing workforce is taken from the nursing and midwifery workforce indicators quarterly report and is based on figures for the end of June 2020 (WACHS, 2020c). RNs comprise the majority of the nursing workforce; this is consistent across the reporting period and is steadily increasing. There is also a corresponding consistency with the increase in graduates and recruitment initiatives to fill vacancies. Clinical nurses comprise the next largest group, smaller than

the RNs but steadily increasing over the last few years. The senior registered nurse (SRN) FTE (full-time equivalent—the number of hours worked by a single employee in a week) is small, but a steady increase was noted in 2020. The enrolled nurse FTE is fairly consistent, with a small decrease noted in 2020. RNs (RN Level 1 = 45% and Level 2 = 20%) total 65%, enrolled nurses 13% and SRNs 12%, as illustrated in Figure 11.

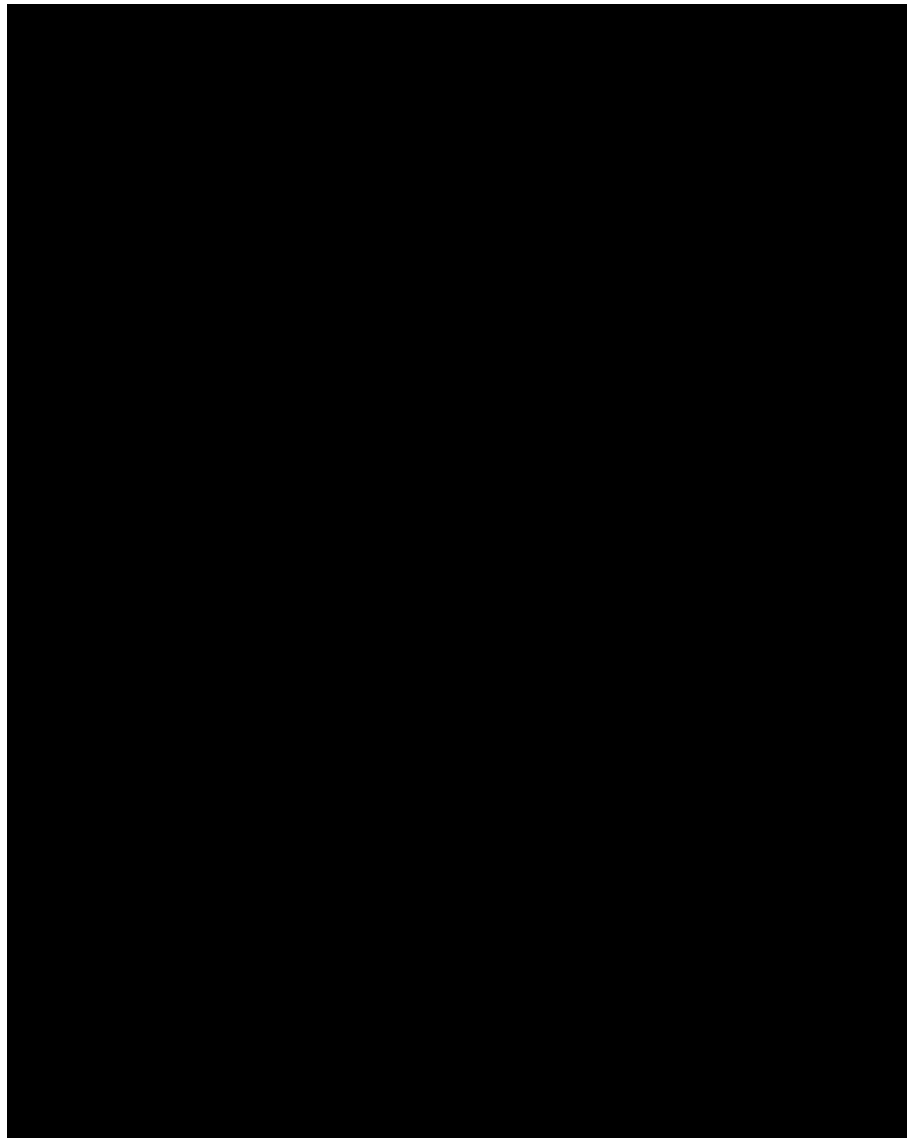
There are more female nurses than male nurses, as shown in Figure 12. As at the end of June 2020, 46 nurses identified as Aboriginal in the whole of WACHS, and most of these nurses are RN Level 1 (39%); voluntary disclosure of Aboriginality means the figures may be under-reported. Of all WACHS nurses, 987 (27%) are over the age of 55, a slight reduction from the previous quarter (see Figure 13). Age is only one factor in predicting potential exit from the workforce. Maximising the benefits of having an older workforce (experience, expertise and corporate knowledge) may be enhanced through safeguarding against the physicality of roles, offering reduced working hours, and using personnel in positions that mentor new and junior staff (Roussos et al., 2016). Determining the intent to retire allows regions to plan a smooth transition to retirement and to plan and respond rather than react to resignations (WACHS, 2020). The change in age eligibility coupled with volatility in the share market and the impact on superannuation funds means that there is a high probability that WACHS will retain its older workforce for longer (Kossen & Pedersen, 2008).

There was a significant rise in the use of agency nurses noted in March 2021—these were mainly RNs. This is in line with existing COVID-19 preparation measures, and sites were advised to secure staff inclusive of extending existing agency contracts. There is use of overtime hours, which may be an indicator of a number of factors including day-to-day shortages due to unplanned leave, or sudden increase in acuity of

patients requiring extra resources including patient transfers (WACHS, 2020). Issues of fatigue management need to be considered when overtime use is on the increase (Watanabe & Yamauchi, 2019). As shown in Figures 10 and 11, the Wheatbelt has a total of 646 nurses (headcount) and an FTE of 482.8 (WACHS, 2020).

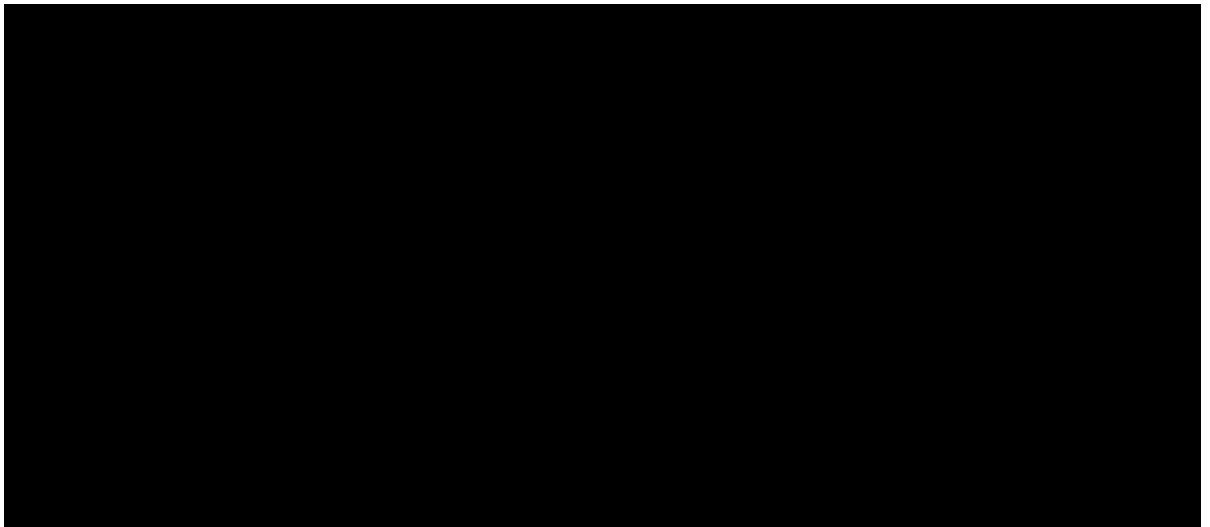
**Figure 10**

*Regional Overall Nursing Workforce (WACHS, 2020c)*



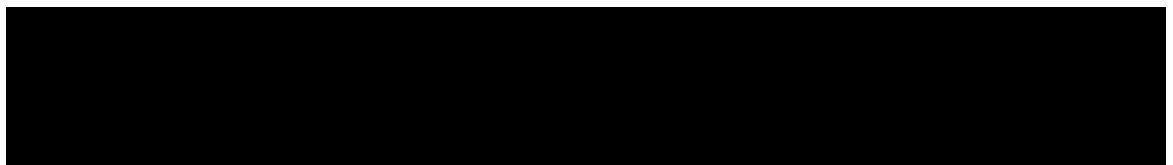
**Figure 11**

*Nursing Workforce Divisions (WACHS, 2020c)*



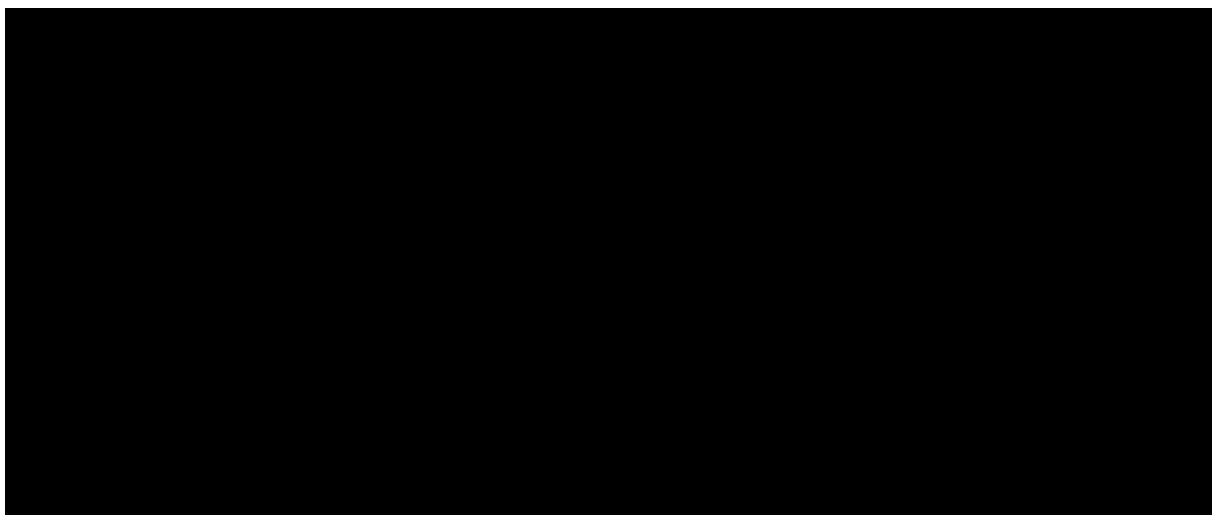
**Figure 12**

*Employment Type by Gender (WACHS, 2020c)*



**Figure 13**

*Nursing Workforce by Age (WACHS, 2020c)*





## 1.2 Topic and Purpose

The study is set in WA in the Wheatbelt region of WACHS. It is anticipated that this study may be a pilot for further studies in other regions of WA. RNs, rather than paramedics, perform the highest percentage of hospital transfers within the region and from the region to metropolitan Perth (SJA WA, 2017) as there are limited numbers of paramedic staffed ambulances in the region (SJA WA, 2018). Literature, to be discussed further in Chapter 2, identifies the likelihood of patients deteriorating during transfer and the significant resultant harm to the patient (Lyphout et al., 2018; Hillman, et al., 2005; Ogh et al., 2012). As outlined in the *WA Health Reform Program 2015–2020*, regional area access to relevant resources may be a challenge (Government of Western Australia, 2015), which may affect the stabilisation of patients before a transfer. The patient is sometimes not adequately assessed before transfer and might not have a confirmed or even a probable diagnosis.

Recognition of and response to acute clinical deterioration has been flagged by the ACSQHC as a national standard in which all healthcare services need to invest education and staff awareness (ACSQHC, 2021). RNs are among the most pivotal clinicians in monitoring and identifying trends that are associated with early warning signs of acute clinical deterioration in the hospital setting. The out-of-hospital environment is an unfamiliar environment for the generalist RN, and the ambulance crew is also an unfamiliar team for the RN. This study will explore how the RN who under normal circumstances works in an environment where she/he is a team member of an organised and accessible multidisciplinary team is then called upon to lead a team caring for a patient in an unfamiliar mobile environment.

### **1.3 Potential Significance**

In regional WA, RNs are primarily responsible for patient care during hospital patient transfers. This is mainly due to a shortage of paramedic ambulance substations (WA SJA, 2017). SJA acknowledges this deficit, and in their most recent annual report, plan to recruit RNs to manage patients during transfer to address the shortage of paramedics (WA SJA, 2017). In 2010–11, 43% of ambulance transfers were conducted by ambulance volunteers (WA SJA, 2010). In 2017–18, SJA conducted 7,847 emergency transfers and 4,512 urgent transfers from the WA regional areas using volunteers and nurses (WA SJA, 2017). These transfers were either conducted within the region or from the region to a metropolitan hospital. It is anticipated that this study will add to the body of already existing research in the area of general trained nurses' ability to care for a patient during road ambulance and recognise acute clinical deterioration and lay a foundation for further research in RNs' attitudes and perceptions of their ability to manage patient clinical deterioration during nurse escort hospital transfers, within the context of the Wheatbelt.

### **1.4 Research Questions**

This study aims to explore RNs' perceptions about caring for a patient during road ambulance transfer, with acknowledgement of clinical deterioration and its occurrence during hospital transfer, and how well equipped the nurse escort is in detecting and managing acute deterioration. RNs, undertaking the role of nurse escort, will be surveyed to ascertain what skills they have and their perception regarding road patient transfers. Data will be collected from online surveys, and face-to-face interviews conducted with senior WACHS staff to further understand the extent of the phenomenon of patient care during road ambulance transfer and clinical deterioration, and how nurses are coping with the increasing demand to conduct these transfers. The

study will seek to support future policy formulation and decision-making with regard to nurses' training, and induction and ongoing education about nurse escort hospital transfer.

The study will employ a mixed methods descriptive design using quantitative and qualitative data to answer the following research question:

- How well-equipped do nurse escorts perceive they are in managing clinical care and deterioration during nurse escort inter-hospital patient transfer of patients from the Wheatbelt region of WA, using the volunteer ambulance service?

The sub-questions are as follows:

- What are the challenges that nurse escorts face in recognising and managing clinical deterioration prior and during hospital transfer?
- How do nurse escorts perceive their knowledge, skill level, and scope of clinical practice to support patients during hospital transfer?
- What are the attitudes of the nurses towards hospital transfers?
- What are the health service senior leaders' expectations of nurse escorts, and do these match with the reality of practice?

## **1.5 Chapter Summary**

This chapter has provided an overview of the research study. The background describes the WA Health structure and an overview of WACHS as the main provider of health services for regional WA, where the study will be conducted. The Wheatbelt, the focus of this research, is described to provide the readers an opportunity to appreciate the unique characteristics of the region. This includes the geographical lay of the land, the health system, and various stakeholders that collaborate to ensure safe patient care and transfers. Staff education and a general overview of RN training and ongoing upskilling of the Wheatbelt nurses are briefly described. This summary is immediately

followed by the WACHS nursing workforce. The chapter then goes on to explore the topic and its purpose, and its potential significance to the already available body of research in hospital transfers. The research question and related sub-questions are outlined as the chapter concludes.

This thesis is divided into six chapters. Chapter 1, as discussed, provides the context and background to the research, and the research design. Chapter 2 provides a review of the literature related to the research, and Chapter 3 a detailed description of the research methodology, method and ethical considerations. Chapter 4 provides an analysis of the research findings across the survey and interview methods. Chapter 5 provides a discussion of findings, in comparison with the contemporary literature and guiding frameworks of patient transfer. The thesis concludes with Chapter 6, followed by the references and appendix items.

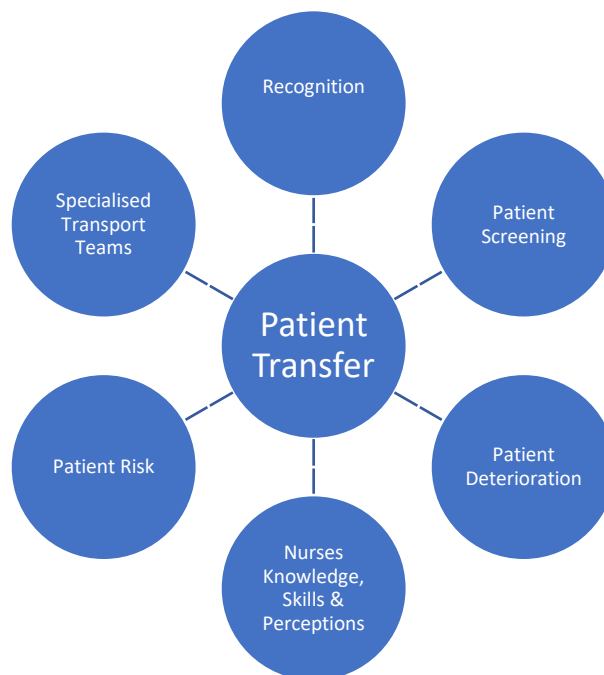
## Chapter 2: Review of Relevant Literature

### 2.1 Introduction

Chapter 1 presented an overview of WA Health, WACHS, the Wheatbelt, WACHS Command Centre, SJA, the RFDS, staff education, the WACHS nursing workforce, the topic and purpose, the potential significance of the research, and the research questions. This chapter, Chapter 2, will provide a summary of literature related to six key areas: recognition of acute clinical deterioration; screening patients for suitability for road transport; prevalence of deterioration during transfer; escorting nurses' perceptions, knowledge and skills; patient risk; and specialised transport teams. These six themes were identified as the main contributing factors to patient outcomes pre, post and during road transportation of patients and are articulated in Figure 14. This will be followed by the discussion of the theoretical frameworks employed in this study.

**Figure 14**

*Literature Review Strategy*



## 2.2 Search Strategy

The search period for this review was from 2000 to 2020 inclusive. The review focused on both international and Australian peer-reviewed academic literature retrieved from the EBSCOhost platform, where a specific range of relevant health databases such as PubMed, Google Scholar, CINAHL, MedlinePlus, Cochrane Library and Scopus were searched. The use of the following single text words and combinations: inter-hospital transfer, inter-facility transfer, clinical deterioration, nurse escort, and guidelines for patient transfer. The references of relevant articles were cross-checked, and articles on inter-hospital patient transfer and managing acute clinical deterioration were included. There was significant duplication between the various search engines. Because of the complex nature of paediatric patient transfer, this has been excluded from this study. Table 4 demonstrates how the search strategy was developed.

**Table 4**

*Developing the Search Strategy*

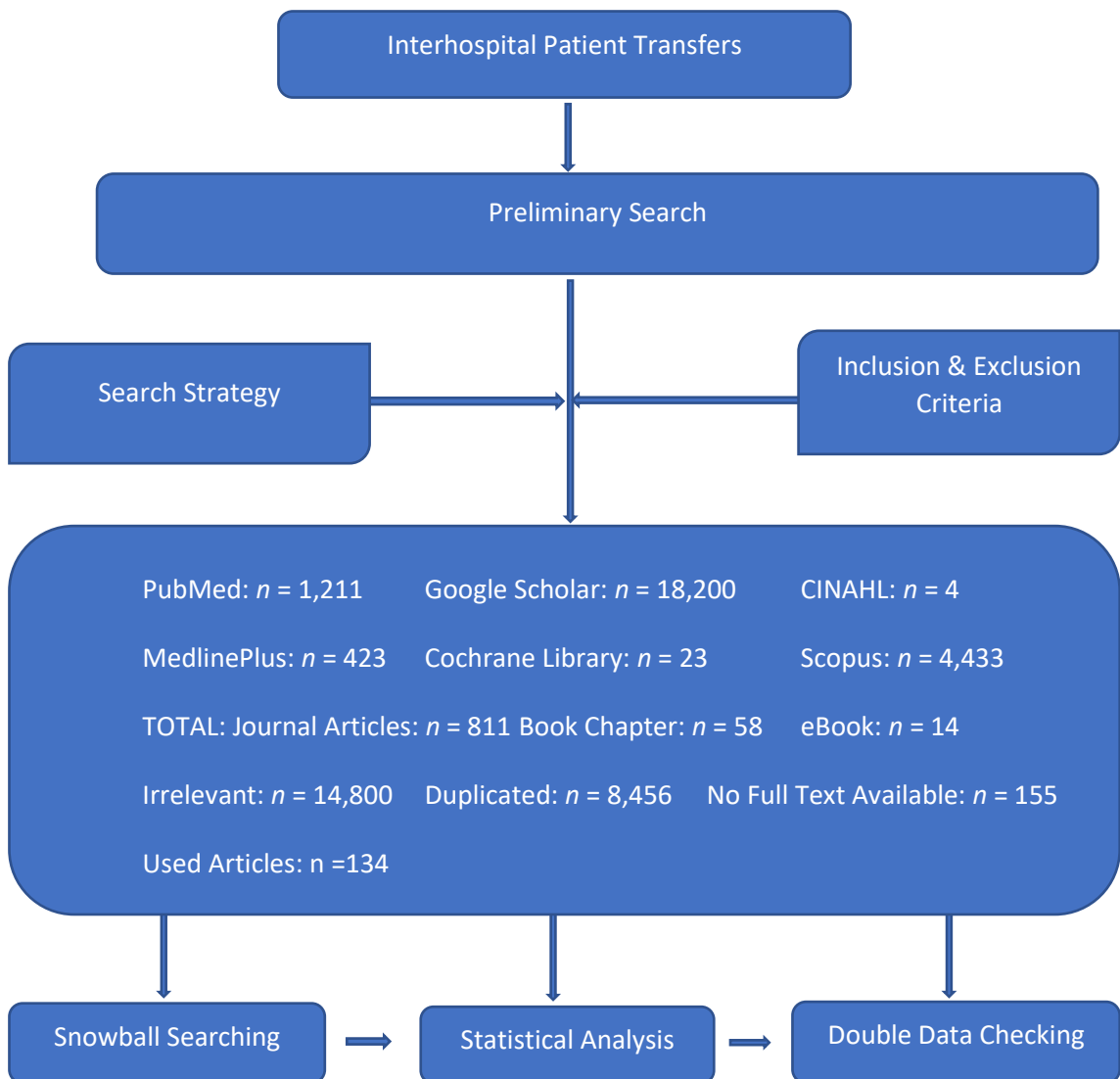
Item	Details
Electronic sources	PubMed, Google Scholar, CINAHL, MedlinePlus, Cochrane Library, Scopus
Year range	2000–2020
Inclusion criteria	Peer reviewed articles, journals, books Adult studies Inter-hospital transfer Recognising and managing acute clinical deterioration Nurse escorts skills, knowledge and perceptions Ambulance transfer
Exclusion criteria	Commentaries, editorials, conference abstracts without publications Paediatric transfer
Additional search terms	Adverse events during inter-hospital transfers Nursing training curriculum National standard eight Inter-facility transfer Guidelines for patient transfer

Developing the search strategy involved continual review and refinement. Searching for evidence has been referred to as more of an art than a science (Grewal et al., 2016), and one that the researcher continues to refine. The search strategy was aimed to be both sensitive and specific. The adopted degree of sensitivity enabled the search to recall relevant studies while remaining specific to exclude irrelevant text. The research data being sought (qualitative and quantitative) guided the review protocol, which was based on a defined review question and inclusion criteria as demonstrated in Table 4. The search was further supplemented with snowball searching. Key documents were identified and used as a starting point for further relevant articles and literature. Caution was exercised to ensure moderate use of snowball searching to eliminate older articles and not to rely on this method alone.

The search strategy in Figure 15 was used to retrieve peer-reviewed articles with evidence of nurses' perceptions of their ability to recognise and respond to clinical deterioration during inter-hospital transfer. An initial search did not identify any specifically relevant studies or systematic reviews that explored these issues in the context of nurse-led ambulance transfers. Therefore, articles were selected if clinical deterioration, and nurses' skills and knowledge, were discussed in relation to inter-hospital patient transfers. A search of bibliographic databases revealed 811 papers of interest after removal of duplicate titles and screening of abstracts. A further 72 relevant books, journals and publications were identified by hand-searching references of eligible full-text papers retrieved from the database search. In total, 883 articles were read for this study, of which 134 were included in this review. Two articles were identified that were outside the time frame but deemed relevant for further reading (Kruger & Dunning, 1999; Hickey & Savage, 1991). This next section of the chapter will outline the findings of the six key areas identified (see Figure 14).

**Figure 15**

*The Search Strategy*



**2.2.1 Recognition of Acute Clinical Deterioration**

Acute clinical deterioration can be defined as an evolving, predictable or unpredictable, and symptomatic process of worsening physiology towards critical illness (Lavoie et al., 2016). Patients whose condition deteriorates acutely often exhibit warning signs before experiencing adverse clinical outcomes (Buist et al., 2004; Anstey et al., 2019). These warning signs include abnormal vital signs (ACSQHC, 2021; Cioffi et al., 2006). Vital signs are the primary indicator of physiological status and for



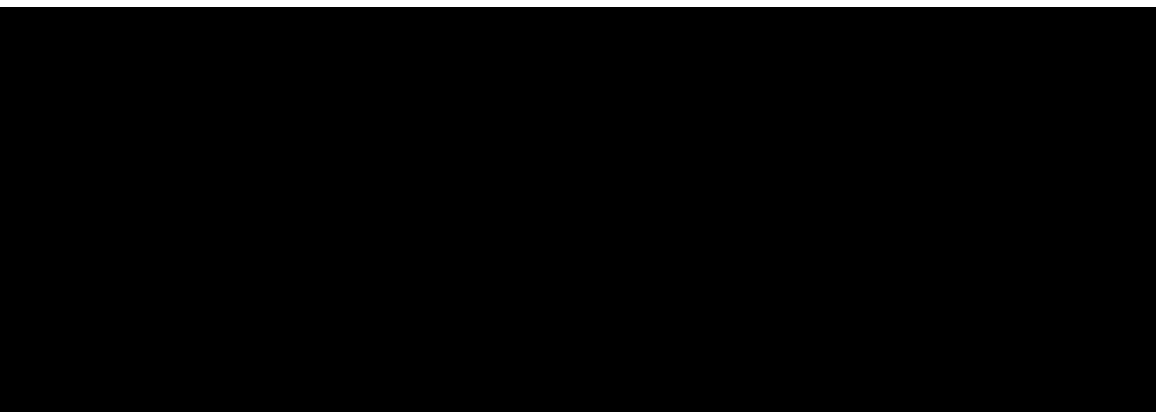
determining the need for urgent clinical treatment (Bucknall et al., 2017). These might be difficult to monitor during road transfer because of the movement and noise in the transport vehicle, and the equipment available (Ohashi et al., 2008). Branson and Rodriquez (2020) stated that monitoring standards and frequency are based on expert opinion and common-sense application. According to Considine and Currey (2015), in hospital settings, nurses are the professional group that have the most direct contact with patients and their families, and have the greatest responsibility for patient assessment, interpretation of clinical data, recognition of clinical deterioration and escalation of care. Dalton et al. (2018) highlighted the importance of knowing the patient in relation to early recognition of clinical signs of deterioration. Incomplete documentation or data reflect incomplete clinical care (Bradley et al., 2016), and this can influence the delivery of appropriate and timely care, as completed documentation is associated with reduced in-hospital mortality for transferred patients (Usher et al., 2016). Because of the conditions in a transport vehicle, it is difficult to physically maintain complete and legible documentation during transfer (Hickey & Savage, 1991). Consequently, transition points in patient care are high-risk moments for breakdown in information transfer (Laudermilch et al., 2010).

There is evidence to suggest that the warning signs of clinical deterioration are not always identified or acted on appropriately, even in controlled environments such as the ward or ED, let alone in the difficult space of a transport vehicle (Odell, 2007; Mitchell & Van Leuvan, 2008). Despite evidence that demonstrates the benefit of early recognition and management of deteriorating patients, failure to escalate care and manage deteriorating patients remains a relatively frequent occurrence in hospitals (Bucknall et al., 2017). According to the ACSQHC (2021) National Standard 8 of the National Safety and Quality Health Service (NSQHS) Standards, which addresses

recognising and responding to acute deterioration, there needs to be consideration of existing processes and systems, which may require workforce training and support. Challenges during transportation exist at all levels of delivering Standard 8 (i.e. detecting, recognising, escalating and intervening for acute deterioration). In addition to the unique transport environment, there are already acknowledged concerns whether RNs have the knowledge, time and skills to be able to detect and respond to acute clinical deterioration in the healthcare setting (Treacy & Stayt, 2019; DeVita et al., 2010; Askew et al., 2012; Waldie et al., 2016). Managing acutely deteriorating clinical situations requires the ability to be aware and process information rapidly in an intense atmosphere from various inputs (Ashokka et al., 2020). This is a skill that requires situated cognition. Situated cognition can be defined as knowledge and skills acquired within the contexts and situations similar to the ones in which the task will be required to be performed (Gallagher & Varga, 2020). It is an attribute that when acquired, needs to be cultivated and developed through years of training and experience that allows senior clinicians to process information in challenging clinical contexts (Ashokka et al., 2020). Table 5 describes the issues identified by the ACSQHC.

## **Table 5**

### *Organisational and Workforce Factors That Contribute to Failure to Recognise and Respond to a Deteriorating Patient*



*Note.* Adapted from recognising and responding to acute deterioration standard of the ACSQHC (2021).

#### **2.2.2 Screening for Suitability for Road Transport**

Determining the factors that predict a patient needing to be transferred is one of the elements of inter-hospital transfers that has been under-studied (Ingraham et al., 2019). Individual patients vary in their responses to treatment, and their health status can change rapidly with little warning (Bucknall et al., 2017), making it difficult to fully predict outcomes. Recognising factors that predict transfer can allow providers to more readily identify patients with a high probability of being transferred and potentially minimise delays to definitive care (Ingraham et al., 2019). Deciding which patients should be transferred is sometimes unclear and subjective (Bosk et al., 2011), with poor concordance between cited reasons for transfer among patients, transferring clinicians and receiving clinicians (Wagner et al., 2013).

Any hospital transfer should be timely and suited to the patient's needs; completed with a competent transfer team; and undertaken where the facilities, quality of communication and documentation are excellent (Ogh et al., 2015). The decision to transfer a patient to another hospital for further care is dependent on a number of factors

including the capabilities of the referring hospital, capacity at the receiving hospital, and financial factors (J. Smith et al., 2005; Gray et al., 2003). The decision to transfer includes a determination of risks versus benefits (American College of Emergency Physicians, 2009). This is a decision arrived at in consultation with the patient's relatives (Kulshrestha & Singh, 2016). The decision to transfer by road with a nurse escort is further dependent on weather conditions, cost, and availability of qualified alternate retrieval teams such as the RFDS (Feazel et al., 2015). Additional considerations are related to the acuity of the patient, level of care needed, estimated transport and arrival times, costs, community impact, patient preference, and health policy (J. Chen et al., 2013).

In addition to this complex decision-making, there is concern about a risk of failure to comply with transfer policies (Armagan et al., 2004), which might result in improper screening and transfer of patients. Ingram et al. (2019) further elaborated that development of transfer guidelines to standardise approaches to transfer and matching patient needs with hospital provision is important to inform interventions aimed at optimising patient outcomes. Lack of specialty coverage available in regional areas and the concentration of specialty services to tertiary care centres have made hospital transfers a critical component of patient management (Feazel et al., 2015). Using the theory of heterogeneous treatment effect, Feazel et al. (2015) argued that patients will derive benefits of differing levels from a treatment as a function of the severity of their disease, which means that the most critically ill patient may derive more benefit from being transferred for tertiary care than those with less severe illness. Singh et al. (2014) stated that patients early in their illness are likely to continue evolving, and the risk of clinical deterioration is high regardless of their location.

The degree of resuscitation and stabilisation that is appropriate prior to transfer depends on clinical, environmental and logistical factors, and is therefore case specific (Low & Hulme, 2014). The stabilisation phase requires predicting and preparing for eventualities in transport, thereby protecting the patient from adverse effects of the transport environment (Mitra et al., 2020). The complexity of hospital transfer makes it difficult to develop guidelines on screening for suitability for transfer as each patient is different and the resources at the referring hospital are different. Markakis et al. (2006) developed a decision rule to identify patients who are not suitable for transfer, such as those who are likely to clinically deteriorate en route. The difficulty with such decision rules is that when weighing the risk and benefit of transfer, a decision might still be made against the rule.

In a study conducted in the United States, Kindermann et al. (2013) discovered that patients with emergent conditions and those requiring specialty care had higher rates of transfer; additionally, elderly patients were nearly twice as likely to be transferred. Screening of patients before transfer is therefore crucial to avoid preventable transfers. Patients transferred to a tertiary centre for speciality care may not receive a speciality review or expected care, therefore questioning the reason for transfer (Mueller et al., 2019). Further, Kindermann et al. (2015) found that among injured patients in a single trauma centre, 2,000 patients per year that were transferred to the site had been subsequently discharged from the site (second ED) on the same day. When this happens in regional WA, patients must arrange transport back to their rural town. In another recent study conducted by Mitra et al. (2020), almost half of patient transfers could have been prevented. These patients were unnecessarily exposed to the risks of transportation at zero benefit to them or the health services.

