Western Health
Stroke Nurse Practitioner
Model Development Project
August 2009

Victorian Nurse Practitioner Project Phase 4 Round 4.2

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Abbreviations

AF  Atrial Fibrillation
ANMC  Australian Nursing and Midwifery Council
ASU  Acute Stroke Unit
CPG  Clinical Practice Guidelines
CT  Computerised Topography
DHS  Department of Human Services
DVT  Deep Vein Thrombosis
ECG  Electrocardiograph
ED  Emergency Department
GEM  Geriatric Evaluation and management
GPs  General Practitioners
ICU  Intensive Care Unit
IDC  Indwelling Catheter
KPI  Key Performance Indicator
NBV  Nurses Board of Victoria
NIHSS  National Institute Health Stroke Scale
NP  Nurse Practitioner
NPC  Nurse Practitioner Candidate
NSF  National Stroke Foundation
TIA  Transient Ischaemic Attack
TTR  Teaching, Training and Research
VNPP  Victorian Nurse Practitioner Project
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1. Executive Summary

In 2008, the Nurse Policy Branch in the Department of Human Services (DHS) presented health services in Victoria an opportunity to apply to Phase 4 Round 4.2 of the Victorian Nurse Practitioner Project. Funding was provided to assist the public health services to develop, implement and support a Stroke Nurse Practitioner (NP) model. The model of service delivery outlined in this report will be based on meeting the service gaps in stroke care across Western Health.

Stroke is a debilitating condition that often results in ongoing disability or death (DHS, 2007). It affects people mainly aged over 45 years and is considered to be the second leading cause in death. It is estimated that more than 14,000 people in Victoria are admitted with either a stroke or a transient ischaemic attack (TIA) each year (DHS, 2007). The number of stroke presentations is expected to rise over the next 10 years.

The effect of stroke does not just happen to the individual it also impacts the carer and the wider community. The encompassing impact of stroke includes pain, emotional damage and debilitating after effects (Senelick and Dougherty, 2001). Stroke affects people in different ways - sometimes there is numbness, tingling, inability to speak or move or an abrupt dizziness. Regardless of how, stroke is complex and challenging and when it strikes, information, support and advice is required fast.

In 2007, DHS identified that there was a need for improved delivery of stroke care services and published the Stroke Care Strategy for Victoria. The purpose of the strategy was to provide a framework that enhanced the delivery of stroke care in Victoria. Focus was placed on consistent stroke care, better linkages between stroke care providers, improved access to new treatments, stroke prevention strategies, better skilled stroke care workforce and improved community support mechanisms (DHS, 2007).

Western Health completed a gap analysis in 2008 that highlighted significant priority areas that required to be addressed for delivering stroke care. Western Health has identified that there is a considerable amount of work required for an effective and efficient pathway for stroke and TIA presentations to the organisation. The Stroke NP model was developed based on the recommendations of the Stroke Care Strategy of Victoria.

The Stroke NP model will address the gaps in the service experienced at Western Health at Footscray and eventually transfer to the other sites, Sunshine Hospital and Williamstown Hospital. The Stroke NP’s role will be largely linked in acute management with the appointed candidate demonstrating the ability to practice autonomously.

The Stroke NP will be responsible for ordering appropriate medications, pathology and radiology tests as per the devised formulary. Additionally, they will take part in acute stroke interventions including thrombolysis, currently only offered at Western Hospital. Furthermore, the Stroke NP will be one of the primary clinicians in the Outpatient TIA / neurovascular clinics. The role will be innovative and the NP will participate in quality activities that involve improving patient care and clinical outcomes for stroke and TIA.

The Stroke NP will assist and compliment the workforce of stroke services at Western Health and has the opportunity to enable the organisation to move forward to enhance new management services, improving timely review and investigations for patients with a stroke and TIA as well as educate them on risk factors and medication management.

The proposed model for a Stroke NP is supported by Western Health executives and is identified as a requirement to the organisation. The key stakeholders further support the proposal and are committed to supporting and mentoring the Stroke Nurse Practitioner Candidate (NPC).
2. Western Health

2.1 Overview

Western Health is the pre-eminent provider of health services in the western metropolitan region of Melbourne. Western Health is fast becoming known as a vibrant and progressive organisation that focuses on achieving excellence in teaching and research. The organisation caters for one of the most multicultural regions of Melbourne and offers an extensive range of clinical services across the continuum of care.

A diverse range of facilities and services make up Western Health. Western Health cares for its community through Sunshine Hospital, Western Hospital (Footscray), Williamstown Hospital, DASWest Drug and Alcohol Services, subacute and residential services including Hazeldon Nursing Home and Reg Geary House. Western Health employs around 5,000 people and provides services to a population of 650,000 people and growing at 4% per annum.

Cultural diversity is a feature of the population of Melbourne’s west which sets it apart from the areas covered by Victoria’s other health services and provides additional challenges in service delivery. Around one third of people living in the Western Health catchment area are from non-English speaking backgrounds. Over 100 languages are spoken in the local community. The most commonly requested interpreting services at Western Health are Vietnamese, Greek, Italian, Cantonese, Macedonian, Croatian, Serbian, Arabic and Spanish.

There are two distinct age profiles at Western Health. The Sunshine area is predominantly families and children whereas at Western and Williamstown, the population is categorised by an older profile. Western Health’s catchment has one of the highest birth rates in the nation due to large population growth in the surrounding suburbs. In addition, the catchment is also one of the most rapidly ageing communities in Victoria. Western Health is committed to providing high quality undergraduate and postgraduate teaching and research. The health service encourages innovations in patient care, staff professional development and research activities. The clinicians, nurses and allied health professionals are involved in a diverse range of activities that have received recognition at a local, national and international level.

Western Health’s Purpose

Western Health will work collaboratively to provide high quality health and well being services for the people of the West.

Western Health’s Values

Western Health aspires to be a values-driven organisation and all staff are required to behave in alignment with the following values:

COMPASSION:
Consistently acting with empathy and integrity

ACCOUNTABILITY:
Empowering our staff to serve our community

RESPECT:
For the rights, beliefs and choices of each individual

EXCELLENCE:
Inspiring and motivating, innovation and achievement

SAFETY:
Working in an open, honest and safe environment
2.2 Site Specific Information

WESTERN HOSPITAL

Western Hospital is a 350 bed acute teaching and research hospital responsible for providing a comprehensive range of inpatient and outpatient acute health services. The hospital conducts research in areas such as gastroenterology, oncology, emergency care, respiratory medicine and sleep disorders. Two of Western Health’s Centres for Excellence are based at WH, Centre of Cardiovascular Therapeutics and the Centre for Oncology and Gastroenterology. The key services and facilities are: General and Specialist Acute Medical and Surgical services, Intensive and Coronary Care, Emergency services, Specialist Drug and Alcohol services and Specialist Diagnostic services.

WILLIAMSTOWN HOSPITAL

The Williamstown Hospital is the oldest community hospital in Melbourne. The 90 bed hospital offers a comprehensive range of inpatient and outpatient services. Key services and facilities are: Emergency services, General Acute Surgical services, Aged Care Services, Geriatric Evaluation and Management and Transitional Care Program.

SUNSHINE HOSPITAL

Sunshine Hospital is a major general hospital in Melbourne’s outer west with approximately 330 beds. It is renowned for its comprehensive range of women’s and children’s aged care and rehabilitative services. SH’s commitment to health care in Melbourne’s western region has seen the site rapidly expand to offer an extensive range of adult acute services. The key services and facilities are: Emergency services (including Paediatrics), General Acute Medical and Surgical services, Maternity services, Special Care Nursery, Children’s Ward, Women’s Health services, Aged Care, Palliative Care, Community Rehabilitation and Mental Health.
2.3 Strategic Framework

Western Health’s Strategic Directions Framework began development in the latter part of last year. The framework outlines the strategic priority areas and objectives at a high level and describes the process to engage all Western Health staff and stakeholders in helping to set the future direction for Western Health.

The following are the set of strategic priorities agreed upon:

**PRIORITY 1: Safe and Effective Patient Care**

Western Health is committed to ensuring the consistent provision of timely, appropriate, safe and effective health services to all patients who receive care from the organisation. Safe and effective patient care is deliberately the number one and central strategic priority area for Western Health as it forms the core reason for the existence of the Health Service in delivering health care for the West.

**PRIORITY 2: People and Culture**

Western Health is committed to valuing the people and the significant life choice individuals make to serve their community through involvement in a health service organisation. Western Health openly acknowledges that it is the dedication, commitment and hard work of the talented workforce that enables Western Health to deliver the high quality and extensive range of health services that they do – to improve the health and well being of the Western Health population. Western Health is very committed to ensuring that the people have a safe, caring, friendly and healthy work environment and culture from which to perform their respective roles and responsibilities.

**PRIORITY 3: Community and Partnerships**

Western Health acknowledges the significant contribution that the service and community partners make to the overall health and well being of the Western population. Western Health aims to promote a service that reflects the needs and health priorities of its local population, while working with local partners to deliver safe, effective and relevant services. A systematic approach will be used to harness current initiatives and activities while exploring new approaches to communicate with hard to reach communities.

**PRIORITY 4: Research and Learning**

Research and learning is a key component of the Western Health identity with both Western Hospital Footscray and Sunshine currently providing teaching and training roles to junior clinicians. The development of the Teaching, Training and Research (TTR) facility will provide a focal point for leading edge collaborative research into the future. Funding for the TTR facility along with capital contributions from partner universities – the University of Melbourne and Victoria University has been confirmed. The TTR facility is expected to be ready to open from early-mid 2010.

**PRIORITY 5: Self Sufficiency & Sustainability**

Self sufficiency and sustainability combines two important concepts. Firstly, under self sufficiency, Western Health needs to consider the appropriate service mix that is appropriate to be provided by Western Health to the population of the west in relation to how residents of the West access services outside their region.

Secondly, under sustainability, Western Health is keen to be a financially stable and viable organisation in order to reap opportunities that being such a position affords. Such opportunities include pro-active investment in: technology, research and evidence based practices, productivity and continuous improvement initiatives, workforce and staff development, partnerships and reputation. The development of a Stroke NP model is aligned with the strategic framework at Western Health.
3. Background

3.1 History of Nurse Practitioner roles at Western Health

A Nurse Practitioner is:

A registered nurse educated to function autonomously and collaboratively in an advanced and extended clinical role. The nurse practitioner role includes assessment and management of clients using nursing knowledge and skills and may include, but is not limited to, direct referral of clients to other health care professionals, prescribing medications, and ordering diagnostic investigations (The Australian Nursing and Midwifery Council (ANMC), 2004, p.1).

The NP role is grounded in nursing professional values, knowledge, theories and practice and provides innovative and flexible health care delivery that complements other health care providers. The scope of the NP is determined by the context in which the NP is authorised to practice (Gardner, Carryer, Gardner and Dunn, 2004).

Western Health has demonstrated its commitment with the development of NP roles in Victoria as early as 1998. Western Health has supported innovative NP roles which include:

**ICU Liaison Nurse Practitioner**

At Western Health, the Intensive Care Unit (ICU) Liaison Team is led by a Critical Care NP. There are three main areas of clinical practice that includes assessment of patients in ICU, ongoing review of the ICU patient when discharged to the ward and referral of unstable patients in the ward who staff may be concerned about. The latter was achieved with the implementation of a hospital-wide clinical marker tool whereby patients displaying vital sign abnormalities are referred to the ICU Liaison Team. The ICU Liaison NP model was part of the DHS – Phase 2 demonstration models and led to the endorsement of the first critical care NP in Australia.

**Adult Emergency Nurse Practitioner**

The Adult Emergency (ED) NP is a clinician who practices interdependently to manage simple, well-defined injuries that can be assessed and managed in collaboration with the emergency team. The role aims to ensure that selected patients are seen within their triage category target time and their length of stay is reduced through prompt assessment and definitive management. The Adult ED NP model was part of the DHS – Phase 3 demonstration models.

**Paediatric Emergency Nurse Practitioner**

The role of the Paediatric ED Nurse NP is similar to the Adult ED NP’s scope of practice but includes the treatment of children with minor injuries and illnesses. The Paediatric ED NP model was part of the DHS – Phase 3 demonstration models.

**Midwife Nurse Practitioner - (Maternity Outreach Support Service)**

The Midwife NP cares for women identified as having at risk pregnancies in the presence of complex physical, psychiatric, intellectual or lifestyle factors. This role incorporates liaison and consultation with specialist services located within Western Health and the broader community. The Midwife NP model has been established without DHS funding.
3.2 Stroke Nurse Practitioner – Phase 4 Round 4.2

Stroke is a debilitating condition that often results in ongoing disability or death (DHS, 2007). It affects people mainly aged over 45 years and is considered to be Australia’s second biggest killer after heart disease (National Stroke Foundation (NSF) (a), 2007). It is estimated that 34,000 to 40,000 people are admitted to Australian hospitals every year with a new diagnosis of stroke (AIHW, 2006).