### **2.2.3 Prevalence of Deterioration During Transfer**

Early recognition of clinical deterioration is essential for timely escalation of care, clinical response and appropriate management of the patient's condition, all of which are key factors in preventing adverse events (Bellomo et al., 2003; Buist, et al., 2002; Konrad, et al., 2010). Early recognition and response to clinical deterioration is an accepted accreditation benchmark for quality and safety standards in acute care hospitals worldwide (Joint Commission on Accreditation of Healthcare Organisations, 2008). Recognition of deterioration can also be clinician dependent (Considine et al., 2013), especially when there is an absence of clearly understood guidelines.

According to Hosking et al. (2014), 2% of ED patients experienced clinical deterioration, that is, they met Medical Emergency Team (MET) call criteria. In another study conducted by Lambe et al. (2016), clinical deterioration (one or more vital signs fulfilling hospital medical emergency team activation criteria during ED care) occurred in 14.5% of patients. In addition, Eiding et al. (2019) stated that ignorance of in-hospital staff about out-of-hospital care requirements, independent of and even despite their in-hospital skills, resulted in under-reporting of possible challenges in patient treatment during transfer handover, and thereby increased the potential challenges during transport. The participants also identified time-consuming systems and fear of revealing the events to a colleague or supervisor as a hindrance in reporting adverse events (Eiding et al., 2019).

When interprofessional support is not immediately available for making collaborative decisions, delays in escalating deterioration occur (Allen et al., 2017). During hospital transfer, a principal concern is delayed treatment (Flabouris et al., 2008). According to Considine et al. (2019), patients who experience an emergency during hospital transfer from a subacute care to an acute care hospital often (76%)

require ED care, have high rates of acute care readmission (81%) and 15% die during the same episode of hospitalisation. Branson and Rodriguez (2020) in their review of literature summarise that adverse events during transport demonstrates the frequency and severity of cardiovascular and respiratory compromise seen during transport that can be directly linked to the physiology of movement.

## **2.2.4 Escorting Nurses' Attitudes, Knowledge and Skills**

### ***2.2.4.1 Standards of Practice***

In Australia, the RN standards of practice outline seven standards that regulate practice (Nursing and Midwifery Board [NMBA], 2016), as follows:

1. thinks critically and analyses nursing practice;
2. engages in therapeutic and professional relationships;
3. maintains the capability for practice;
4. comprehensively conducts assessments;
5. develops a plan for nursing practice;
6. provides safe, appropriate and responsive quality nursing practice; and
7. evaluates outcomes to inform nursing practice.

Scope of practice is that in which nurses are educated, competent to perform and permitted by law. The actual scope of practice is influenced by the context in which the nurse practises the health needs of people, the level of competence and confidence of the nurse, and the policy requirements of the service provider (NMBA, 2016). The standards of practice in Australia inform the education standards for RNs; the regulation of nurses and determination of the nurse's capability for practice; and guide consumers, employers and other stakeholders on what to reasonably expect from an RN regardless of the area of nursing practice or years of nursing experience (Miller, 2019). Speciality

areas within nursing practice have their own speciality standards, but the RN is still bound by the standards of practice that regulate all RNs (NMBA, 2016).

Clinical competence is performance based and is assessed in the context of the practice setting (International Council of Nurses, 2013). Assessment of practice is a valid model of assessing core competencies for licensing nurses and midwives (NMBA, 2016). This model is useful as a multipurpose procedure because it enables global assessment of the nurse or midwife knowledge, skills, values and attitudes. However, the NMBA recognises that the nature of professional nursing or midwifery practice is multifaceted and requires comprehensive knowledge; attempting to assess competence in a single and narrowly prescribed procedural model is a failure to recognise this complexity (NMBA, 2016).

#### ***2.2.4.2 Policies, Procedures and Practices***

A survey conducted by the Victorian Public Health system in 2009 in the state of Victoria (Victorian Quality Council, 2009) showed that there were significant variations in transfer practices statewide. This led to the formulation and implementation of various patient transfer improvement projects. One identified issue was that staff needed to shift their mindset from patient discharge to patient transfer (i.e. the patient being transferred is still the responsibility of the hospital unlike when the patient is being discharged). In a more recent study conducted in the United Kingdom by Rouse (2016), paramedics and other ambulance officers viewed hospital transfer policies and procedures as not fully understood and as a nuisance and acknowledged that they are inadequately executed. In a study by Yeung et al. (2008), participating emergency nurses with more clinical skills and experience understood hospital transfers better, and 59% of the participants had experienced an adverse event during transfer.



In another study by Eiding et al. (2019) in Norway, escorts with more experience became increasingly more aware of safety issues and the necessity to prevent adverse events. Those with little experience, as a result of ignorance, accepted the risk of transport on behalf of the patient, a phenomenon called the Dunning–Kruger effect (Kruger & Dunning, 1999). The Dunning–Kruger effect is a psychology term used to describe a cognitive bias whereby people with limited knowledge or competence in a given intellectual or social domain greatly overestimate their own knowledge or competence in that domain relative to objective criteria or to the performance of their peers (Duignan, 2020). Echoed by Charles Darwin and a sentiment of others in ordinary life through the years, ‘ignorance more frequently begets confidence than does knowledge’ (Darwin, 1871, p. 3). Hillman et al. (2005) stated that many nurses lack a deep understanding of the importance of monitoring, documentation and response to changes in vital signs. Further, Eiding et al. (2019) indicated that both nurses and doctors conducting hospital transfers agreed on the need for specific training, both clinical and technical, for those performing these transports. In the same study, many interviewees felt they were expected to participate in the hospital transport of critically ill patients despite a lack of training. These participants also described feelings of insecurity and wished for the transport to be over as soon as possible. Another recent study in Germany showed that nurses and other patient nurse escorts felt that some hospital transfers were inappropriate, and that medical specialist care and availability was important in making the decision to transfer (Fassmer et al., 2020). Experienced and expert nurses are more likely to escalate care as a result of their confidence in decision-making (Cioffi, 2000a, 2000b). Taken together, lack of knowledge of the nurses’ role in medical emergencies; lack of familiarity with emergency equipment; non-recognition of abnormal vital signs; and low confidence to escalate care where

criteria are present all point to a lack of effective education and experience (Salamonson et al., 2006), a combination that is associated with poor patient outcomes.

### **2.2.5 Patient Risk**

Patient transfer is more than merely transporting patients to a destination capable of delivering a level of care or the expertise the patient is deemed to require. There is a certain standard of continued care that is expected regardless of the clinical setting to ensure optimal patient outcomes (G. Davies & Chesters, 2015). Hospital transfer imposes various physiological alterations in both the patient and the transport team, seriously affecting patient safety, and may result in haemodynamic instability of the patient being transferred (Kulshrestha & Singh, 2016). It has been noted that when patients are transferred by inexperienced staff, more adverse clinical events occur (RFDS Western Operations, 2015). The general principle is to provide the same level of care en route that has been provided at the departure destination (G. Davies & Chesters, 2015). According to Kulshrestha and Singh (2016), the transport staff—an important factor in safe transport—should be well qualified to anticipate and manage any complications that may arise during the transport process. In addition, Massey et al. (2017) stated that the reason why ward nurses fail to recognise and respond to patient deterioration has not been extensively studied, despite increasing awareness of the factors inhibiting nurses from escalating care for patients who deteriorate. A recent study by Lyphout et al. (2018) conducted in two Belgian hospitals indicated the likelihood not only of patients deteriorating during transfer but also of the resultant harm to the patient being significant. Patient safety incidents occurred in 16.7% of transfers (Lyphout et al., 2018). The study also revealed that patients do deteriorate during transfer, whether it is expected or not (Lyphout et al., 2018).

### **2.2.6 Specialised Transport Teams**

A study by Ogh et al. (2012) noted that there are less adverse events when specialised retrieval teams are used. Clinical competency is not the only factor that makes an escort suitable; there are other variables that pose a threat to the quality of the transfer, such as technical understanding of the equipment (Ogh et al., 2012). The escort should also be mentally prepared for managing the unpredictable environment (Ogh et al., 2012).

One study noted that often the medical and nursing equipment is unfamiliar, the environment is mobile, the patient is exposed to various physical factors that affect their wellbeing, there is no immediate support, the team is different (the driver and nurse), and the nurse may be unsure of the escalation protocols (Anstey et al., 2019). According to Ohashi et al. (2008), any out-of-hospital environment potentially challenges the safe management of critical or unstable patients. Clinical escorts have admitted to having feelings of insecurity with regard to decision-making and skills (Eiding et al., 2019). They also reported that they felt that the medical equipment was less precise during transportation and that sometimes they were even unable to collect vital patient data (Ohashi et al., 2008).

A poorly and hastily conducted transfer can lead to adverse events (Sethi & Subramanian, 2014). This 'scoop and run' approach is the norm in areas where staffing is a major issue (Sethi & Subramanian, 2014). Additionally, in many regional areas, there is a lack of resources, skills and staffing to adequately stabilise a patient before a transfer, hence often the reason for transfer (Ogh et al., 2012). Patients are therefore sometimes transferred to a hub hospital or regional centre for further diagnostic tests or healthcare resources that are not available at the site of origin (Wagner et al., 2013). It is not always possible to predict patient outcomes or length of time to further

deterioration. McLennon (2004) proposed that a specialised transport team would eliminate many of the potential dangers of the transport. To minimise the risk of hospital transfer of critically ill patients, Wiegersma et al. (2011) started a mobile intensive care unit (MICU) with a specialised retrieval team. They conducted a prospective audit comparing adverse events and patient stability during MICU transfers with their previous data on transfers performed by standard ambulance. The results revealed an improved quality of hospital transport of ICU patients in the north-eastern part of the Netherlands (Wiegersma et al, 2011).

### **2.2.7 Literature Review Summary**

As outlined above and in Figures 14 and 15, the search yielded various articles that informed the research study. The exercise highlighted valuable studies that explore both recognition of acute clinical deterioration and the phenomenon of hospital transfers. The author was unable to source publications addressing nurses' attitudes and perceptions of their ability to manage acute clinical deterioration during nurse escort hospital transfers via ambulance. There were publications on physician, paramedic, intensivist and other specialist retrieval teams; however, generalist nurse escorts were not included in these studies. This lack of published evidence supports the research study aim to describe factors and elements that have evolved and influence nursing care in this specialised setting, influenced by advancements in technology, changing health trends, time in general, and space. Of note, the literature agreed (Sethi & Subramanian, 2014; Eiding et al., 2019; Mueller et al., 2019; Bucknall et al., 2017; Ingraham et al., 2019) that any out-of-hospital environment possesses an added risk to the patient. Ideally, a patient should be cared for at their primary centre of presentation, but realistically, sometimes this is neither possible nor safe.

## 2.3 Theoretical Framework

The study was informed by theory, philosophy and practice and the relationship between these (Himes & Schulenberg, 2016). Theory is an explanatory construct that helps structure action by identifying key relationships that can be used to explain, predict or change a phenomenon (Jaeger et al., 2013). Without theories, hospital patient transfers and even nursing as a whole would be a task-oriented occupation (Jaeger et al., 2013). A philosophy is a way of thinking that provides the context in which decisions about an action are made and encourages attention to intentions and ethics (Dewey, 2008). Practice can be defined as the actual application or use of an idea, belief or method, as opposed to theories relating to it; this then becomes not just the customary or habitual way of doing things but an expected procedure (Merriam-Webster, n.d.). Nursing practice is both an art and a science (Peate & Wild, 2018).

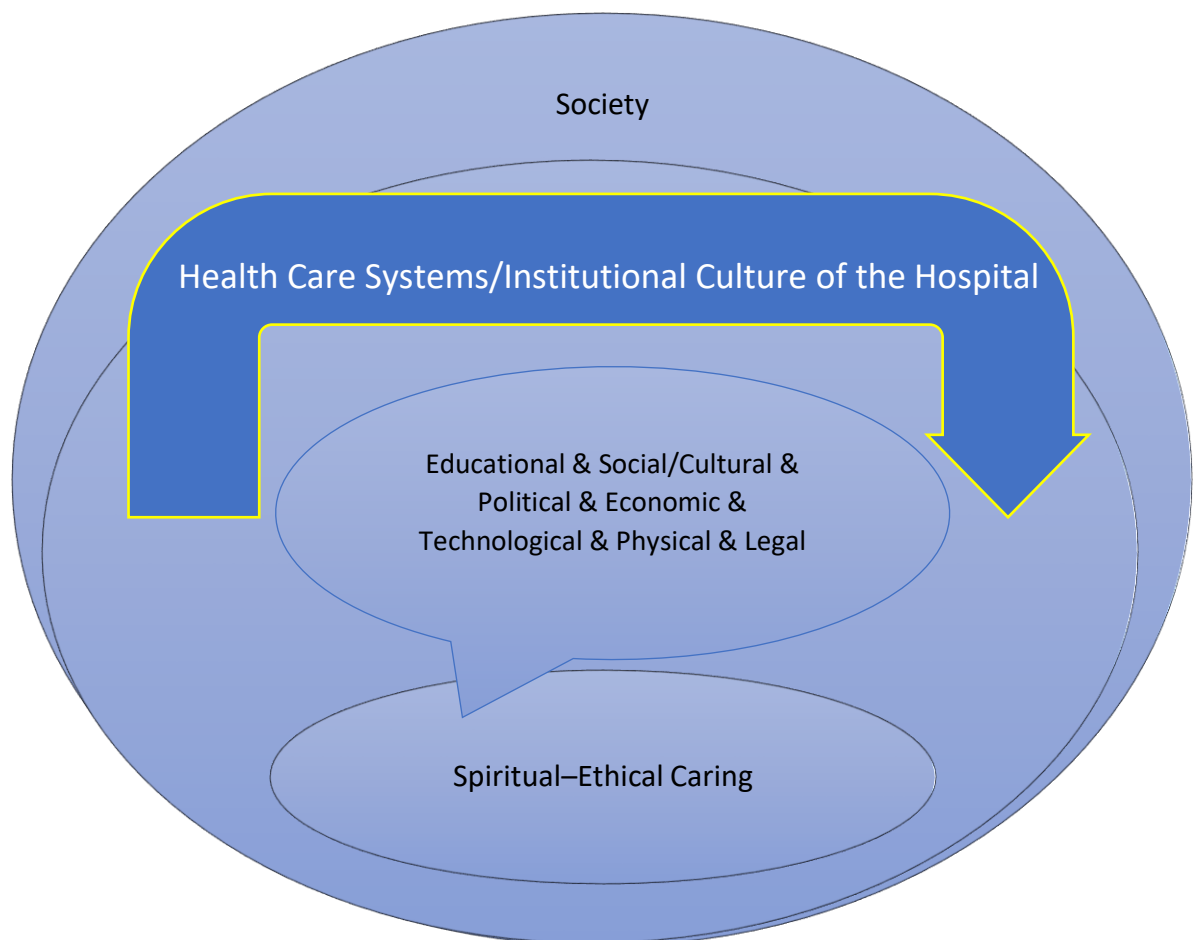
This study used two theoretical perspectives simultaneously to frame the research questions, design and phases, and analysis of results (Benzies & Allen, 2001). The two theories used were the theory of bureaucratic caring and the uncertainty in illness theory. Theoretical frameworks serve as guides to help organise existing knowledge and to make new discoveries to advance nursing practice (Marriner-Tomey & Alligood, 2010). There needs to be an ongoing, reciprocal relationship among nursing theory, nursing science and nursing practice (McEwen & Wills, 2017).

Marilyn Anne Ray's theory of bureaucratic caring (Ray, 1989; M. C. Smith, 2015a) formed the framework in exploring how nurses think beyond their usual frame of reference in providing improved patient safety in complex bureaucratic healthcare systems (Alligood, 2014). This theory challenges nurses to understand the political, economic, spiritual–ethical and compassionate aspects, and the rights for all patients

and themselves as professionals, of the complex health services they work in. This caring theory is further represented in Figure 16.

**Figure 16**

*Ray's Theory of Bureaucratic Caring*



*Note.* Adapted from Ray (1989).

WACHS is a large, complex employer and health service provider with unique challenges. Central concepts and external factors all interconnect to foster a uniqueness that makes the provision of hospital transfers complex and dynamic. Hospital transfers in WACHS do not occur from a vacuum, but rather from a background of the realities of providing safe healthcare in a bureaucratic environment. The influencing factors are rooted in organisational culture, political climate, health trends, technological

advancements, economic burdens on health, and the beliefs and preferences of the individual health providers and recipients of care.

Mishel's uncertainty in illness theory (Mishel, 1981, 1988) was also used to promote optimal adjustment in organising nursing interventions in view of acute deterioration (Zhang, 2017). This theory has three major themes that were relevant in this study: antecedents of uncertainty, process of uncertainty, and coping with uncertainty (Mishel, 1981, 1988). Mishel's theory will be used to explain how the caregivers (transferring RNs) interpret and deal with the uncertainty of patients being transferred. According to Mishel (1988), structure can reduce the negative effects of uncertainty by providing information and support. As illustrated in Figure 17, this uncertainty can be regarded either negatively as harmful/danger or positively as an opportunity. Figure 17 captures how coping strategies are then used to maintain the positives, and the individual adapts and effectively manages the uncertainty to achieve desired patient outcomes.

## Figure 17

*Mishel's Uncertainty in Illness Theory (Mishel, 1988)*



This theory of uncertainty in illness will assist when exploring the nurses' attitudes, perceptions and abilities to cope with expected or unexpected acute deterioration. Mishel (1988) defined uncertainty in this context as the inability to determine the meaning of illness-related events, occurring when the decision-maker is unable to assign definite value to objects or events, or is unable to predict outcomes accurately. Acute deterioration can be expected or unexpected but is not easily predicted in any setting (ACSQHC, 2021). Even when the patients have been properly screened for suitability of transfer, deterioration can still occur en route.



## **2.4 Chapter Summary**

This chapter has provided a summary of the relevant literature reviewed. The details of the search strategy provided a guide on the literature review that was conducted. The search was conducted to explore the six core factors influencing hospital transfers: recognition of acute clinical deterioration; screening for suitability for road transport; prevalence of deterioration during transfers; escorting nurses' attitudes, knowledge and skills; patient risk; and specialised transport teams. The chapter concluded by discussing the theoretical frameworks that were used to guide this study. The next chapter will provide details of the research design and supporting ethical practice. The different phases of the research study will be systematically discussed.

## **Chapter 3: Methodology**

### **3.1 Introduction**

In the previous chapter, a review of the literature and presentation of the theoretical frameworks provided the foundations of this research project. Chapter 3 will discuss the chosen study design and methods. A review of the mixed methods approach of qualitative and quantitative investigation and use of triangulation, is presented. To support this approach, the two research techniques of surveys and interviews were used. The data collection process and analysis will then be described. The chapter concludes by reviewing the ethical implications of the study and how these were managed.

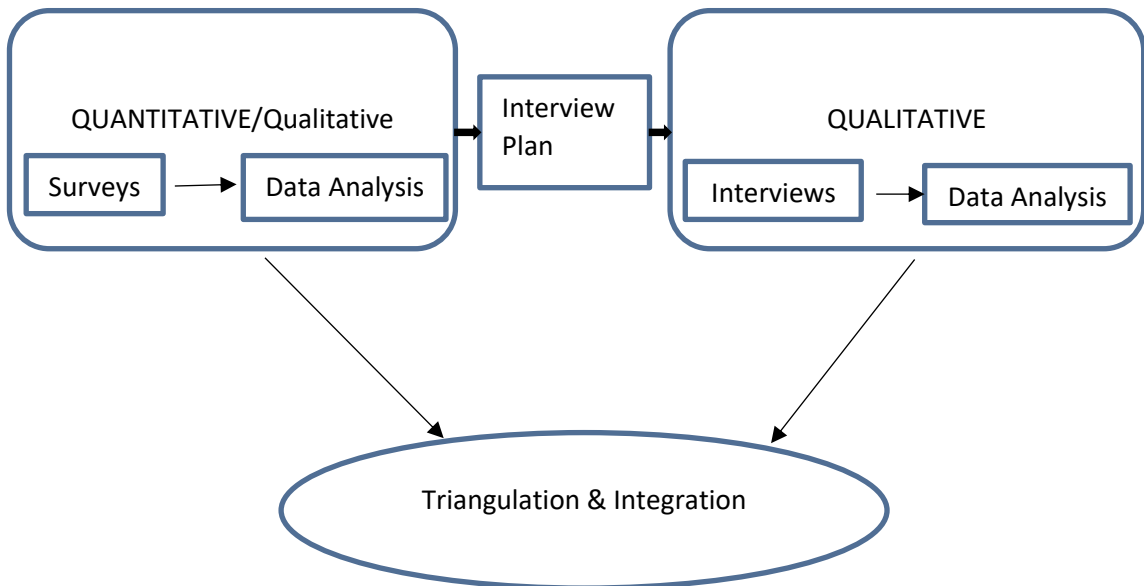
### **3.2 Mixed Methods Research**

This study utilised a mixed methods design of qualitative and quantitative methods in a sequential explanatory design. A sequential explanatory design implies collecting and analysing first quantitative and then qualitative data in two consecutive phases within one study (Creswell, 2021; Ivankova et al., 2006). According to Rovai et al. (2013), no matter which type of mixed method is used, there should be a purposeful and carefully implemented sequence to the study that can be documented and evaluated. Mixed methods research provides positive benefits to research inquiries, such as the ability to explain the findings from the first phase of the study with the qualitative data collected during the next phase (Creswell & Creswell, 2018). In addition, mixed methods research provides opportunities for researchers to gain an understanding of the findings that brings together both quantitative and qualitative components of the topic under study (Bryman, 2007). Creswell and Plano Clark (2017) further elaborated that the greatest benefit of using mixed methods is not just the sum of its qualitative and quantitative parts, but the resultant synergy and a deeper understanding gained than

when the individual approaches are used in isolation. Figure 18 shows how this method was employed in this study.

**Figure 18**

*The Explanatory Sequential Design*



Johnson et al. (2007) defined mixed methods as a type of research in which a researcher combines elements of qualitative and quantitative research approaches. This includes the use of qualitative and quantitative viewpoints, the data collection method, data analysis and inference techniques, for the broad purposes of breadth and depth of understanding and corroboration. Creswell and Plano Clark (2017) suggested that this approach enables a greater degree of understanding to be formulated than with a single approach.

### 3.2.1 Quantitative Research

According to Burns et al. (2015), quantitative research is a formal, objective, systematic process used to describe variables, test relationships between them, and examine cause-and-effect associations between variables. Quantitative research sets to

test out a hypothesis using objective and impartial scientific methods (Davies & Fisher, 2018). It generates numerical data that give confidence to make generalisations about a general population (Bloomfield & Fisher, 2019). Quantitative methodologies facilitate standardisation and render information specific to local settings applicable and relevant to similar settings by removing, scaling, comparing and rearranging the local context (Walter & Andersen, 2016). The survey method, one type of quantitative data collection method, can be employed to obtain insight into the more intangible aspects of clinical care, including nurses' perspectives, and uncover relationships between clinical care administered and outcomes obtained (Kelley-Quon, 2018). The aim of quantitative research is to classify features, count them and construct statistical models in an attempt to explain what is observed (McCusker & Gunaydin, 2015). Although it can be argued that the use of quantitative data is more efficient and able to test hypotheses, it may miss contextual detail (McCusker & Gunaydin, 2015). Quantitative methodologies are far broader than the specific subset under study here. Therefore, a mixed methods approach was preferred to gain the benefits of both quantitative and qualitative methods.

### **3.2.2 Qualitative Research**

Qualitative research uses various methods to collect and analyse data encompassing a range of arguments and ideas from several different theoretical frameworks, epistemologies and ontologies (M. Anderson, 2017). This type of research is concerned with depth and richness of data (Kiyimba et al., 2018). The researcher explores the topic under study by exploring participants' perceptions (Morse, 2016). Qualitative research is primarily inductive in that it aims to gain information about the person's or participant's perspective or behaviour (Morse, 2016). Qualitative research contributes to the literature in many disciplines by describing, interpreting and generating theories about individual experiences as they occur in natural, rather than

experimental, situations (Lingard & Kennedy, 2010; Harris, 2002; Denzin & Lincoln, 2008). This is valued data, especially in health and social sciences, that quantitative methods of research cannot fully explore. M. Anderson (2017) referred to qualitative research as a porous type of research due to the fact that it is constantly expanding and maturing. The author further elaborates how qualitative research is characterised by its interpretive, naturalistic and holistic inquiry, where systems are approached as meaningful complete units whose individual parts are best understood in context and in relation to one another and to the whole. However, methodological rigour should be exercised to make a successful theoretical contribution (Bansal, et al. 2018).

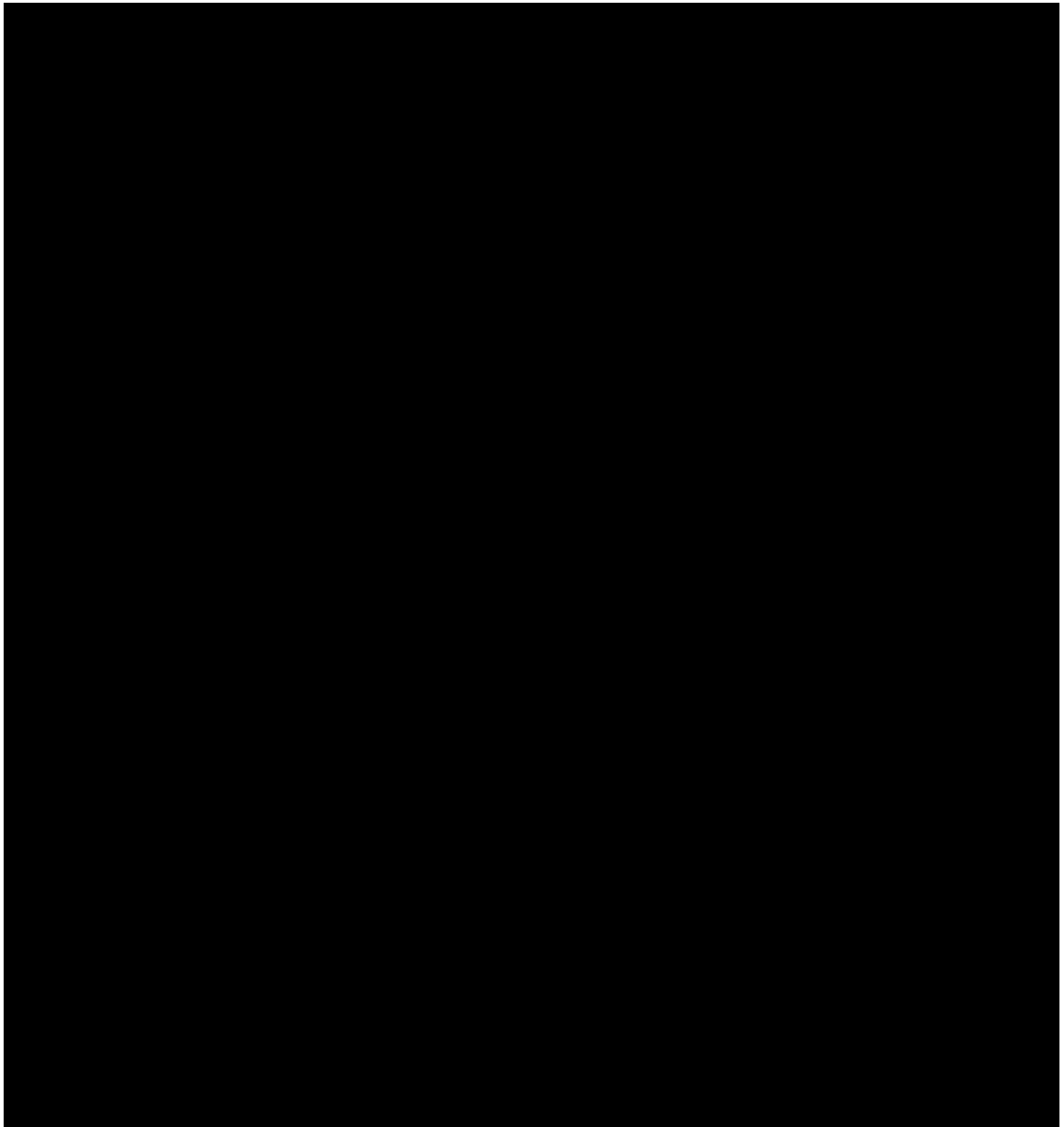
Methodological rigour is a characteristic of evaluation studies that refers to the strength of the design's underlying logic and the confidence with which conclusions can be drawn (Braverman & Arnold, 2008). Qualitative research was therefore the appropriate method to use to engage nurses' perspectives on their confidence in caring for and managing clinical deterioration during nurse-led inter-hospital ambulance transfers and executives' perspectives on these findings.

By combining a qualitative interview-based study and an online structured question survey, validity was enhanced by countering the limitations and trade-offs inherent in each method (Aime et al., 2014). Validity of the research can be defined as the extent to which the results really measure what they are supposed to measure (Merriam-Webster, n.d.). The researcher was able to determine what quantitative results need further explanation and this guided the follow-up qualitative phase (Creswell & Plano Clark, 2017). According to Weise et al. (2020), context suitability that comprises external validity, generalisability, applicability and transferability underlines the judgement of certainty of findings, which in turn facilitates specific decisions within a particular context. As supported by Burford et al. (2013), it was important when

conducting the study to ensure that the results provide a correct basis for generalisations to other circumstances (generalisability/external validity), can be implemented in a specific context (applicability) and can be effectively applied in another specific context (transferability). The aforementioned terminology is further defined in Table 6.

**Table 6**

*Context Suitability of Mixed Methods—Definition of Terminology*



*Note.* Adapted from Burford et al. (2013).

### **3.2.3 Triangulation**

Triangulation is when researchers combine different types of data against the background of theoretical perspectives which are applied to the data and are substantiated by using several methods and/or several theoretical approaches (Flick, 2018). The researcher triangulated quantitative and qualitative data by employing a sequential mixed design, where qualitative interview data were used to explain survey data as supported by Jogulu and Pansiri (2011). In using triangulation, data were collected from staff that conducted nurse-led inter-hospital transfers and from interviews of senior managers and policy makers. The benefit of this approach can enhance results (Lawlor et al., 2016). Method and theoretical triangulation was used to manage the emerging independent ideas that have an impact on inter-hospital transfers to produce interpretations that are important in defining the whole phenomenon of transferring patients within the context of this study (Caillaud et al., 2019).

#### ***3.2.3.1 Method Triangulation***

Two types of method triangulation were used: within-method and between-method triangulation (Bryman, 2006). Within-method triangulation was used in the design of the survey, which addressed the research questions using a range of subscales, with open and closed questions. The dominant triangulation, however, was between-method triangulation, where the researcher used two different methods, quantitative and qualitative, to overcome the limitations of a single method (Flick, 2018). With the use of triangulation, responses from structured questions from the online survey and perspectives from the interviews provided research reliability and dependability as the weakness of one method was able to be offset by the other method (Flick, 2018).

### ***3.2.3.2 Theory Triangulation***

Theory triangulation is the use of more than one theory when investigating a phenomenon or the perspectives used in a study, which may be related or have opposing viewpoints (Flick, 2017). Both theories (i.e. the theory of bureaucratic caring and the uncertainty in illness theory) were used in various stages of data collection and analysis. During the design of the survey questions, analysis of survey responses and when building the interview guide questions, perspectives were triangulated by using direct analysis from the two theories (Lessiter et al., 2001). This was helpful in ensuring that the researcher, who might have had preliminary assumptions, did not rely on preconceived ideas but used firm and established theoretical premises (Guion et al., 2011). This was also used during interviews to analyse different methods of text interpretation, which takes the theoretical background assumptions of each caring theory into account. Each idea was analysed by comparing findings from surveys with the responses from the interviews through vigorous theoretical synthesis (Flick, 2018). As advised by Kushner and Morrow (2003), a constant grounding process at the level of data gathering and analysis, coupled with internal checks on theoretical arguments based on back-and-forth movement between questions posed during staff surveys and interviews, was critical in this study. The survey questions were designed to elicit the meanings each individual nurse attached to their experiences so that through subjective interpretation, reality could be fully analysed. Theory triangulation informed the research plan and the research techniques chosen.