More than 14,000 people in Victoria are admitted with either a stroke or a TIA each year (DHS, 2007). The number of stroke presentations is expected to rise over the next 10 years.

Stroke is a sudden impairment of body functions caused by a disruption in the supply of blood of a specific territory in the brain (Granitto and Galitz, 2008). The impairment can be transient, lasting several days or permanent. Stroke can be classified as thrombotic, embolic and haemorrhagic. Thrombotic and embolic strokes account for more than 80 per cent of all strokes whereas haemorrhagic strokes account for more than 15 per cent of them and is usually classified according to how and where it occurs (DHS, 2007).

A TIA is a miniature thrombotic / embolic stroke that is usually caused by a microscopic emboli lodging in very small blood vessels in the brain (DHS, 2007). TIA’s often serve as a warning sign for a stroke. Five per cent of people that have a TIA have a full stroke within a month (DHS, 2007).

Having a stroke does not just happen to the individual it also impacts the carer and the wider community. The encompassing impact of stroke includes pain, emotional damage and debilitating after effects (Senelick and Dougherty, 2001). Stroke affects people in different ways - sometimes there is numbness, tingling, inability to speak or move or an abrupt dizziness. Regardless of how, stroke is complex and challenging and when it strikes, information, support and advice is required fast.

In 2007, DHS identified that there was a need for improved delivery of stroke care services and published the Stroke Care Strategy for Victoria. The purpose of the strategy was to provide a framework for the delivery of stroke care for public acute and subacute services for the next 10 years due to the rise in number of presentation.

The Strategy aims to guide Health services in the development of a stroke clinical service model to ensure best practice/evidence based methodologies and treatments and ultimately provide quality service and care. Focus was placed on consistent stroke care, better linkages between stroke care providers, improved access to new treatments, stroke prevention strategies, better skilled stroke care workforce and improved community support mechanisms (DHS, 2007).

The Stroke Care Strategy for Victoria (DHS, 2007) states 28 recommendations for patients following stroke and TIA that aims to:

- Improve health care for Victorians
- Facilitate consistent stroke care
- Build a skilled workforce

The 28 recommendations can be viewed in Appendix 1: Stroke Care Strategy for Victoria – Key Recommendations.

Due to stroke care being identified as a priority in Victoria, the Victorian Government established the Victorian Nurse Practitioner Project (VNPP) for development and implementation of NP roles in selected clinical areas in the public health services that are aligned with key DHS service priorities. The funding in Phase 4 targets stroke and renal NP roles and service development. These priority areas have been identified by DHS’s Nurse Policy Branch following assessment of issues such as:
Opportunities to create leverage for NP roles by linking VNPP funding to new DHS service developments or initiatives

The current regulatory and legislative frameworks (state and commonwealth) in a given clinical area and the likely impact of this on the ability to develop a sustainable role

Degree of stakeholder acceptance of NP roles within a specific area

Areas where demand for services is high or where changes to conventional service models is occurring

The Nurse Policy Branch (DHS, 2008) requested submissions from public health services that were interested in developing a model for Stroke NP in May 2008. Funds were provided to eight successful health services to participate in the development of NP Models in Stroke Care.

The successful health services were:

- Alfred Health
- Austin Health
- Eastern Health
- Melbourne Health
- Northern Health
- Peninsula Health
- St Vincent’s Health
- Western Health

The specific objectives of the Round 4.2 funding are to:

- Assist health services to examine the opportunities for strategic, sustainable and integrated NP services in the provision of stroke care
- Ensure NP models in stroke care are aligned with relevant existing organisational service plans and/or workforce plans and the state-wide service model for stroke care
- Facilitate collaboration between health services in the development and implementation of NP models
- Build engagement, collaboration and consultation with local stakeholders to support the NP role
- Provide evidence about NP models in stroke care that may have state-wide/system wide application and relevance

The scope of submissions in Round 4.2 may include NP models that have a focus on:

- Continuum of care including acute management, prevention or assessment or subacute care models
- Service development, role delineation, regional or sub-regional integration models
- Dissemination of best practice or innovation/role redesign models

A Stroke NP Collaborative was established to create a network to share knowledge and experiences that impacted on the implementation of NP services. The Stroke NP Collaborative:

- Attended forums for advice and comment on issues regarding stroke NP model development
- Provided updates on the progression of the stroke model
- Shared resources such as educational opportunities
- Provided network opportunities for members of the group
- Advised Clinical Networks of progress and issues that impact on stroke services
- Collectively advise the department and the Nurses Board of Victoria (NBV) on an appropriate collective formulary for the area of NP clinical practice

Western Health committed to developing an improved clinical service model for acute and sub-acute Stroke service that included implementing a Stroke NP. This position would assist the organisation in improving clinical outcomes for patients with a stroke and will benefit Western Health’s community of patients both in an inpatient and a community setting. To determine the scope of practice for the Stroke NP, the organisation needed to review their current practices and what service needs were required.
4. Stroke Service at Western Health

4.1 Stroke Patient Population

In 2007, Western Health treated approximately 570 patients with a stroke and 260 patients with a TIA. A review of the activity profile indicated that 30% of patients from the Western region catchment bypassed Western Health and presented to other health services for treatment. This can be attributed to the lack of a dedicated stroke unit and the absence of treatment options such as thrombolysis in an acute ischaemic stroke at Western Health.

Currently, Western Health treats over 900 patients per year with a discharge diagnosis of stroke or TIA. A Stroke Service plan and model is being developed to address the system and process issues across the continuum highlighted in the gap analysis.

4.2 Western Stroke Team

Western Health’s acute stroke management is primarily based at Western Hospital. The stroke team have senior medical champions that are vital to further develop acute stroke services and are supported with a strong allied health team with high level of expertise in managing clients who have suffered a stroke. The team includes:

- 2 Stroke Consultants
- Junior Medical Staff – registrars and residents
- Neuropsychologist
- Nursing Staff
- Allied Health Stroke Team
  - Dietician
  - Occupational Therapist
  - Physiotherapist
  - Speech Pathologist
  - Social Work
- Research Coordinator
- Research Nurse

In patient sub-acute services are also available at Western Health. The rehabilitation team includes a multidisciplinary team also skilled in managing clients who have suffered a stroke. The team includes:

- Rehabilitation Nurses
- Neurological Consultant
- Allied Health Stroke Team
- Neuropsychologist
- Clinical Psychologist
- Podiatrist

4.3 Department of Neurology

The Department of Neurology has both General Neurology and Stroke Service beds located on one floor at Western Hospital. The Department regularly occupies between 30 and 35 beds in the hospital and admits approximately 600 stroke patients and 500 general neurology patients per year. The Department also utilise the Day Hospital Facility of the hospital for one day admission diagnostic workup and treatments. The Neurology Department provides a consultant service to all three hospitals at Western Health. Additionally, the team runs a weekly General Neurology and Stroke outpatient clinic.

The Department of Neurology provides a neurophysiology service to the network with Electroencephalogram, Nerve Conduction Studies and evoked responses. The Department participates in stroke treatment trials and is looking to expand this activity.

There is a weekly clinical meeting, incorporating imaging, clinical presentations and invited speakers and a weekly clinical meeting held in conjunction with the Neurology Department at the Royal Melbourne Hospital where the junior medical staff regularly present cases worked up on the western service.
Presentations are made to the Network Grand rounds approximately twice per year. The Department of Neurology provides a busy clinical training environment enabling the trainees to develop an excellent clinical skill base. This is an ideal learning environment for medical staffs that rotate through the service as well as experienced nursing staff wanting to expand their practice.

### 4.4 Gap Analysis of Stroke/TIA Services

Western Health’s involvement with the state wide Stroke Care Strategy came to fruition in June 2008 with the appointment of a DHS appointed Stroke Care Facilitator. A Gap Analysis of Western Health Stroke Services was undertaken and identified the current stroke service provision as a Level 2 service in the absence or limited service provision in the following areas:

- Interventional neuro-radiology
- Neuropsychology
- Delivery of Stroke thrombolysis
- Outpatient TIA / neurovascular clinic

Other areas were identified as outlined in Table 1 – Western Health’s Gaps in Current Practice. A Stroke Care Steering Committee was established in June 2008 with the purpose of developing a Stroke Service Plan and model to address the system and process issues across the continuum in acute, sub-acute and ambulatory environments.

### 4.5 Western Health Stroke Service

As stated, a Stroke Care Steering Committee was established in June 2008 to oversee the review of current service practice and the development of an innovative model of care with the purpose of developing and implementing a Clinical Service Plan in line with a Level 4 stroke service. The committee has based their review on the 26 recommendations from the Stroke Care Strategy in Victoria to determine applicability to Western Health.

To date, the Steering Committee and smaller Sub Committees have overseen the following:

- The development of a dedicated 4 bed Acute Stroke Unit (ASU) incorporated within the Neurology Unit at the Western Hospital.
- The development of clinical practice guidelines for the delivery of thrombolysis as a first line treatment in the Emergency Department. Acute stroke patients are now triaged as Category 2.
- The development of TIA and secondary prevention protocols as well as work commenced around implementation of TIA clinic.
- The development and implementation of an Admission/ Discharge/ Transfer Protocol. Approximately 30% of stroke patient population for Western Health catchment are accessing care elsewhere.
- Ambulance Victoria notified to indicate the improved service at Western Health around emergency stroke management and thrombolysis.
- Acute to subacute management with the development of tools to assist in early identification of premorbid and post stroke capabilities and function to improve outcomes
- Western Health had an existing Stroke Clinical Pathway that was formulated in 2007. This pathway was revised, modified and implemented in June 2009.
- The development and implementation of providing Stroke Patient Information across the continuum. Previously there was no consistency around the distribution of stroke patient information and the process occurred ad hoc.
- Western Health had no consistency around workforce education so a survey was distributed to determine what staff wanted to be educated on. A Western Health Stroke Seminar was held at Western Hospital in June 2009 with 120 plus attendees (80 Western Health staff and 40 stroke clinicians around the state).
A Stroke Care Clinical Facilitator was appointed by DHS to assist Western Health to:
- Develop protocols identified in the recommendations above
- Oversee the implementation of protocols by health services
- Contribute to the development of stroke specific education programs

Western Health’s progress and achievement in their outcomes has been heavily accredited to the assistance and support of the Stroke Care Clinical Facilitator.

With the new developments in Western Health’s Stroke Service, it has achieved a minimum of Level 3 classification. Western Health’s aim is to identify further priority areas and develop strategies to achieve a Level 4 Stroke Service.

Table 1: Western Health’s Gaps in Current Practice

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<th>Recommendations</th>
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| 1. and 3. Management of TIA and secondary prevention | - No TIA Care Pathway  
- Development of TIA and secondary prevention protocols – trialled  
- No TIA clinic – commencing work  
- No consistent Patient Education material around secondary prevention and risk factor modification strategies to assist in behavioural change  
- Sunshine Hospital and Williamstown Hospital transfer the majority of ED TIA/stroke presentations to Western Hospital due to minimal workforce experts |
| 5. Triage of patients with stroke symptoms | - No rapid triage of stroke / TIA  
- No current ED protocol exists for the management of acute stroke patients  
- Western Health intranet site has a document for the “Management of Acute Stroke” developed by Department of Neurology  
- 89% CT and ECG performed within 24hrs |
| 6. Thrombolysis | - Scarce neurology support  
- No Stroke Care Coordinator  
- Dedicated 4 bed ASU – recent development  
- Thrombolysis treatment – recent development  
- Protocols and clinical guidelines for thrombolysis in progress |
| 7. Management of Acute Stroke | - Recent development - 4 bed Acute Stroke Unit  
- Not all stroke patients are admitted to the stroke unit for specialist care and secondary prevention  
- Stroke care pathway revised, modified and in trial phase  
- Prevention and management of Deep Vein Thrombosis (DVT) could be better  
- No education or competency package for nursing staff on acute stroke management  
- Neuropsychology – limited capacity to attend acute referrals  
- No existing protocols for interventional neuroradiology  
- Require additional speech pathology service  
- Have a strong interdisciplinary team approach |
<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Gap in Current Practice</th>
</tr>
</thead>
</table>
| 8. Management of sub-acute stroke | - No dedicated stroke rehabilitation unit  
- Poor access for treatment – Clinical Psychology  
- Continence and mood management practices need to improve  
- No program in place for continuing staff education relating to stroke management  
- No specific Stroke Self Management Program  
- Development of clinical practice guidelines – Referrals to and Inclusion and exclusion criteria for sub-acute services  
- No comprehensive discharge planning processes  
- Workforce needs – disciplines not allocated only for stroke |
| 9. Palliative Care | - No existing protocol for stroke palliative care management |
| 11. Clinical support in the community | - Stroke liaison required with General Practitioners (GPs)  
- Inconsistent information provided about the management and interventions  
- Require discharge documentation for GPs |
| 12. Acute stroke service organisation | - No Stroke Care Coordinator  
- Education and strategies need to be developed  
- Dedicated 4 bed ASU – recent development |
| 17. Role delineation of stroke services | - Currently Level 3 stroke care provider – aim to move to Level 4  
- No rapid triage of Stroke / TIA |
| 19 & 20. Linkages / referral relationships between health services | - Protocols for transfer around Neurosurgical intervention - recently developed  
- Protocols for transfer to sub-acute service closest to home – recently developed  
- Better develop acute stroke services at Western Health  
- No referral pathways with other hospitals to facilitate timely and smooth patient transfer  
- Recent changes to stroke services has been relayed to Ambulance Victoria |
| 21. Telemedicine | - No current use of telemedicine facilities |
| 22. High quality written information about stroke | - Inconsistent patient information provided – ad hoc  
- Do not provide the right information to the patient at the right point of journey  
- Cultural diversity – information not provided in patient’s preferred language |
| 23. Care coordination throughout continuum of care | - Acute point of contact is inconsistent  
- No Stroke Care Co-ordinator |
| 25. Returning to the community | - Inconsistent information provided to patients about support group information |
| 26. Stroke care workforce / training and education | - No acute staff enrolled in post graduate studies  
- No stroke specific education programs currently in existence  
- Training / Competency tools developed - not implemented  
- In-service education in acute and sub-acute is inconsistent  
- Poor cross continuum collaboration |
4.6 Acute Stroke Management at Western Health