## **3.3 Research Techniques**

When choosing the research technique, time pressure is particularly relevant for researchers working in healthcare who are interested in using research findings to inform changes in policy and practice. The needs and priorities of healthcare



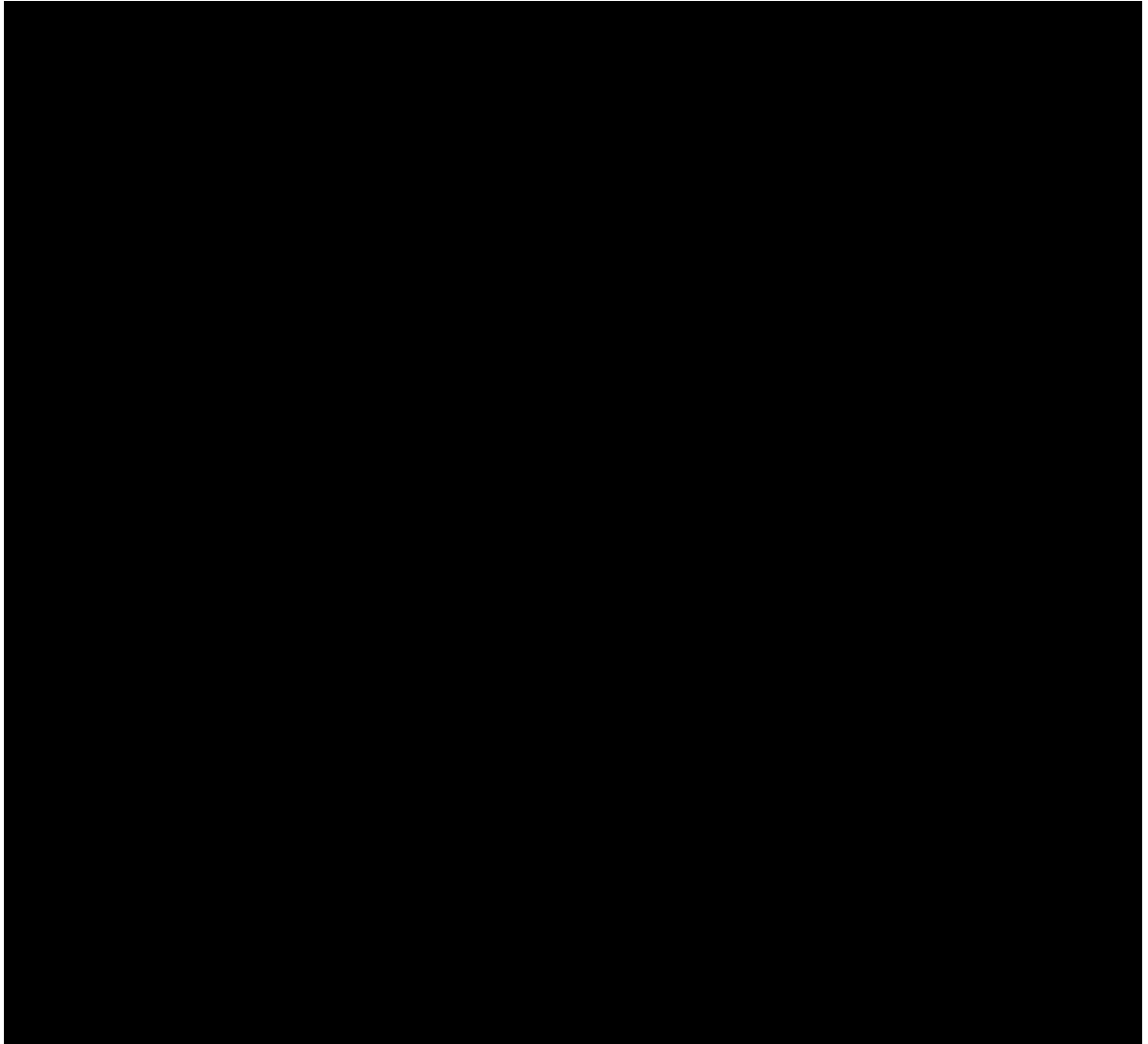
organisations may change throughout the study, and the research findings may not be relevant by the time of completion and publication (Skillman et al., 2019; Vindrola-Padros & Vindrola-Padros, 2018). The chosen techniques must facilitate timeliness, such as recognition of the requirement for the transcription of interviews or combining data analysis methods with data collection to deliver timely findings (Greenwood et al., 2017; Taylor et al., 2018). The research techniques that were chosen for this study were those that met the following criteria: reduced time, reduced cost, increased amount of collected data (due to the reduction of time required to collect it), improved efficiency, improved accuracy, and obtaining a closer approximation to the narrated realities of research participants (Vindrola-Padros & Johnson, 2020). The research technique included both surveys and interviews.

### **3.3.1 Surveys**

A survey is a system for collecting information using a questionnaire (Dillman, 2000). Survey techniques are often used to describe and explore human behaviour (Ponto, 2015). Employing survey methodology to answer research questions requires the researcher to design the questions in an unbiased, understandable and inviting way in order to engage the respondents and inspire them to give the most truthful answers possible (Kelley-Quon, 2018). The method of administering the surveys chosen for this study was via the self-administered online questionnaire. This was chosen because it was the most practical, wide-reaching and cost-effective option (Pol-Pons et al., 2016). One of the major advantages of using the online survey is that the survey ensures that each respondent receives the survey questions in exactly the same way (Bernard, 2017). The following questions, adapted from Sue and Ritter (2012), were utilised when considering and designing the online survey as the primary data collection tool (see Table 7).

## **Table 7**

### *When Should an Online Survey Be Used*



*Note.* Adapted from Sue and Ritter (2012).

One of the identified disadvantages of using online surveys is connecting with participants who may be already experiencing an overload of digital communication (Dillman, 2000). There is also a risk that respondents may share the survey with their friends and colleagues with similar interests or perspectives, which may lead to the over-representation of a particular viewpoint (Bohannon, 2016). Despite all these possibilities, when conducted rigorously, online surveys can be a useful tool to rapidly gain large amounts of data from targeted samples (Ball, 2019).

The survey was reviewed and approved by both the Notre Dame and the WACHS Human Research and Ethics Committees (HRECs), the WACHS Clinical Governance Department, and both university research supervisors to ensure face validity. The survey was not tested for reliability given the nature of the tool purpose was to understand the participants' perceptions at one set point in time. Reliability is important for tools used over periods of time (Ball, 2019).

### **3.3.2 Interviews**

Qualitative interviewing is a data collection method that is used in a range of methodological approaches (Côté & Turgeon 2005). Qualitative data collection excludes the use of numbers and statistical methods, using the written or spoken word, images, pictures and video. Qualitative analysis strategies include thematic, content and narrative analysis and are selected for their suitability to a particular research question (Halcomb & Davidson, 2006). Interviews provide access to participants' personal perspectives and relevant experiences (Moser & Korstjens, 2018). The 'in-depth interview' via video conferencing was used in this study with the aim of providing a detailed understanding and exploration of the research questions (Fritz & Vandermause, 2018). This study, by applying qualitative interviews, holds the potential to give voice in order to give greater meaning to the data identified in the surveys (Reeves et al., 2015). Ethical dimensions of taking up time from interviewees were considered, and therefore, only participants with insight and experience of WACHS inter-hospital patient transfers were included, using the eligibility criteria (see Figure 20, pg 80). It is important that the interview guide aligns with the methodological approach (Laksov et al., 2017) to ensure that methods of analysis chosen and representation of data enable the assessment of quality and credibility of findings (Rose & Johnson, 2020). Semi-structured interviews were applied, meaning that the interview guide included a number

of predetermined questions, but the interviewer could probe in order to dig deeper into the interviewees' responses through follow-up questions (Lingard & Kennedy, 2010). The structure of the interview was designed in such a way that initial questions were 'easy' to make the interviewee comfortable and to familiarize him/her with the subject of the interview. Further into the interview, more involved questions were asked, increasing the chances of those questions being answered considerably as opposed to if they were posed as the first question of the interview (Lingard & Kennedy, 2010). The interviewees were asked a final question, 'Is there anything more you would like to add?', to conclude the interview.

The main disadvantage of interviews is that the answers or responses are dependent on the participant's memory, and the information provided may be filtered and influenced by the social context of the interview (Rogoff, 2003). As a result, the interviewees were offered an opportunity during the interview to refer to available sources of information to verify the facts (e.g. go into the database to confirm the number of relevant clinical incidents) if they deemed it necessary. The interview questions were reviewed and approved by both university research supervisors and both HRECs.

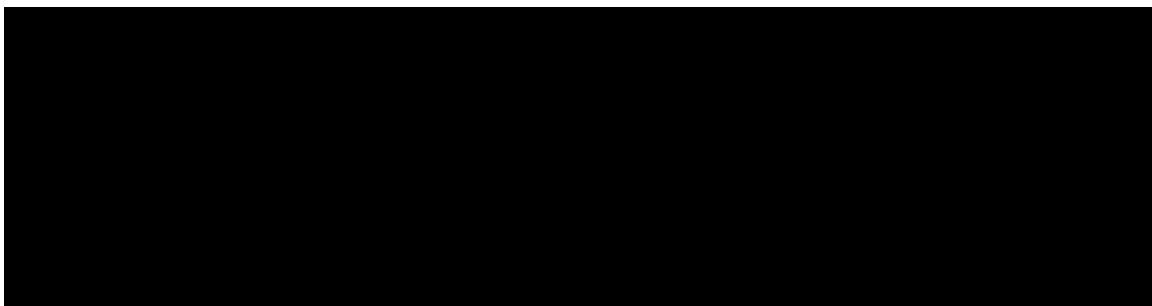
### **3.4 Research Design**

Creswell (2014) supposed that researchers must reflect upon the strategies they intend to use within their study, which will in turn inform their methods and question how they will collect and analyse information. Denzin and Lincoln (2011) considered research design to be made up of different types of inquiry, which fall under different approaches. Further, Creswell (2021) regarded the development of modern technology as providing a multitude of opportunities for innovative research design and advanced data collection procedures in social sciences. The design used in this study—

explanatory design—was chosen as the two-stage design uses quantitative data initially to explain the phenomenon, which can then be further explored using qualitative data (Creswell & Creswell, 2018). This is illustrated in Figure 19.

**Figure 19**

*Sequential Explanatory Design Adapted from Creswell & Creswell (2018)*



**3.4.1 Phases of the Study**

This study was conducted in two phases. Phase one was the completion of the online survey and phase two was interviews. Both quantitative and qualitative data were collected during the survey using the semi-structured questionnaire. The responses from the participants were analysed to familiarise the researcher with the subject matter even further and to devise an interview guide. The survey explored the nurses' perceptions about their ability to manage clinical care and deterioration during nurse escort hospital transfers. The responses from the nurses were then used to inform Phase Two, which collected qualitative data through in-depth interviews. The interviews collected qualitative data that were analysed further for themes and interpreted together with the responses from the surveys.

**3.4.1.1 Phase One: Staff Surveys**

The research commenced with a broad survey from the sample of convenience in order to generate a larger response rate (Saunders et al., 2015). The survey was designed to collect both qualitative and quantitative data through open- and closed-

ended questions (see Appendix C). This sample consisted of all the RNs in the Wheatbelt region that met the inclusion criteria. The survey explored nurses' perceptions about their preparedness and ability to care for a patient during road transportation. The survey was distributed as a link via individuals' health service emails. These data were collected over a 12-week period. The survey sought to understand the phenomenon of nurse-led ambulance inter-hospital transfer, in particular (i) clarification of the level of training of the individual nurse escort, (ii) the prevalence of clinical deterioration during nurse-led ambulance transfers, and (iii) the confidence of the nurse to manage patient care and clinical deterioration.

#### ***3.4.1.2 Phase Two: Interviews***

In the second phase, data were collected by in-depth interviews using the semi-structured interview guide from the nominated purposive sampling (senior leader participants), which was finalised after analysis of the survey data (Loskutova et al., 2019). Because of the distances within the Wheatbelt region, face-to-face interviewing also included interviews conducted via videoconferencing.

#### **3.4.2 Site and Sample**

The study was conducted in the WACHS Wheatbelt region, which extends from the coast north of Perth to the western boundary of the Goldfields and south from the Darling Scarp to the northern boundary of the Great Southern region (see Figure 4). There are 4 integrated district hospitals, Narrogin, Northam, Merredin and Moora; 18 small hospitals; 2 primary healthcare demonstration sites; and 15 health centres or nursing posts and clinics. This study topic included all nurse-led ambulance patient transfers conducted between sites and from all sites to the metropolitan Perth areas.

### ***3.4.2.1 Phase One: Staff Surveys***

The study sample for Phase One was limited to RNs with experience of being escorts on nurse-led ambulance transfers in the last 5 years (to support memory recall) and did not include paramedic or RFDS transfers. The sample population included RNs in the WACHS Wheatbelt and excluded all agency nurses, enrolled nurses, student nurses and graduate nurses. The agency nurses were excluded because agency nurses work across Australia and their training and experience is very varied; therefore, they are not true representatives of WACHS nurses. The skill sets of enrolled nurses, student nurses and graduate nurses are very different from that of the RNs. This was the convenience sample.

Convenience sampling is a non-probability technique of sampling that uses easily available, convenient participants, without specific inclusion criteria, to collect primary data (M. N. K. Saunders et al., 2015). The most common criticism about convenience sampling is the fact that the sample is not randomly drawn and therefore biased (Salkind, 2010). However, this type of sample is appropriate for the scope and intent of this study (Gall et al., 2007). The WACHS email address book was used to recruit the sample population. The region currently employs 636 nurses, of which 464 are eligible RN participants (Government of WA Department of Health, 2019). Using Yamane's simplified formula for proportions (Yamane, 1967), the RN sample size was determined as 214.8 which is included in the population of 464. The confidence interval was determined at 95% and the degree of variability assumed as maximum variation ( $p = 0.5$ ). The sampling error determined for this sample size is 8%. However, the number of eligible RNs who have engaged in nurse-led ambulance inter-hospital transfer in the last 5 years is unknown, and given the criteria, the number of sample size

may be much less. Responses that have more than 10% missing data will be excluded from the survey.

### **3.4.2.2 Phase Two: Interviews**

Phase Two sought to understand the health service senior leaders' perspectives of nurse escorts. A purposeful sampling approach was used (Silverman, 2010) with selection/eligibility criteria to include executives and decision-makers to determine the expectations from the regional office and whether there were any gaps from the findings of Phase One. This group formed the nominated leadership sample (Doody & Noonan, 2013). The interviews were conducted using an interview guide that was confirmed on the findings of the first phase (De Chesnay, 2015). These nominated leaders included members of the patient quality and safety team, risk management officers, emergency telehealth doctors, health service managers/directors of nursing, and representatives from WACHS head office. The interviewees were WACHS leaders that met the eligibility criteria as per Figure 20. The goal sample size was 5 – 8 leaders.

### **Figure 20**

#### *Eligibility Criteria for Interview Applicants*

##### Eligibility Criteria

Candidates for interview in the research project 'Nurse Escorts' Perceptions of Their Ability to Manage Patient Clinical Deterioration During Nurse-Led Inter-Hospital Ambulance Transfer in the Wheatbelt Region of Western Australia: A Mixed Methods Study' must meet ALL the elements of the following eligibility criteria:

1. professional appreciation and respect for nursing research and the research question;
2. ability to effect regional policy formulation and influence change of practice;
3. demonstrated ability to foster a culture of continuous improvement and commitment to improving patient outcomes;
4. demonstrated leadership in providing development opportunities and training of staff to enhance performance and empowerment of nurses in the region;
5. adequate knowledge of the region and its workforce;



6. experience or knowledge of inter-hospital patient transfer practices within the Wheatbelt region; and
7. demonstrated knowledge of patient transfer issues within the region.

### **3.4.3 Data Collection Methods**

The qualitative and quantitative elements of data collection and analysis of the mixed methods approach complemented each other and provided triangulation (Renz, et al., 2018). An approach that was multi-level, overlapping and dynamic was used to develop a deeper understanding of the research (Terrell, 2012). This approach also ensured that data were collected and interpreted on the basis of reigning practical issues and demands (Creswell et al., 2004). The following subsections explain the data collection phases.

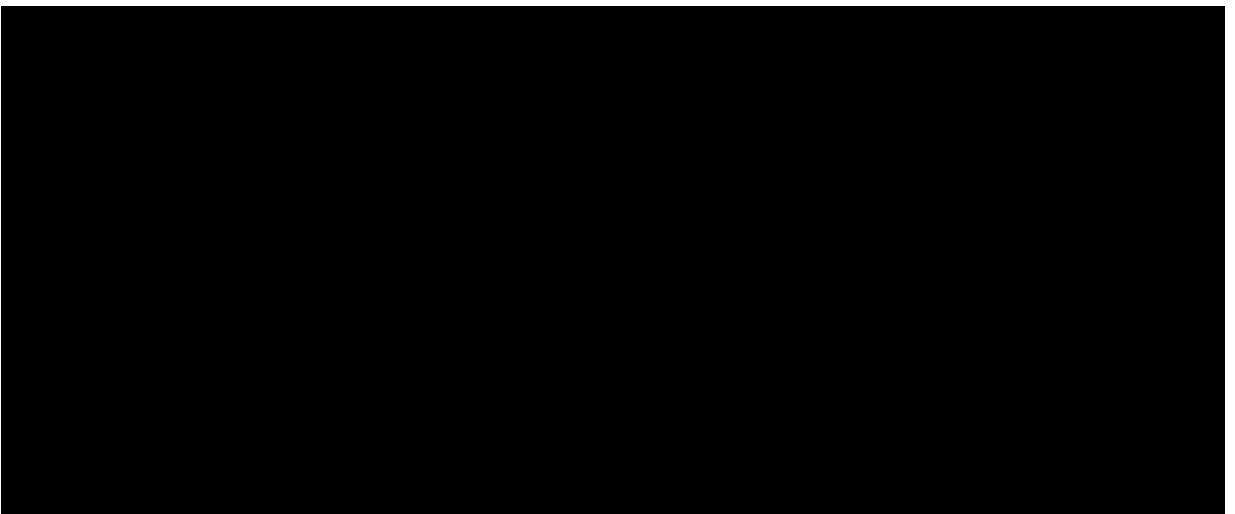
#### ***3.4.3.1 Phase One: Staff Surveys***

The survey was conducted using an electronic data collection tool (DCT). The DCT comprises a WACHS electronic form, which is accessed by staff and used to enter data, and a data grid (similar to a simple spreadsheet) where the administrators of the data collection can view the collected data. A link to access the DCT and the participant information sheet was distributed via emails to all the RNs in the WACHS Wheatbelt who met the eligibility criteria. As shown in figure 21 only RNs who had conducted a nurse-led ambulance transfer in the last 5 years were invited to participate in the recruitment email. The survey was initially anticipated to be made available for 6 weeks, and in that period, three separate emails were to be sent to remind them of the return date of the survey at 2-week intervals. However, because of the slow uptake due to the competing priorities imposed by the COVID-19 pandemic, this period was extended by another 6 weeks from the end of July 2020 to the beginning of November 2020. There were reminders on the popular *Friday Flick*, which is a WACHS Wheatbelt

publication that goes out to all employees in the region, encouraging staff to participate in the survey, as depicted in Figure 21. Normally, this is a weekly publication, but because of the pandemic, it was changed to a monthly publication for this period of time, which further hampered recruitment.

**Figure 21**

*Recruitment for Online Surveys (Regional Nursing and Midwifery Update 26 June 2020)*



It was estimated that it would take on average 20 minutes to complete the survey. The survey was designed to save the answers and allow the participants to continue later in case of interruptions while completing the survey.

The survey had four broad sections: Demographics, Clinical Experience, Policies and Procedures, and Attitudes Towards Patient Transfer (see Appendix C).

3.4.3.1.1 Demographics

This section contained four questions, with assigned numerical values. The four questions enquired about respondent sex, age, years of nursing experience, and the approximate number of hospital transfers conducted in their nursing career.

#### 3.4.3.1.2 Clinical Experience

The participants were all RNs, but three different levels were identified: registered nurses (Level 1), clinical nurses (Level 2), clinical nurse managers and senior registered nurses (SRN level). The requirement was that the RNs should have participated in a nurse-led ambulance transfer in the past 5 years. This section detailed the clinical experience of the participants and any specialised training. The survey questions were designed to lay the foundation to explore the relationship between clinical experience and perceived patient outcomes.

#### 3.4.3.1.3 Policies and Procedures

This section contained open-ended questions regarding whether the participant believed that the WACHS Assessment and Management of Interhospital Patient Transfers Policy (WACHS,2017) was followed as per requirements. This section was designed to explore and provide information on any barriers and enablers related to policies and procedures in practice.

#### 3.4.3.1.4 Attitudes

This section of the survey allowed the participant to provide open-ended, short responses. The questions explored the nurses' confidence, experiences, feelings, preparedness, skills and knowledge in recognising and intervening for acute clinical deterioration of the patient during transfer. In addition, a question explored the nurses' perceptions on the need for specific training aimed at patient care during transportation and the benefits of such training.

#### **3.4.3.2 Phase Two: Interviews**

Interviews were undertaken in Phase Two. Participants were senior leaders in WACHS. The interviews were undertaken by the researcher, who works for WACHS Wheatbelt and has in-depth knowledge of clinical practices and operational expectations

of the executives within the region. The interviews were conducted either in person or via videoconferencing. The questions were targeted and took between 30 and 40 minutes. All interviews were conducted by the same interviewer (the researcher) to ensure consistency across interviews (Liem, 2018).

According to De Chesnay (2015) and Doody and Noonan (2013), one of the most important tools in collecting qualitative data is the interview guide. Using the interview guide ensured that all the interviewees were asked the same questions, but this still allowed for a degree of freedom and adaptability (Ezzy, 2010). The interview questions were structured around Patton's six types of questions (Patton, 2015): behaviours, opinions/values, feelings, knowledge, sensory and background/demographics (Trotter, 2012). These six question types formed the headings of interview guide questions. According to Patton (2002), this structure and technique of using questions enables the researcher to fully explore the interviewees' feelings, thoughts, intentions and past behaviours. This was important in this qualitative exploration as it is built on the assumption that every participant perspective is meaningful (Brayda & Boyce, 2014). The interview questions were constructed using the survey responses from Phase One (Trotter, 2012).

#### **3.4.4 Data Analysis Methods**

Data analysis is the process of collecting, modelling and analysing data to unearth the meaning that supports decision-making (Mertens, 2017). Data analysis methods are usually broadly divided into quantitative and qualitative data analysis methods (Miles et al., 2014). In a mixed methods study, both data analysis methods are used.

#### ***3.4.4.1 Phase One***

Quantitative data (closed-ended responses) from the Phase One survey were analysed using descriptive statistics, and thematic analysis was used for the qualitative data (open-ended responses), to provide an understanding of differences between variables (Greene & Caracelli, 1993). For the quantitative data, Microsoft Excel was utilised as it supports the exploratory data analysis triple pillars of flexibility, forgiveness and ease of computation (Morgenthaler, 2009). Descriptive statistics provided a way to summarise data from an array of values to a single value or values that adequately communicated the properties of the sample (Turner & Houle, 2019). Participant characteristics such as age, clinical experience and number of transfers conducted were distributed and summarised as a median and range. A median is not as affected by skewed scores and is a better representation of central tendency than the mean in skewed data (Cohen & Lea, 2012). All variables were reported with the same measure of central tendency and variability according to the characteristics of each variable (Namani & Balcer, 2008).

#### ***3.4.4.2 Phase Two***

Qualitative data from the open-ended survey questions and the Phase Two interviews were themed separately. Theming of the open-ended survey questions also informed the final development of the interview questions. The interviews involved one interview of each participant such that the total number of interviews was seven. Probing and prompting to ensure an in-depth understanding of the phenomenon occurred (Creswell, 2007).

Thematic analysis is a method for identifying, analysing, organising, describing and reporting themes found within a data set (Braun & Clarke, 2021a). This method of data analysis is a useful method for examining the perspectives of different research

participants, highlighting similarities and differences and generating unanticipated insights (Braun & Clarke, 2021a; King, 2004). Thematic analysis is presented as a linear progressive six-phased method, as outlined by Braun and Clarke (2021a). The six phases are as follows: familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. As recommended by Braun and Clarke (2021b), reading of the entire data set was done at least once before beginning coding to ensure familiarisation with all aspects of the data to promote emerging of ideas and identification of possible patterns. Collected raw data from both the surveys and the interviews were archived to provide an audit trail and a benchmark against which later data analysis and interpretations could be tested for adequacy (Lincoln & Guba, 1985). To support data credibility, both university supervisors independently read and coded transcripts, followed by a joint discussion to support consistency of interpretation. Each reader agreed that saturation of data had occurred by completion of the seven interviews, and no further data collection was necessary.

Data collected were then compared to establish convergence and complementarity of both qualitative and quantitative methods by using triangulation (Creswell & Creswell, 2018). Data integration ensured that the sum of quantitative and qualitative data becomes more than just its individual parts (Moseholm & Fetters, 2017). The responses were recorded, transcribed and analysed using NVivo software which is a qualitative data analysis computer software used in data organisation and analysis (Silver & Lewins, 2014).

### **3.5 Ethical Considerations**

This study was conducted with the approval of the University of Notre Dame Australia HREC (approval number 2020-039F) and the WACHS HREC (project

approval number RGS3941). WACHS HREC is registered with the National Health and Medical Research Council (NHMRC). As recommended by the NHMRC (2019), consideration of the risks and benefits of the research (including participants' perceptions of risks and benefits) and participants' consent are essential. The researcher considered all potential harm including discomfort and inconvenience for the participants. The research was assessed as 'negligible risk', with no foreseeable risk of harm or discomfort, and any foreseeable risk was considered no more than inconvenience. The researcher undertook measures to minimise risks and harm to participants by providing detailed participant information sheets, as outlined in Appendixes D and E. The participant information sheets outlined details of how data would be collected, stored during research and archived after the research. No coercion or pressure was applied to the participants prior to or during the survey or interview process, and participants were given the option to withdraw at any time.

The HREC ensures that all human research undertaken within WACHS meets the ethical and scientific standards established by the NHMRC (2019). These approvals were sought before the commencement of the research. The participants who undertook the survey, by submitting their responses gave informed consent; however, a provision was made before submitting the response to exit without submitting if they did not feel comfortable for any reason, without having to give their reason. This was deemed as adequate consent in relation to the respondents' level of education. The survey was completed anonymously as it did not request any personal identifiers, and there was no way for the researcher to identify who had completed the survey. The privacy of the respondents was upheld according to WA Health Research Governance Policy and Procedure (Western Australia Department of Health, 2012) and the WA Health Single

Ethical Review Standard Operating Procedure (Western Australia Department of Health, 2013).

Interviews were conducted with the purposely selected sample of WACHS leadership, who were also given an interview participant information form, as per Appendix E. The interviewees were requested to sign the consent form after reading the interview participant information form and agreeing to participate in the study (see Appendix F).

This study did not involve any patients or vulnerable groups. Access to WACHS participants did not commence until ethical approval and local governance approval were granted. The WACHS and Notre Dame HRECs monitored the progress of the research from approval until completion to ensure that the research project continued to conform to ethical standards, in accordance with Chapter 5.5 of the *National Statement* (NHMRC, 2007). The researcher was expected to submit progress updates in which ethical and security matters were addressed, as illustrated in Figure 22.

## Figure 22

### *Progress Report Submitted Periodically During Research*

Progress Report 12/02/2021

<< Previous    Print    Close

To find information on Research A

#### 8. Declarations

I declare that:

1. The information provided is true and accurate.
2. All project investigators are made aware of and comply with the ethical and governance requirements of the project; and conditions of ethics approval and site authorisation, including amendments.
3. Any data/samples accessed or obtained for the purposes of this project will not be used for any other project or released to any third party not specified in the original or amended application.
4. Any further changes to the project documentation, timeline, personnel or sites will be notified in writing to the reviewing HREC(s) and/or the relevant RG Office for any site involved with the project.
5. I am aware that the HREC and/or the site reserve the right to monitor the progress of projects more intensively. This monitoring may include site visits, interviews and/or documentation checks.
6. I am aware that this report will be provided to the HREC and RG Office and may also be released to others in accordance with the original terms of approval for this project.

Name	Position	Signature
Sinq Mndebele	PI Delegate, CPI	Signed

There were no anticipated risks in participating in this study. However, provision was made for participants during the course of the study if any concerns emerged or past adverse experiences were relived, which may be upsetting; participants



were advised to seek professional, confidential and free counselling through the Employee Assistance Program on (Phone) 1800 818 728 or (Fax) 61 8247 9199 or [accesseap.com.au](http://accesseap.com.au). This was important because according to Gelling (2016), such procedures not only attend to ethics but also lead to more credible data.

More than just procedural ethics prescribed by the organisations mentioned above, the researcher exercised situational ethics. Situational ethics refer to ethical practices that emerge from a reasoned consideration of a context's specific circumstances (Ellis, 2007). It can be further defined as flexibility in the application of moral laws according to circumstances rather than a rigid universal code of conduct (Rosenthal, 2019). This special consideration was applied when specific, purposely identified individuals were approached and requested to participate in Phase Two. Phase One respondents were not identified or known by the researcher, but Phase Two constituted interviewees that were known and identified by the researcher. Their views were de-identified, and they were reassured and consented to the interview because they knew that the research would be upheld by ethical standards that protect them. Ellis (2007) also describes situational ethics as the consideration given to the unpredictable, often subtle, yet ethically important moments that come up in the field. Figure 23 illustrates the communication that was sent to the interviewees and outlines the steps taken to ensure that the interviews were conducted ethically.

## Figure 23

### *Extract of Email Sent to Interviewees*

Greetings

I am a research student with the University of Notre Dame. I am conducting a research study about **Nurse Escorts' perceptions of their ability to manage patient clinical deterioration during nurse led inter-hospital ambulance transfer in the Wheatbelt region of Western Australia: A mixed method study**. Following the survey of the nurses involved in these transfers you are being asked to participate in an individual face to face / video conferencing interview about your views on how well-equipped nurse escorts are in managing clinical deterioration during road transportation of patients in WACHS – Wheatbelt. The interview will take approximately 30-40 minutes and will be audio-recorded using an iPhone. The interview will take place at a mutually convenient location. You are also asked to read the attached information sheet prior to participating in the interview. The interview has six broad sections namely: behaviours, opinions/values, feelings, knowledge, sensory, background/demographics. The guide has been attached for your convenience. If you are happy to participate, please sign both copies of the consent form, keep one for yourself and email the other to me on [sinq.mndebele@my.nd.edu.au](mailto:sinq.mndebele@my.nd.edu.au). I will then contact you to arrange the date and time for the interview. If you have any questions, please do not hesitate to contact me on [REDACTED] [sinq.mndebele@my.nd.edu.au](mailto:sinq.mndebele@my.nd.edu.au) or the university supervisors: Associate Professor Kylie Russell 9433 0654 [Kylie.russell@nd.edu.au](mailto:Kylie.russell@nd.edu.au) or Dr Tracey Coventry on 9433 0627. [Tracey.coventry@nd.edu.au](mailto:Tracey.coventry@nd.edu.au)

Thank you for your time.

Sincerely

Relational ethics involve an ethical self-consciousness in which researchers are mindful of their character, actions and consequences on others (Tracy, 2010). Relational ethics are related to an ethic of care that recognises and values mutual respect, dignity and connectedness between the researcher and the researched, and between researchers and the communities in which they live and work (Ellis, 2007). For example, although none of the interviewees identified as Aboriginal or Torres Islander descent to the researcher, acknowledgement of traditional ownership of the land that the interviewees were from was acknowledged at the beginning of the interview, a philosophy that is encouraged every time there is an interview or a meeting within the WA hospitals or

health services (Government of WA Department of Health, 2016). Gonzalez (2000) emphasised that the researcher should always respect others by allowing participants to assist in defining the rules of the research and helping the researcher to practically understand the ramifications of violating the traditional ways of doing things. Managing relationships was important because the researcher knew most of the interviewees, and care was exercised to ensure that the existing relationships did not affect the credibility of the study. This was achieved by involving the two university supervisors in every step of data collection, data analysis and interpretation of the results. Interviewees had the contact details of the university supervisors and were welcome to contact them at any time; in addition, both the university HREC coordinator and WACHS HREC details were available.

Finally, ethical considerations continue beyond the data collection phase to how researchers leave their participants and share the results (Tracy, 2010). As part of exiting ethics (Fine et al., 2000), an email and an article were written in the weekly publication to inform the participants that the research had been concluded and that they would be notified once the results were out, as per previous communication. Fine et al. (2000) acknowledged that researchers never have full control over how their work will be read, understood and used. However, they can consider how best to present the research so as to avoid harm or unintended consequences. This work also involved the writing of this thesis to ensure that the results of this study met all the academic writing requirements. Participants will also be notified of the thesis location on graduation, and of any future publications.

Information gathered from both the respondents to the survey and the participants from the interviews was held in strict confidence. There was a provision in the communication before and during data collection that this confidence would only be

broken if required by law. The audio-recordings from the interviews were transcribed and stored on a password-protected network computer, and were then deleted. The transcribed data were stored securely, with access restricted to authorised persons involved in this research, namely, the researcher and supervisors. At the completion of the study, the data will be stored securely at the School of Nursing and Midwifery at the University of Notre Dame Australia for at least 5 years (National Health and Medical Research Council, Australian Research Council and Universities Australia, 2019). These data may be used in future research and may be published in peer-viewed journals, but no participant will be identifiable. Any journal articles or conference papers can be made available to participants at their request, and this has been communicated to the participants.