A Clinical Practice Guideline (CPG) for the Management of an Acute Stroke was formulated in 2007 by the Department of Neurology and the Stroke Research Unit. This guides staff in how to care for the client from a medical, nursing and allied health perspective. The guidelines are simple to follow and may need to be updated with the introduction of thrombolysis treatment. The guidelines are on the Western Health intranet so that they are easily accessible for everyone. The protocol outlines:

- General stroke treatment
- Prevention and treatment of complications of stroke
- Early secondary prevention
- Discharge planning
- Speech and language, visual, motor, sensory and other higher cortical functions
- Stroke classification
- Stroke epidemiology
- Stroke – risk factors
- Stroke mimickers
- Management of acute stroke
  - Diagnosis
  - Other considerations
  - Examinations
  - Investigations
  - Additional investigations in selected patients (young stroke patients)
- Notes on drug used in stroke management:
  - Aspirin
  - Dipyridamole
  - Clopidogrel
  - Warfarin
- Routine observations in stroke patients

It is recommended that all registrars/residents attached to Neurology department become certified on the National Institute of Health Stroke Scale (NIHSS).

<table>
<thead>
<tr>
<th>General Supportive Care</th>
<th>Early secondary prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swallowing</td>
<td>Use of aspirin</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Carotid Endarterectomy</td>
</tr>
<tr>
<td>Communication</td>
<td>Anticoagulation – Warfarin and AF</td>
</tr>
<tr>
<td>Mobility</td>
<td>Blood pressure lowering therapy</td>
</tr>
<tr>
<td>Continence</td>
<td>Management of blood pressure in the acute phase</td>
</tr>
<tr>
<td>Positioning</td>
<td>Cholesterol</td>
</tr>
<tr>
<td>Sitting balance</td>
<td>Behaviour modification</td>
</tr>
<tr>
<td>Standing balance</td>
<td>Diabetes – blood glucose management in acute stroke</td>
</tr>
<tr>
<td>Cognition</td>
<td></td>
</tr>
<tr>
<td>Early onset rehab</td>
<td></td>
</tr>
<tr>
<td>Splinting</td>
<td></td>
</tr>
<tr>
<td>Perception</td>
<td></td>
</tr>
<tr>
<td>Vision</td>
<td></td>
</tr>
<tr>
<td>ICP</td>
<td></td>
</tr>
<tr>
<td>DVT</td>
<td></td>
</tr>
<tr>
<td>Fever</td>
<td></td>
</tr>
<tr>
<td>Pressure areas</td>
<td></td>
</tr>
<tr>
<td>Shoulder pain</td>
<td></td>
</tr>
<tr>
<td>Falls</td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td></td>
</tr>
</tbody>
</table>

Guidelines exist for Intravenous Labetalol for severe hypertension following stroke

Guidelines exist for RMO and Registrars for Investigation of Stroke Mechanism in patients with a first ever stroke
4.7 Management of Acute Ischaemic Stroke - Thrombolysis

The majority of acute stroke presentations at Western Health are transported to Western Hospital via ambulance. Thirty percent of patients from the Western region catchment bypassed Western Health and presented to other health services for treatment. This can be attributed to the lack of a dedicated stroke unit and the absence of treatment options such as thrombolysis in an acute ischaemic stroke episode at Western Health.

With the development of a dedicated 4 bed ASU and the delivery of thrombolysis as a first line treatment in the ED, the numbers of bypasses are expected to reduce. A performance target of 3% of patients presenting to Western Health with an ischaemic stroke and thrombolysed was established as a target to achieve over the first 6 months from the CPG for “Acute Ischaemic Stroke – Thrombolysis” implemented in April 2009. Since implementation of the CPG, 6 patients have received thrombolysis with the following thrombolysis rate:

- April 4%
- May 8%
- June 4%

Patient outcomes post thrombolysis is measured through the improvement in NIHSS over a 24 hour period. The lower the NIHSS is, the better the outcome in sensory, motor and functional abilities. Three cases were reviewed and all patients showed improvements in the stroke score.

Table 2: NIHSS over 24hrs post thrombolysis

<table>
<thead>
<tr>
<th>NIHSS On Admission</th>
<th>NIHSS 2hrs post rt-PA</th>
<th>NIHSS 24hrs post</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>12</td>
<td>7</td>
<td>8</td>
</tr>
</tbody>
</table>

Other data collection reveals excellent compliance to date to the CPG and treatment protocol.

- 100% of patients received bloods and an electrocardiograph (ECG)
- 100% of patients triaged Cat 2
- 0% patients haemorrhaged
- 0% patients died
- 50% discharged home, 50% to rehab

It is evident that within the first three months of the CPG being implemented that there has been a strong uptake of the change in clinical practice. Western Health does not have an Acute Stroke Nurse as many hospitals in Victoria have which could be utilised to assist in thrombolysis of acute stroke patients.

SUNSHINE HOSPITAL

The majority of stroke presentations at the ED are transferred to Western Hospital due to limited services and interventions available.

- No acute medical stroke expert on site or after hours
- Nursing staff not experts in stroke care
- Stroke Clinical Pathway not utilised
- Thrombolysis intervention is not provided
- Diagnostics availability is limited
- No acute stroke unit
- Stroke/TIA outpatient service not available
There is potential for the services at Sunshine Hospital to be enhanced by employing staff with expertise in Stroke and TIA management. This would improve patient outcomes due to interventions being able to be performed in a timely manner, especially with the importance of time to access thrombolysis.

**WILLIAMSTOWN HOSPITAL**

The above also applies to Williamstown Hospital. The ED at Williamstown Hospital does not operate for 24hrs so the ambulance bypasses the hospital after 11pm with any patient presentation.

**4.8 Management of Sub-acute Stroke Patients at Western Health**

At Western Health, patients requiring ongoing care following their acute stroke care management may access a number of different services depending on the level of care they have been identified as requiring. At Western Health, sub-acute care encompasses rehabilitation, geriatric evaluation and management (GEM) and sub-acute ambulatory care services.

Sub-acute care is specialised health care delivered to patients who need time and a mix of clinical and professional skills rather than management by a single or principal specialty. The goal of rehabilitation is to provide a comprehensive team approach to a client’s rehabilitation providing retraining of:

- Personal care, domestic, community task and leisure pursuits
- Balance, transfers and mobility
- Client’s functional use of their upper limbs
- Cognition and visual deficits
- Speech and language deficits
- Continence and medication management

This is achieved through a one-one therapy, group therapy and hydrotherapy. The group therapy includes occupational therapy breakfast group and occupational therapy and physiotherapy based circuit groups, the wood workshop and community access retraining.

**4.9 Strategic Fit at Western Health**

**Safe and effective Care**

Early acute intervention and follow up services ensures patients managed across the continuum and minimises discharge complications and readmissions. Minimise delayed treatment through provision of services at the other sites.

**People and Culture**

Employ a dedicated senior medical and nursing workforce to oversee stroke care and managing this high risk group with fast track assessment, diagnostic services and risk modification.

**Community and partnership**

Integration of stroke services across the campuses. Establishment of community models of care for pre assessment and rehabilitation follow up.

**Research and Learning**

Established clinical trials in stroke care already exist. Formulate linkages to DHS Stroke Care Network and education program. Provide resources to investigate and implement best practice nurse care models.

**Self-sufficiency and sustainability**

There are major health care needs within the Western Health catchment. Establishment of a Level 4 service allows for sustainability of the service model.
5. Stroke Nurse Practitioner - Western Health

5.1 Potential Gaps addressed by introducing a Nurse Practitioner

The Stroke Care Clinical Facilitator completed a gap analysis of Western Health’s stroke service in late 2008. The gap analysis revealed a range of service gaps prioritised as minor, moderate or significant. Opportunities to enhance the stroke service across Western Health were identified with a Stroke NP playing a pivotal role in these enhancements.

The NP model will address the system and process issues across the continuum in acute, sub-acute and ambulatory environments at Western Health. Opportunities for a NP include:

- Acute – timely assessment, treatment and triage of patients with acute stroke
- Emergency – acute interventional care with thrombolysis
- Sub-acute- early and timely referral to rehabilitation
- Ambulatory – assessment, education and follow up services

5.1.1 Emergency Department

There is growing evidence to support that early stroke management improves patient outcomes. Western Health has 3 campuses with only Western Hospital being the prime provider for management of acute strokes. Current acute statistics are:

<table>
<thead>
<tr>
<th>2007-2008</th>
<th>WH</th>
<th>SH</th>
<th>WTH</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroke</td>
<td>429</td>
<td>115</td>
<td>21</td>
<td>565</td>
</tr>
<tr>
<td>TIA</td>
<td>185</td>
<td>71</td>
<td>5</td>
<td>261</td>
</tr>
</tbody>
</table>

Results from the gap analysis identified an increased volume of patients transferred due to inter Western transfers. Approximately 78% of stroke and TIA presentations are transferred from Sunshine and Williamstown Hospital to Western Hospital, delaying treatment and interventions for the patient.

Stroke and TIA are clinical diagnoses that require rapid brain imaging to confirm cerebral ischaemia, haemorrhage and to exclude TIA mimics. The most cost effective strategy in acute stroke management is for all patients to undergo immediate imaging, patients classified as high risk within 24 hours. This will assist in treatment decisions, such as whether to use aspirin. An ECG is also recommended in acute stroke management to assist in diagnosing Atrial Fibrillation (AF).

The gap analysis identified that improvements could be made in providing patients with a Computerised Topography (CT) within 24 hours and an ECG whilst in hospital.

Table 3: NSF Audit – National versus Western Health 2007 Results for use of CT & ECG

<table>
<thead>
<tr>
<th></th>
<th>Western</th>
<th>Category A</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT within 24 hours</td>
<td>89%</td>
<td>92%</td>
<td>92%</td>
<td>86%</td>
</tr>
<tr>
<td>ECG whilst in hospital</td>
<td>88%</td>
<td>91%</td>
<td>93%</td>
<td>93%</td>
</tr>
</tbody>
</table>
Dysphagia is very common in acute stroke. Prompt screening, accurate assessment and early management are needed to prevent complications (such as aspiration pneumonia, dehydration and malnutrition) and to promote recovery of functional swallow. Patients should be screened within 24 hours of admission (National Stroke Foundation (b), 2007).

Additionally, dysfunction of the bladder and/or bowel is common after a stroke and may be caused by a combination of stroke-related impairments. Patients with confirmed continence difficulties should have a continence management plan formulated and documented. The use of indwelling catheters (IDC) should be avoided as an initial management strategy (National Stroke Foundation (b), 2007).

The gap analysis identified scope for improvement around management of swallowing screens and continence management planning. Positive to note that there was a very low percent of patients with an IDC inserted.

Table 4: NSF Clinical Audit Results 2007 -Management of Acute Stroke

<table>
<thead>
<tr>
<th></th>
<th>Western</th>
<th>Category A</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swallowing screen before food or drink</td>
<td>27%</td>
<td>53%</td>
<td>50%</td>
<td>49%</td>
</tr>
<tr>
<td>IDC within first week of admission</td>
<td>2%</td>
<td>23%</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>Incontinent patients given a management plan</td>
<td>25%</td>
<td>58%</td>
<td>48%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Western Health developed a draft TIA Clinical Care Pathway for a suspected TIA patient in the ED Appendix 2 – TIA Clinical Care Pathway. It specifies that a consult from the Neurology team must occur for all TIA ED presentations. ED has pressures on their department to assess, treat and discharge patients in a timely manner. At times, there are delays in consultation from other units, Neurology being one of them, to review the patients in ED.

Western Health could introduce a Stroke NP make improvements to the above gaps and inefficiencies immediately. The role could aid in fast tracking patients and reviewing all stroke and TIA patients in ED, ensure the investigations / interventions are performed or initiate them earlier by ordering:

- CT
- ECG
- Bloods
- Echocardiogram
- Antithrombotic therapy
- Carotid Doppler
- Ensure patient is nil by mouth until swallow screen is completed

Additionally, the NP can ensure that:

- An appropriate decision is made for discharges and admissions based on the ABCD2 stroke risk
- All discharges from ED are referred to the TIA follow up clinic
- Secondary stroke prevention implemented
- TIA patient information is provided
5.1.2 Thrombolysis

Thrombolysis was implemented in the ED at Western Hospital in April 2009. Thrombolysis is a treatment utilised for acute stroke patients presenting less than three hours from symptom onset. Clinical guidelines have been developed to outline the specific inclusion and exclusion criteria for the patients eligible for thrombolysis. The guidelines were developed in collaboration with the ED staff to ensure that all processes and requirements in delivering thrombolysis are achieved.

Relationships with the key stakeholders that would be involved in the pathway of the stroke patient that receives thrombolysis were developed. This included Ambulance Victoria, ED staff and Radiology. Importance was stressed on the rapid triage of patients, rapid brain imaging and thrombolysis if appropriate.

To date, Western Health has provided thrombolysis to 6 patients with good outcomes. The National Stroke Foundation (NSF) sets standards of best practice for the management of acute strokes. Two important standards that promote timely treatment include:

- Door-to-CT
- Door-to-Needle

The data shows the times for the 6 stroke presentations that received thrombolysis

Table 5: Times to thrombolysis

<table>
<thead>
<tr>
<th></th>
<th>NSF standard</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Door-to-CT (mins)</td>
<td>25</td>
<td>40</td>
</tr>
<tr>
<td>Door-to-needle (mins)</td>
<td>60</td>
<td>126</td>
</tr>
</tbody>
</table>

There is a slight delay in obtaining a CT scan prior to thrombolysis which can be improved. The data can be utilised to further promote timely treatment in thrombolysis at Western Hospital.

The introduction of a Stroke NP to oversee thrombolysis in ED would enable timely responses by assisting in the initial assessment of acute stroke presentations, ensuring rapid triage to CT and assisting in interventions in the ED.

5.1.3 Acute Stroke Unit

Patients who receive inpatient care in a stroke unit have been shown to have higher rates of survival as well as being more likely to be living independently in the community (DHS, 2007). An ASU is an interdisciplinary model that sees medical, nursing and allied health experts provide assessment and treatment in a more efficient and centralised manner. This includes:

- Timely and appropriate investigations and assessments within 24 hours
- Documentation of adherence to protocols
- Provision of information to patients and relatives

Best practice advocates treatment of acute stroke in an ASU with a ‘champion’ to lead the stroke care. A Stroke NP could assist in managing the hyperacute phase of a stroke patient in the ASU. This would see the NP follow the stroke patients from ED to a high dependency unit, for example post thrombolysis.
5.1.4 Secondary Prevention

Secondary prevention is a key aspect of stroke care. People with a stroke are more at risk of developing another stroke compared to the general population. There is good evidence to support treatments to reduce the risk of recurrent stroke. These are:

- Antihypertensives
- Lipid lowering medications
- Lifestyle counselling
- Antithrombotics

The gap analysis revealed opportunity for improvements in practice for patients that are discharged on secondary prevention treatments. A positive highlight from the analysis was that 100% of stroke patients were discharged on antithrombotics from Western Health.

Table 6: NSF Clinical Audit Results 2007 – Discharge Data for secondary prevention

<table>
<thead>
<tr>
<th></th>
<th>Western</th>
<th>Category A</th>
<th>Urban</th>
<th>Rural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antihypertensive</td>
<td>72%</td>
<td>75%</td>
<td>75%</td>
<td>69%</td>
</tr>
<tr>
<td>Lipid lowering therapy</td>
<td>54%</td>
<td>63%</td>
<td>62%</td>
<td>61%</td>
</tr>
<tr>
<td>Lifestyle advice</td>
<td>8%</td>
<td>38%</td>
<td>40%</td>
<td>29%</td>
</tr>
</tbody>
</table>

The data shows that not every patient is discharged on secondary prevention which would require follow up in the outpatient TIA clinic. The Stroke NP could assist in improving the practice of secondary prevention treatment.

5.1.5 Outpatient TIA /neurovascular clinic

TIA / neurovascular clinics provide the best setting for further investigation of people at risk of having a new or subsequent stroke without the need for hospital admission. A Western Health TIA audit was undertaken in February 2009 of 20 ED patients and 23 inpatients with a diagnosis of TIA. Results showed that there was a delay in outpatient clinic follow up for patients with stroke and TIA with 30% of the patients in ED followed up in a stroke clinic with an average wait of 69.91 days. Results also showed that only 20% of patients from ED were provided with GP follow up letters.

The Stroke NP could take on a major role in the TIA / neurovascular clinic by taking on an outpatient load and addressing the waiting time for patients in the stroke clinic, in turn improving patient outcomes as well as conducting:

- Assessment of known risk factors
- Diagnostic assessment
- Diagnostic imaging
- Follow up to ensure all appropriate tests have been ordered and investigations have been performed and referrals made
- Secondary Prevention
- Education
There are a number of opportunities available to develop a Stroke NP model at Western Health. There is also the potential for the service of more than one Stroke NP to ensure that appropriate services are available across the organisation. This could be explored at a later stage at Sunshine Hospital ED by transferring the model from Footscray with introducing thrombolysis treatment, TIA management and expert stroke clinicians on site. This would ensure treatment was available and provided to patients presenting to Sunshine ED prior to transferring to the ASU at Footscray. The opportunities for the Stroke NP at Western Health will evolve further as the gaps in the services identified are implemented.

5.2 Stroke Care Coordination

People that have a stroke are seen by many health professionals due to its complexity. What is happening with a patient’s care can become confusing for the patient and their carers. Many organisations have appointed a Stroke Nurse Clinical Coordinator as the single point of contact for the patient, carer and clinicians providing care.

Care coordination encompasses multiple aspects of care delivery. This includes:

- Taking part in multidisciplinary team meetings about the patient
- Psychosocial assessment and provision of required care
- Timely access to high quality services and treatment options
- Referral practices
- Data collection
- Development of common protocols
- Information provision
- Individual clinical treatment
- Facilitating access to sub-acute services
- Ensuring appropriate services organised post discharge

The role is not limited to the above. It can move into quality assurance and taking part in research, depending on the need of the organisation.

Recommendation 23 in the Stroke Care Strategy for Victoria states that care coordination should be provided throughout the continuum of care in the acute phase of hospitalisation. The Stroke Nurse Clinical Coordinator is present in the acute phase and is responsible for ensuring that communication between the stroke multidisciplinary team and the patient and their carers occurs. The Stroke Nurse Clinical Coordinator has advanced knowledge in stroke management and has a holistic understanding of the patient’s needs. Together, a patient’s journey can be streamlined successfully with improved outcomes whilst still providing continuity of care for the patient.

At present, Western Health has yet to employ a Stroke Nurse Clinical Coordinator which is welcomed by all disciplines in the Neurology unit. Gaps have been noted regarding the continuity of care across the continuum for a patient with a stroke at Western Health – from hyperacute, acute, sub-acute and to the community. After discussions with members of the Neurology unit, their perception of the Stroke Nurse Clinical Coordinator role is in assisting continuity of care for the patients and the workforce at Western Health whilst closing some of the gaps that exist in the current model of stroke patient management.
6. Stroke Nurse Practitioner Model

6.1 Proposed Stroke Nurse Practitioner Model

The development of the Stroke Nurse Practitioner Service Model was identified by firstly determining the gaps at Western Health. The service need was identified by:

- Consolidating and summarising the Stroke Gap Analysis report.
- Reviewing the current Stroke service at Western Health in acute, sub-acute and ambulatory and identify opportunities for service needs.
- Reviewing existing stroke NP models by Eastern Health, Austin Health, Melbourne Health, The Alfred and St Vincent’s Hospital.

Western Health would benefit by incorporating a NP into their Stroke Service Plan to enhance and complement existing services provided. As discussed with the Head of the Neurology Unit, the Stroke NP model will commence with the employment of a Stroke Nurse Clinical Coordinator. This position will work together with the multidisciplinary stroke team and will be the single point of contact for the patient, carer and clinicians providing care. The position will either be an internal or external appointment. The role would report to the Head of Neurology as well as to the Divisional Director of Medicine. A position description is at the final stages of completion for the new position which will be 1.0 EFT at a Grade 4B Level.

Western Health envisages that the Stroke Nurse Clinical Coordinator will work closely with the Neurology team who will educate and mentor them into the transition phase as the Stroke NPC. The role of the Stroke NP will be an extension of the role of the Stroke Nurse Clinical Coordinator, demonstrating the ability to practice autonomously and taking on a clinical lead in stroke care. They will be actively involved in the management of stroke and TIA patients across the continuum of care from hyperacute phase of admission, the inpatient stay and outpatient follow up. The Stroke NP model is based on the service demand at Western Health and in improving patient outcomes.

The Stroke NP model will focus on the hyperacute stroke management in the ED with the Stroke NP being the first point of contact for ED staff. Two key elements of the NP being successful in the ED is the Stroke NP as the lead stroke team member that responds to calls from triage and the visibility and the service continuity of the Stroke NP in the department. The Stroke NP will have the responsibility of reviewing and consulting on all TIA patients in the ED within business hours admitted under the TIA Clinical Care Pathway to ensure that all appropriate investigations are carried out. The role will work collaboratively with the ED staff to streamline and enhance rapid triage of patients presenting with stroke symptoms and expediting patient flow to CT brain imaging thus reducing the door-to-CT time. The Stroke NP will perform:

- History taking
- Patient physical assessment
- Pathology and diagnostic test ordering and interpretation
- Prescribing and medication management of the patient
- Initiation or coordination for thrombolysis

The streamline of care will aid in improving Key Performance Indicators (KPI) performance for ED waiting time and better patient outcomes.

The Stroke NP will manage patients deemed appropriate by the Neurologist and will coordinate and facilitate the patient’s admission from ED through to the ASU where possible. A comprehensive and holistic management will be provided across the continuum of care utilising the Stroke Clinical Pathway that was developed by the multidisciplinary stroke team. The Stroke NP will have authorisation to refer, admit, discharge and transfer stroke and TIA patients within Western Health, liaising with relevant staffs such as the Patient Flow Manager or Bed Manager.
The Stroke NP will also be involved in stroke prevention and risk factor modification with acute inpatients and their families by:

- Facilitating appropriate discharges and admissions based on the ABCD2 stroke risk
- Referring patients to the TIA follow up clinic
- Implementing secondary stroke prevention
- Provide patient and carers information relating to TIA through individualised discussions and provision of written information

The Stroke NP will work together with the Neurology team in the Outpatient TIA / neurovascular clinics to improve patient care and clinical practices for TIA presentations. This has the potential to decrease the waiting time for patients awaiting an outpatient clinic appointment. Services that the NP will undertake are:

- Assessments and follow up of people at risk of having a new or subsequent stroke
- Review of selected outpatients for risk modification
- Streamline stroke secondary risk prevention and management
- Liaise with patient and their carers, GPs and other community disciplines
- Follow up tests/investigations and referrals
- Provide emotional support to the patient and family adapting to life post a stroke within the context of their life situation and provide information relating to social and community based support to maintain patient’s independence

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- Follow up tests/investigations and referrals
- Provide emotional support to the patient and family adapting to life post a stroke within the context of their life situation and provide information relating to social and community based support to maintain patient’s independence

The Stroke NP will take on a higher leadership role within the multidisciplinary stroke unit by taking part in clinical meetings, ward rounds, family meetings and unit activities. As part of the Stroke NP’s role, they would be expected to be innovative and participate in quality improvement activities, projects and research that involve improving patient care and clinical outcomes for stroke and TIA.