### **3.6 Summary**

This chapter has provided an in-depth discussion on mixed methods and provided a summary of qualitative and quantitative methods separately. Theory and method triangulation were then discussed. Research techniques and design formed the greater part of this chapter, with survey sample and size explored, including the conduction of interviews. The chapter concluded by considering the four types of ethics that were considered while undertaking this research under the ethical consideration subheading. The next chapter provides an in-depth analysis of the research findings across both the survey and the interview methods.

## **Chapter 4: Data Analysis and Findings**

### **4.1 Introduction**

Chapter 3 discussed the chosen research design, techniques and methods. A summary of the mixed methods design was provided, followed by a more detailed exploration of qualitative, quantitative and triangulation methods. This chapter discusses the data analysis and findings in the sequential order in which the data were collected, including data from the survey and interviews. The survey results (Phase One) are presented as both qualitative and quantitative data and provide the nurse escorts' perspectives in relation to nurse- led inter-hospital patient transfer. The excerpts from the interviews (Phase Two) explore the gaps and concerns identified in Phase One. Further, Phase Two provides an overview of what is expected from the management perspective, the current realities, and acknowledgement of the constraints and threats to safe inter-hospital patient transportation within the region. The chapter concludes with a summary of the overall findings of the study.

### **4.2 Phase One**

This phase consisted of surveys that were conducted online using the anonymous DCT sent to participants via email as a link that took them directly to the DCT. The survey was available over a 12-week period, and a total of 52 RNs participated. The respondents were RNs from the WACHS Wheatbelt region and excluded agency nurses that might have been working or had worked in the region. In the planning phase, it was anticipated that the survey would be conducted over a 6-week period; however, because of the competing priorities of the COVID-19 pandemic, the uptake was slow. The survey was then extended for a further 6 weeks. The survey was promoted via the monthly Wheatbelt nurses' publication, which has evolved from being called the weekly *Friday Flick* to the monthly *Wheatbelt Regional Nursing and*

*Midwifery Update*. A total of 469 RNs were sent an email from the Regional Director of the Nursing and Midwifery Office, asking them to participate in the survey. This number included all RNs in the Wheatbelt regardless of where they worked and whether or not they had conducted any inter-hospital transfers. It was anticipated that approximately a third of this number would be eligible, that is, they would have conducted a nurse-led inter-hospital ambulance patient transfer in the last 5 years. T.

#### **4.2.1 Data Analysis**

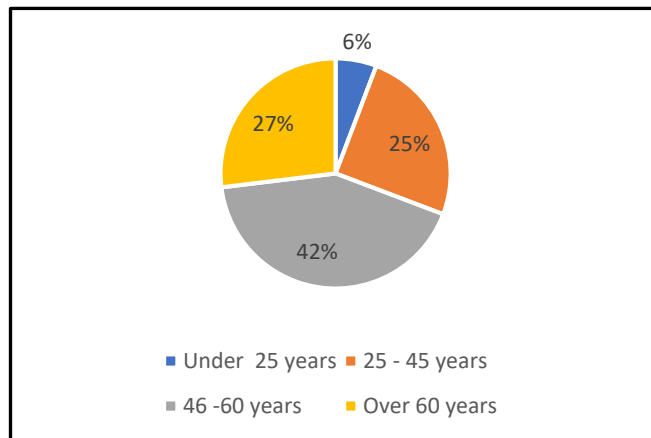
A total of 52 respondents completed the survey, and data from their responses were analysed using Microsoft Excel. All participants met the criteria for experience as nurses assigned for nurse-led inter-hospital patient transfer in the past 5 years. The online survey was designed with a skip logic that ended the survey as soon as the respondent indicated they had not conducted any transfer in the specified period. The quantitative data were processed and presented as pie charts. Qualitative data, where the respondents were requested to clarify, elaborate or comment on the quantitative data, were then used to provide further depth to the results presented.

#### **4.2.2 Participants' Demographics and Clinical Experience**

The RNs were divided into four broad groups by age range. The largest group of participants (42%,  $n = 22$ ) were aged 46–50 years, followed by those over 60 years (27%,  $n = 14$ ) and those aged 25–40 years (25%,  $n = 13$ ). Participants aged under 25 years ( $n = 3$ ) accounted for 6%. The age ranges are captured in Graph 1. This age distribution reflects the employment details of nurses in the region and is representative of the WACHS Wheatbelt nursing workforce, as discussed in Chapter 1.

### Graph 1

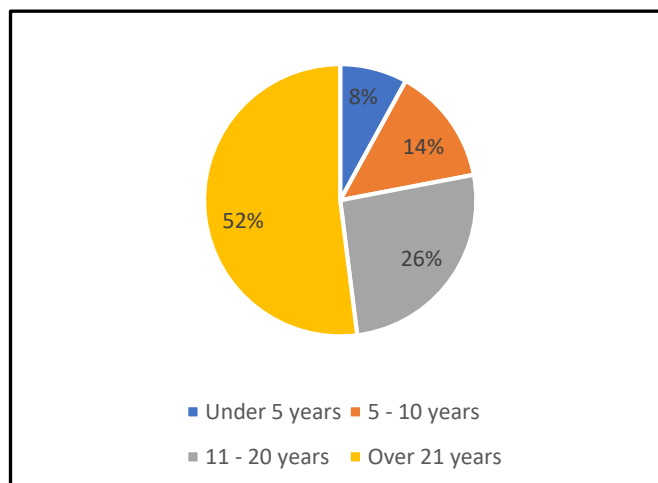
*Age of Nurse Participants (n = 52)*



The years of nursing experience are depicted in Graph 2, and were grouped into four ranges: under 5 years (8%,  $n = 4$ ); 5–10 years (14%,  $n = 7$ ); 11–20 years (26%,  $n = 13$ ); and, the majority, more than 21 years (52%,  $n = 26$ ). These data revealed that although the majority of the respondents had more than 10 years’ nursing experience (78%,  $n = 39$ ), there were some nurses who had worked for less than 5 years (8%,  $n = 4$ ) and were conducting inter-hospital patient transfers, as shown in Graph 2

### Graph 2

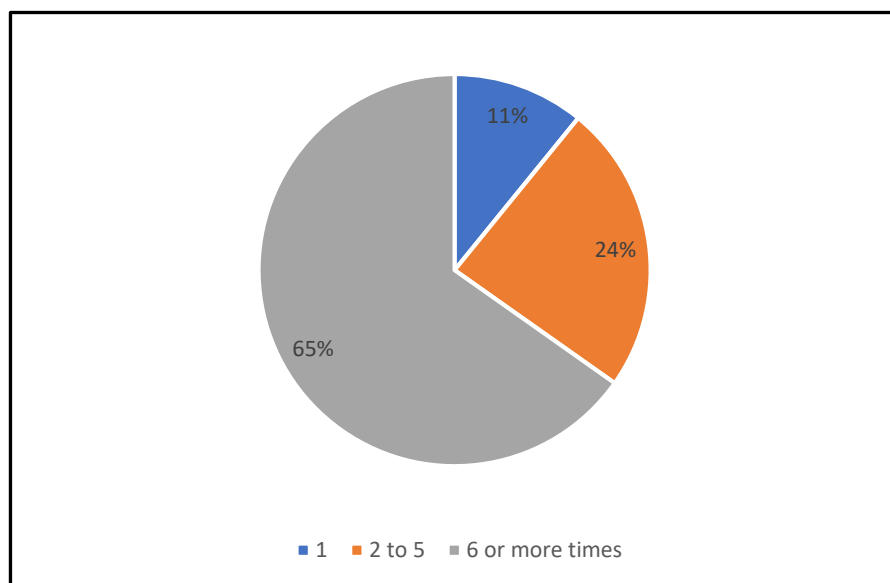
*Years of Nursing Experience (n = 51)*



Further, the survey aimed to identify the prevalence of inter-hospital transfers and the experience of the nurses who were conducting them. Of the 46 respondents, 11% ( $n = 5$ ) had conducted a transfer only once, compared with 24% ( $n = 11$ ) who had conducted 2–5 transfers and 65% ( $n = 30$ ) who had conducted more than 6 transfers, in the past 5 years, as outlined in Graph 3.

### Graph 3

*Number of Inter-Hospital Patient Transfers Conducted in the Last 5 Years ( $n = 46$ )*

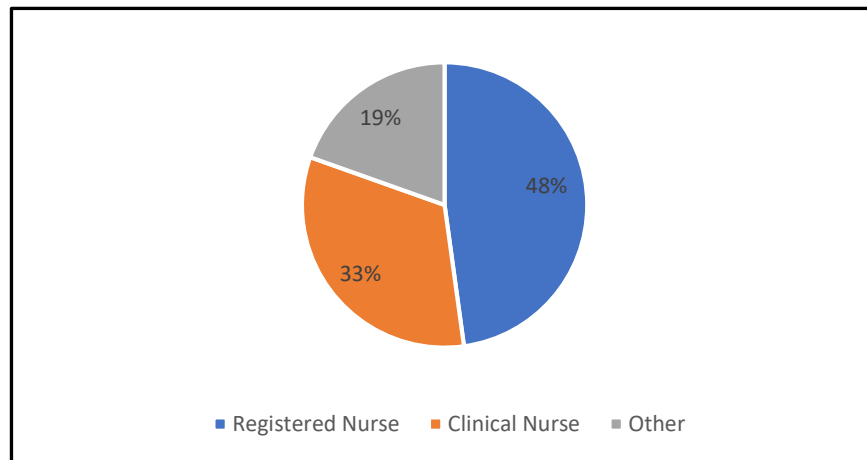


Graph 4 depicts the three nursing levels identified by participants: RN, clinical nurse and other (SRN, which includes RN Level 3 and upwards, mainly nurse managers). RNs accounted for 48% ( $n = 22$ ) of the participants; clinical nurses made up the second largest group at 33% ( $n = 15$ ), and SRNs accounted for 19% ( $n = 9$ ) of the participants. These rates are representative of the general nursing workforce in the Wheatbelt, as discussed in Chapter 1.



#### Graph 4

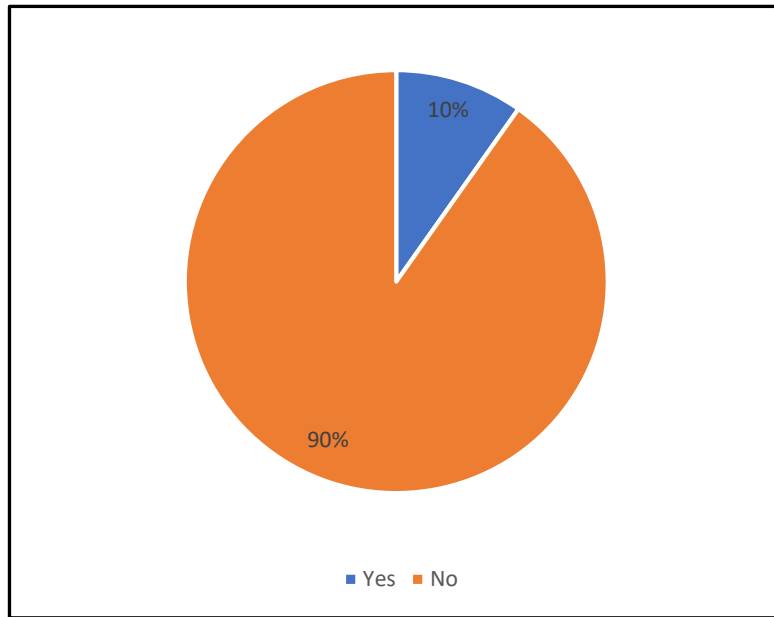
*Nursing Levels of Participants (n = 46)*



Most nurses (90%,  $n = 46$ ) did not have any postgraduate training in either emergency nursing or intensive/critical care, and of the 10% ( $n = 5$ ) who had these extra relevant qualifications, three were in possession of a graduate certificate and two had a graduate diploma (see Graph 6). No respondent had a master's or doctorate level qualification. However, most nurses (90%) had relevant training that is considered important in management of deteriorating patients, and in this study, this training was identified as advanced life support (ALS), advanced paediatric life support (APLS) and trauma nursing core course (TNCC), as depicted in Graph 7. It should be noted that in the WACHS Wheatbelt, it is mandatory for all RNs providing direct patient care to be competent in ALS.

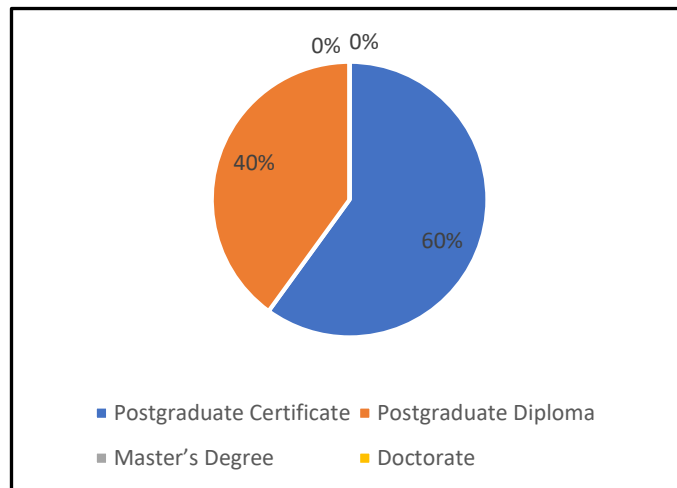
**Graph 5**

*Postgraduate Training of Respondents (n = 51)*



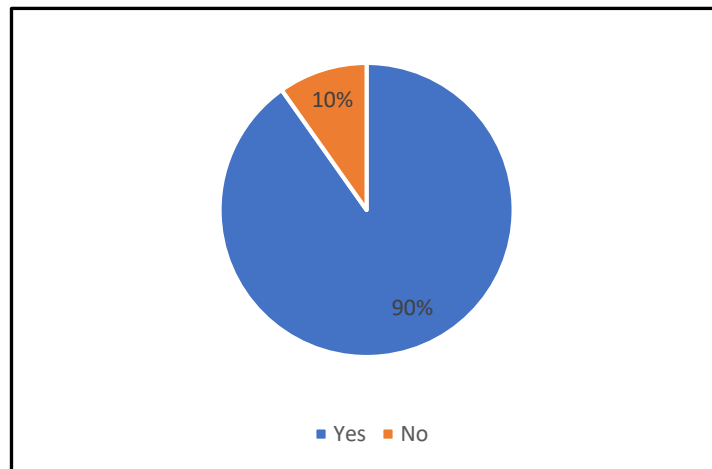
**Graph 6**

*Level of Postgraduate Training of Respondents (n = 5)*



## Graph 7

*Completed Relevant Training (ALS, TNCC, ALPS) (n = 51)*



### 4.3 Phase One Findings

Phase One qualitative and quantitative data are provided below, under the question section headings that were used in the survey. Initially, the quantitative data are summarised with the aid of pie charts and a brief description. This is then followed by the comments related to the survey questions that formed the qualitative part of Phase One. Survey questions were presented under the following headings:

- policies and procedures
- nurses' attitudes
- support received
- education and training

The summary of Phase One is then provided at the end of the section before outlining the findings of Phase Two.

#### 4.3.1 Policies and Procedures

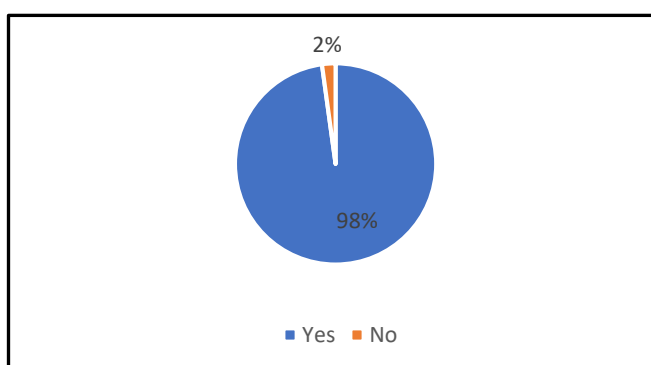
There was a total of five questions related to the topic of policies and procedures.

**Q: Are you familiar with the WACHS Inter-hospital Patient Transfer Policy? If yes, do you refer to it every time you transfer a patient? Give reasons for your answer.**

Graph 8 provides graphical representation of the findings for Question 1. The full name of the policy is Assessment and Management of Interhospital Patient Transfers Policy. The purpose of this policy is to establish minimum practice standards for the assessment, care and management of the patient requiring inter-hospital transfer from a WACHS facility.

**Graph 8**

*WACHS Inter-Hospital Patient Transfer Policy (n = 52)*



A number of respondents reported in the open-text comment box that they did not fully understand the policy and that they had not reviewed it recently, despite 98% being aware that it existed. There were varying reasons provided for not following or reviewing the policy, such as time constraints or difficulty in finding the policy online. The respondents further elaborated that there was often limited time to find the policy if the patient required the attention of the nurses on duty: ‘No. There is often little time to spend looking up policy if the patient is requiring the attention of the nurses on duty’. Meanwhile, others only reviewed the policy if they felt the transfer was complex, or it involved an uncommon presentation including specialty populations such as mental

health patients, maternity cases or paediatrics, or if they had been notified that there were changes to the transfer policy: ‘I would to confirm if anything has changes since the last update, to clarify the guidelines for transfer and determine the most suitable route of safe transfer for the patient’ and ‘No. Unless I have been made aware via email that there have been updates/changes’.

Some respondents expressed that the policy was not detailed enough to support their decision-making, while others indicated they used the policy for teaching, orientation and explaining transfer rationale to junior nurses and new staff to the region: ‘No—only for teaching and explaining the rationale junior/new staff or to ETS (who are generally excellent and understand our distances and difficulties getting volunteers)’.

**Q: What is the furthest distance you have had to transfer a patient?**

The following excerpt from the WACHS Assessment and Management of Interhospital Patient Transfers Policy (WACHS, 2017) aims to guide the medical officer responsible for the care of the patient at the referring hospital and who is responsible for making the initial assessment to determine the mode of transport required for the transfer:

*The following distance criteria will assist with determining the most appropriate mode of transport for critically ill or injured patients: • By fixed wing air – journeys greater than 180–200 km or not accessible by road call – RFDS 1800 625 800 • By road (less than 200 km one way) St John Ambulance (SJAA-WA): 131 233 • By emergency helicopter – journeys less than 200 km flying distance from Jandakot (Perth).*

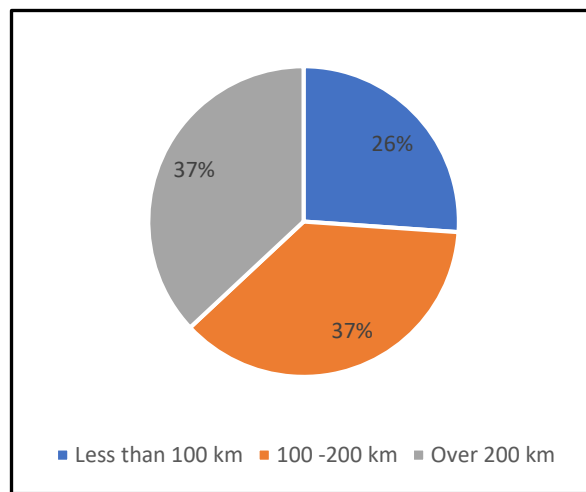
Almost all the respondents (98%,  $n = 46$ ) said they were familiar or at least aware of this policy. Interestingly, when the participants were asked what the furthest distance was that they had transferred a patient, 37% ( $n = 17$ ) reported that they had

transferred a patient over 200 kilometres one way. From responses received, the furthest distance travelled was 475 kilometres, with an average distance of 179 kilometres.

Graph 9 demonstrates that the recommended furthest distance of less than 200 km is not always adhered to, with some transfers of more than double the recommended distance being undertaken.

### **Graph 9**

*Distance Travelled to Transfer Patients (n = 46)*

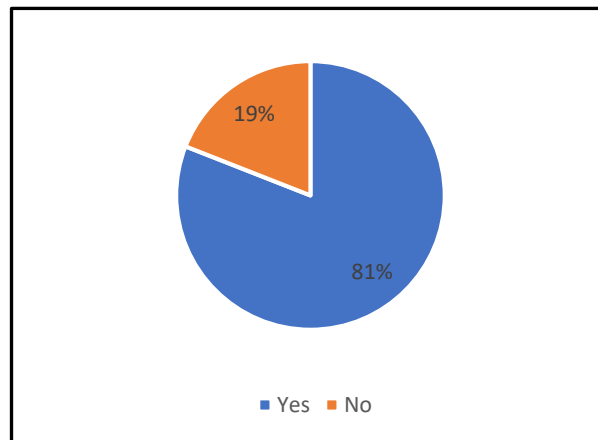


### **Q: Should your patient deteriorate during transfer are you clear about who to contact and how to contact them?**

Another important aspect that was highlighted by the RNs was the lack of clear guidelines on who to escalate care to during transfer. If these guidelines existed, the nurses were not aware of them (see Graph 10).

## Graph 10

*Aware of Who to Escalate Care to During Transfer? (n = 50)*



This appeared to be a gap that directly affected the confidence of nurses to manage clinical deterioration. The following responses demonstrated the extent to which the nurses were unsure of how to escalate care during road transportation:

*I would like to say I'm unsure, firstly I would contact the receiving hospital, then I would contact ETS or if we ever get Dr onsite the sending Dr. I would get advice from them and also ask St Johns to contact their own system to perhaps be met by a paramedic for support.*

Another respondent indicated, 'I find it quite bizarre, often no orders as to what measures can be used in back of SJA'. The following statement further demonstrates how the lack of clear guidelines may lead to a nurse not monitoring or even managing deterioration the way they would in a hospital setting: 'We were always told nurses have no jurisdiction in the back of an ambulance! We should go back to the old rules or if you were more than so many kilometres from Perth you used RFDS'. The type and quality of documentation to be kept during transfer was also covered by the same policy, and respondents were asked if they knew what documentation they were expected to keep.

**Q: What documentation do you complete during transfer?**

*There were varied responses, which demonstrated inconsistencies in applying the policy, and the practice in reality was based on the understanding, interpretation and clinical experience of the nurses, or the practice at a specific site. This is demonstrated*



in Table 8, which highlights their direct responses. **Table 8**

*Documentation Kept During Transfer*

ORC charts, progress notes
Using the ROC chart, medication chart
Inter-hospital transfer form (×4)
Observations chart—often hard to complete as road very bumpy
Inter-hospital transfer form copy of obs chart, MR1, lab reports, ECG
Obs charts are done on route, progress notes are written in retrospect
It is my understanding that St John’s volunteers can ring paramedic enroute.
Document observations (MR140) and continue MR1 with patient condition/pain score MR1A
Observation charts. Fluid charts if necessary. GCS if required (neuro observation). Sedation charts. Medication charts if required
During transfer we do not complete any documentation
MR140A, MR147, MR170A, MR55A
Observation chart, medication chart if required, progress notes (contemporaneous documentation) of patient’s condition and medications administered
WACHS inter-hospital transfer, observations
ISOBAR clinical handover
Observation chart. ED continuation notes
Inter-hospital transfer nurse escort checklist
WACHS Inter-hospital Clinical Handover. RFDS paperwork as required. Ambulance transfer record. Transfer checklist. Relevant medical records. Observation chart. Medication charts. Doctors referral records
Assist SJA/RFDS with completing documentation. I write patient’s notes when I return to hospital
As per protocol, patient transfer list and base line observation. Copies of vital MR1, post medical history, management and medication list
Obs chart, pain scale
Nil
Vital signs, medication administered relevant comments (×2)
VS obs chart, fluid balance chart, medication chart if required
OBS chart, patient notes if there are any event occurring en route
Inter-hospital transfer, depending on patient condition
Observation and medication and if changes ISOBAR handover
An MR1A (a fresh page, so that I document as the journey progresses)
Observations. MR1 continuation
I make an attempt to do a running commentary on patient and try for obs, a very difficult task as it’s a very bumpy ride
I write the vitals down and record in the nursing notes any changes or cares I have provided
I complete the MORC, PORC or A-RRCD charts as well as progress notes and medication if needed
We have a transfer pack with all relevant form
I have never filled in documentation during transfer except for inter-hospital transfer form, which we fill in prior to transfer
I am unaware of specific documentation to ‘patient transfer’ situation

From the variety of responses listed in Table 8, it can be argued that if the nurses were familiar with the policy, and were adhering to the policy, their responses would have been similar. Within WACHS policy (WACHS, 2017), there is a clear guide, with which 98% of the respondents reported they were familiar. This guide is provided as follows:

*The documentation to record patient observations, care plan, changes and medications during a transfer/escort of the patient by a WACHS clinician is to be continued on the photocopied documentation that accompanies the patient, and which is received by the receiving hospital/clinician. This provides a seamless account of the patient picture and supports early recognition of the deteriorating patient. (p. 8)*

In addition, and of interest, were the varied levels and type of documentation used during transfer. One respondent said ‘[there is] no documentation provided by WACHS to complete during transfer, all documentation is aimed for prior to transfer’, and another felt that there should be ‘a separate document for transfer that we use en route and then use in handover’. The quality or standard of documentation, which relates to the next question, was also of interest.

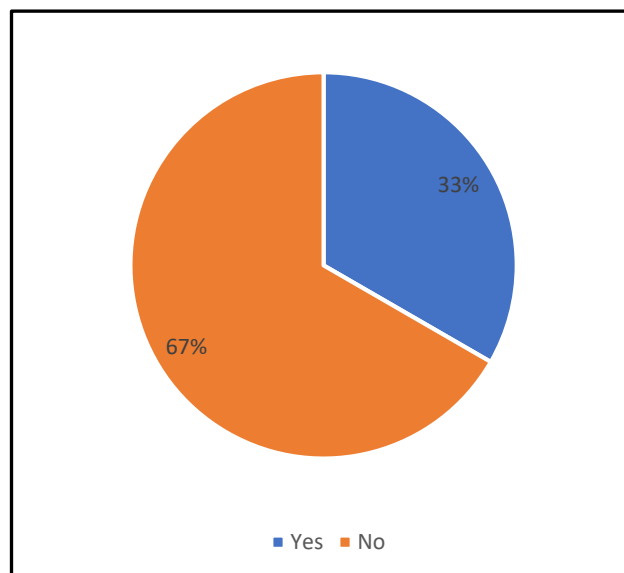
**Q: Do you feel it is the same quality as the documentation you keep while in hospital?**

Most respondents (67%) agreed that the documentation completed during the transfer was not the same quality as the documentation kept while at the hospital, as shown in Graph 11. Incomplete clinical documentation may contribute to poorer patient health outcomes, compromise safe patient care and contribute to inaccurate clinical coding. Clinical coding is a specialised patient data collection role, responsible for

submitting the clinical data elements that directly reflect the disease, injury and intervention concepts documented by clinicians relevant to an episode of care (Independent Hospital Pricing Authority, 2019). Documentation becomes even more important where there are changes in shift and inter-hospital patient transfers between facilities, and detailed, comprehensive and well-written clinical documentation is essential for continued safe patient care.

### **Graph 11**

*Quality of Documentation is the Same Outside the Hospital Setting (n = 52)*



There were also several reasons given for poor-quality documentation during hospital transfer. Physical challenges of monitoring and writing in a moving environment were by far the most common theme. The time factor and inability to monitor all core vital signs, especially blood pressure, were also mentioned. Respondents took the opportunity to provide further comments about the quality of documentation, such as other challenges with nursing patients in the back of an ambulance, as listed in Table 9. They alluded to the ambulance environment as affecting not just the quality of the documentation but a representation of suboptimal care that is

given during transfer. The respondents suggested that if the care provided during transfer is suboptimal, reduced quality or gaps in documentation may occur.

**Table 9**

*Reasons for Poor Documentation During Transfer*

Tricky to do much of anything in the back of a moving ambulance
Less ability to manage observations whilst in transport, utility of transport impedes care because not stationary
There is limited treatment given during an escort, mostly monitored. If you are given the primary care role on route you have no time to document.
Because the environment does not allow for the nurse to access what she may require, and we cannot plan for all situations. There are also limited resources, with the transfer nurse taking on the responsibility to make all clinical decisions.

**4.3.2 Nurses' Attitudes**

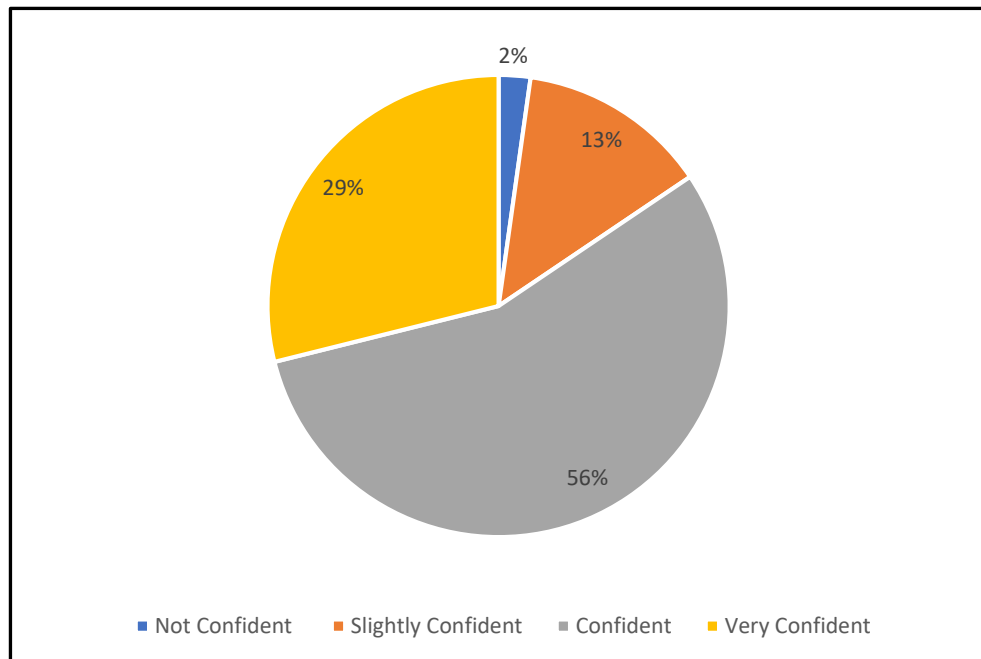
There was a total of five questions under the heading of nurses' attitudes.

**Q: Do you feel confident in your skills and ability to anticipate and recognise deterioration / complications during transfer?**

This section of the data collection supported answering the research question about the nurses' perceptions of their ability to manage clinical deterioration during hospital transfer of patients. Additionally, it was also important that the RNs were not just answering what they knew they should be doing but to provide a clear picture of the reality of what was being practised. The results of the confidence of nurses to manage clinical deterioration during transfers is captured in Graph 12.

## Graph 12

*Confidence of Nurses to Manage Clinical Deterioration During Transfers (n = 45)*



The majority of the respondents 56% ( $n = 25$ ) reported that they were confident; 29% ( $n = 13$ ) were very confident, 13% ( $n = 6$ ) slightly confident, and 2% ( $n = 1$ ) not confident. For more insight, the respondents were asked how they thought nursing patients in the back of the ambulance differed from nursing patients within the hospital environment.

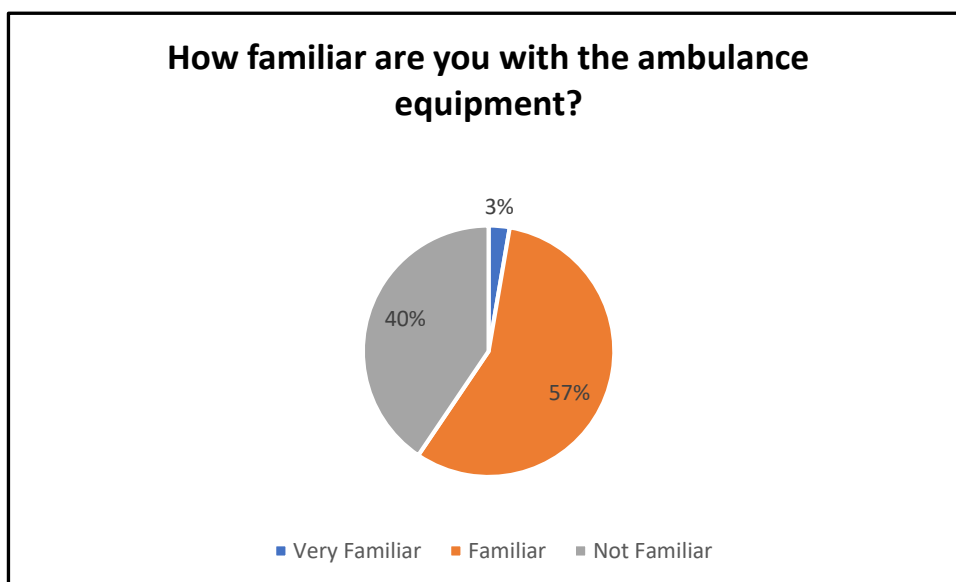
**Q: Please describe how do you think nursing a patient in the back of an ambulance differs from nursing in the hospital setting?**

Similarly, the theme of physical environment and constraints was again reported, such as: 'Less working space, not at all comfortable, most of the time one ends up with a sore back' and 'The environment is different. Limited support systems in place. Unexpected events can occur e.g. tyre blow out, that puts everyone at risk. No reporting mechanism available to report this'. Some respondents mentioned the lack of clinical support due to either working with a new team with limited clinical skills, such

as SJA volunteers, or the inability to contact qualified clinicians because of the ambiguity of who to contact or lack of phone coverage: ‘Much greater clinical risk including limited treatment options and resources’. Monitoring equipment was reported as not only unfamiliar but also inadequate compared with the full range of equipment in the hospital setting. This was summarised by one respondent as: ‘Limited space. Different monitoring equipment. Strange environment. Unsure of where equipment is. Increased noise. Checks of equipment not performed by me. No physical clinical support. Communication limitations—i.e. potentially difficult to be on phone and manage patient’. This was reflected by those surveyed, where 3% ( $n = 1$ ) reported being very familiar with the ambulance equipment, 57% ( $n = 21$ ) familiar, and 40% ( $n = 15$ ) not familiar (see Graph 13).