The Stroke NP will use their advanced knowledge and clinical skills based on current evidence based stroke management to educate others; patients, nurses, multidisciplinary units and junior doctors. Structured and planned stroke education and prevention will be delivered formally and informally to staff as well as to external members in the form of:

- Ward rounds
- Hospital education programs
- Clinical meetings
- Journal Club
- Grand Rounds
- Conferences / seminars

The Stroke NP will not substitute a doctor but will be a clinical leader that assists and compliments the workforce of stroke services at Western Health with the opportunity to enable the organisation to move forward to enhance new management services, improving timely review and investigations for patients with a stroke and TIA as well as educate them on risk factors and medication management. The role would substitute some tasks to fill a gap in service need but not a substitute of profession.

Overall, the Stroke NP model proposed for Western Health will focus on quality of care delivery and accessibility of care and service. This will be achieved by improving patient access and treatment, holistic patient management and continuity of care as well as encompass stroke recovery and prevention and health promotion, including risk factor management and secondary stroke prevention strategies. The Stroke NP will work autonomously in initiating care and collaborating with other healthcare professionals in the delivery of comprehensive care.
Table 7: Service Model Summary

<table>
<thead>
<tr>
<th>Source of referral</th>
<th>Service Need</th>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Health Emergency Department</td>
<td>Risk reduction</td>
<td>Suspected Stroke</td>
<td>Neurosurgery</td>
</tr>
<tr>
<td></td>
<td>Early intervention</td>
<td>Suspected TIA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fast track</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western Health Inpatient units</td>
<td>Risk reduction</td>
<td>Suspected Stroke</td>
<td>Care Coordination</td>
</tr>
<tr>
<td></td>
<td>Early intervention</td>
<td>Suspected TIA</td>
<td>Phone Consultations</td>
</tr>
<tr>
<td>Outpatient TIA early referral clinic</td>
<td>Early Intervention (Stroke</td>
<td>All referrals</td>
<td>Case Management</td>
</tr>
<tr>
<td></td>
<td>prevention – risk reduction)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The proposed model for a Stroke NP is supported by Western Health executives and is identified as a requirement to the organisation. The Stroke NP role is seen to assist in strengthening the capacity of the organisation by being readily transferable to other health services; wards, ED and outpatients. The key stakeholders further support the proposal and are committed to supporting and mentoring the Stroke Nurse Practitioner Candidate. A Nursing/Midwifery scope of practice steering committee oversees the development and supports existing and emerging NP roles- Appendix 3: Terms of Reference.

6.2 Extended Scope of Practice for Stroke Nurse Practitioner

The Stroke NP will be responsible for ordering appropriate pathology and radiology tests and medications as per a devised formulary. The Stroke NP model will be supported by an agreed set of clinical practice guidelines and medication formulary that describes the scope of practice for the Stroke NP. As a Stroke NP Candidate, most of the extended practices will require a countersignature from a senior physician.

Table 8: Extended Scope of Practice

<table>
<thead>
<tr>
<th>Radiology</th>
<th>Pathology</th>
<th>Assessment</th>
<th>Referral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Request:</td>
<td>Request:</td>
<td>Advanced neurological assessment</td>
<td>Admission to Western Health / Neurology Unit</td>
</tr>
<tr>
<td>CT Brain</td>
<td>FBE</td>
<td>Includes NIHSS, Rankin scale, Barthel Scale</td>
<td>Discharge from ED / inpatient unit</td>
</tr>
<tr>
<td>CT Angiogram</td>
<td>U&amp;E</td>
<td>Dysphagia screening</td>
<td>Refer to GP</td>
</tr>
<tr>
<td>CT Perfusion</td>
<td>Lipids – fasting cholesterol</td>
<td>Glucose management</td>
<td>Refer to TIA / neurovascular clinic</td>
</tr>
<tr>
<td>CXR</td>
<td>Fasting glucose</td>
<td>BP control</td>
<td>Cardiology – inpatient telemetry, carotid</td>
</tr>
<tr>
<td>Carotid Doppler</td>
<td>Pro Throm screen</td>
<td>Screening for eligibility of acute stroke</td>
<td>intervention</td>
</tr>
<tr>
<td>MRI – stroke</td>
<td>INR</td>
<td>therapies</td>
<td>Neuropsychology</td>
</tr>
<tr>
<td>MRA</td>
<td>APTT</td>
<td>Early implementation of evidence based practice for acute stroke care</td>
<td>Neurodiagnostics</td>
</tr>
<tr>
<td>Echocardiography</td>
<td>Clotting Studies</td>
<td></td>
<td>Vascular surgery</td>
</tr>
<tr>
<td>EEG / Neurodiagnostics</td>
<td>Homosysteine</td>
<td></td>
<td>Endocrinology</td>
</tr>
<tr>
<td></td>
<td>HBA1C</td>
<td></td>
<td>ACCS</td>
</tr>
<tr>
<td></td>
<td>CK &amp; Troponin</td>
<td></td>
<td>Sub-acute services</td>
</tr>
<tr>
<td></td>
<td>X-match</td>
<td></td>
<td>Allied Health</td>
</tr>
<tr>
<td></td>
<td>TFT</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>LFT</td>
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<tr>
<td></td>
<td>CRP</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MSU</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A proposed formulary has been developed in collaboration with the Stroke NP Collaborative for prescribing medications. Further work is expected to be undertaken by the Stroke NP Collaborative and NBV to formulate a standard Stroke formulary. Some of the medications the Stroke NP may potentially prescribe are highlighted in Appendix 4 – Stroke Proposed Formulary. The medications outlined can be prescribed in the different phases of stroke management for the patient. Once the Stroke NP model progresses, so too will the formulary.

Western Health has developed some general principles for NPs regarding prescribing and has recommended that their Director of Pharmacy be allocated to review the drug formulary for the NP model to ensure that:

- legislative requirements are met
- there are no prescribing restrictions within the organisation
- there are no significant costs to the organisation

6.3 Limitations to the role

Although NPs have authority under state legislation to prescribe medications and order diagnostic tests appropriate to their scope of practice, they cannot under current Australian legislation benefit from either the pharmaceutical or the medical benefits schemes (Smith, 2008).

This means that the costs of any NP initiated prescription, clinical investigation or referral to private specialist is borne by the patients concerned rather than by the national health insurance programme, Medicare. This is a complex issue that no solutions have yet to be reached.

6.4 Sustainability of the Stroke Nurse Practitioner model

Organisational barriers for the implementation of NP roles were discussed extensively with the Executive Management team with the implementation of the ICU Liaison Nurse role in 1998. Part of the success for supporting NP roles within Western Health stemmed from the initial discussions with key stakeholders.

Effective communication across the organisation will be an essential component to sustainability. By engaging and informing key stakeholders in the initial stages, they will become receptive with the appointment of a Stroke NP Candidate, the implementation process will be successful and outcomes sustainable as well as a pleasant working environment for the Stroke NP. This will take part as formal communications such as committees and forums within the hospital with key stakeholders and informal presentations to staff at Western Health through information sessions, brochures and highlighting the role in the Western Health weekly to ensure all are informed regarding the role, the extensions of practices and how the role will benefit the organisation. In addition, this will provide staff opportunities to address any areas of concerns they may have with the introduction of the NP role.

With the support of the internal and external stakeholders, the sustainability of the Stroke NP model will be ensured. An established governance to support service change and monitoring performance for Western Health will be incorporated to aid the sustainability of the Stroke NP model. This will include professional governance as well as clinical governance.
**Professional Governance**

**Executive Director of Nursing**
- Professional framework and foundation of Nurse Practitioner

**Department of Human Services**
- Mandatory and specified criteria for endorsement as a Nurse Practitioner

**Nurses Board of Victoria**
- Mandatory Prescribing Workshop
- Evidence for education and assessment tools
- Examination process for endorsement as a Nurse Practitioner

**Clinical Governance**

**Divisional Director**
- Oversight of clinical timeframes in relation to completion and submission of Nurse Practitioner process
- Activity reports – outcome measures to evaluate patient outcomes and service delivery utilising clinical indicators and KPIs

**Neurology Workforce**
- Clinical education and practice framework for Nurse Practitioner
- Clinical supervision and performance appraisals
- Oversight of quality activities and research project

**Director of Pharmacy**
- Legislative requirements, prescribing restrictions and costs for drug formulary
- Record of Nurse Practitioner signature

**Quality Manager**
- Identification, review, analyse quality issues, clinical incidents, mortality and sentinel events with recommendations of improvement to systems
- Minimum data set, clinical indicators and key performance indicators

**Policy and Procedure Committee**
- Clinical Practice Guidelines reviewed every 3 years
- Oversight of Policy and Procedures developed
7. Development of the Stroke Nurse Practitioner Candidate

7.1 Stroke Nurse Practitioner Candidate

The implementation of a Stroke NPC would be overseen by the NP Steering Committee at Western Health. The process of selecting a candidate and the pathway of how to become a NP at Western Health is outlined in Appendix 5: Nurse Practitioner Candidate Pathway.

Where there is a suitable Stroke Nurse Consultant working at Western Health, the Stroke NPC position would be advertised internally via the Western Health intranet site providing a copy of the proposed Stroke NPC Position Description as per Appendix 6: Position Description: Stroke Nurse Practitioner Candidate. Expressions of interest will be managed through the Human Resources Department at Western Health. Where it has been identified that there are no suitable nurses working in the area, the position will be advertised externally.

It is anticipated that the Stroke NPC position will be of two years duration (FTE), depending upon the individual candidate, which will incorporate preparation academically and clinically for endorsement.

DHS funding, in the form of NP Candidate Support Packages, are available for organisations to apply to contribute towards the costs of clinical supervision, specific skills acquisition and professional supervision and mentoring to prepare the NPC for endorsement.

7.2 Academic and Clinical Preparation

The Nurses Board of Victoria has responsibility under Section 135 of the Health Professions Registration Act 2005 to approve courses which provide qualifications that lead to endorsement in the protected title of Nurse Practitioner. The NBV is responsible for accrediting NP courses which lead to endorsement. There are three pathways that may lead to endorsement by the NBV outlined in Appendix 7: Pathways for Endorsement. For a candidate to become endorsed as a Stroke NP, successful completion of an approved Master of Nursing Program is required (NBV, 2009) (http://www.nbv.org.au/web/guest/courses-nurse-practitioner).

Table 9: Approved Education Providers for NP

<table>
<thead>
<tr>
<th>Education Provider</th>
<th>Campus</th>
<th>Course Name</th>
<th>Accreditation Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deakin University</td>
<td>Burwood &amp; Geelong Waterfront</td>
<td>Master Nursing Practice</td>
<td>January 2011</td>
</tr>
<tr>
<td>Flinders University</td>
<td>Adelaide</td>
<td>Master of Nursing (Nurse Practitioner Pharmacology for Advanced Professional Practice)</td>
<td>October 2011 October 2011</td>
</tr>
<tr>
<td>La Trobe University</td>
<td>Bundoo &amp; Bendigo</td>
<td>Master of Nursing (Nurse Practitioner)</td>
<td>July 2009</td>
</tr>
<tr>
<td>Monash University</td>
<td>Peninsula campus</td>
<td>Therapeutic Medication Management Unit</td>
<td>June 2010</td>
</tr>
<tr>
<td>University of Melbourne</td>
<td>Parkville</td>
<td>Therapeutic Medication Management Education Program</td>
<td>October 2011</td>
</tr>
</tbody>
</table>

The Stroke NPC will require formal educational preparation at the Masters level with relevant clinical experience, supervision and mentoring to ensure that the candidate is academically and clinically prepared to practice in an advanced and extended stroke clinical role.
7.2.1 Clinical and non-clinical time

It is recognised that both clinical and non-clinical time for the Stroke NPC is required to support their education and development. Non-clinical time will be allocated to assist the Stroke NPC to take part in auditing, research, policy and procedure development, education preparation, leadership and professional skill development. It is foreseen that in order to participate in these activities, the Stroke NPC would require 1 day/week allocated to non-clinical time and to continue post endorsement.

7.2.2 Learning Contract

The Stroke NPC will develop a learning contract at the commencement of the role that will include the following elements:

- Identification of learning goals that support the Stroke NPC’s development towards becoming a NP
- Identification of key action points to assist the Stroke NPC in achieving the identified goals
- Setting boundaries around the timeframes that the goals will be met

A tracking record will be utilised to assist the organisation with ensuring key timeframes are being met by the Stroke NPC – Appendix 8: Nurse Practitioner Candidate Tracking Record. The Stroke NPC will meet regularly with their Divisional Director and mentor to ensure key milestones have been achieved.