### Graph 13

*How Familiar Nurse Escorts Are With Ambulance Equipment ( $n = 37$ )*



Ambulances were also reported to be an unsafe mode of transport in the regional areas as they are seen as vulnerable to vehicle accidents because of greater numbers of free-ranging wild animals and cattle. Often the RN has to remove their seat belt while

the ambulance is in motion to facilitate the monitoring of the patient, and this was reported to be unsafe. Some respondents also reported that they felt physically unwell during transfer because of their own pre-existing medical conditions, with 31% ( $n = 16$ ) declaring that they suffer from motion sickness. When asked to elaborate how nursing a patient in the back of an ambulance differs from nursing the same patient in a hospital setting, one respondent summarised it as:

*No support from your GP or ETS. Inability to make life saving changes in medication management, no ownership of the patient . . . perhaps the receiving site will support you? Perhaps ETS will support you? There is no clearly defined ownership or support while you are transporting. Communication systems such as phone reception are an issue also putting the patient at risk if you did want to call for help.*

Despite the above results, when asked how confident they were with recognising and intervening for clinical deterioration of patients during transfer as compared to when in a hospital setting, the majority (56%,  $n = 25$ ) said they were confident and 29% ( $n = 13$ ) reported being very confident, as shown in Graph 12.

**Q: How well do you think nurses are prepared for nurse-led inter-hospital patient transfers via ambulance in WACHS Wheatbelt?**

The respondents indicated that the same skills were required to recognise deterioration in any environment. Whether the environment facilitated the safe management of the deteriorating patient may be something separate that does not reduce the RNs' confidence in their ability and skills. Other respondents suggested that they had the required skills as it was still the same patient they were nursing at the hospital. However, they indicated the change of environment interfered with both the recognition or monitoring and their subsequent intervention of a deteriorating patient. The four

previously mentioned factors—the moving environment, limited space, lack of qualified clinical support, and limited and unfamiliar equipment—were mentioned again in relation to clinical deterioration (policies and procedure section). This was clearly stated by one respondent, who said, ‘I know how to recognise deterioration, but intervening would be difficult without staff, equipment and medication support’.

Another respondent felt that nursing one patient in the back of an ambulance gave the nurse the advantage of fully concentrating on the patient with less distractions; however, they acknowledged that if the patient deteriorated, it would be difficult to stabilise them en route: ‘In close proximity and monitoring patient on a 1:1 scenario. Easy to identify and recognise deterioration. Problem would be action required in case of significant decline needing resuscitation in the middle of the highway at night’.

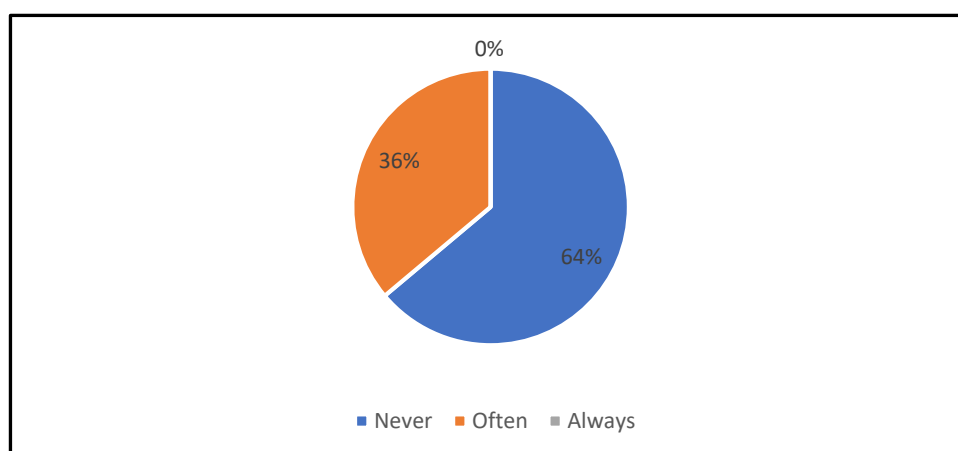
**Q: Have you ever conducted a scoop and run transfer? (Inadequate time to receive handover and understand the patient’s condition and possible complications)**

Respondents indicated their involvement in conducting a scoop and run transfer (see Graph 14). Pre-transfer care and preparation are important in understanding the condition of the patient being transferred and familiarisation with the ambulance volunteer crew.



## Graph 14

*Have You Conducted a Scoop and Run Transfer (n = 36)?*



The respondents were asked if there was time allocated for this to happen at a level that they felt was adequate. As this is not an ideal situation, the respondents acknowledged that a lack of time allocated to preparation happened often (36% of the time). There was no stipulation as to which nurse would conduct the transfer depending on the condition of the patient being transferred, and the acuity of the patients remaining in the department. When the nurse who had been nursing the patient did the transfer, there was continuity of care and usually enough time to prepare for the transfer. Respondents noted that when the on-call nurse was called in specifically for the transfer, there was at times inadequate time for handover as the time of transfer was heavily dependent on the availability of the volunteer crew. It was not practical that the transferring nurse was called in before the expected time of arrival (ETA) was confirmed as it could be hours before SJA would be able to organise a crew. Some respondents reported that at times, the escort nurse and the ambulance arrived at the same time, leaving very little time for a comprehensive handover. With all the challenges that the respondents had reported (policies and procedure section), they were

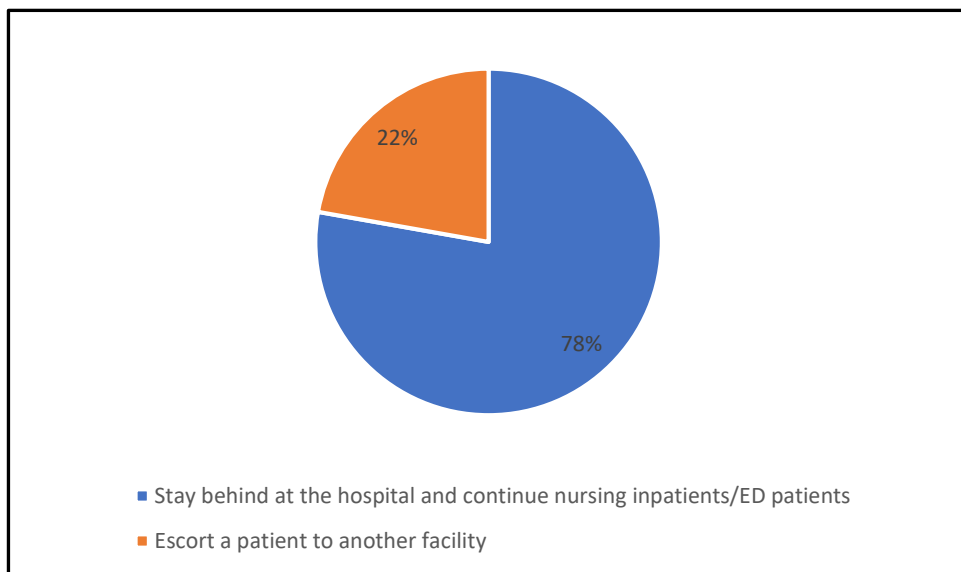
asked to indicate if given a choice of staying in the hospital and continuing to nurse patients or going on a transfer with one patient, which one they would prefer.

**Q: Would you rather: Stay behind at the hospital and continue nursing inpatients/ED patients or Escort a patient to another facility?**

Most nurses did not like conducting nurse escort hospital transfers, with 78% ( $n = 28$ ) of the respondents expressing that they would rather not do the hospital transfer if they had the choice to continue nursing the inpatients/ED patients in the hospital. These data are captured in Graph 15.

**Graph 15**

*Hospital Setting Versus Road Transfer ( $n = 36$ )*



The reasons provided for preferring to stay and continue nursing in a hospital setting (if they were in a position to make that decision) related to safety, time, fatigue and confidence. One respondent said, 'I was employed to work in a hospital not an ambulance'.

Safety was linked to hospital and transport guidelines: 'More predictable outcomes, patient safer at the hospital rather than with SJA'; 'Weak governance of

anything to do with transfers and SJA’; and ‘Still waiting for actions/outcomes from the Country Ambulance strategy, I understand these things take time but just highlighting facts’.

Inadequate time to prepare for transfer related to the previously discussed scoop and run process: ‘Sometimes if you are the on-call nurse you are called in during the night and ambulance has already arrived. You are then escorting a patient you do not know and have only had a brief handover about’.

Fatigue management for escorting staff was a reason that not only captured the distance travelled and associated time spent travelling but also included time taken to prepare the patient for transfer, handover to the escorting nurse, the actual journey, handover at the receiving hospital, and the journey back to original site. This was highlighted by various responses: ‘Long distances and time factors. Spent up to 8–9 hours on the road for road transfers to and from. At times get stuck when ambulance crew is from a different site and not willing to drive nurse back to own hospital site after transfer’.

Lack of confidence in skills, and most importantly the ability to manage deterioration, are highlighted below as examples of many similar comments on the subject:

*I feel inadequate escorting a patient, knowing I am nothing more than a glorified maid. If patient deteriorates, need to stop ambulance to treat patient, which is little more than first aid, further delaying transfer to receiving facility.*

*If I am escorting a patient there is assumed to be a level of clinical instability—determined by the need to transfer the patient to a facility which is better equipped to manage the patient. I worry that clinical deterioration of a patient en route will occur . . . and this will be a challenging situation to be in -*

*given that this is not my primary role in the hospital and feelings of being inadequately prepared for this.*

Of the respondents, 22% ( $n = 8$ ) who preferred to escort the patient instead of remaining in the hospital were mainly senior nurses who thought that they were the best available clinician to do so, and that to ask the less senior nurses would be unfair and unsafe for both patient and staff member. The following comments highlight this aspect of RN escort:

*As a senior nurse it would be safer for me to take the escort than junior staff who may be less prepared in an adverse event.*

*I would never ask someone to do something I am not prepared to do.*

*Depending on the skill level of the staff, I would not ask a junior nurse to take on a role they cannot handle BUT it happens all the time. There should be clearly defined roles that say a 1.1 RN should not be put in that situation, but it happens all the time. This is also a risk WACHS takes daily.*

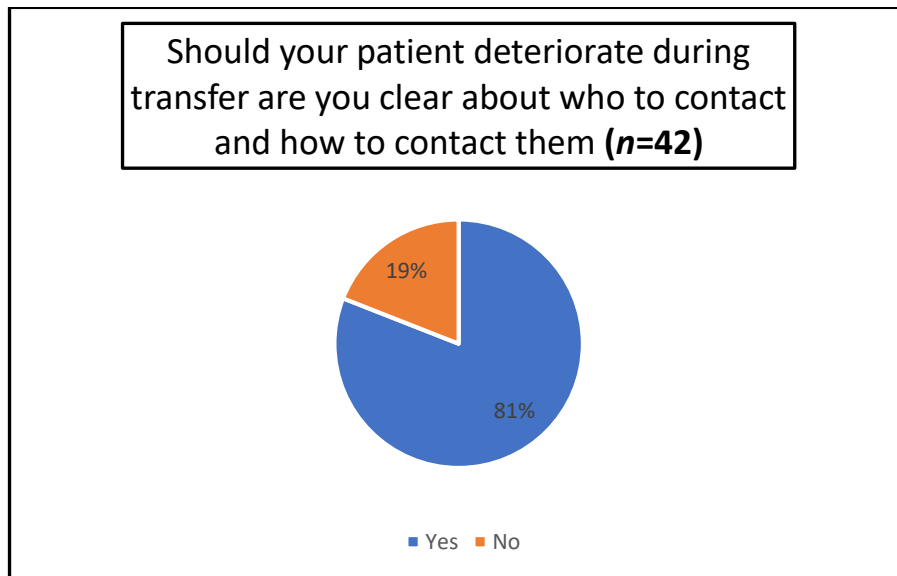
Other nurses were more positive and were of the opinion that to ensure patient safety, someone has to transfer them to higher level of care, and that they were confident that RNs have the skills and knowledge to safely transfer patients between facilities, as reported in the following statements: ‘Part of my role as a senior nurse is to be able to determine clinical deterioration’; ‘Same principles applied in each setting’; and ‘I am confident in recognising the deterioration’.

#### **4.3.3 Support Received**

Some respondents (19%) reported that they were not clear on who to contact for support during transfer, whether it was the referring hospital or the receiving hospital as represented in Graph 16 below

## Graph 16

### *Escalation of Care during transfer*



This ambiguity, compounded with the fact that sometimes there was no phone coverage, made the respondents feel isolated and alone. The following lengthy statement from one respondent captures the challenges faced and the perceived lack of support received:

*I can recognise but I can't tell the GP or ETS and get a new order and then reach for a new medication or do much more than comfort measures. CPR would involve the other two volunteers and we would have to stop the transport and call for back up or fail in the resuscitation attempt. If we were resuscitating a patient the chances of completing the 300 km to Perth or 170 to Northam/hub sites would result in death of the patient. If we were going to Northam we could stop at two other hospitals on the way, if we went to Perth we would have no opportunity to get clinical support as there are no health facilities in the 300 km drive. We could only call (if in phone reception) for a paramedic and other ambulance assistance to meet us—problematic with distances and communication. WACHS should stop pretending nurses can be everything to all*

*people—this might have been a necessity on the beginnings of time, but country people require the same high standards of care that metro people receive.*

*Maybe you could ask this question of metro people: Would you like volunteers to attend you or your family's accident here in Perth and then would you mind if we pulled an RN out of ED at RPH [Royal Perth Hospital] or off the wards and ask them to travel in the back of ambulance for a couple of hours, not sure when they are coming home oh and the nurse and volunteers have been at work all day and are really tired and you will be travelling at night, can't go by air because the weather is rough so we will travel through this storm to get there. Also we might have to stay for a few hours in the receiving hospital not sure how long. Is that OK with everyone? Looks really crazy when it is put like that. Don't think it would be something that would take off in metro but is a daily reality for country people and still deemed acceptable.*

Many of the respondents indicated that being put in a situation that was unfamiliar and unpredictable occurred with little consideration that this was a situation where they might need help or support. One respondent reported that being worried about the patient as an escort related also to the treatment received from management if something went wrong: 'Fear that patient will die, the wrath of WACHS will descend'. Another question was asked to explore further how the nurses felt about this situation.

**Q: What is your most dominant feeling during transfer?**

When asked what their most dominant feeling during transfer was, many respondents said they were anxious. Other words used were 'stress', 'dread', 'hoping nothing bad will happen', 'fear', 'are we there yet?', 'relief when the patient is finally handed over', 'let's get there as quick as we can' and 'apprehensive'. Another respondent said it was so bad that 'I often have nausea for days after a transfer'. Some

respondents were more positive and reported feeling comfortable and confident. Others revealed that they had come to accept that transfers were part of their role; therefore, they met that expectation in the best way possible: ‘Prepare for the worst (carry the resus trolley) and hope for the best (stop at Maccas on your way back)’ and ‘That it is part and parcel of our daily nursing duty’. Conversely, some nurses were not happy that they were expected to conduct inter-hospital patient transfers, as demonstrated by the following responses:

*‘Most towns have CP [community paramedics] or paramedics who choose not to transfer because they know WACHS will have to supply the staff’.*

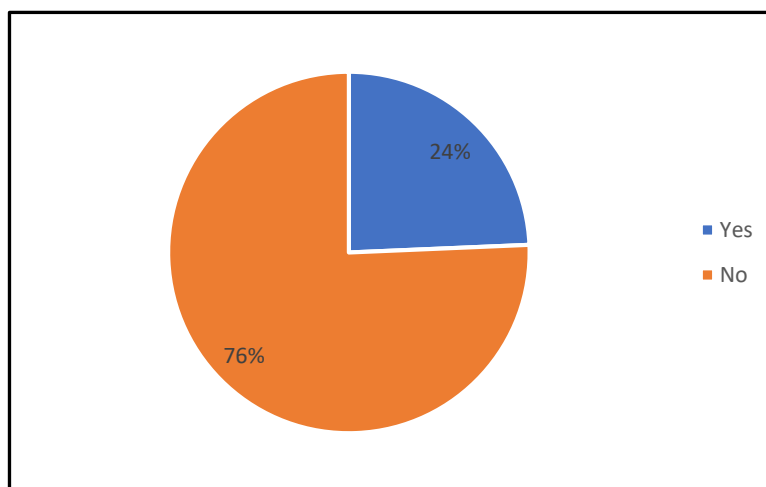
*I don’t think we should be responsible for this; we are taking nursing staff away from local site for extended times . . . causing pressure on remaining staff. This can affect rostering and nurses’ fatigue/personal/family life as they are often called into either do the transfer or cover the shift.*

Although it was not in the scope of this study to understand the prevalence of clinical deterioration during nurse-led ambulance transfers, nurses were asked a question to ascertain the support that they were given or likely to receive in case of poor patient outcomes during transfer, and the results are captured in Graph 17.

**Q: Have you ever had an adverse event or poor outcome for a patient you were transferring via ambulance before? Please comment/describe, what support post event did you receive?**

## Graph 17

*Prevalence of Adverse Events During transfer (n = 37)*



From Graph 16 above, 24% ( $n = 9$ ) of respondents had experienced a bad outcome with a patient they were transferring and 74% ( $n = 28$ ) had not had an adverse event during transfer. The 24% ( $n = 9$ ) were given an opportunity to comment on the support that they received after the incident. Some felt supported: 'It was a near miss event. The ETS doctor took the time to ring me specifically, and debrief, which I deeply appreciated'. Another respondent shared that they had escorted a child with a compromised airway and the treating doctor had supported the nurse post transfer. Some RNs indicated they received no support, even for those whose patients died. These two responses were marked by a sense of disappointment from a lack of support given after a difficult transfer: 'Nothing really, it was many years ago and the patient had a cardiac arrest, was successfully resuscitated with defibrillation in the ambulance but died soon after reaching destination' and 'Nil support, patient died'.

This also demonstrates that there is no clear guide or adherence to policy for debriefing after an incident. If the incident occurs en route, the nurse may not receive



post-event support because of ambiguity around who has clinical governance of the patient and which team the nurse belongs to.

#### 4.3.4 Education and Training

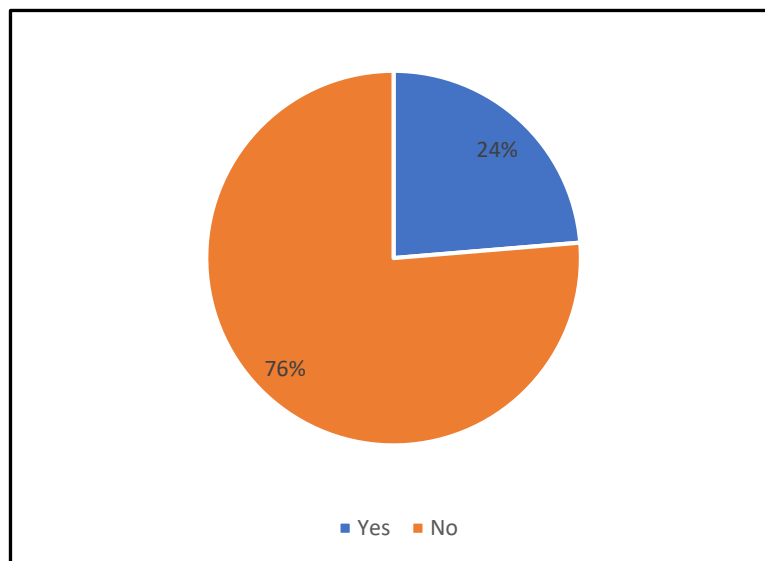
According to the Nursing Roster Procedure (WACHS, 2020d), when starting work in a new environment, the RN is provided orientation shifts or supernumerary shifts as part of the induction process or orientation for familiarisation with the new workplace. This practice occurs in a hospital setting, for example, for newly employed staff, graduate nurses, after prolonged absences from work, or during a change in location and specialty, such as moving from the acute ward to working in the ED.

##### **Q: Were you orientated to the role of patient escort nurse?**

The out-of-hospital setting was a different environment from that the respondents were accustomed to. Graph 18 shows that 76% ( $n = 29$ ) of the RNs were not orientated to the role of the patient escort nurse.

#### **Graph 18**

*Orientation to the Patient Escort Role (n = 38)*



There were variations and inconsistencies in the responses received from the respondents. However, many of the respondents—regardless of whether they had received orientation and been given time to familiarise themselves with the ambulance equipment—identified the orientation process as inadequate. All of the 24% ( $n = 9$ ) that had answered ‘yes’ to receiving orientation also added that the orientation they received was inadequate to equip them to safely conduct patient transfers: ‘I picked up what to do over time, and through discussing with and observing other experienced nurses’. The orientation was described as a general overview, informal, unstructured, brief and basic. Those that answered in the negative felt that WACHS had let down the RNs by not insisting on clear guidelines and a memorandum of understanding between the parties involved in hospital transfers (i.e. SJA, WACHS and ETS). They felt that there was no clear definition of the role and expectations of an escort nurse, as evidenced by the following responses:

*We have had no training in the three decades I have worked out here in ambulance transfers. We were always told nurses have no jurisdiction in the back of an ambulance!*

*There is a lot of confusion about who is in charge of the patient while in the ambulance. MOU between nursing staff, medical staff and volunteer ambulance officers should be developed, also escort nurses require orientation to the ambulance as a workplace and documented definition of role and expectation of an escort nurse.*

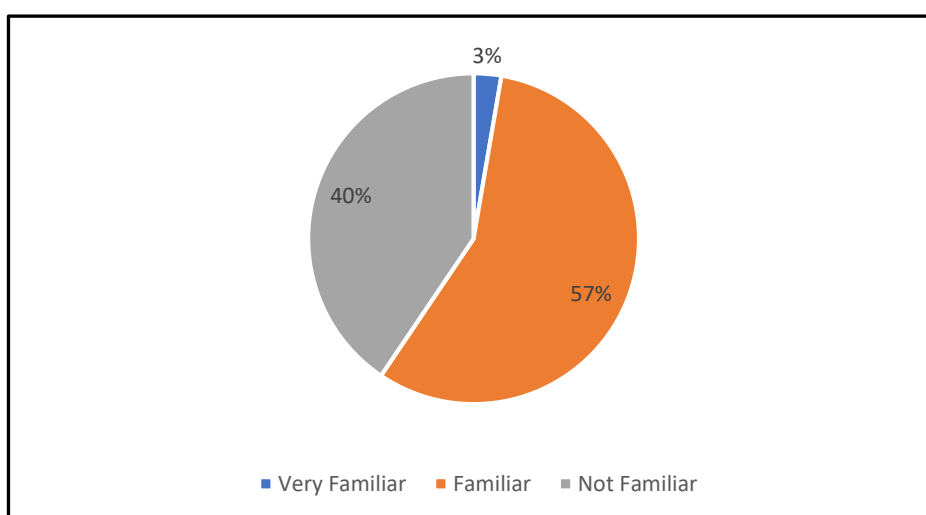
Closely linked to the orientation process, is the familiarity the nurses have with the ambulance equipment.

**Q: How familiar are you with the ambulance equipment?**

Those that reported being very familiar with the ambulance equipment accounted for only 3% ( $n = 1$ ) of the participants, with 57% ( $n = 21$ ) reporting being familiar and 40% ( $n = 15$ ) not familiar. The report of being most familiar appeared to correlate with the number of transfers that had been conducted and ‘picking things up as they go’, which did not appear to come about as a deliberate effort, such as through education or orientation. The results are captured in Graph 19.

### Graph 19

*Ambulance Equipment Familiarity ( $n = 37$ )*



Following from the results of the last two questions, the respondents were then asked if they thought that specific training would help them in recognising and managing deteriorating patients.

**Q: Do you think you would benefit from specific training aimed at patient care and emergency management for deterioration during transportation?**

When the RNs were asked if they thought they would benefit from specific training aimed at patient care during transportation, 89% ( $n = 32$ ) indicated they would benefit from specific and regular training because ‘it’s difficult to remain competent in some of these areas when not using the skills on a regular basis’. The 11% ( $n = 4$ ) of

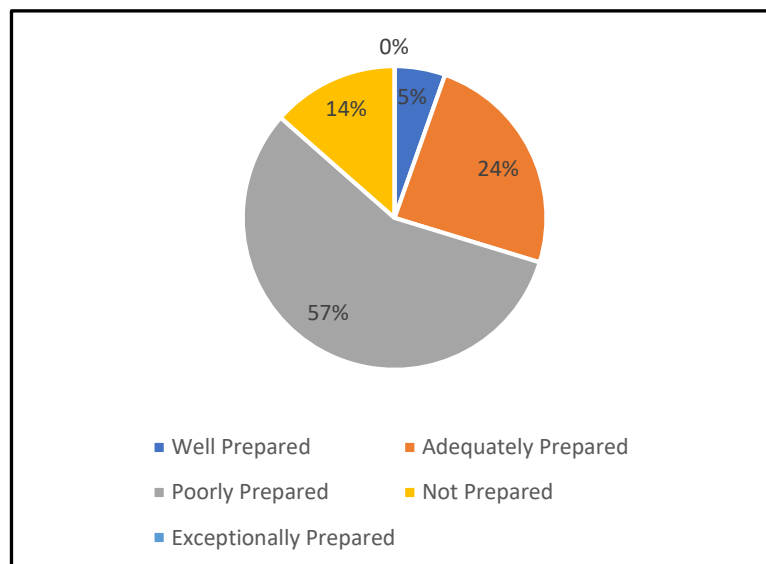
RNs that indicated ‘no’ felt that nurses should not be conducting these transfers in the first place: ‘This should be paramedic or community paramedic role only, undervalued area, heavy reliance on SJA volunteers and pressure on staffing at sites all add up to unpreparedness—potential for error’. Preparedness of nurses to conduct these transfers was then explored specifically in the next question.

**Q: How well do you think nurses are prepared for nurse led interhospital patient transfers via ambulance in WACHS Wheatbelt?**

The respondents were asked to comment on how equipped or prepared they perceived WACHS Wheatbelt nurses were to conduct safe inter-hospital patient transfers. More than half (57%,  $n = 21$ ) said that nurse escorts were poorly prepared for these transfers according to the reasons given above. This summary is presented in Graph 20.

**Graph20**

*Summary of Nurses’ Perception of Their Preparedness (n = 37)*



Some of the related comments included ‘Depends on nurse characteristics, experience, confidence, knowledge, competence and patient acuity’. ‘Very dangerous situation. We don't know where anything is’, ‘It's difficult to prepare for all outcomes or possible situations’, ‘Is a

difficult situation. , not sure if you can be prepared without clear instructions or orders, no hospital phone or contact details in ambulance’ and ‘Very limited familiarity with ambulance lay out and not enough training for inexperienced nurses especially if overseas nursing staff, who may be clinically experienced but not be experienced with transfers or the way that WACHS operates when transferring patients’. These are some of the 35 qualitative responses that were received

#### **4.4 Summary of Phase One Findings**

There was an acknowledgement by both senior and junior RNs that nursing a patient in an ambulance had associated risks that required advanced clinical skills and confidence that would not normally be as critical when working in a hospital and with a team. Ambulance transfer logistics and inherent challenges require a trained patient escort. A significant finding described how the patient was in most instances safe, but the nurses were likely to be without support and challenged by ambiguity and inadequate backup. Nurses felt that they had no option but to take on the escort role for transfers related to a lack of staff—a situation they felt that their employer enabled, as put by one respondent, ‘readily offering nurses’ who are already overworked and short staffed to leave the hospital instead of insisting on SJA to provide the patient escorts. Specific and ongoing training to manage patients being transferred was viewed as both welcome and necessary. Overall, WACHS Wheatbelt nurses described a variety of experiences, and differing levels of knowledge, and subsequently, transfers were conducted in a variety of ways. Respondents highlighted different practices that were governed by different guiding tools and processes not uniformly applied within the region. Variation was noted in documentation during transfer, escalation processes for deterioration, and the overall responsibility to conduct hospital transfers.

The WACHS Wheatbelt RNs recognised that specific training and support were required if they were to continue their role as nurse escort. They reported that discussion is needed so that the levels of RN experience and knowledge required to ensure patients

are managed effectively during transfer can be clearly defined. Variations in interpretation of the relevant policies and guidelines affected how the transfer was conducted. Hospital patient transfers by a nurse escort in an ambulance were viewed as complicated with associated risks, most of which were expected and cannot be completely eliminated, but there was an acknowledgement that some of the factors that negatively affect these transfers could be eliminated by clearer guidelines and support for the transferring nurse.

## **4.5 Phase Two Findings**

Phase two comprised qualitative data obtained from interviews with senior management and executives of WACHS. The demographics of the nominated participants are outlined first to justify their inclusion in the study and how they informed the research.

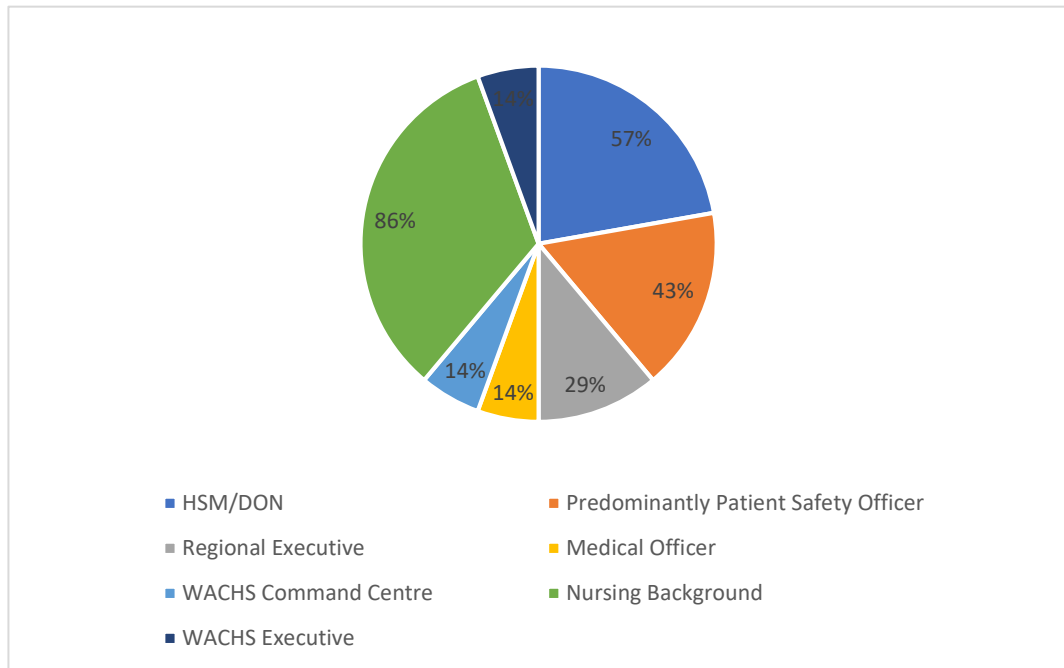
### **4.5.1 Demographics**

The participants were chosen using eligibility criteria (see Figure 20, pg 80). Participants were required to have knowledge and involvement in patient safety and decision-making related to hospital transfers at different levels of management. The recruitment of these participants ensured a variety of viewpoints to fully understand management expectations and to highlight any possible differences. A total of seven interviews were conducted, with four males and three females, with each interviewed once. Of the seven participants, 29% ( $n = 3$ ) had conducted inter-hospital patient transfers themselves in the past 5 years. All participants were directly involved in either policy making or influencing policy making or were a member of the patient safety committee. The age range was between 38 and 58 years, with clinical experience in the WACHS Wheatbelt ranging from 3 to 35 years. Six of the seven participants had a nursing background, and one participant was a medical doctor who had a background

working in a rural WA hospital and in telehealth services. The breakdown of participant roles for Phase Two is summarised in Graph 21.

### Graph 21

*Phase Two Participants (n = 7)*



This was a nominated group, which was selected with the aim of obtaining informed but different perspectives on the same phenomenon. The same questions were repeated with all participants to gather different viewpoints on the same subject.