7.2.3 Mentorship

Mentoring is the “process that can encourage self efficacy or the power of belief in the novice that he or she will be able to take on a new role successfully and become a fully participating member of an organisation or profession” (Hayes, 2005). The endorsement process to become a NP mandates that a NPC have a clinical mentor to assist in the transition from candidate to endorsed NP.

Determination of the training and mentoring requirements of the Stroke NPC will be based upon the individual’s prior experience and skill set in relation to the Stroke NP scope of practice. A clinical mentor will be allocated to work with the candidate to optimise the clinical skills of the Stroke NPC. This will consist of two consultants from the Neurology team as well as other health professionals that will spend between 2-4 hours per week with the candidate dependent on prior learning. It will be the responsibility of the candidate and their mentor to formulate a learning plan outlining who the education source is, what will be learnt and when it would take place. The mentor will monitor the candidate’s progress, supervise and deliver theoretical and practical requirements and assess the candidate’s progress and competence. The mentor and candidate will meet regularly to review the candidate’s skill development and work together to complete the learning plan.

Professional mentorship will consist of the Executive Director of Nursing, existing NPs and senior nursing management from within the organisation to provide the Stroke NPC guidance in advanced clinical leadership, strong communication skills, dealing with organisational dynamics, managing change and developing the professional skills required to support successful endorsement as a Stroke NP.

Mentoring requires both mentor and mentee developing a relationship with the intention of the mentee to develop skills under the guidance of the mentor. Qualities of the mentor that assist with this relationship and mentee outcomes include:
- A willing commitment to invest time and resources into the relationship
- Willingness to share knowledge, interests, values, and beliefs
- Openness to communication and friendship
- Approachability
- Offering feedback in a positive way and celebrating success
- Providing an environment that encourages growth from mistakes
- Being a competent, confident role model
- Standing by the mentee in critical situations
- Ability to listen

7.2.4 Clinical Practice Guidelines

The NBV no longer requires a NPC to develop and present CPGs to define their practice. However, this will be part of the Stroke NP (and/or candidate) role under guidance of the clinical mentor as well as with multidisciplinary input at Western Health following the existing Policy and Procedure Framework. The Western Health Policy and Procedure Framework assist the organisation to establish leadership, responsibility and accountability through clearly articulated and accessible policies and procedures. These policies and procedures provide the foundation for effective corporate and clinical governance. The CPGs developed will clearly define the extensions to the Stroke NP’s scope of practice and will include target population, medications prescribed, radiological and pathology investigations ordered and decision making. The process for CPG Development is outlined in Appendix 9: Procedure Development.

7.2.5 Learning Plan

In collaboration with their mentor, the Stroke NPC will identify learning requirements and formulate a customised learning plan. Currently at Western Health, competency packages are being formulated relating directly and indirectly to stroke that the Stroke NPC will be encouraged to complete. The learning plan content will cover pharmacology, pathology, radiology, advanced patient assessment, management planning and secondary prevention. The content will be delivered by medical staff (Neurology, Neuropsychology, Radiology and Pathology), allied health (Clinical Psychology, Dietetics, Speech Therapy, OT, Physiotherapy) and others such as Palliative Care.

The clinical mentor will supervise the Stroke NPC’s skill development in hyperacute stroke management, patient care facilitation and stroke prevention with the candidate moving towards demonstrating independence in the areas outlined in the scope of practice. Clinical preparation for the Stroke NPC will consist of:

- Participating in ward rounds.
- Weekly attendance to the Stroke Journal Club with periodic presentations.
- Annual presentations at Grand Rounds.
- Minimum of 4 case presentations (2 written and 2 oral). Case studies will include patient assessment, provisional diagnosis, development of management plan and expected outcomes.
- Quality Audits weekly of patient histories of each presentation seen by the Stroke NPC to examine clinical notes, assessment, management and patient outcomes with mentor

It is suggested that the Stroke NPC keep a Clinical log and record all patients that they assess including presentation details, assessment findings, investigation and tests ordered, diagnosis, management plan and discharge plan. This will provide the candidate an opportunity to reflect on practice and critically analyse their decisions made for the patients and where improvements can be made.

The Stroke NPC will be required to maintain evidence of education sessions attended, including presenter, topic, date, length of time and the venue. In addition, a progressive log could be recorded relating to presentations to staff, case presentations and non-clinical activities. It is intended that the development program set out for the Stroke NPC will assist in the preparation towards their Professional Portfolio required for their assessment and endorsement submission to the NBV.
7.3 Assessment

A clinical assessment tool using the Bondy Scale has been designed to assess the level the Stroke NPC is working at from independent practice to those of supervised, assisted and dependent – Appendix 10: Assessment Form- Stroke Nurse Practitioner Candidate. The clinical mentor will assess the candidate in relation to working within the candidate’s scope of practice. The clinical assessment tool can be utilised as evidence in demonstrating the comprehensive clinical training and examination that the Stroke NPC has undertaken in their specialty field of practice for the endorsement criteria required by the NBV as well as being confident and competent to practice according to the ANMC Competency standards (2006) Appendix 11: National Competency Standards for the Nurse Practitioner.

7.4 Nurse Practitioner Endorsement

Application for endorsement as a NP is through the NBV and should include:

- Evidence of organisational support for the role
- A summary of the model of practice
- The formulary that reflects the nurse’s scope of practice
- Case studies that reflect practice at the NP level
- An account of the nurse’s clinical and professional leadership activities

The timelines to attain NP endorsement will vary between candidates dependent upon prior learning and skill set. It is envisaged the process for the Stroke NPC will take between 1-3 years with breakdown and sequencing as described below.

The endorsed Stroke NP is legally liable for the diagnosis and prescription of medications on the approved list for their category of endorsement and according to their scope of practice. In order to prescribe safely, the endorsed Stroke NP will operate under the:

- Health Professions Registration Act
- Drugs, Poisons and Controlled Substances Act

### Nurse Practitioner preparation timelines

<table>
<thead>
<tr>
<th>Commence and complete theoretical and practical requirements to meet ANMC NP competency standards</th>
<th>Commence NP endorsement process with NBV</th>
<th>Notification by NBV of outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-24 months</td>
<td>0-6 months</td>
<td>28 days</td>
</tr>
</tbody>
</table>

Endorsement as a NP is ongoing and renewed each year with an annual registration. The Stroke NP will be accountable for maintaining competency, ongoing professional development and working within their scope of practice as outlined in Appendix 12: Position Description – Stroke Nurse Practitioner.
7.5 Quality Outcomes

Nurse Practitioners work according to a professional conduct, a defined scope of practice and a statutory framework that enables them to deliver a service that is safe and evidence based. Practice carried out by NPs is supported by collaboratively agreed guidelines that are in line with best practice according to the criteria laid down by the ANMC. Continual auditing of their services ensures that practice is reviewed regularly and has a scientific basis (Keane, 2008).

The Stroke NPC will be expected to evaluate their role through KPIs and collect data that indicates efficacy of the role on service provision. The Stroke NPC will develop a database of ongoing outcome measures that can be compared once endorsed to demonstrate efficacy.

Table 10: Outcome Measures

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Outcome Measures</th>
</tr>
</thead>
</table>
| Timeliness of treatment | ▪ Improved access to treatment  
                       | ▪ Time to treatment  
                       | ▪ Time to discharge  
                       | ▪ Improved patient outcomes  
                       | ▪ Increased support provided  
                       | ▪ Increased inpatient bed availability |
| Quantity of treatment  | ▪ Number of patients seen  
                       | ▪ Number of referrals received  
                       | ▪ Number of referrals made  
                       | ▪ Number of diagnostics ordered  
                       | ▪ Number of medications prescribed  
                       | ▪ Number of inter hospital transfers |
| Quality of treatment   | ▪ Patient satisfaction  
                       | ▪ Interdisciplinary satisfaction  
                       | ▪ Resource for other departments  
                       | ▪ Improved community links  
                       | ▪ Reduced adverse events  
                       | ▪ Improved educational opportunities for staff  
                       | ▪ Improved delivery of outpatient service |
| Cost of treatment      | ▪ Decreased length of stay  
                       | ▪ Cost per patient treated  
                       | ▪ Prevention of hospital admissions  
                       | ▪ Reduced presentations to the emergency department  
                       | ▪ Reduced complications  
                       | ▪ Decreased cost of transport |
8. Future Direction for Western Health

8.1 Implementation Milestones for the next 12 months

Anticipated outcomes for the next 12 months for the Stroke Nurse Practitioner Model are:

Table 11: Milestones for the next 12 months

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Anticipated Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>September - October 2009</td>
<td>Advertise and appoint a Stroke Nurse Clinical Coordinator</td>
</tr>
<tr>
<td>November – December 2009</td>
<td>Submission of a business case to support the implementation of the Stroke NP model</td>
</tr>
<tr>
<td>February 2010</td>
<td>Stroke NP model endorsed</td>
</tr>
<tr>
<td>March 2010</td>
<td>Progress Nurse Clinical Coordinator position to that of Stroke NP status</td>
</tr>
<tr>
<td>April 2010</td>
<td>Stroke NP Candidate enrolled in the Masters program</td>
</tr>
<tr>
<td></td>
<td>Clinical and Professional Mentor appointed</td>
</tr>
<tr>
<td></td>
<td>Learning plan developed</td>
</tr>
<tr>
<td>May – August 2010</td>
<td>Academic and clinical preparation under way</td>
</tr>
</tbody>
</table>

8.2 Future Direction

Nurse Practitioners are an integral part of the health workforce both now and into the future by advancing the nursing discipline. NPs at Western Health have demonstrated their value in a variety of settings and make a significant and valuable contribution to patients and their community, to the health care team and to the organisation. There has been good solid work to date with a sound foundation from which to build forward from.

Once the Stroke NP role is established and embedded, it is anticipated that additional NP roles will be introduced to support the evolving stroke service demand. Stroke clinical coordinators and senior nurses experienced in stroke management at Western Health will be encouraged to make the transition to NP. With opportunities for professional development of nursing staff, recruitment and retention of stroke nurses will expect to increase for Western Health.
References


St Vincent’s Hospital (2008) Stroke Nurse Practitioner Organisation Model: Identification of nurse practitioner role, support and candidates, St Vincent’s Hospital, Melbourne


Appendix 1: Stroke Care Strategy for Victoria – Key Recommendations

Providing Stroke Care
Recommendation 1:
Health services and general practitioners should manage TIAs and secondary prevention of stroke in accordance with existing evidence-based clinical practice guidelines.

Recommendation 2:
The Department of Human Services should support the National Stroke Foundation to deliver public education campaigns that increase public awareness of stroke symptoms.

Recommendation 3:
Assessment/follow-up of people at risk of having a new or subsequent stroke should be undertaken at TIA/neurovascular clinics. Unless already in place, public health services treating more than 200 acute strokes a year should establish TIA/neurovascular clinics. Across criteria, protocols and requirements to monitor and evaluate the practice and activity of TIA clinics should be developed.

Stroke is a medical emergency
Recommendation 4:
The Department of Human Services should undertake work to examine options that provide appropriate mechanisms for health services to transfer people who have a stroke to ensure they receive appropriate emergency stroke care.

Recommendation 5:
Health services should treat all patients with stroke symptoms as a medical emergency and in accordance with existing evidence-based clinical practice guidelines, which includes but is not limited to:
- Rapid triage of patients presenting with stroke symptoms
- Rapid brain imaging of patients presenting with stroke symptoms

Thrombolysis
Recommendation 6:
Acute health services should provide thrombolysis in accordance with role delineation for acute stroke services and internationally recognised clinical criteria, with appropriate neurology support, and provide information on these patients to the international SITS (Safe Treatment of Thrombolysis in Stroke) registry.

Management of Acute Stroke
Recommendation 7:
Health services should provide acute stroke care in accordance with existing evidence-based clinical practice guidelines. Care should address:
- Appropriate treatment of acute stroke
- Accessing specialist acute services (for example, neurosurgery, interventional neuroradiology, specialist allied health)
- Interdisciplinary care
- Commencement of rehabilitation within the acute setting and prior to transfer
- Transition between acute and sub-acute services
- Inpatient discharge planning
- Liaising with community providers
- Ongoing care in the community

Management of sub-acute stroke
Recommendation 8:
Sub-acute stroke should be provided in accordance with existing evidence-based clinical practice guidelines. Care should address:
- Accessing specialist sub-acute services (for example, specialist medical, nursing and allied health)
- Interdisciplinary care
- Provision of sub-acute care across the care continuum
- Transition between inpatient and ambulatory care
- Discharge planning
- Ongoing care in the community

Palliative Care
Recommendation 9:
Appropriate and culturally sensitive palliative care should be provided and communication with carers/ family members undertaken in accordance with existing national guidelines and Strengthening palliative care - a policy for health and community care providers 2004-09.
Measuring Performance

Recommendation 10:
The Department of Human Services, in consultation with key stakeholders, should develop and implement a statewide performance monitoring system for stroke care management and patient outcomes.