#### 4.5.2 Data Collection and Analysis

A total of seven interviews were conducted, and data from the responses were recorded, transcribed and analysed using NVivo software. NVivo is qualitative data analysis computer software, which is used in data organisation and analysis (Silver & Lewins, 2014). The interviewer used the interview guide (see Appendix G) with five broad questions. These questions were based on the four main areas that emerged from Phase One: policies and procedures, nurses' attitudes, support received, and education

and training. These four areas were then explored further in Phase Two by asking the participants to provide their opinions.

The questions were repeated at each interview to gather different viewpoints to ensure adequate representation of the population (Braun & Clarke, 2021). If a viewpoint developed strongly from an interview, then this was subsequently explored in following interviews (e.g. prevalence of adverse events was only a minor theme until one participant reported that they believed that adverse events were more prevalent than believed to be because of poor reporting of adverse events). This was then explored further in subsequent interviews, where another reason provided for less known adverse events was the lack of follow-up after the patient was handed over and the transferring site was not aware of the impact the care during transfer had on patient outcome. Other participants cited good screening of patients before transfer. These emerging key topics were considered and captured, with four key topics identified during Phase Two, which were similar to the findings identified in Phase One. The four key topics identified in Phase Two were as follows:

- reality of practice
- training and education

wellness of nurses

strategic planning

The following section details the four main themes and their subthemes.

#### **4.5.3 Reality of Practice**

Reality of practice focused on the issue of the ‘scoop and run’ transfers and adverse events.



#### **4.5.3.1 Scoop and Run Transfers**

There were varying responses, with some participants indicating that they were not sure what the practice was but that there was an expectation that the nurses would appreciate the importance of having a proper handover before transfer. Some were confident that handover was one element of the transfer that they were positive occurred as per policy and expectations. Some of the participants acknowledged that the reality depended on the situation and other logistics, such as the availability of the transporting crew and the escorting nurse current role (nurse on call or the nurse who had been nursing the patient in the ED). One participant who was doubtful scoop and run transfers were occurring stated:

*I think most of the times when we do that is when RFDS has landed quickly and we scoop and run quickly—normally if we are doing interhospital patient transfer we don't tend to do scoop and run as much, we tend to get a handover so that if anything transport is delayed it can actually work in our favour to have more time to handover. (ID\_04)*

It was interesting to note that those participants that had conducted transfers themselves reported that this was a phenomenon that was occurring and that they themselves had had to transfer a patient in a hurry without adequate handover:

*I have had occasions that I was notified that we needed to transfer a patient to Perth and I was at home in my uniform for three hours because that's how long it took for them to come or sometimes, they can be coming in ten minutes then you try to have a quick hand over, sometimes the patient might have been already loaded onto the stretcher and the nurse is trying to give information, the ambulance guys probably have come dropping their work and stuff so you try and get it all done you try your best to do a quick assessment. (ID\_02)*

Those participants that did not conduct transfers themselves ‘hoped’ that the RNs were doing the right thing and insisting on a proper handover before transfer:

*I guess it depends on how urgent the patient is required to get down and when the ambulance is going to arrive. I would like to hope that there is adequate time to get a thorough handover and they get an opportunity to read the notes and get up to speed with the patients’ care, but it’s not to say it’s not happening or happened. I guess it’s a possibility but I haven’t heard that it’s an issue. (ID\_04)*

*Are these patients time critical, yeah absolutely, but the handover I believe will still occur? (ID\_05)*

There were variations in the conduct of the transfer, with some participants saying that the best practice and expectation was that the nurse who had been looking after the patient in the ED should be the one transferring the patient:

*I’ve been hearing from managers that the person who has been looking after patients should generally do the transfer even if they don’t do a transfer, they usually do an iSOBAR generally doing the documentation going with the patient even if they have to do a scoop and run hopefully, they, because I believe there needs to be at least decent handover before the patient is taken care of. (ID\_06)*

An interesting observation was that participants who were more removed from clinical practice or had more senior roles in management tended to respond more positively—that is, those participants located at regional or central offices believed that scoop and run transfers were not really something that was practised in the region, and yet the health service manager (HSM), director of nursing (DON), and ED doctor testified to the fact that they happen more often than is ideal. This may be due to a disconnection/lack of reporting or first-hand experience about the operational practices of SJA and the time taken to raise the volunteer crew that is able and willing to transfer

the patient. As reported in Phase One, it may take as long as 3 hours for the crew to arrive. The on-call nurse cannot be called in hours before departure; it is not practical and is not an effective use of resources. Therefore, the nurse's arrival is often timed for the arrival of the SJA, resulting in a shorter handover and quick departure.

#### **4.5.3.2 Adverse Events**

The question about the prevalence of adverse events during transfer yielded different perspectives among the participants. The participants suggested that there were few adverse events reported that related directly to the transfer period and that even fewer related to the nurses' ability to recognise and manage a deteriorating patient during transfer. However, there were other safety issues that were notably not reported through the safety risk forms or the clinical incident management database, such as nurses being left stranded in Perth after transferring patients or poor management of fatigue for the escorting nurses. These concerns were noted by the survey respondents, with acknowledgement by interview participants during the interviews. The general response from all of the participants was that poor transfer patient outcomes were not directly related to the nurses' inability to recognise and manage clinical deterioration en route. In addition, there was an associated confidence in the skills of the Wheatbelt nurses to safely manage patients during transfer. Delays in transfer were noted as a common phenomenon within the region and formed the majority of the patient transport incident reports. Statements included:

*Usually, the women that we transfer are fairly high risk and we need to get them to a higher level of care because of the complications of the pregnancy . . . I know sometimes we have had incidences we get to the airport for RFDS to collect them and we ended up bringing them back to the hospital because they had progressed more rapidly than anyone anticipated, none of these were a*

*result of staff performing poorly, or where they have been out of depth or responded inappropriately its usually because you are in an environment with limited access to resources and adverse events do occur but all interventions are generally performed at an acceptable level and they have gotten the job done. (ID\_05)*

All the participants recognised that there may be gaps in the knowledge of the escorting nurses but were reluctant to associate the adverse events that happened en route to the nurses' lack of knowledge or skills:

*I'm not sure that this may be more about RNs ability to recognise and manage deterioration but it might mean that patients' condition has actually changed and they are quite unwell to start with but the decision has been made for a road transfer by nurse escort however sometimes the decision has been made to transfer someone when we possible should have kept the person at site, stabilise them more and maybe fly them out. (ID\_07)*

The reason provided for the small number of reported adverse events was good patient screening for suitability for road ambulance transport and proper stabilisation of the patient before transfer. However, there was also some acknowledgement that there was an element of under-reporting of these adverse incidents:

*I guess only major incidents that caused major harm are probably reported. If there's no major adverse event like delays in patient getting critical treatment at the right time, no one will think of reporting that. Again, if the patient is really unwell the practice is that they go via RFDS if there is a delay in transfer or change in condition. (ID\_02)*

However, some incidents were linked to the actions or omissions of the nurses due to lack of skill, time constraints or poor preparation, as demonstrated by the following statement:

*There has been on a couple of occasions that incidents have happened that patients have, I remember one, I won't go into details obviously but, there has been one that a nurse incorrectly administered the wrong medication that had quite an adverse effect for the patient, there is probable one or 2 that have happened, aah, the one I'm thinking of is probable related to poor preparation and planning of that escort, they probable did not get organised well enough.*  
(ID\_04)

A follow-up question was asked of the participants as to why they thought there was not significant reporting of adverse events associated with transfers. Good screening of patients' suitability for transfer, good handover and preparation, poor reporting of incidences, and lack of follow-up of patients once they were handed over were highlighted as some of the possible reasons for the low figures:

*I must say 9 times out of 10 there are no issues. The issues tend to be more about staff being stuck in Perth and trying to get back home which is across all of WACHS; it's not just unique to the region.* (ID\_03)

Participants also reported that the ideal situation would be to screen patients and find appropriate transport for them. This was not always possible of limited resources and skills in most small sites to screen or stabilise all patients before transfer:

*ETS, RFDS and SJA are very committed to making sure that the transfer of a patient is safe to do so and that where you can prevent a deterioration you have done everything possible that you can to stabilise them well enough to get them where they need to go to. In a smaller country site though, that is not possible*

*because the reality is, we are desperately trying to get them to a level of care where we've got more resources to provide them with support and so are there instances where patients are deteriorating significantly and needing significant intervention at the back of an ambulance?—YES. (ID\_05)*

#### **4.5.4 Training and Education**

This proved to be a complex question that highlighted several other related variables. A number of the participants were not clear whether they thought nurses had the necessary skills or whether it was fair to expect them to conduct these transfers without extra training and upskilling. In a comprehensive summation of the complexity of the situation that WACHS is in as a health service provider, one participant had these sombre words to say:

*Maybe not, but the only other option is that they (the patient) would stay where they are and they would die because there is no high level of care, yes it happens, no it's not ideal but what is the alternative and I don't think its necessarily because the nurses aren't adequately prepared, although the reality is that they aren't, we know that, we don't train them, there are no standard operating procedures at the back of an ambulance, they are not familiar with the back of the ambulance but I think its unavoidable, I think regardless of whether they were working in a single nursing post which look, I think that for the most part, putting the nurse in the back of an ambulance where they are not familiar and asking them to practice in an environment that is very different from the hospital setting where you have got other people available and other resources available comes with risks regardless. (ID\_05)*

There was a rising concern involving the transfer of special populations (e.g. paediatrics, labouring women, and mental health and trauma patients). There was

recognition that the main workforce comprised generalist RNs. Specialist retrieval teams were not often available for sites to access. Some hub hospitals have mental health nurses and midwives that assist with the transfer of these special populations, but there is no capacity to provide these speciality staff to all Wheatbelt sites. However, there were instances where the specialist nurse met the generalist nurse halfway during their journey to minimise the risk. This was explored in detail with one of the participants, who shared:

*The ideal situation would be to have specialist skills like a retrieval team idea but the problem is in the country is that our generalist skills have to be transferrable and even at our hub sites or the bigger hospitals we tend to have mental health patients rock up in our EDs and we have women birthing at non birthing sites quite frequently and we had one in Moora the other week and despite it being like 42 weeks it's still like ooh my goodness, you can't make that stuff up and of course by default you have to rely on those generalist skills and the technology round about you, so you engage ETS, we have mental Health ETS but in terms of actually transferring the patient from site to the end point destination, I guess its situational, some maternity patients and there is no midwife to go with them. (ID\_06)*

There was a general realisation that this model of using RNs to escort patients between facilities was not developed sufficiently to equip the relevant nurses:

*I don't think they (nurses) have those skills; I don't think we teach them how to handle the back of an ambulance, that's quite a skill so it's probably something we should do but essentially- no I don't think it's something we do well. (ID\_03)*

#### 4.5.5 Wellness of Nurses

There was unanimous agreement that the support given to the nurses was suboptimal and, in some cases, not provided. All participants were aware that progress had been made to improve the situation. One participant indicated that they were embarrassed as they were aware of the issues and had not done anything to support the nurses before this interview. There were several areas where they agreed that the escorting nurses needed support, which aligned with the previously identified themes from Phase One—clearer guidelines for the out-of-hospital setting, improved fatigue management for escorting staff, and more available support for the escorting nurse—which addressed both clinical management of the patient and welfare and wellbeing of the nurses.

Most participants felt that there was a significant amount of anxiety around transferring patients:

*I think that a junior person might just have as much anxiety as the senior person because we don't train, we do not have policies around it that are robust in terms of how we manage them and so it is very much a grey area and I don't think that the staff that do it are happy to do it, I think they do them and they come back and say thank goodness nothing happened. (ID\_05)*

Common sense was part of planning for transfers, for example, trying to use the most senior nurse instead of a junior nurse, but at times there was a more unstable patient in the ED that needed the attention of that one senior nurse and the hospital could not afford to leave the ED without the senior nurse:

*As you would appreciate, I do not get to decide which nurse goes on a transfer but from working very closely with the nursing team on site sometimes there is no one senior available and as a doctor I can't leave the ED unattended to*



*escort a patient and also the senior nurse might be required to stay and assist in running the hospital especially over the weekend. We do not have the luxury of a senior nurse or clinician all the time. Sometimes I can see that the nurse is not really happy to do the transfer, but they feel that it is their job as they agreed to be on call. It's very complex! I feel for them. (ID\_07)*

Another area that was highlighted as demonstrating lack of support from the participants' perspective was the fact that there were no clear guidelines for nurses that transfer patients in the middle of the night and have no way to return home. Taxis are reluctant to drive to the country at night, and if the transporting ambulance is from the city, SJA cannot transport the nurse back to the country. The nurse escort was usually left stranded, sometimes sleeping in EDs or unsuitable hotel accommodation:

*I don't think it is supportive to leave our nurses in Perth and not have a way of bringing them back, I don't think that is supportive, no! I know that doesn't alter patient safety and doesn't exclude, yeah and the patient needs to be where the patient needs to be going so that is a good thing but I think it is a bigger expectation for the nurse to then have to find their way back, I hear that time and time again and I don't think that is being supportive of staff. (ID\_06)*

Participants reported that a transfer does not affect the transferring nurse alone but the entire nursing roster for the next shift and sometimes the next 24 hours. The team completed extra hours, because transfer hours were not filtered in when the roster was made, yet when a transfer was necessary, the transfer had to happen:

*Particularly at the small sites they run on a very limited roster they rely on whoever is on duty or on call to come in and do the transport or deliver or take over the running of the site or it is left for the DON/HSM at the site to have to leave the site and transport the patient, The other problem is that that person*

*doesn't get the chance to have a break when they get back as they may be rostered on the next shift , aah they would have had inadequate time off they are on nights the other times and then they are doing extra hours. We do not have these nurses on standby just waiting to do nurse escort. (ID\_02)*

Participants also mentioned the ambiguity around clinical governance during transfer, that is, who had medical governance of the patient in case they deteriorated while they were transported:

*What isn't established though is clinical governance when you are on the road for that patient in case they deteriorate while they are transporting. I think this is a big issue, ETS or the doctor at the site might say—right we when transporting a patient to Northam but they haven't accepted the patient, they accept the patient when they are there. Once they have left the site who is actually managing between A and B and that's a major issue particularly if the patient is deteriorating while between A and B and I don't think we have gotten clarification from the sites on whether the site sending or whether ETS sending has governance until the patient is handed over to the doctor at the receiving hospital and that's somewhere where we fall badly. (ID\_01)*

The participants acknowledged that this issue has been brought forward numerous times in the past but is yet to be resolved in a manner that is practical and empowering to the escorting nurse:

*This has been talked about previously but nothing concrete has been done yet, I guess there are other competing priorities and also I do not think anyone was aware of the extent of the issues, I guess it is a good thing that you did this study. (ID\_05)*

#### 4.5.6 Strategic Planning

This was a theme that also appeared strongly from the interviews. The participants clearly identified the limited or lack of strategic planning as a common theme. There were no concrete strategic plans currently to actively support the escorting nurses that the participants were aware of. This was captured from the following responses from the participants:

*No, maybe that now you have raised it, we probably need to, it is not appropriate for us to have knowledge of these risks in this light and not be looking at doing something, so I guess when I said no nothing is happening, I guess we need to start having some conversations around it. (ID\_05)*

*Nothing is planned from a regional perspective . . . I don't think we do which is a little bit of a gap, especially as we transfer as many patients as we do. But we tend to transfer quite a few with RFDS and those are fairly common and as I touched on, we are looking to have a helipad also at Narrogin and Jurien Bay health centre. That will negate and reduce the amount of nurse escorts required. (ID\_06)*

There were no planned initiatives to train nurses, although after the interviews, there was a realisation that the region and probably WACHS as a whole need to consider and explore avenues on how to manage the experiences of the escorting nurses more positively and be supportive of those that are struggling and dealing with feelings of anxiety and apprehension during transfer. While the group identified that there were low numbers of reported patient adverse events, there was an appreciation that nurses may not be lodging safety risk forms. Additionally, nurses were being exposed to unfavourable situations with poor means of communicating their need for help and

accessing that help. At the very least, the participants agreed that being familiar with the ambulance equipment and the provision of clear guidelines was a good starting point:

*We don't give RNs enough time to spend and familiarise themselves with the ambulance, what equipment they have, you know they has been a few incidences where this has illustrated the same fault, like incompatible IV infusion pumps. This should be the minimum that we are giving our nurses. (ID\_04)*

There was little hope expressed by the participant group that the region might come up with an alternative, better-suited patient escort clinician other than the RN: 'I don't think there is much of an option in that, as long as the nurse has sought and got the experience before he or she goes' (ID\_04). None of the participants mentioned whether WACHS would consider employing RNs dedicated to conduct patient transfers for all sites: 'The ideal situation would be to have specialist skills like a retrieval team idea, but the problem is, in the country is that we have to rely on our generalist skills we have to be transferrable' (ID\_06).

The upskilling and training of all WACHS Wheatbelt RNs who were expected to conduct nurse-led ambulance transfers was viewed as the minimum support strategy that was both realistic and effective, and required minimal negotiation with other stakeholders. However, this may be time consuming. One participant reported that WACHS is considering paramedic and RN dual-qualified persons to be employed, an initiative that has yet to evolve, and it may take many years before this model is accessible to sites in the Wheatbelt. During the interviews, it was determined that only one of the 39 health services in the Wheatbelt had conducted an SJA and nurse simulation initiative in the back of an ambulance:

*Wyalkatchem has conducted training and engaged SJA and they came out and did a bit of show and tell of what was their familiarisation with what was on the*

*ambulance, equipment and that was actually a really . . . it worked well and it was quite an good initiative and think that might be a potential for looking at all sites doing that, it was really a good idea. (ID\_01)*

#### **4.6 Summary of Phase Two Findings**

The purpose of Phase Two was to explore the key findings of Phase One. Questions asked of participants (see Appendix G) were structured around the four key topics highlighted in Phase One to further understand the experiences described by the Phase One respondents.

The findings of the interviews were themed in accordance with identified key areas. The participants echoed similar views to the respondents from Phase One. There was, however, a heightened sense of urgency around the suboptimal support given to the nurses conducting ambulance transfers, and this was viewed as a priority for strategic planning. Phase Two data included suggestions that if strategies were to be put in place to guide, support and prioritise not only patient safety but also nurses' welfare, then the model of using RNs to conduct hospital transfers would be sustainable and can be improved. This was important to note as it was considered unlikely that WACHS in the near future would be able to secure other clinicians to lead these transfers. Thus, the RN remains the most likely staff member to continue to meet the ever-growing demand to transfer patients intra-regionally and to metropolitan areas by road ambulance.

#### **4.7 Summary of Research Findings**

Phase One highlighted four main findings (which were explored further in Phase Two) from surveying the RNs that conduct nurse escort hospital transfers. The Phase Two participants emphasised and acknowledged the extent of their knowledge of the factors influencing nurse-led ambulance transfers and agreed that a more strategic

approach was a solution to improve support of the RNs. These are articulated in Figure 24 and are explored in further detail.

**Figure 24**

*Summary of Research Findings*



**4.7.1 Reality of Practice**

The ‘reality of practice’ theme incorporated subthemes from both Phase One and Phase Two. Expectations formulated at regional and WACHS executive level did not always reflect actual practice. Indeed, the reality of practice was very situational. The tipping point seemed to be patient safety, which was prioritised. The frontline decision-makers, while guided by policies and procedure, did not rely on them to make decisions. Each case was treated on its merit and considered according to reigning realities, which may be unique to each situation. This left the RNs and managers feeling uncertain and anxious that if the transfer did not go according to plan and they had acted outside of the policy, then no one was going to support them.

This disconnection was presented under the subthemes ‘scoop and run’, ‘policies and procedures’, and ‘preparation’.

#### ***4.7.1.1 Scoop and Run***

Phase One confirmed that scoop and run transfers do happen in the region, and Phase Two participants ‘hoped’ that they were not taking place because of the associated risks of poor preparation and inadequate handover to facilitate safe continued care. Again, although the expectation was that they should not happen, equipping the nurses and the sites to make sure that they do not happen was not considered supportive. Some participants in Phase Two were confident that they were not happening, which contrasted with the Phase One findings.

#### ***4.7.1.2 Policies and Procedures***

The findings indicated that there was a need for clearer guidelines within the out-of-hospital setting. The guiding principles and the identified main hospital patient transfer policy were not well used by the relevant staff because the users were either not aware of their existence or their application was not always practical, depending on reigning realities with each patient transfer. Both the nurses and the leadership group acknowledged that WACHS had not prioritised the formulation of clear and specific policies to guide the nurses in the out-of-hospital environment.

#### ***4.7.1.3 Preparation***

Findings indicated that for many respondents, there was an inadequate amount of time to prepare for transfers. Phase One respondents described not always having enough time to familiarise oneself with the patient, possible complications en route, and the equipment or the vehicle that would be used for the transfer. There was a sense that although this was raised as an important impacting factor, a number of participants in Phase One and Phase Two were reluctant to suggest that any nurse would be willing to

accept care of the patient without a proper handover or accept care of an unstable patient. However, statements from both phases also alerted to this phenomenon. This might mean that those involved in hospital transfers value the importance of adequate preparation and handover, which is currently not always possible.

#### **4.7.2 Wellness of Nurses**

The wellbeing of nurses was of major concern and was raised at several points in the study. This included physical, mental, social and professional support aspects that both groups felt had been neglected. This is summarised below under ‘fatigue management’ and ‘support for escorting nurses’.

##### ***4.7.2.1 Fatigue Management***

Both parties reported notable fatigue for escorting staff due to no dedicated patient escorts. The same nurses rostered to work in the hospital setting were performing the transfers, leading to long hours, overtime and staff shortages in the hospital that was viewed as the primary place of work. It was apparent during Phase Two that the leadership group were aware of the issues arising from using hospital RNs to transfer patients, although its impact on rosters was less understood, which was viewed as a concern. Most nurses in Phase One indicated that if the leadership understood the difficulty this model exerted on the work–life balance of the WACHS nurses, WACHS would insist on having dedicated patient escorts or at least share the burden with SJA.

##### ***4.7.2.2 Support for Escorting Nurses***

The physical barriers of communication, hindered by unreliable phone coverage and the ambiguity surrounding who has medical governance of the patient in transit, influenced the support provided for the escorting RN. For the transferring RN, the team that they worked with during transportation was governed by different guidelines, with



different and sometimes conflicting practices. Consequently, in the event of a patient acute clinical deterioration, the survey respondents expressed feelings of being anxious and alone. There were minimal reported adverse events during transport, and some of the Phase Two leadership group felt this might have contributed to the reason why these concerns had not been prioritised for review.

#### **4.7.3 Education and Training**

Although the WACHS Wheatbelt leaders had confidence that their RNs possessed adequate skills to manage deterioration during transfer, this assumption was based on the low numbers of reported adverse events linked to inadequate skills of the escorting nurse. However, there was acknowledgement by the group that there might be other reasons for the low prevalence of adverse events, such as poor reporting and lack of follow-up once the patient is handed over at the receiving site. Of note, 85% ( $n = 38$ ) of Phase One nurses believed that they had the skills to recognise clinical deterioration but felt anxious about the trip because they were aware that the back of the ambulance is not a conducive environment to monitor or manage a deteriorating patient. The acquired hospital skills were adequate but not easily transferrable to the back of the ambulance. Both groups echoed that education, training, upskilling, orientation and familiarisation of the patient escort nurses with regard to the ambulance environment were necessary and long overdue. The Phase Two participants were not aware of any plan to provide this training, although during the interviews, some participants expressed that individual site managers were keen to start providing ad hoc upskilling opportunities in this area.

The main policy that was relevant to this study, the Assessment and Management of Interhospital Patient Transfers Policy, was not known, poorly understood or not followed by the escorting RNs. With the growing demand to escort more patients via road because of the advancement in technology (e.g. increased use of

ETS, increased acuity of country patients and limited resources in smaller sites), the demand to transfer from smaller site to hub hospitals or from hub to tertiary hospitals has increased the necessity of the use of this policy to adequately guide nurses and frontline managers in their decision-making. The frequency of monitoring and the quality of documentation require clarification. Without a clear directive about the RN role, there remains a risk of ambiguity, which affects both staff morale and patient outcomes.

#### **4.7.4 Strategic Planning**

The lack of any identified strategic intent was mentioned by both groups in this study, and this was cited as contributing to the ambiguity prevailing in the out-of-hospital setting. There was acknowledgement that currently small sites were required to make decisions dependent on the available knowledge and skill of the local decision-maker and that this poses a risk. Concerns raised included a lack of clear guidelines; medical governance issues for patients being transferred; unclear escalation protocols; a lack of consensus around what documentation to use and the practicality of keeping such documentation in a moving vehicle; and no MOU between WACHS, SJA and the RFDS about what patients are transferred and what happens when the nominated transport provider does not have the resources to safely conduct the transfer. There was an appreciation that nurse escort hospital transfers needed strategic review at executive level and that this action was overdue. The wellness of nurses, rostering management, training and education, and formulation of policies that support realities of practice to support best patient care needed review.

#### **4.7.5 Summary**

The focus of hospital transfers has always been patient centred, with the goal to ensure the patient receives the level of care that is appropriate to their needs. However,

in meeting this need, staff working hours and the support offered to transferring RNs were often not acknowledged and managed. Both the RN respondents and the WACHS Wheatbelt leadership participants agreed that support of the escorting nurses requires further investigation.

## **4.8 Chapter Summary**

This chapter presented and analysed the data in relation to the involvement of the two groups of participants with nurse escort hospital transfers. The nurses that conducted hospital nurse-led ambulance transfers identified four key factors that affect the safe conduct of these transfers. The nominated leadership group were then interviewed to gain more insight and to verify these factors from a management perspective. Both groups agreed that mechanisms to support nurse escorts could be improved through intentional education and training and clearer escalation protocols during transport. There was a disconnection between the reality of practice and what leaders thought was happening, which was more evident when discussing the phenomenon of ‘scoop and run’ and how well implemented the policies and procedures were by sites. The policies governing, and guiding hospital transfers were also identified as needing review.

Chapter 5 will present a comparison of the findings with the literature, answer the research questions, and discuss the limitations of the study.

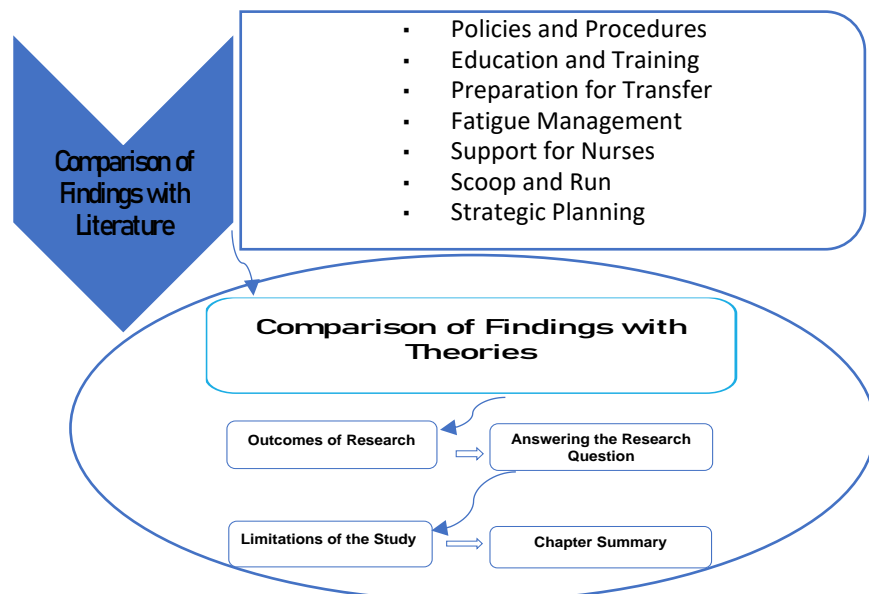
# Chapter 5: Discussion

## 5.1 Introduction

Chapter 4 presented data analysis from both Phase One and Phase Two, and outlined the findings from these two phases and concluded with a summary of overall findings. Chapter 5 will present a comparison of the findings with the literature under the headings of ‘policies and procedures’, ‘education and training’, ‘preparation for transfer’, ‘fatigue management’, ‘support for nurses’, ‘scoop and run’, and ‘strategic planning’. This will be followed by identifying the outcomes of the research, which will lay a foundation of how the research was able to answer the research questions. The findings of this study will also be related back to Marilyn Anne Ray’s theory of bureaucratic caring (M. C. Smith, 2015a) and Mishel’s uncertainty in illness theory (Mishel 1981, 1988), theories that were identified in Chapter 2 as guiding this study’s theoretical lens. The limitations of the study will then be discussed before the summary of the chapter is given. The outline of this chapter is presented in Figure 25.

**Figure 25**

*Chapter Layout*



## **5.2 Comparison of Findings with Literature**

The relevant literature review was initially discussed in Chapter 2. The six themes presented in this chapter are discussed in comparison with the literature to assist in identifying new knowledge that can be added to the existing body of knowledge about nurse escort inter-hospital patient ambulance transfers. In addition, further exploration of the specific and unique WACHS sites in relation to other health service providers is provided to highlight any gaps and quality assurance initiatives that could improve the experience of the nurses conducting these transfers. The themes and study findings are discussed below and compared with the literature.

### **5.2.1 Policies and Procedures**

The study identified that there was a lack of clear guidelines for the out-of-hospital setting. The guiding principles and the identified main inter-hospital patient transfer policy were not well used by the relevant staff. The nurses were not always aware of their existence, or their application in practice was considered challenging depending on reigning realities with each patient transfer. The health service leaders acknowledged that more work was required to support the WACHS policies to guide the nurses in the out-of-hospital environment.

A lack of understanding of escalation protocols is not unique to WACHS but is a reality that was also acknowledged by Anstey et al. (2019), who found that despite the development of the NSQHS Standard 8, which has improved the escalation of care protocols for a deteriorating patient, there is still room for improvement. Burgers et al. (2020) demonstrated that practice guidelines can improve care if they are understood and implemented accordingly. This is further supported by Newton and Fralic (2015), who found that clearly defined pathways and guidelines are useful when the

environment is complex as they guide clinicians' workflow and task management.

Providing care in a rural setting such as WA is complex, and the use of clearly defined pathways may assist in removing ambiguity. This is supported by Assareh et al. (2016) in a study exploring inter-hospital transfers in New South Wales, where they found that guidelines were necessary to ensure care and functionality of any service provision.

Practice guidelines and policies should be available to guide both transferring and receiving facilities involved in hospital transfers to ensure patient safety from the decision to transfer until the patient is discharged from the receiving hospital (Clinical Excellence Commission, 2012). In this study, although a policy was in place, it was identified that there was no tool for monitoring compliance with the policy or its impact on staff decision-making, only reporting related to patient outcomes and incident reports. Studies have demonstrated that it takes consistent reinforcement to embed a policy into a standardised process (Rhodes et al., 2008; Soar et al., 2009; Wiegmann et al., 2017). One of the repercussions of poor compliance with policies and procedures can be adverse events (Healy, 2012). Therefore, effective implementation is crucial to support quality standards of care. This can be supported through compliance monitoring with appropriate responsive mechanisms that allow for feedback and flexibility, which may be achieved by providing continuous improvement through effective communication, education and training (Musu et al., 2017). Understanding what factors are associated with current service provision and the different ways that staff deliver care, coupled with a need to provide the service in a better and more efficient way, should underpin any policy (Sidney, 2017). The service provider should therefore invest in collaborative consultation, education and training of all stakeholders in all phases of policy development, implementation and review.

### **5.2.2 Education and Training**

The study survey assisted nurses to consider their practice, knowledge, skills, and attitudes, and to identify gaps and learning needs. The provision of constantly high-quality nursing care is only possible if the workforce delivering that care is skilled, knowledgeable and confident in their everyday practice (Lippincott Nursing Centre, n.d.). S. P. Jones et al. (2018) conducted a study involving the impact of training and education on patient outcomes and discovered that interactive education and training combined with the use of protocols was associated with good quality of care outcomes. Similarly, Doucet and Rheume (2020) investigated the impact of an online training module to support transporting nurses. They discovered that when the online module was combined with other workplace initiatives such as clear guidelines, the nurses' confidence and preparedness to conduct safe patient transfers improved.

A study conducted by Alfes et al. (2016) on specialised retrieval transport clinical teams revealed that additional professional practice (years of experience) of the escorting clinician combined with simulation experience and orientation was critical to ensure a successful acclimatisation process to the inter-hospital environment. The same reasoning could be applied to nurse-led ambulance transfers in the WACHS Wheatbelt. It could be argued that this cohort of nurses require acclimatisation (orientation) to the ambulance space—which is not their primary site of work—and transporting patients, which is not their primary responsibility. Lyphout et al. (2018) acknowledged that there is a relationship between incidents during transfer and clinicians' knowledge, supporting the need for comprehensive and ongoing theoretical and practical training for clinicians conducting transfers.

Doucet and Rhéaume (2020) determined that at the very least an online module specific to the nurses' role during inter-hospital transfer was necessary and most

effective when combined with other specific practice initiatives such as inter-hospital transfer guidelines.

### **5.2.3 Preparation for Transfer**

Increased transfer times whether due to inadequate preparation, delays in transfer or longer distances are associated with poor patient outcomes (Blakeman & Branson, 2013). According to Yeung et al. (2008), the quality of inter-hospital patient transfer depends on the pre-transport preparation, equipment and prediction of possible complications en route. Clinical handover of the patient in most cases occurred in this study, but there were some cases where this did not happen or was insufficient compared with the expected level by management and supported by policy, where before assuming responsibility of the patient, the nurse receives a comprehensive report using the ISOBAR format. The findings revealed that stabilising the patient before transfer was important but might not always be possible because of limited resources or equipment, inadequate screening, and the unavailability of experienced doctors and nurses at small rural hospital sites.

There is a general appreciation that there are limited resources, skills and staffing in regional areas (Government of WA Department of Health, 2020) to adequately stabilise a patient before a transfer, which is often the reason to transfer (Ogh et al., 2012). According to Lyphout et al. (2018), pre-transfer patient screening and care was important as the severity of the patient's condition affected the mode of transport chosen and ultimately the patient outcome.

The decision to transfer and screen patients for suitability for road transport was one factor that was raised during both phases of data collection. The RNs believed that there was a strong correlation between adverse events during transfer and this initial phase at the sending hospital. Sethi and Subramanian (2014) and Yeung et al. (2008)



agreed and further elaborated that careful screening, pre-transfer preparation and stabilisation of patients may prevent not only physiological decline during transfer but also complications during and post transfer.

One participant in the survey mentioned that their site had a transport pack or suite of documentation to facilitate continued care en route and clinical handover at the receiving site. Warren et al. (2004) suggested that escort kits can be very useful as long as they are compact and do not overlap with ambulance equipment. The transport pack recommended by Warren et al. (2004) was prepacked with appropriate patient-specific airway, monitoring and intravenous items including pharmacological agents that had been prescribed by the doctor before the nurse left the site. This was only mentioned by one participant, which indicates that this may not be common practice and highlights a lack of universal application of policies.

The WACHS model of using ward and ED nurses as escorts lacks the cohesion, familiarity with equipment and team mateship that dedicated transport teams have. Low and Hulme (2014) advised against such a model but acknowledged that sometimes it cannot be avoided. In these instances, the authors advocate for a process that easily facilitates the extrication of nurses from their hospital-based position without adversely affecting the wellbeing of the nurses or the continued operation of the hospital. They suggest having a separate professional, dedicated transfer service; appropriate training and support; and standardised protocols, documentation and equipment.

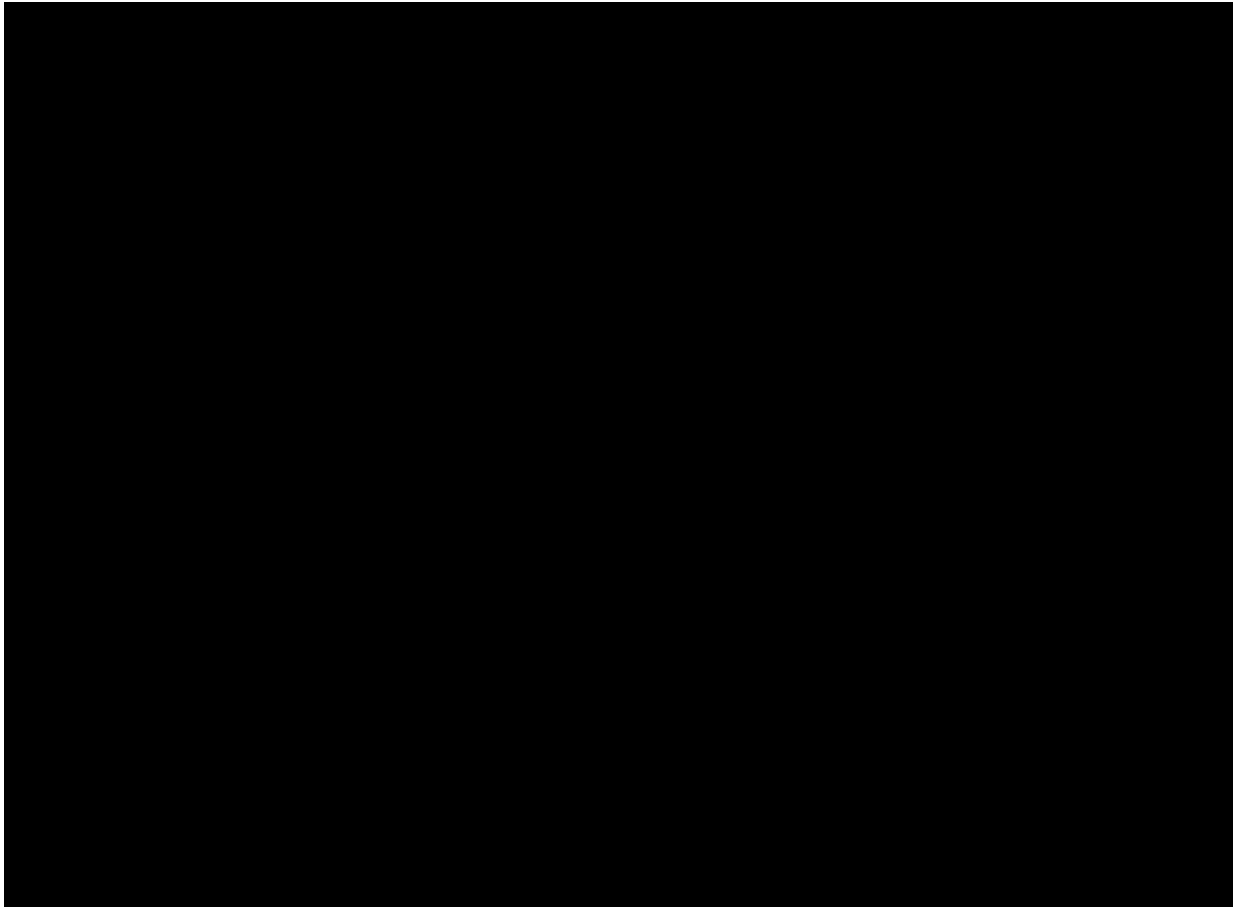
Nurses elsewhere have reported being unsure of how to prepare or manage patients during transfer, or what they are expected to do during transfer (McKinney & Melby 2002; Wu & Coyer 2007). The same was discovered in this study, with some nurses 'carrying the whole resuscitation trolley' with them and others taking nothing including hospital documentation.

#### **5.2.4 Fatigue Management**

Fatigue has been defined by both Raftopoulos et al. (2012) and Shen et al. (2006) as a sense of exhaustion, tiredness, sleepiness or lack of energy that can result in distress or burnout. There was a reported notable fatigue concern for escorting staff, mainly due to staff shortages, increased demand for transfers and the lack of dedicated patient escort RNs. Patients requiring transfer are usually prioritised over hospital patient care because of the life-threatening nature of these situations. Rosters and workloads are a secondary consideration; however, the impact is significant, with the majority of the nurses in the Wheatbelt who conduct transfers being shift workers that partake in a number of different shift patterns to sustain a 24/7 health service delivery. According to Sallinen and Kecklund (2010) and Wright et al. (2013), shift work in itself leads to shortened sleep and excess fatigue due to a misalignment of the endogenous circadian system, as depicted in Figure 26. Fatigue management is further complicated by the tradition of continuing for the greater good of the patient, as alluded to by Low and Hulme (2014). The participants in the study acknowledged that the extra responsibility of conducting transfers, being on call and not resting enough between shifts had negative physical effects on their overall wellbeing: 'I have nausea and will do so for the next few days'. Nurses reported sometimes spending 8–9 hours on a transfer conducted after their normal 8-hour shift, and they acknowledged that this 'affects rostering and nurses' fatigue/personal/family life'.

## Figure 26

*Causes and Consequences of Fatigue (Wright et al., 2013)*



There is concern that these workforce and human factors are not fully considered in the decision-making about hospital transfer. Participants in this study highlighted that nurse fatigue required attention, not only to ensure patient safety but also to safeguard the nurses' wellbeing. This study mainly explored the phenomenon of fatigue experienced by nurses as a direct result of conducting transfers. However, as highlighted by Steege et al. (2017), fatigue is complex in nature because of the ongoing demand placed on the nursing workforce, which arises from individual and generalised healthcare system demands. Steege et al. (2017) suggested that in order to address fatigue, there are several organisational and workforce barriers to overcome, such as the organisational need to provide a 24/7 service (which translates to staff having to do shift

work and night duty), the physical and mental demands of the job, and the shortage of a skilled workforce, a situation enhanced by the rural location of these employees.

There was an associated sense of despair, especially within the Wheatbelt leadership's team, when discussing nurse fatigue management and support for their workforce. This might have been due to their leadership role, and the challenges that they face in finding solutions. The sentiment of one leader, who indicated the alternative, was to leave the patient at the small site and let them die, showing that there is no immediate solution for the issue of fatigue management and the priority of the patient will inherently drive actions that put their life at the forefront of decision-making. The WACHS fatigue management policy (WACHS, 2020) stipulates that all areas of WACHS have a legal obligation to comply with occupational safety and health requirements by identifying, assessing and controlling fatigue-related risks. Although fatigue management guidelines may exist, adherence is a challenge in a region with staffing constraints (Sethi & Subramanian, 2014). This is also exacerbated by the employment of dedicated patient escort RNs only at the two larger hospitals in the region and not at smaller sites.

The model of using dedicated RNs to escort patients is an initiative used by SJA to address the paramedic shortage in rural WA. However, currently these nurses only cover the two hub hospitals and have no capacity to extend the service to the smaller sites in the region. The dedicated patient escort nurses ensure that the ward/ED nurses are not removed from their primary site to transfer patients. Therefore, ward/ED nurses in these hospitals are much less likely to conduct inter-hospital patient transfers because of the availability of the dedicated nurse or the paramedic service that can do the transfer. It is likely that these dedicated nurse escorts who are employed by SJA know the ambulance crew, are familiar with the ambulance equipment and operate as a team

under the same guidelines. This is an improved model but difficult to implement in a region where there is severe shortage of nurses and the need for transfer is ad hoc.

### **5.2.5 Support for Nurses**

The nurses felt that their employer did not provide them with a realistic clinical practice framework to guide their delivery of care in the back of an ambulance. The framework should include appropriate policies and strategies, including training and education as, according to Wolff et al. (2021), perception of an employee of support by an organisation that values their contributions and cares about their wellbeing is linked with increased employee satisfaction. There was also a general appreciation that orientation, education, training and upskilling of nurses for the role of patient transfer between sites should be prioritised. Therefore, maintaining nursing competency is a team effort that involves the individual nurses, the nursing profession, regulatory bodies, employers and other key stakeholders (Casey et al, 2017).

According to Gustafsson et al. (2010), during inter-hospital transfers, nurses are often exposed to infrequent work tasks and deal with unfamiliar and sometimes malfunctioning equipment, which may lead to anxiety and mounting concerns regarding patient safety issues. In a study involving ICU inter-hospital transport nurses by Karlsson et al. (2020), participants reported similar findings to the Wheatbelt nurse participants. The participants in that study also reported feelings of loneliness and isolation during transfer and the pressure of being the only person competent to give the highest level of care for the patient being transferred. Those ICU nurses also reported doubts regarding the ambulance personnel's competence, which this study also revealed, given the voluntary nature of the drivers, who were not registered paramedics. This finding highlights the importance of both teams acknowledging their role and skill set prior to site departure. The WACHS nurses and SJA teams must understand and

respect each other's scope of practice to avoid mistrust and conflicting roles that are counterproductive to patient care.

A systematic review by J. A. Anderson and Willson (2008) found that clinical decision support for nurses in any environment can be associated with improved interprofessional communication, better patient outcomes, and better access to best practice information at the time and place that the decision is being made. This can be in the form of alerts, reminders, order sets, care plans, protocols, enhanced displays and documentation forms, as illustrated by Osheroff et al. (2012). Dowding et al. (2009) expand on this by saying that a combination of nurses' 'familiarity with the patient, the patient's condition, and the decision support technology' (p. 1164) is a recipe for ensuring that the nurses feel supported. One such support is structural empowerment. Goedhart et al. (2017) defined structural empowerment as structures (e.g. policies, processes and guidelines) within an organisation that empower nurses to practise in a professional and autonomous manner to achieve the highest degree of clinical excellence and professional fulfilment. Structural empowerment has a positive relationship with work commitment (Boamah & Laschinger, 2015), job satisfaction (Laschinger et al., 2014), self-efficacy (Trus et al., 2012) and quality of care (Goedhart et al., 2017). On the other hand, there is evidence to suggest that structural empowerment has a negative relationship with stress (Lautizi et al., 2009), burnout (Laschinger et al., 2014) and mental illness symptoms (Wing et al., 2013).

According to Stone (2020), most nurses will have negative feelings after an adverse event if they are not supported immediately after that event. He found that those who felt supported, valued or trusted after the adverse event described the experience as empowering, and they went on to interact better with co-workers and patients. Stone (2020) also found that a low percentage of positive feeling was due to a lack of support.

This was evident in this study, where some nurses lacked support after an adverse event, particularly even when the patient they were escorting died. In some instances, even where there was no adverse event during a transfer, there was, interestingly, still a sense of fear of punishment from the employer should things go wrong after handover of the patient. Some staff believed that although they had never had an adverse event during transfer, in the event of it happening, WACHS would not support them. This may be reflective of a perceived culture of blame or a culture that is supportive of criminalisation of human error (Dekker, 2011). For some RNs, the study revealed that they are of the belief that realities of providing care in rural communities cannot be easily changed and improvement of identified gaps might take years and involve engagement of various stakeholders. During the period of engaging with various stakeholders and developing strategic plans, it is important that the RNs feel supported by the health service provider, management and other clinicians (Kabeyi, 2019).

#### **5.2.6 Scoop and Run**

‘Scoop and run’ is a phrase commonly associated with pre-hospital care at the retrieval point. In this study, it is used to describe a situation where the transferring nurse in a hospital setting does not have enough time to receive handover and familiarise themselves with the ambulance equipment, and patient and their condition and possible complications, before embarking on the journey. To scoop and run, which means ‘rescue and immediately transport’ (Barcala-Furelos et al., 2020), has been compared with ‘stay and play’ (Barcala-Furelos et al., 2020; R. M. Smith & Conn, 2009), where a decision is made to take a risk and stay at the original site and stabilise the patient, even though the transfer is time critical. The reality of practice described by nurses in this study revealed that scoop and run transfers do happen in the region, although it was ‘hoped’ that they were not being carried out because of poor preparation

and inadequate handover to facilitate safe continued care. Most of the issues raised in this study by the RNs were confirmed as already known by the interviewed leaders but without formal acknowledgement as a risk to patient safety during transfer. Sethi and Subramanian (2014) confirmed that this scoop and run approach is the norm in areas where staffing is an issue.

At times, resuscitative efforts or higher levels of care to stabilise the patient were initiated or continued during transfer because waiting at the original site was considered associated with poor patient outcomes. This phenomenon is known as ‘scoop and run while playing’ (Seesink et al., 2019). Although normally associated with the pre-hospital setting, this phenomenon was key in this study, particularly with patients in labour. In the absence of a midwife at a small site, it is difficult to ascertain and confirm the exact progress of labour and to make a decision on whether it is riskier to transfer or to keep the mother at the small site. In addition to the maternity patients, mental health patients who have been sedated and complex trauma patients were highlighted by the RNs as the group of patients most likely to be transferred immediately with either inadequate investigations to confirm diagnosis or a higher degree of complications en route.

### **5.2.7 Strategic Planning**

Without an inter-hospital patient transfer strategic plan that aims to address the common themes identified in this study, the RNs felt disadvantaged when conducting transfers. Some of the areas that were identified as needing attention were as follows: lack of clear guidelines; medical governance issues for patients being transferred; unclear escalation protocols; lack of consensus around what documentation to use and the practicality of keeping such documentation in a moving vehicle; and lack of a robust MOU between WACHS, SJA and the RFDS about what patients are transferred,



distances to be travelled and what happens when the nominated transport provider does not have the resources to safely conduct the transfer. Development of a strategic plan to support policy and procedure development, implementation and ongoing review will enable transferring nurses to refer to contemporary and practical guidelines when engaging in decision-making and can underpin the WACHS vision—to be a global leader in rural and remote healthcare—by linking the workforce’s daily work to overall WACHS goals as supported by Zuckerman (2005) and Wadsworth et al. (2016).

The WACHS strategic plan for inter-hospital patient transfers could provide a collaborative opportunity to improve issues facing the healthcare workforce, relevant stakeholders and consumers, and could be informed by the regions’ geographic spread, available healthcare resources, recruitment and staffing trends, skills mix, and patient complexities. This combination of both hard and soft elements of strategic planning (Drenkard, 2012) ensures that those involved understand and can defend, rationalise and fully cooperate with the agreed framework. This may address the issues of noncompliance with the WACHS Interhospital Transfer Policy, where the nurses were not aware of the existence of this particular policy, did not understand it, or did not refer to it because of various local decision-making processes, as articulated in Chapter 4.

The nurse-specific issues that were identified in this study at a strategic level were as follows: role clarification of the escorting RN, such as what exactly is expected of them and how realistic are those expectations, and review of inter-hospital patient transfer policies to accommodate the wellness of nurses (e.g. consideration of how the transferring nurse returns home when the transferring SJA crew is not from the local town and adequate staffing levels to manage a safe on-call roster). This is a process that includes both human and financial planning, both of which are elements of strategic planning (Schober, 2017). Practice guided by research could inform the revision and

formulation of such a framework, policies and guidelines that are relevant and practical (Sisk et al., 2020).

This study highlighted that there are concerns from some nurses why the employer expects the RNs to conduct these transfers, which sits outside of the general RN scope of practice. Thus, integration of the out-of-hospital responsibility for the RNs as part of the WACHS nursing workforce requires policy development supportive of this growing expectation. Developing strategies and policy that promote the optimal scope of practice is a dynamic and complex process that operates within a political, cultural and historical context (Schober, 2017). This means that during strategic planning and implementation, WACHS should first consider all the prevailing environmental factors and global trends that have a direct impact on where they want to be as an organisation (Kabeyi, 2019). This might involve investing in research and forward planning, financial considerations, recruiting and retaining qualified staff, ongoing education and training, and having a holistic approach in strategy formulation (Kabeyi, 2019).

### **5.3 Comparison of Findings with Theories**

In Chapter 2, two main theories were identified as being relevant to this study—namely, Marilyn Anne Ray’s theory of bureaucratic caring (M. C. Smith, 2015a) and Mishel’s uncertainty in illness theory (Mishel 1981, 1988). This study was constructed on Marilyn Anne Ray’s theory of bureaucratic caring (M. C. Smith, 2015a) in exploring how nurses think beyond their usual frame of reference in providing patient safety in complex bureaucratic healthcare systems (Alligood, 2014). The major assumptions of Ray’s theory of bureaucratic caring (Alligood & Tomey, 2010; Ray, 1998, 2018; Turkel, 2007) state that nursing is holistic, relational and spiritual, and that ethical caring seeks the good of self and others within a very complex environment. This theory

challenges nurses to understand the political, economic, and social and cultural aspects, and compassion and rights for all including themselves. Findings of this study related to each of these assumptions are described.

*Political* aspects include the power structures within WACHS that influence patterns of communication and decision-making. The negotiations between the major stakeholders, especially between WACHS and SJA, have been ongoing for several years, and the participants felt that the two parties have not been successful in resolving some of the issues that persist today. *Economic* factors include allocation of scarce human and material resources to maintain economic viability. The perceived failure of WACHS to employ dedicated patient escorts and staff the hospitals to safe levels has significant consequences for retention of staff in the region and the recognition of the nurses' wellbeing during inter-hospital patient transfers. Johnson (2015) argued that caring as an interpersonal resource should be considered, along with money and services. With regard to *social and cultural* aspects, nurses live where they work. Intertwined family structures, intimacy with friends and neighbours, community and society are all issues that they must navigate. The other important cultural influence that was found to affect the way the participants viewed the inter-hospital transfers is that culturally the out-of-hospital care of patients was undertaken by SJA. Nurses had negative feelings due to this viewpoint and did not welcome the extra 'burden' of having to conduct transfers. Navigating this complex bureaucratic environment was confusing for the nurses, and the hospital environment was preferred over the out-of-hospital environment.

Mishel's uncertainty in illness theory (Mishel, 1981, 1988) identifies three major themes that were relevant in this study: antecedents of uncertainty, process of uncertainty, and coping with uncertainty. This was useful when exploring the nurses'

attitudes, perceptions, and ability to cope with expected or unexpected acute deterioration. 'Carrying the whole resuscitation trolley' was not the norm, so this could be an indication that most nurses do not appreciate the unpredictable nature of deterioration during transfer, as supported by Mishel's theory. Screening of a patient as stable and suitable for transfer by road over long distances does not always mean that they will not deteriorate en route. This false confidence was evident in some of the responses, where nurses and indeed some nursing leaders were reassured that if patients were assessed as unstable, they would be transferred by alternate means, which indicated that they did not consider an initial stable or unstable assessment as just a point in time. This predisposed the nurse to difficulty in coping with uncertainty or deterioration when it occurred due to lack of preparedness.

Antecedents of uncertainty support that 'event familiarity, the degree to which a situation is habitual or repetitive is fostered by time and experience in a health care environment' (Mishel, 1981, p. 255). Senior nurses reported that experience indeed was a major contributing factor to their feelings of confidence. They felt that junior nurses should not be expected to undertake this role. Antecedents of uncertainty also show that social support decreases the level of ambiguity concerning a situation (Agård & Harder, 2007; Neville, 2003; Cypress, 2016; Mishel, 1983; Smith & Liehr, 2014; Engström et al., 2011). During the interviews, it was apparent that the escorting nurses were not receiving adequate clinical and personal support, and this could be a contributing factor to the uncertainty and negative feelings towards conducting transfers that were reported by the respondents.

The concept of uncertainty of patients being transferred has been studied before, as in Lu and Lu (2018) and Feazel et al. (2015), where fear about patient outcomes is expressed by both patients and their families. Karlsson et al. (2020) conducted a study

on uncertainty of specialised transferring teams involving intensive care nurses, but not much is known about the uncertainty of transferring patients involving generalist nurses in nurse-led road ambulance transfer. This study therefore illuminated how generalist nurses felt during patient transfers. There were feelings of doubt, concerns about the unknowns, and the context of vagueness; these common threads were reported by both Phase One and Phase Two participants when describing the phenomenon of inter-hospital transfers. A myriad of confusion was evident in the inconsistent documentation used, which patients need to be transferred; escalation protocols; and the varied interpretation and understanding of policies and guidelines.

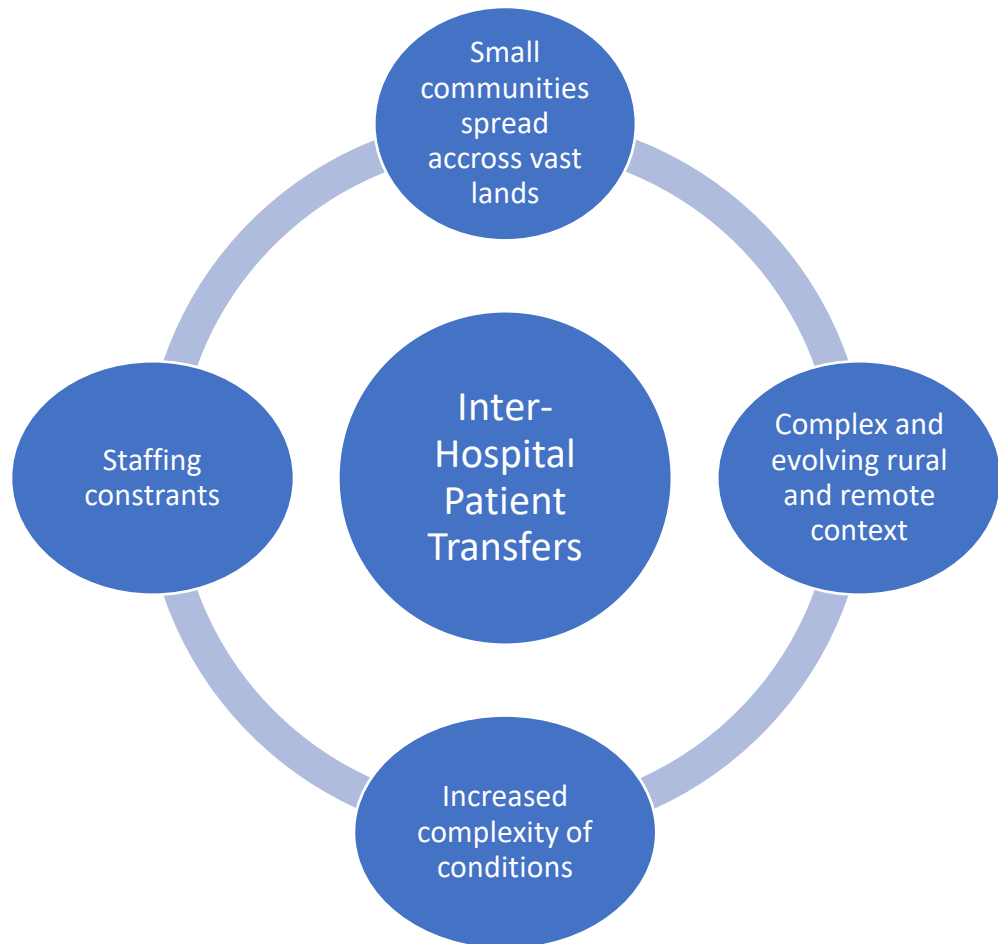
#### **5.4 Outcomes of This Research**

The study revealed a complexity around the provision of healthcare in rural regional WA. The researcher investigated from the nurses' perspective the specific drivers of safe inter-hospital patient transfers that were uniquely provided by WACHS. With increased service delivery in the regions, rural health is now seeing more complex patients, who were traditionally transferred to the metropolitan hospitals, with people with complex medical conditions, who had previously relocated to the city, now choosing to spend the remainder of their life in the country. In addition, with population growth and financial opportunity, there are more people, with more options and more mobility. They can afford to travel for specialist appointments in the metropolitan hospital centres, with the rest of the time being cared for in the regional towns. The generalist rural nurse may therefore be required to provide specialised skills without any formal specialised training when an unexpected change in status occurs, requiring hospitalisation and transfer. These complex patients have the potential to deteriorate during a journey of 200 km or more, with the generalist nurse as the lead clinician.

Some of the challenges directly affecting inter-hospital patient transfers in regional WA are illustrated in Figure 27.

**Figure 27**

*Complexities Surrounding Inter-Hospital Patient Transfers in Rural WA*



## **5.5 Answering the Research Questions**

A mixed method descriptive design was applied in this study to answer the five research questions identified in Chapter One. The questions are outlined below, with a brief summary on how the study revealed the findings for each question.

The main question is as follows:

- How well equipped do nurse escorts perceive they are in managing clinical care and deterioration during nurse escort inter-hospital patient transfers in the Wheatbelt region of WA, using the volunteer ambulance service?

Nurses reported that they were conducting these transfers, and their perceptions were that they had the necessary knowledge and transferable skills to manage most patients during transfer; however, this was dependent on the individual nurse's skills and years of experience. This was mainly related to no specific training given to the escorting nurse. The nurses comfortable in managing clinical deterioration during transfer had had the opportunity to familiarise themselves with the role and had many years of experience to increase their confidence. Senior nurses reported that junior nurses should be protected from doing inter-hospital transfers; however, skill mix and staffing levels meant that this was not always possible. The lack of clear guidelines, especially the ambiguity surrounding the escalation of care, affected all nurses. There was also an appreciation that it takes more than nursing skills and knowledge to manage a deteriorating patient. The requirement includes a cohesive team, a conducive environment, and acclimatisation to the back of the ambulance and the equipment. Further specific details are given under the following sub-questions.

The sub-questions are as follows:

- What are the challenges that nurse escorts face in recognising and managing clinical deterioration prior to and during hospital transfer?

The challenges reported included poor phone coverage in regional areas, physiological effects of the moving environment on both the patient and the staff member, and difficulty in monitoring core vital signs and keeping legible documentation. Working with an unfamiliar team with different governing processes,

which often contradicted and caused confusion for the nurse, interfered with the nurses' ability to detect and manage deterioration in a timely manner.

- How do nurse escorts perceive their knowledge, skill level, and scope of clinical practice to support patients during hospital transfer?

Nurses confirmed that their important life-saving skills could be easily transferred to the back of an ambulance; however there was acknowledgement from both the interviewees and the survey participants that there are special populations of patients that require advanced clinical skills, which the generalist nurse does not necessarily have. These are maternity, paediatrics, mental health and unstable trauma patients. Unstable patients are usually transferred by air, but there were circumstances where a decision was made to transfer such patients by road (e.g. in cases of bad weather, unavailability of the RFDS, or transfer from small site to hub site for urgent stabilisation). These situations were where most nurses felt it was unfair to be expected to conduct such transfers. The nurses were unsure of the extent of their scope of practice in the back of an ambulance. Additionally, there was some confusion of who was in charge of the patient while in the ambulance.

- What are the attitudes of the nurses towards hospital transfers?

The majority of nurses felt that the hospital nurses should not be expected to conduct transfers. In contrast, some nurses felt that continued care of the patient was their responsibility, and they were therefore happy to conduct these transfers, and others felt that they would be able to incorporate this as their primary role if they were supported when adverse events occurred during transportation. Many of the generalist WACHS Wheatbelt RNs were anxious about conducting transfers, and their only motivation to accept this responsibility was the realisation that there was no one else available to move the patient to the right level of care provider.



- What are the health service senior leaders' expectations of nurse escorts, and do these match with the reality of practice?

There was a disparity in the RNs' realities of practice and the senior leaders' expectations, especially around pre-transfer preparation, with leaders believing that there was always enough time given to the escorting nurse to prepare, receive handover and familiarise themselves with the patient before leaving. Leaders assumed that the nurse who had been caring for the patient in the ED or in the ward was the one that did the transfer for continuity of care. In practice, the decision on who escorts the patient was dependent on rostering, skill mix of available staff, fatigue management, acuity of the patients remaining in the hospital, and sometimes personal preference and negotiation between nurses.

## **5.6 Limitations of the Study**

The first limitation of this study is that the Wheatbelt region is different from other regions of WACHS. The region has unique challenges because the health service consists of many small hospitals, each with limited resources such as nurses and doctors, with some having no medical staff onsite. Although there are also many similarities with other regions in WA, this study acknowledges that the results of this study might not be applicable to the other six regions of WACHS. The study is however appropriate to analyse the Wheatbelt region to provide health service recommendations to effect policy and patient transfer nurse escort training.

A further limitation is that the researcher is an employee in the study setting. The researcher has both clinical experience and management experience in the region. There is a higher risk of researcher bias (Guyatt et al., 2011) as the researcher already had a hypothesis about contributing factors to the phenomenon under study and could have subconsciously influenced the responses of the interviewees (Pannucci & Wilkins,

2010). Two university research supervisors provided oversight of the research process. They monitored both validity and reliability of the research by ensuring that findings accurately reflected the data and that the analytic procedures were consistent (Creswell & Creswell, 2018).

The online survey only involved RNs that are directly employed by WACHS under various employment types but excluded agency nurses that work for both WACHS and under other different health service providers around Australia. Agency nurses form a large part of the WACHS Wheatbelt nursing workforce and actively participate in inter-hospital patient transfers. This exclusion was included to eliminate the effect of potential specific training and experience gained elsewhere. It is therefore unknown whether agency nurses would also report similar perceptions.

Using Yamane's equation for simplified formulation for proportions (Yamane, 1967), the sample size was determined as 214.8 to describe patterns; however, this number was based on the number of employed RNs, and not those that met the inclusion criteria, and was therefore an overestimation. Additionally, recruitment proved to be challenging. For the the online survey, there were 52 respondents. When answering the survey questions there was also a dropout rate noted with 36 out of 52 respondents answering all the questions. There are possible reasons for this, but they were not investigated. It should be noted however that no one respondent had more than 10% missing data, so all responses were included. Larger samples enable generalisability with some degree of certainty (Norouzian, 2020). Although the minimum survey participant number was not achieved, the data provided meaningful insight about the topic to support Phase Two of the study. Phase Two provided an opportunity to explore the findings with the health service leadership group; therefore, the sample size was not based on the number of employees, but on understanding the

Phase One findings and achieving data saturation for a specifically chosen sample of the leadership team (Braun & Clarke, 2021).

This study was about understanding the nurse escorts' perceptions; the purpose of the study was not designed to investigate patient data about hospital transfers or patient perceptions.