Clinical support in the community following a stroke

Recommendation 11:
General practitioners should be engaged in the care of stroke survivors as early as possible following diagnosis to ensure ongoing and appropriate clinical care and support, which should include:
- Managing known risk factors for stroke
- Referring to, and linking with, community rehabilitation and self-management programs
- Referring to appropriate specialist clinical services

Acute stroke service organisation

Recommendation 12:
Acute stroke care should be provided by stroke units that are led by a physician with an interest and experience in stroke treatment and supported by an interdisciplinary team.

Sub-acute stroke service organisation

Recommendation 13:
People with stroke and who are assessed as requiring rehabilitation and other sub-acute services should receive those in a program that has the following features:
- An interdisciplinary approach to care with a full range of medical, nursing and allied health professionals
- A physical environment that facilitates the rehabilitation process, is enabling for ongoing recovery and is easy to navigate for people who have mobility problems, visual deficits or cognitive impairment
- Equipment necessary to facilitate the provision of a quality rehabilitation program

Recommendation 14:
The Department of Human Services should review the current designation of sub-acute services.

Recommendation 15:
Sub-acute inpatient care should be led by a physician with an interest and experience in rehabilitation, supported by an interdisciplinary team and collocated with the appropriate inpatient environment.

Recommendation 16:
People with stroke receiving sub-acute care should have access to the full range of medical, nursing and allied health care in an appropriate environment with access to appropriate evidence-based rehabilitation interventions, which is supported by the role delineation of sub-acute services.

Role delineation of stroke services

Recommendation 17:
All health services should implement role delineation for acute stroke services to guide service delivery and future planning and ensure provision of the appropriate level of acute stroke care and expertise in accordance with infrastructure and resources. Role delineation will also ensure health services establish appropriate linkages and referral processes to ensure people with stroke have access to appropriate expertise and resources as required.

Recommendation 18:
The Department of Human Services should develop role delineation to guide service delivery and future planning of all sub-acute services, including sub-acute stroke services.

Recommendation 19:
Health services should transfer/refer patients to appropriate stroke services for accurate diagnosis of stroke, and transfer patients - when clinically appropriate - back to acute or sub-acute settings close to where they reside.

Recommendation 20:
Health services should establish linkages and develop referral pathways and protocols with hospitals that receive their patient transfers and/or referrals to facilitate timely and smooth patient transition.
Telemedicine

Recommendation 21:
To facilitate the use of telemedicine by health services in the diagnosis and treatment of stroke - particularly for improving access to clinical expertise and quality of care for rural patients - the Department of Services should:
- Assess telemedicine requirements and current infrastructure for public health services across Victoria
- Review the funding model to facilitate secondary consultation

High quality written information about stroke

Recommendation 22:
Information about stroke and treatment options should be provided to patients and their carers/family members throughout the care continuum to allow participation in decision making, and ensure that personal choices, values and beliefs are considered in accordance with evidence-based guidelines.

Care co-ordination throughout the continuum of care

Recommendation 23:
Health services should identify for each patient and their carer/family member a single point of contact who will be responsible for ensuring ongoing communication between the stroke care team for that patient and their carer. This role would also co-ordinate other needs of patients and their carers as required.

Recommendation 24:
The Department of Human Services should undertake work that will guide health services in the implementation of co-ordinated stroke care.

Returning to the community

Recommendation 25:
Guidelines for providing peer support to inpatients, establishing community-based stroke support groups, promoting self-management programs for long-term care and accessing community-based services should be developed and implemented in accordance with evidence-based guidelines.

Stroke care workforce / training and education

Recommendation 26:
The capacity of the system should be increased, in accordance with the role delineation of stroke services, to provide safe and high quality stroke care, enhance workforce capability and provide for future demand. This should be done by:
- Better use of existing workforce recruitment and retention strategies
- Developing stroke-specific education programs targeted at both specialist and general stroke care workforce
- Encouraging and supporting staff providing stroke care to undertake appropriate education, training and research

Implementing the strategy

Recommendation 27:
Clinical facilitators should be appointed on a time-limited basis to:
- Develop protocols identified in the recommendations above
- Oversee the implementation of protocols by stroke care providers
- Facilitate appropriate/relevant education, training and support
- Contribute to the development of stroke-specific education programs

Recommendation 28:
A state-wide stroke project manager should be appointed on a time-limited basis to:
- Co-ordinate the implementation of the strategy recommendations for Victoria
- Oversee the work of the clinical facilitators
- Mainstream the implementation of the strategy for Victoria
Appendix 2: TIA Clinical Pathway

**STEP 1**
Consult Neurology for ALL TIA ED presentations

**STEP 2**
Triage & Assessment (0-3 hours)

**STEP 3**
Identify stroke risk

**STEP 4**
Consultation & Interventions (2 hours)

**STEP 5**
DECISION
ED Discharge OR Admit SSU OR Admit ASU (1 hour)

**STEP 6**
Discharge Management Checklist
For ALL TIA patients

**Suspected TIA**

**Triage Category 2**

**Complete ABCD2 score for ALL TIA patients**

**ABCD2 SCORE**

0 – 3 Low Risk of stroke
4 – 5 Moderate Risk of stroke
6 – 7 High Risk of stroke

**ABCD2 Tool**
Identifies individuals at patients risk of stroke following a (TIA)

<table>
<thead>
<tr>
<th>Variable (definitions)</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE &lt;60 years</td>
<td>0</td>
</tr>
<tr>
<td>&gt;60 years</td>
<td>1</td>
</tr>
<tr>
<td>BP (on admission) SBP&gt;140mmHg&amp;/or DBP&gt;90mmHg</td>
<td>1</td>
</tr>
<tr>
<td>CLINICAL FEATURES</td>
<td></td>
</tr>
<tr>
<td>- Any definite unilateral weakness (face/hand/arm/leg)</td>
<td>2</td>
</tr>
<tr>
<td>- Speech disturbance (without motor weakness)</td>
<td>1</td>
</tr>
<tr>
<td>- Other weakness</td>
<td>0</td>
</tr>
<tr>
<td>DURATION OF SYMPTOMS</td>
<td></td>
</tr>
<tr>
<td>&gt; 60 minutes</td>
<td>2</td>
</tr>
<tr>
<td>10-59 minutes</td>
<td>1</td>
</tr>
<tr>
<td>&lt;10 minutes</td>
<td>0</td>
</tr>
<tr>
<td>DIABETES</td>
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<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>0</td>
</tr>
</tbody>
</table>

**Total Score**

**TIA ASSESSMENT / INVESTIGATIONS / MANAGEMENT PLAN MUST INCLUDE THE FOLLOWING – Refer to ED/SSU/ASU - TIA Care Pathway**

- CT/CTA Brain
- ECG
- Bloods: FBE / U&E / Fasting bloods
- Neurology consulted
- Echocardiogram if recent AMI or AF
- Anti-thrombotic therapy if not contraindicated – Aspirin 300mg daily or Clopidogrel daily if sensitive to aspirin

**REMEMBER….. - X 2 Time slots available M-F for Neurology Ultrasound at 08.30am**

- Footscray - Neurology Registrar to contact Radiology via U/S Receptionist on ext 56190
- Sunshine – ED/Neurology Registrar to contact Radiology U/S Radiographer on 50351

**Discharge direct from ED or SSU if:**
1. ABCD2 Score Low – Moderate - Discuss with Neurology
2. All appropriate investigations completed and reported
3. All discharge management checklist completed

**Discharge as in-patient to Acute Stroke Unit if:**
1. ABCD2 Score >5 – Discuss with Neurology
2. Clinical deterioration
3. Persistent neurological deficit
4. Inadequate social supports
5. Unable to complete diagnostics (CT Brain / Carotid Doppler / Echo etc)

**DISCHARGE MANAGEMENT CHECKLIST**

- Adequate social supports
- Referral to TIA follow-up Clinic
- Anti-thrombotic therapy prescribed
- Discharge meds arranged
- Fasting bloods done / referral arranged (circle)
- GP discharge letter
- Secondary stroke prevention implemented
- Written - TIA Patient Information provided
Appendix 3: Terms of Reference

NURSING / MIDWIFERY SCOPE OF PRACTICE STEERING COMMITTEE
TERMS OF REFERENCE

ROLE:
To review and endorse proposed extensions to Registered Nurse Scope of Practice for both Division 1 and 2 nurses and midwives at Western Health, and ensure that legislative and regulatory requirements are fulfilled, in addition to other requirements necessary for the implementation of extended scope of practice.

- Develop a framework for identifying and progressing Nurse Practitioner roles within Western Health.
- Assist applicants in the preparation and lodgement of submissions for the establishment of nurse practitioner roles and extended scope of practice initiatives within Western Health.
- Evaluate and monitor outcomes.

OBJECTIVES:
The objectives of the Western Health Scope of Practice Steering Committee will be to:

- Consider and develop the strategic direction and prioritise potential areas for establishing extended scope of practice roles for nurses and midwives
- Develop and implement a rigorous process for reviewing applications to extend scope of practice which meets legislative and regulatory requirements, competency evidence and key measures of monitoring and evaluation
- Review and endorse the role and scope of practice for new roles
- Evaluate and feedback on submissions
- Monitor and review key performance indicators and qualitative measures related to nurse practitioner roles and/or extended scope of practice
- Advise and make recommendations to the Western Health Clinical Governance Committee for suitable submissions
- Evaluate ongoing performance of changes in scope of practice
- Provide recruitment panel expertise

MEMBERSHIP:
Executive Directive of Nursing (1) (Chair)
Director of Nursing - site specific or representatives from each site (3)
Manager Centre for Education
Medical Representative (1) (invited as per service relevance)
Divisional Directors or representatives (2)
Pharmacy Representative (1)
Nurse Unit Manager (1)
Nurse Practitioner/Clinical Consultant (1)
RN Division 1 (2)
Allied Health Representative (1) (invited as per service relevance)
Director of Nursing at Reg Geary and Hazeldean will receive minutes only (also invited as per role relevance for Residential Aged Care roles)

REPORTING LINE:
The committee receives submissions from applicants and recommendations from Divisions
The committee reports to Clinical Governance

FREQUENCY OF MEETINGS:
Monthly

QUORUM:
50% of the membership plus Chair (or delegate) (10)

TERMS OF APPOINTMENT:
Representatives of the steering committee will be appointed for a period of 24 months. Expression of interest will be sought two (2) months prior to the cessation of the current member’s term with members being selected by a panel representing the core members of the Committee.

REVIEW:
A review of the committee will be conducted annually.
# Appendix 4: Nurse Practitioner – Stroke Proposed Formulary

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Route</th>
<th>Schedule</th>
<th>Drug Name</th>
<th>Route</th>
<th>Schedule</th>
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</thead>
<tbody>
<tr>
<td>Anticoagulants / antithrombotics</td>
<td></td>
<td></td>
<td>Combination of diuretics &amp; other agents</td>
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</tr>
<tr>
<td>Aspirin</td>
<td>oral</td>
<td>S2</td>
<td>Indapamide hemihydrate; perindopril arginine</td>
<td>oral</td>
<td>S4</td>
</tr>
<tr>
<td>Aspirin; Dipyridamole Asasantin SR</td>
<td>oral</td>
<td>S4</td>
<td>Candesartan cilexetil; hyrochlorothiazide</td>
<td>oral</td>
<td>S4</td>
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<tr>
<td>Clopidogrel hydrogen sulphate</td>
<td>oral</td>
<td>S4</td>
<td>Hydrochlorothiazide; Irbesartan</td>
<td>oral</td>
<td>S4</td>
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<tr>
<td>Heparin Injection BP (DBL)</td>
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<td>S4</td>
<td>Hypolipidaemic agent</td>
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<td>Enoxaparin sodium (clexane)</td>
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<td>S4</td>
<td>Atorvastatin calcium</td>
<td>oral</td>
<td>S4</td>
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<tr>
<td>Dalteparin sodium (Fragmin)</td>
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<td>Simvastatin</td>
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<td>Amiodarone</td>
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<td>Alteplase (t-pa)</td>
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<td>Digoxin</td>
<td>IV/oral</td>
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<tr>
<td>Antihypertensive Agents</td>
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<td>Analgesia</td>
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<td>Anti-emetics</td>
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<td>Metoclopramide hydrochloride</td>
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<td>Ondansetron</td>
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<td>Hyperacidity, reflux &amp; ulcers</td>
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<td>Glyceryl trinitrate</td>
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<td>S4</td>
<td>Omeprazole</td>
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<tr>
<td>Beta Receptor Blockers</td>
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<td>Pantoprazole</td>
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<td>Atenolol</td>
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<td>Anaphylaxis management post contrast</td>
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<td>Metoprolol</td>
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<td>Adrenaline</td>
<td>IV</td>
<td>S4</td>
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<td>Carvedilol</td>
<td>oral</td>
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<td>Phenergan</td>
<td>IV/oral</td>
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<td>Sotolol hydrochloride</td>
<td>oral</td>
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<td>Hydrocortisone</td>
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<td>Metoprolol Tarze</td>
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<td>Calcium Channel Antagonists</td>
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<td>Morphine</td>
<td>IV/IM/SC oral</td>
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<td>oral</td>
<td>S4</td>
<td>Midazolam</td>
<td>IM/SC</td>
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<td>Atropine</td>
<td>SC</td>
<td>S4</td>
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<td>Nifedipine</td>
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<td>Diabetes Management</td>
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<td>Insulin</td>
<td>SC</td>
<td>S4</td>
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<td></td>
<td>Metformin</td>
<td>oral</td>
<td>S4</td>
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<td>Labetalol hydrochloride</td>
<td>IV</td>
<td>S4</td>
<td>Intravenous fluids</td>
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<td>Angiotensin II antagonist</td>
<td></td>
<td></td>
<td>0.9% Sodium Chloride</td>
<td>IV</td>
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<tr>
<td>Irbesartan</td>
<td>oral</td>
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<td>50% Dextrose</td>
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<td>Candesartan cilexetil</td>
<td>oral</td>
<td>S4</td>
<td>Anticonvulsants</td>
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<td>S4</td>
<td>Clonazepam</td>
<td>IM/SC oral</td>
<td>S4</td>
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<td>Diuretics</td>
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<td>Phenytoin</td>
<td>oral</td>
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<td>Indapamide hemihydrate</td>
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<td>S4</td>
<td>Carbamazepine</td>
<td>oral</td>
<td>S4</td>
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<td>Spironolactone</td>
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<td>Sodium Valporate</td>
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</table>
Appendix 6: Position Description – Stroke Nurse Practitioner Candidate