## **5.7 Chapter Summary**

This chapter has explored the research findings in relation to available relevant literature. In comparison, similar findings have been confirmed with other national and international studies. The key finding from this study highlights that hospital-based nurses found inter-hospital transfers complex because of the ambiguity around the out-of-hospital setting. Education and training were viewed as important, as well as the need for dedicated nursing hours for patient transfers. These research findings are a valuable new addition to the already existing literature that contributes to the ever-growing need to transfer patients from smaller regional sites to bigger regional centres and to tertiary facilities. These findings may assist nurses, hospital executives and policy makers in making inter-hospital patient transfer policies. The implications of these findings and recommendations are discussed fully in Chapter 6.

## **Chapter 6: Conclusion**

### **6.1 Introduction**

Chapter 5 discussed a comparison of the findings with the literature under the headings ‘policies and procedures’, ‘education and training’, ‘preparation for transfer’, ‘fatigue management’, ‘support for nurses’, ‘scoop and run’, and ‘strategic planning’. The chapter also discussed how the outcomes of the research were able to answer the research questions. The study findings were then compared with the two caring theories, Marilyn Anne Ray’s theory of bureaucratic caring (M. C. Smith, 2015a) and Mishel’s uncertainty in illness theory (Mishel, 1981, 1988). Limitations of the study concluded Chapter 5. This chapter provides the conclusion of the study, and outlines the practice, policy and research implications. The chapter also provides the recommendations for practice to support safe patient care during transfer and the wellbeing of the RNs who conduct inter-hospital patient transfers by ambulance without the traditional support of paramedics.

### **6.2 Policy Implications**

The study has highlighted the importance of policy and its application to support the delivery of care within a complex care environment. The WACHS Assessment and Management of Interhospital Patient Transfers Policy (2017) and the Assessment and Management of Inter-hospital Patient Transfer Policy (2017) were both relevant to this study and were identified as a major contributing factor to the ambiguity about hospital transfers. To support improved understanding of roles and responsibilities, current documents supporting hospital transfer should be reviewed and where necessary revised. Proposed changes should consider the factors that influence safe transfer, with actions and interventions to facilitate these.

The study findings also indicated that there was at times confusion about roles and responsibilities between the SJA and WACHS staff—SJA volunteer officer, driver and the escorting WACHS RN—which aided confusion. An overarching policy that is inclusive of the wider team would support team cohesion and patient care.

### **6.3 Practice Implications**

The environment of the ambulance at times prohibited nurse escorts from engaging in care that was provided in the hospital setting. This related to the set-up of the ambulance, movement of the vehicle, nurses themselves feeling unwell, and a lack of guidance about care expectations. To keep proper documentation that was legible and comprehensive was not always possible; this related to being alone to care and document, and the lack of stability in the vehicle. This left some participants feeling that the delivery of care was not as they would provide in the hospital, and they consequently felt vulnerable if something were to go wrong. The implication for practice is that inter-hospital transfers are very complex if they are conducted by ward/ED nurses that predominantly work in the hospital setting and are unfamiliar with how to practise in a moving vehicle with an unfamiliar layout. Extra support through education and training to support nurse escorts implement health service policy and guidelines when caring for patients could assist with ensuring minimum care standards and reduce feelings of isolation by the nurse.

The study highlighted that nurse escorts in particular felt vulnerable about caring for a deteriorating patient when there was little they felt they could do for the patient in an ambulance. Poor phone coverage hindered direct communication, and participants were unsure of which hospital had responsibility for patient care decisions. Nurses also felt that their scope of practice was not to the required level to deliver care that may be required or could not be provided alone. Communication options need to be formalised

prior to departure, and responsibilities and scope of practice confirmed. Standing medical orders can support nurse escorts in their delivery of care. Current health service documents should be reviewed to ensure this is clearly stipulated.

The study identified gaps in health service policy that supported how nurses were to return to their rural location. The challenge of transporting a nurse escort back from Perth or from a hub site if the transport crew is not from the local area was acknowledged. A review of related workforce policy to support nurses' safety and wellbeing is essential.

## **6.4 Research Implications**

Further research to support nurse escorts' practice in conducting nurse-led ambulance transfers is warranted across the other regional services of WACHS. Inter-hospital transfers are likely to increase with populations growing, and patients choosing to be cared for at home rather than in the city. Understanding the complexities faced by the different rural health workforces across WA can support improved patient care and outcomes. This includes roles and responsibilities, scope of practice, standing orders and nurses' wellbeing during this time of increased anxiety.

This study did not include all transfers, for example, transfer to the airstrip for the RFDS, which are very prevalent in the region, was not included. Further research is recommended to understand the processes with these transfers that may support other transfer policy and care. Of note, these patients are usually more unstable, although the distance travelled in the ambulance and time with the patient alone is significantly reduced.

## 6.5 Recommendations

The findings of this study have informed the following five recommendations. Each recommendation links to key findings of this study, described in Chapters 4 and 5 of this thesis.

- **Recommendation 1:** Specific orientation, education, training and drills aimed at improving skills and knowledge of caring for patients in the back of an ambulance should form part of induction for all Wheatbelt RNs within the first 3 months of employment.
- **Recommendation 2:** Nurse-led inter-hospital ambulance transfers should be allocated to RN Level 1 increment 4 and above.
- **Recommendation 3:** Recruitment and selection initiatives are needed to clearly outline inter-hospital patient transfers as a core duty.
- **Recommendation 4:** Strategic review and planning should involve clinicians to ensure that there is no disparity between governing policies and realities of practice.
- **Recommendation 5:** Tangible strategies need to be initiated to demonstrate a supportive non-blame culture.

## 6.6 Conclusion

The first phase of this mixed methods study explored the nurse escorts' perceptions of their ability to care, manage and intervene to provide patient care, and when required manage clinical deterioration, during nurse-led inter-hospital ambulance transfers. The second phase comprised interviews with the health service leadership in the region about the same phenomenon. There were similar concerns raised by both groups to varying degrees. Both groups agreed that the Wheatbelt RNs were very capable, mainly generalist nurses that have demonstrated competency in managing

patient care during transfer. This competency, although not tested, was attributed to the nurses on the basis of the fact that there have not been many adverse events that can be directly linked to the nurses' lack of skill or knowledge. There was however an acknowledgement that these data are probably skewed by the fact that there is lack of follow-up after the patient has been handed over at the receiving hospital. Ongoing education and training, orientation to the back of an ambulance, and upskilling generalist nurses to care for special population groups such as mental health or pregnant patients were viewed as necessary by both groups.

There was a disparity between the realities of practice reported by nurses and what the senior staff leads presumed was happening, for example, the prevalence of 'scoop and runs'. The WACHS Interhospital Patient Transfer Policy, WACHS Patient Transfer Guideline (2017), and the Assessment and Management of Inter-hospital Patient Transfer Policy (2017) were considered inadequate because of the complexities of inter-hospital transfers. The study was able to answer the research question and contribute meaningful findings to support an improved understanding of the factors influencing hospital transfer by nurse escorts from the WACHS Wheatbelt region.



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## Appendix A: Nursing and Midwifery Scope of Practice Part 1

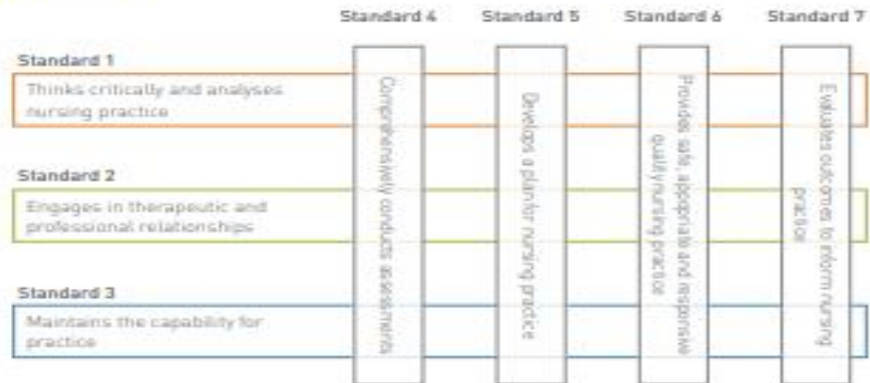
NSQHS (Edition 2)	<b>WACHS</b> <i>Current as at: 12/06/2019</i> Please see <a href="#">Appendix A</a> for Mandatory induction for all WACHS staff in addition to part 1	<b>Proficiency level key</b> M = Mandatory all Nurses	Level of proficiency expected						PRIORITY (Based on 1.0FTE)				
			Grad EN/RN	EN	RN	Managers A/Hours; Unit/Area; HSM; DON; CON/M			All senior Nursing Staff	1	2	3	4
						RN 1-1.4	RN 1.4-1.8	CN/CM		At Induction 0-3 months	3-6 months	6-12 months	12-24 months
	Aseptic Technique ( <a href="#">ICATC EL2</a> )		M	M	M	M	M	M	M	x			
	Aggression Management ( <a href="#">MA1 EL2</a> )		M	M	M	M	M	M	M	x		Annual	
	Basic Life Support Theory ( <a href="#">REABL &amp; REPBL EL2</a> and <a href="#">003</a> )		M	M	M	M	M	M	M	x		Annual	
	Brief intervention for Alcohol and Tobacco ( <a href="#">BIAT EL2</a> )		M	M	M	M	M	M	M	x			
	Bullying in the workplace, prevention & response ( <a href="#">MA2BL EL2</a> )		M	M	M	M	M	M	M	x			
	Clinical Handover using iSoBAR ( <a href="#">ISOBA EL2</a> )		M	M	M	M	M	M	M	x			
	Datix Clinical Incident Management System (CIMS) Introductory Module ( <a href="#">DATNO EL1</a> )		M	M	M	M	M	M	M	x			
	Datix Clinical Incident Management System (CIMS) Closing the loop ( <a href="#">DATSS EL1</a> )		M	M	M	M	M	M	M	x			
	Falls Prevention ( <a href="#">FALWA EL2</a> )		M	M	M	M	M	M	M	x			
	Hand Hygiene ( <a href="#">CICHH EL2</a> )		M	M	M	M	M	M	M	x		Annual	

NSQHS (Edition 2)	<b>WACHS</b> <i>Current as at: 12/06/2019</i> <b>Please see <a href="#">Appendix A</a> for Mandatory induction for all WACHS staff in addition to part 1</b>	<b>Proficiency level key</b> M = Mandatory all Nurses	Level of proficiency expected						PRIORITY (Based on 1.0FTE)				
			Grad EN/RN	EN	RN	Managers A/Hours; Unit/Area; HSM; DON; CON/M			All senior Nursing Staff	1	2	3	4
						RN 1-1.4	RN 1.4-1.8	CN/CM		At Induction 0-3 months	3-6 months	6-12 months	12-24 months
	Infection Control Orientation ( <a href="#">CIC EL2</a> )		M	M	M	M	M	M	M	x			
	Mandatory Reporting of Child Sexual Abuse ( <a href="#">MRCSA COM</a> )		M	M	M	M	M	M	M	x			
	Medication Safety ( <a href="#">MDSWA EL2</a> ) Medication: Get it Right! Taking the Best Possible Medication History ( <a href="#">MDGIR EL2</a> )		M	M	M	M	M	M	M	x			
	Medication National Standard Medication Charts ( <a href="#">NMCWA EL2</a> )		M	M	M	M	M	M	M	x			
	Policy Awareness ( <a href="#">APOLY EL2</a> )		M	M	M	M	M	M	M	x			
	Recognition and Response to Clinical Deterioration ( <a href="#">ERRCD EL2</a> )		M	M	M	M	M	M	M	x			
	The initial open Disclosure ( <a href="#">ODDIS EL2</a> )		M	M	M	M	M	M	M	x			

# Appendix B: Scope of Practice for Registered Nurses

## REGISTERED NURSE STANDARDS FOR PRACTICE

Figure 1: RN standards



Each standard has criteria that specify how that standard is demonstrated. The criteria are to be interpreted in the context of each RN's practice. For example, all RNs will, at various times, work in partnerships and delegate responsibilities, however, not every RN will delegate clinical practice to enrolled nurses. The criteria are not exhaustive and enable rather than limit the development of individual RN scopes of practice.

The Registered nurse standards for practice are for all RNs across all areas of practice. They are to be read in conjunction with the applicable NMBA companion documents such as the standards, codes and guidelines, including the Code of conduct for nurses, National framework for the development of decision-making tools for nursing and midwifery practice, Supervision guidelines for nursing and midwifery, and Guidelines for mandatory notifications. The glossary is also important for understanding how key terms are used in these standards.

### RN standards for practice

#### Standard 1: Thinks critically and analyses nursing practice

RNs use a variety of thinking strategies and the best available evidence in making decisions and providing safe, quality nursing practice within person-centred and evidence-based frameworks.

The RN:

- 1.1 accesses, analyses, and uses the best available evidence, that includes research findings for safe quality practice
- 1.2 develops practice through reflection on experiences, knowledge, actions, feelings and beliefs to identify how these shape practice
- 1.3 respects all cultures and experiences, which includes responding to the role of family and community that underpin the health of Aboriginal

and Torres Strait Islander peoples and people of other cultures

- 1.4 complies with legislation, common law, policies, guidelines and other standards or requirements relevant to the context of practice when making decisions
- 1.5 uses ethical frameworks when making decisions
- 1.6 maintains accurate, comprehensive and timely documentation of assessments, planning, decision-making, actions and evaluations, and
- 1.7 contributes to quality improvement and relevant research.

### **Standard 2: Engages in therapeutic and professional relationships**

RN practice is based on purposefully engaging in effective therapeutic and professional relationships. This includes collegial generosity in the context of mutual trust and respect in professional relationships.

The RN:

- 2.1 establishes, sustains and concludes relationships in a way that differentiates the boundaries between professional and personal relationships
- 2.2 communicates effectively, and is respectful of a person's dignity, culture, values, beliefs and rights
- 2.3 recognises that people are the experts in the experience of their life
- 2.4 provides support and directs people to resources to optimise health related decisions
- 2.5 advocates on behalf of people in a manner that respects the person's autonomy and legal capacity
- 2.6 uses delegation, supervision, coordination, consultation and referrals in professional relationships to achieve improved health outcomes
- 2.7 actively fosters a culture of safety and learning that includes engaging with health professionals

and others, to share knowledge and practice that supports person-centred care

- 2.8 participates in and/or leads collaborative practice, and
- 2.9 reports notifiable conduct of health professionals, health workers and others.

### **Standard 3: Maintains the capability for practice**

RNs, as regulated health professionals, are responsible and accountable for ensuring they are safe, and have the capability for practice. This includes ongoing self-management and responding when there is concern about other health professionals' capability for practice. RNs are responsible for their professional development and contribute to the development of others. They are also responsible for providing information and education to enable people to make decisions and take action in relation to their health.

The RN:

- 3.1 considers and responds in a timely manner to the health and well being of self and others in relation to the capability for practice
- 3.2 provides the information and education required to enhance people's control over health
- 3.3 uses a lifelong learning approach for continuing professional development of self and others
- 3.4 accepts accountability for decisions, actions, behaviours and responsibilities inherent in their role, and for the actions of others to whom they have delegated responsibilities
- 3.5 seeks and responds to practice review and feedback
- 3.6 actively engages with the profession, and
- 3.7 identifies and promotes the integral role of nursing practice and the profession in influencing better health outcomes for people.

## REGISTERED NURSE STANDARDS FOR PRACTICE

### Standard 4: Comprehensively conducts assessments

RNs accurately conduct comprehensive and systematic assessments. They analyse information and data and communicate outcomes as the basis for practice.

The RN:

- 4.1 conducts assessments that are holistic as well as culturally appropriate
- 4.2 uses a range of assessment techniques to systematically collect relevant and accurate information and data to inform practice
- 4.3 works in partnership to determine factors that affect, or potentially affect, the health and well being of people and populations to determine priorities for action and/or for referral, and
- 4.4 assesses the resources available to inform planning.

### Standard 5: Develops a plan for nursing practice

RNs are responsible for the planning and communication of nursing practice. Agreed plans are developed in partnership. They are based on the RNs appraisal of comprehensive, relevant information, and evidence that is documented and communicated.

The RN:

- 5.1 uses assessment data and best available evidence to develop a plan
- 5.2 collaboratively constructs nursing practice plans until contingencies, options priorities, goals, actions, outcomes and timeframes are agreed with the relevant persons
- 5.3 documents, evaluates and modifies plans accordingly to facilitate the agreed outcomes
- 5.4 plans and negotiates how practice will be evaluated and the time frame of engagement, and
- 5.5 coordinates resources effectively and efficiently for planned actions.

### Standard 6: Provides safe, appropriate and responsive quality nursing practice

RNs provide and may delegate, quality and ethical goal-directed actions. These are based on comprehensive and systematic assessment, and the best available evidence to achieve planned and agreed outcomes.

The RN:

- 6.1 provides comprehensive safe, quality practice to achieve agreed goals and outcomes that are responsive to the nursing needs of people
- 6.2 practises within their scope of practice
- 6.3 appropriately delegates aspects of practice to enrolled nurses and others, according to enrolled nurse's scope of practice or others' clinical or non-clinical roles
- 6.4 provides effective timely direction and supervision to ensure that delegated practice is safe and correct
- 6.5 practises in accordance with relevant nursing and health guidelines, standards, regulations and legislation, and
- 6.6 uses the appropriate processes to identify and report potential and actual risk related system issues and where practice may be below the expected standards.

### Standard 7: Evaluates outcomes to inform nursing practice

RNs take responsibility for the evaluation of practice based on agreed priorities, goals, plans and outcomes and revises practice accordingly.

The RN:

- 7.1 evaluates and monitors progress towards the expected goals and outcomes
- 7.2 revises the plan based on the evaluation, and
- 7.3 determines, documents and communicates further priorities, goals and outcomes with the relevant persons.

## **Appendix C: Survey Questions**

### **Participant Survey**

Participation in this research project is completely voluntary. You can choose to withdraw from the study at any time before the submission of the questionnaire without fear of discrimination or prejudice. Even if you begin the survey, you are free to withdraw by simply not submitting it. Submission of the survey on-line indicates consent to participate in the project.

Nurse Escorts' perceptions of their ability to manage patient clinical deterioration during nurse led interhospital ambulance transfer the Wheatbelt region of Western

Australia: A mixed method study

### **Demographics**

1. Gender:

- Male
- Female
- Other

2. Age:

- Under 25 years
- 25–45 years
- 46–60 years
- Over 60 years

3. Years of nursing experience:

- Under 5 years
- 5–10 years
- 11–20 years
- Over 21 years

### **Education and Training**

1. Are you a:

- Registered Nurse
- Clinical Nurse
- Clinical Nurse Manager



Other

2. Do you have any postgraduate training in either ED or ICU?

Yes

No

If yes, at what level:

Post Graduate Certificate

Post Graduate Diploma

Master's Degree

Doctorate

3. Have you ever received any training that is relevant to nursing acute patients who are being transferred to another facility? e.g. ALS, TNCC, APLS

Yes, Specify \_\_\_\_\_

No

If yes, was the above training offered through:

WACHS

Non-WACHS Agency

### **Clinical Experience in Nurse Led Ambulance Transfers**

1. How many times have you been the nurse escort in a nurse led ambulance transfer in the Wheatbelt region in the past 5 years?

1

2–5

6 or more

2. What is the furthest distance you have had to transfer a patient?

\_\_\_km

3. Do you feel confident in your skills and ability to anticipate and recognise deterioration/complications during transfer?

Not Confident

Slightly Confident

Confident

Very Confident

Extremely Confident

4. Please describe below how well equipped you consider yourself to be in managing possible deterioration of patients during transfer.

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**Policies and Procedures**

1. Are you familiar with the WACHS Inter-hospital Patient Transfer Policy?

- Yes  
 No

If yes, do you refer to it every time you transfer a patient. Give reasons for your answer:

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2. Should your patient deteriorate during transfer are you clear about who to contact and how to contact them

- Yes  
 No

3. What documentation do you complete during transfer?

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Do you feel it is the same quality as the documentation you keep while in hospital?

- Yes  
 No, please explain

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4. Were you orientated to the role of patient escort nurse?

- Yes
- No

Comments \_\_\_\_\_

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5. How familiar are you with the ambulance equipment?

- Very familiar
- Familiar
- Not familiar

6. How well do you think nurses are prepared for nurse led interhospital patient transfers via ambulance in WACHS Wheatbelt?

- Not prepared
- Poorly prepared
- Adequately prepared
- Well prepared
- Exceptionally prepared

Comments \_\_\_\_\_

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**Attitudes**

1. Please describe how do you think nursing a patient in the back of an ambulance differs from nursing in the hospital setting?

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2. Have you ever had an adverse event or poor outcome for a patient you were transferring via ambulance before?

- Yes
- No

Please comment/describe, what support post event did you receive.

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3. Do you suffer from motion sickness?

- Yes
- No

4. Have you ever conducted a 'scoop and run' transfer? (inadequate time to receive handover and understand the patient's condition and possible complications)

- Often
- Always
- Never

5. Would you rather?

- Stay behind at the hospital and continue nursing inpatients/ED patients
- Escort a patient to another facility

Please provide reasons for your answer above:

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6. Do you think you would benefit from specific training aimed at patient care and emergency management for deterioration during transportation?

Yes

No

Comment \_\_\_\_\_

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Reflecting on your most recent experience as a nurse escort in a nurse led interhospital ambulance transfer

7. What is your most dominant feeling during transfer?

\_\_\_\_\_

8. How confident do you consider you are with recognising and intervening for clinical deterioration of patients during transfer as compared to when in a hospital setting?

Not confident

Slightly confident

Confident

Very confident

Extremely confident

Comment \_\_\_\_\_

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9. Was the clinical handover you received adequate? Yes/No

\_\_\_\_\_

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\_\_\_\_\_ Consider using the below trigger questions in your answer:

Was the patient considered to be unstable?

Were you comfortable in accepting the role of being the nurse escort?

Was there an opportunity to decline?

Did you feel adequately supported?

Did you know who to contact?

Did you understand your scope of practice?

## **Appendix D: Staff Survey Participant Information Sheet**

### **Staff Survey Participant Information Sheet**

Dear Participant,

You are invited to participate in the research project described below.

Nurse Escorts' perceptions of their ability to manage patient clinical deterioration during nurse led inter-hospital ambulance transfers in the Wheatbelt region of Western Australia: A mixed method study

#### **What the project is about?**

The aim of this research project is to explore how well-equipped nurse escorts are in managing clinical deterioration during nurse led inter-hospital ambulance transfers of patients between and from WACHS-Wheatbelt sites. Ward / ED registered nurses in various small sites in the Wheatbelt are required to lead inter-hospital patient transfer from within the region to a hub site or to the metropolitan areas. There are no dedicated patient escort registered nurse positions in the region. There is however, a lack of empirical research which focusses on how well equipped these ward / ED nurses are in dealing with patient clinical deterioration: expected or not unexpected during transfer. There is evidence from the literature that there are gaps in recognising and managing acute clinical deterioration in controlled environments. This project seeks to explore nurse escorts' perceptions of their ability to manage patient clinical deterioration during nurse led inter-hospital ambulance transfer in regional Western Australia

#### **Who is undertaking the project?**

The project is being conducted by Sinqobizitha (Sinq) Mndebele. Sinq is undertaking a degree of Master of Nursing (Research) at the University of Notre Dame Australia under the supervision of Associate Professor Kylie Russell and Dr Tracey Coventry.

#### **What will I be asked to do?**

This project will be undertaken in all WACHS-Wheatbelt sites. A survey will be conducted using an electronic data collection tool (DCT). A link to access the DCT will be sent to your work email. The survey will be live for 6 weeks and in that period 3 separate emails will be sent to your email to remind you of the return date of the completion date of the survey. There will also be weekly reminders on the popular Friday Flick which is a WACHS-Wheatbelt publication that goes out to all employees in the region. It is estimated that the survey will take the RN an average of twenty minutes to complete. The survey will be designed to save the answers and allow you to continue later in case of interruptions.

**Are there any risks associated with participating in this research project?**

There are no anticipated risks in participating in this study. However, if during the course of the study any concerns emerge, you are advised to seek professional, confidential and free counselling through the Employee Assistance Program on (Phone) 1800 818 728 or (Fax) 61 8247 9199 or [accesseap.com.au](http://accesseap.com.au)

**What are the benefits of this research project?**

Your participation in this study will help identify deficits so to influence education and upskilling of nurses in the region, improve management of resources in inter-hospital patient transfers and help executives in understanding the nurses' feelings, confidence and experiences and how these affect patient outcomes and efficiency of inter-hospital patient transfers.

**What if I change my mind?**

Participation in this research project is completely voluntary. You can choose to withdraw from the study at any time before the submission of the questionnaire without fear of discrimination or prejudice. Even if you begin the survey, you are free to withdraw by simply not completing it. However, once you complete and submit the



survey, you won't be able to withdraw because we will have no way of knowing which survey yours is.

**Will anyone else know the results of the project?**

All information collected in this study is anonymous and will be stored securely with access restricted to authorised persons involved in this research, namely: the researcher and supervisors. When the study is completed the collected data will be stored securely on a password protected computer in the school of Nursing and Midwifery at the University of Notre Dame Australia for at least a period of five years. This data may be used in future research and may be published in peer viewed journals, but you will not be identifiable. Any journal articles and conference papers can be made available to you on request.

**Will I be able find out the results of the project?**

When data has been analysed and the research process concluded the results of the study will be summarised in a report. This report will be included in the Wheatbelt Weekly publication 'Friday Flick'. This is expected to be available in October 2020

**Who do I contact if I have questions about the project?**

If you have any questions or concerns about this research project, please do not hesitate to contact either Sinq Mndebele on 0438 964 138 or my supervisors Associate Professor Kylie Russell 9433 0654 or Dr Tracey Coventry on 9433 0627.

# **Appendix E: Interview Participation Sheet**

## **Interview Participant Information Sheet**

**Research Project Title: Nurse Escorts' perceptions of their ability to manage patient clinical deterioration during nurse led inter-hospital ambulance transfers in the Wheatbelt region of Western Australia: A mixed method study**

You are invited to participate in the research project described below.

### **What is the project about?**

The aim of this research project is to explore how well-equipped nurse escorts are in managing clinical deterioration during nurse led inter-hospital ambulance transfers of patients from WACHS-Wheatbelt sites. Ward / ED registered nurses in various small sites in the Wheatbelt conduct inter-hospital patient transfer from within the region to a hub site or to the metropolitan areas. There are no dedicated patient escort registered nurse positions in the region. There is however lack of empirical research focusing on how well equipped these ward / ED nurses are in dealing with patient clinical deterioration: expected or not unexpected during transfer.

There is evidence from literature that there are gaps in recognising and managing acute clinical deterioration in controlled environments. This project seeks to investigate how the registered nurses monitor and identify clinical deterioration of their patients during transfer in the back of an ambulance.

### **Who is undertaking the project?**

The project is being conducted by Sinqobizitha (Sinq) Mndebele. Sinq is undertaking a degree of Master of Nursing (Research) at the University of Notre Dame Australia under the supervision of Associate Professor Kylie Russell and Dr Tracey Coventry.

### **What will I be asked to do?**

You are asked to participate in an individual face to face / video conferencing interview about your views on how well-equipped nurse escorts are in managing clinical deterioration during road transportation of patients in WACHS – Wheatbelt. The interview will take approximately 30-40 minutes and will be audio-recorded recorded using an iPhone. The interview will take place at a mutually convenient location. You are also asked to read this information sheet prior to participating in the interview. The interview has six broad sections namely: behaviours, opinions/values, feelings, knowledge, sensory, background/demographics. You will have access to the interview guide before the interview.

**Are there any risks associated with participating in this project?**

There are no anticipated risks in participating in this study. However, if during the course of the study any concerns emerge, you are advised to seek professional, confidential and free counselling through the Employee Assistance Program on (Phone) 1800 818 728 or (Fax) 61 8247 9199 or [accesseap.com.au](http://accesseap.com.au). Other free counselling services that are available for participants should they require further support include: Beyondblue 24/7 free counselling 1300 224 636 [www.beyondblue.org.au](http://www.beyondblue.org.au) Rural link Specialist after-hours mental health telephone service for rural communities in Western Australia 1800 552 002 (after hours and weekends. At other times, contact a local mental health service) TTY: 1800 720 101 [www.nmahsmh.health.wa.gov.au/emergency](http://www.nmahsmh.health.wa.gov.au/emergency)

**What are the benefits of the research project?**

Your participation in this study will help influence education and upskilling of nurses in the region, improve management of resources in inter-hospital patient transfers and help executives in understanding the nurses' feelings, confidence and experiences and how these affect patient outcomes and efficiency of inter-hospital patient transfers.

**What if I change my mind?**

Participation in this study is completely voluntary. Even if you agree to participate, you are free to withdraw from further participation at any time without giving a reason and with no negative consequences.

**Will anyone else know the results of the project? Will anyone else know the results of the project?**

Information gathered about you will be held in strict confidence. This confidence will only be broken if required by law. The audio-recording from the interview will be transcribed and stored on a password protected computer and the audio-recordings will be deleted. The transcribed data will be stored securely with access restricted to authorised persons involved in this research, namely: the researcher, supervisors and an independent reviewer. When the study is completed the collected data from you will be stored securely in the school of Nursing and Midwifery at the University of Notre Dame Australia for at least a period of five years. This data may be used in future research and may be published in peer viewed journals, but you will not be identifiable. Any journal articles or conference papers can be made available to you on request.

**Will I be able to find out the results of the project?**

When data has been analysed and the research process concluded the results of the study will be summarised in a report. Interview participants have the option to withdraw their data if they choose to. This report will be included in the Wheatbelt Weekly publication 'Friday Flick'. This is expected to be available in February 2021

**Who do I contact if I have questions about the project?**

If you have any questions or concerns about this research project, please do not hesitate to contact either Sinq Mndebele on 0459676297 or supervisors Associate Professor Kylie Russell 9433 0654 or Dr Tracey Coventry on 9433 0627.

**What if I have a concern or complaint?**

The study has been approved by the Human Research Ethics Committee at The University of Notre Dame Australia (approval number 2020-039F) and WACHS HREC (project approval number RGS3941). If you have a concern or complaint regarding the ethical conduct of this research project and would like to speak to an independent person, please contact Notre Dame's Research Ethics Officer at (+61 8) 9433 0943 or [research@nd.edu.au](mailto:research@nd.edu.au). Any concern or complaint will be treated in confidence and fully investigated. You will be informed of the outcome.

**How do I sign up to participate?**

If you are happy to participate, please sign both copies of the consent form, keep one for yourself and email the other to me on [sinq.mndebele@my.nd.edu.au](mailto:sinq.mndebele@my.nd.edu.au)

Thank you for your time. This sheet is for you to keep.

Yours sincerely,

**Sinqobizitha (Sinq) Mndebele**

University of Notre Dame

## Appendix F: Consent Form



### CONSENT FORM

**Nurse Escorts' perceptions of their ability to manage patient clinical deterioration during nurse led inter hospital ambulance transfers in the Wheatbelt region of Western Australia: A mixed method study**

- I agree to take part in this research project.
- I have read the Information Sheet provided and been given a full explanation of the purpose of this research project and what is involved.
- I understand that I will be interviewed and that the interview will be recorded.
- The researcher has answered all my questions and has explained possible risks that may arise as a result of the interview and how these risks will be managed.
- I understand that I do not have to answer specific questions if do not want to and may withdraw from participating in the project at any time without prejudice.
- I understand that all information provided by me is treated as confidential and will not be released by the researcher to a third party unless required to do so by law.
- I agree that any research data gathered for the study may be published provided my name or other identifying information is not disclosed.
- I understand that research data gathered may be used for future research but my name and other identifying information will be removed.

Name of participant			
Signature of participant		Date	

- I confirm that I have provided the Information Sheet concerning this research project to the above participant, explained what participating involves and have answered all questions asked of me.

Signature of Researcher		Date	
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# Appendix G: Interview Guide

## Interview Guide

Research title: Nurse Escorts' perceptions of their ability to manage patient clinical deterioration during nurse led interhospital ambulance transfers in the Wheatbelt region of Western Australia: A mixed method study

### Demographics/ Background

1. Gender:

- Male
- Female
- Other

2. Age:

- Under 25 years
- 25–45 years
- 46–60 years
- Over 60 years

3. What is your clinical background and what is your current position within WACHS?

4. What is your experience and involvement with patient safety, in particular nurse led inter-hospital ambulance transfers within the region?

**In relation to clinical deterioration during nurse led interhospital ambulance transfer:**

### Sensory

5. Are you aware of any adverse events associated with the RNs ability to recognise and manage clinical deterioration during nurse led interhospital ambulance transfer?

### Knowledge



6. What is the furthest distance RNs have to transfer a patient by an ambulance with a volunteer crew?
7. Do you feel that there is adequate support given to the nurse conducting nurse led inter-hospital ambulance patient transfer?

**Behaviors**

8. How common are ‘scoop and run’ transfers in the region? (inadequate time to receive handover and understand the patient’s condition and possible complications)

**Opinions/Values**

9. Can you describe the training that is offered to Wheatbelt nurses in management of patients during road transportation?