NURSE PRACTITIONER CANDIDATE POSITION DESCRIPTION

<table>
<thead>
<tr>
<th>Position Title:</th>
<th>Nurse Practitioner Candidate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program / Business Unit:</td>
<td>Neurology / Stroke Unit</td>
</tr>
<tr>
<td>Location / Campus:</td>
<td>Footscray</td>
</tr>
<tr>
<td>Accountable and Responsible to:</td>
<td>Divisional Director of Medicine, Aged Care and Cancer Services</td>
</tr>
<tr>
<td></td>
<td>Head of Unit - Neurology</td>
</tr>
<tr>
<td>Type of Employment:</td>
<td>Full Time</td>
</tr>
<tr>
<td>Direct Reports:</td>
<td>None</td>
</tr>
<tr>
<td>Date of Preparation:</td>
<td>August 2009</td>
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</tbody>
</table>

Role Statement:

The Nurse Practitioner Candidate is a Registered Nurse Division 1 who is working towards acquiring the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice as a nurse practitioner. The Nurse Practitioner Candidate is undertaking the activities of a Nurse Practitioner in training (candidate) while progressing towards the Nurse Practitioner role. It is expected that as the candidate develops knowledge and skill they will engage increasingly in the activities of the Nurse Practitioner role (acknowledging the limitations of their registration as a Registered Nurse not as an endorsed Nurse Practitioner).

Key Working Relationships:

Internal
Executive Director of Nursing
Clinical Service Director
Head of Unit
Nurse Unit Manager
Clinical Nurse Consultants
Medical staff
Nursing staff
Allied health staff

External
Patients and their significant others

Key Accountabilities:

Practice at an advanced level within the specified scope of practice in the provision of high quality, culturally sensitive patient care in partnership with patients, significant others and other members of the multidisciplinary team:

- Undertake and complete a period of clinical candidature during which the candidate will develop the required knowledge and skills of a Nurse Practitioner (NP) in Stroke, through education activities, mentored clinical practice, supervision, assessment and feedback.
- Recognise limits to own practice and consult appropriately, facilitating the patient’s access to appropriate interventions or therapies.
• Develop a clinical portfolio that demonstrated safety, efficiency and effectiveness in practice; including a Credentialing Log, Clinical Performance Reviews and Case Histories.
• Act as a positive role model and expert clinical resource person in Stroke for clinicians, patients, significant others and the wider community as appropriate.
• Progressively undertake the activities of the Nurse Practitioner role. These include:
  ➢ Perform comprehensive patient assessments and demonstrate skill in the diagnosis and treatment of acute and chronic illness within the specified scope of practice in collaboration with other members of the multidisciplinary team
  ➢ Demonstrate comprehensive understanding of specific pharmaceuticals and diagnostic tests related to Stroke
  ➢ Initiate and interpret diagnostic and radiological tests specific to the scope of practice
  ➢ Refer Stroke patients to other health professionals as necessary
  ➢ Evaluate the effectiveness of the client’s response to the clinical case management and take appropriate action
• Practice within a clinical framework that is evidence based, relevant and current, and is in accordance with the standards prescribed by the Australian Nursing and Midwifery Council, Nurses Board of Victoria Guidelines, Australian Council of Midwives Incorporated, Western Health Clinical policies and procedures, and departmental policies and procedures.
• Adhere to all aspects of confidentiality in regard to patients, carers and staff.

**Foster a high standard of service provision by demonstrating clinical leadership and maintaining collaborative relationships with all disciplines:**

• Establish effective, collaborative and professional relationships with patients, members of the multidisciplinary team and other stakeholders to ensure an integrated approach to patient care across the continuum of care.
• Assume a team leadership role when required.
• Apply conflict resolution skills when dealing with problems involving all levels of staff, patients and their significant others and the public.
• Build partnerships with other health services developing similar roles.

**Undertake research and development and continuous improvement activities to meet specified clinical nursing needs:**

• Contribute to the development of professional practice, including participation in and promotion of evidence based practice and research.
• Initiate, develop and maintain clinical practice guidelines which are evidence based and ensure a high standard of care for patients.
• Actively participate in quality improvement processes through the initiation, planning, implementation and evaluation of programs.
• Evaluate current research and coordinate the liaison with key stakeholders to implement change processes to reflect research findings.
• Coordinate policy and procedure development and review in consultation with key stakeholders.
• Participate in organisational committees/working groups as required.

**Ensure ongoing effective clinical service provision in the specified clinical discipline:**

• Review current service and liaise with key stakeholders to develop a model of service for future service needs.
• Be open to innovative and flexible clinical practice models, both community and hospital based as appropriate, with the primary focus being the patient and the continuity of their care.
• Build mutually beneficial relationships with community groups and organisations.
Provide education services in the specified clinical discipline:

- Identify, design and provide education programs as required specific to the individual learning needs of patients, their significant others, nursing, and allied health staff and students, community organisations and the wider public.
- Coordinate, develop and maintain appropriate learning tools to facilitate learning.
- Provide equipment in-services in consultation with product representatives and the Centre for Education, as appropriate.
- Provide in-service education sessions as appropriate and requested.
- Coordinate and participate in learning opportunities, formal and informal, in conjunction with the Centre for Education.
- Assist staff in the implementation of patient education at ward level.
- Promote an atmosphere conducive to learning.

Commit to ongoing professional development of self and learning:

- Actively participate in professional development and continuing education, conferences, seminars, committees, working parties and professional groups.
- Present and publish in appropriate professional conferences and journals.
- Remain informed of the current literature.
- Develop strong collegial links and partnerships with other nurse practitioners.
- Seek feedback from key stakeholders on your own performance.
- Participate in annual performance appraisal and identify learning needs.

Support the professional development and learning of other staff:

- Provide clinical leadership in the area of Stroke.
- Act as an advocate, mentor, clinical teacher, resource/support person.
- Share knowledge of research, education and clinical practice issues and knowledge gained from participation in seminars and conferences.
- Assist nursing colleagues in research efforts.
- Encourage other staff to present and publish in appropriate professional conferences and journals.
- Facilitate special interest forums for other staff in Stroke.
- Articulate the practices of the Stroke Nurse Practitioner such that the role is known and understood by the community within which the Nurse Practitioner practices and the wider community group.

Contribute to a safe work environment for all staff (mandatory):

- Conduct yourself in a manner that will not endanger yourself or others.
- Follow Western Health's Occupational Health and Safety policies and procedures.
- Report any unsafe work practices, hazards, near miss incidents and accidents.
- Contribute to safety awareness and promotion by contributing ideas and suggestions.
- Maintain knowledge and practice of infection control / hygiene precautions and Western Health infection control policies and procedures.

KPIs

- Hold or be working towards Master of nursing relevant to the Stroke area. Must show evidence of enrolment to a Masters course as part of the endorsement application to NBV.
- Satisfactory completion of a Therapeutic Medication Module approved by the NBV within 24 months of commencement of candidature.
- Submission of endorsement application to the NBV within a reasonable time: a minimum of 12 months and a maximum of 24 months between commencement of candidature and application for endorsement should normally be considered a ‘reasonable time’.
Selection Criteria (Qualifications / Experience / Skills):

**Essential**
- Eligible for registration as a Registered Nurse Division 1 in Victoria and hold a current practicing certificate
- At least 3 years demonstrated experience at an advanced level of clinical nursing practice in Stroke deemed relevant to the NP category for which endorsement will be sought.
- Post Graduate Certificate or Diploma relevant to the area of Stroke
- Demonstrated advanced clinical knowledge
- Demonstrated commitment to providing high quality care and ensuring patient safety
- Demonstrated high-level communication, liaison, interpersonal and negotiation skills
- Demonstrated commitment to continuing professional development

**Desirable**
- Demonstrated professional and clinical leadership, supervision, team contribution, mentoring, coaching and problem solving skills
- Demonstrated competence in exercising levels of judgement, discretion and decision making in the clinical area
- Proven commitment to the development of learning, teaching and research oriented work environment within a collaborative, multidisciplinary environment
- Evidence of commitment to quality improvement
- Evidence of participation in the collection of data and report writing
- Demonstrated ability in the operation of various computer software packages and a willingness to learn the databases that are an integral part of patient management and the project

Note that appointment is subject to a satisfactory police records check prior to commencing unless the applicant is already a staff member who is currently employed in a direct care job with Western Health.

**Authorisation required for all position descriptions:**

<table>
<thead>
<tr>
<th>Authorising Manager’s Name:</th>
<th>Authorising Manager’s Title:</th>
</tr>
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<tbody>
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Authorising Manager’s Signature: ____________________________ Date: __________

(this Position Description accurately describes the essential functions assigned to this position)

<table>
<thead>
<tr>
<th>Employee’s Name:</th>
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Employee’s Signature: ____________________________ Date: __________

(I have read this Position Description and I understand its contents)

**Authorisation by Executive / Divisional Director for new or generic position descriptions:**

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<thead>
<tr>
<th>Executive / Divisional Director’s Name:</th>
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<tbody>
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<thead>
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<th>Executive / Divisional Director’s Title:</th>
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Appendix 7: Nurse Practitioner Pathways to Endorsement

PATHWAY 1
Nurse has completed a NBV approved Masters of Nurse Practitioner commenced 2009 onwards

PATHWAY 2
Nurse has completed a NBV approved Masters of Nurse Practitioner commenced prior to 2009

- Nurse has completed a Masters not approved specifically for the purpose of endorsement as a NP
- Nurse has completed a Masters program and has worked as an independent prescriber overseas (excluding New Zealand)

PATHWAY 3
Nurse has been authorised as a NP under other Australian state, territory or New Zealand legislation

For more information on the pathways to endorsement see the Nurses Board of Victoria’s website
Appendix 8: Nurse Practitioner Candidate Tracking Record

<table>
<thead>
<tr>
<th>Month</th>
<th>DHS Grant</th>
<th>Masters Degree</th>
<th>Pharmacology Module</th>
<th>Clinical Practice Guidelines</th>
<th>NBV Application</th>
<th>Comments</th>
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<td>October</td>
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<td>December</td>
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</table>
## PROCEDURE TEMPLATE

### Western Health

<table>
<thead>
<tr>
<th>(Title of) Procedure</th>
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<tbody>
<tr>
<td>Procedure code:</td>
</tr>
<tr>
<td>Last review date:</td>
</tr>
<tr>
<td>Policy:</td>
</tr>
</tbody>
</table>

### 1. Overview

Describes the overall objectives, functions, or tasks that the procedure is designed to accomplish and the circumstances under which the procedure should be used.

### 2. Responsibility

- Who has the responsibility to ensure the relevant staff knows about this procedure?
- Who is responsible for ensuring implementation and compliance with the procedure?
- What are the credentialing requirements for this procedure?
- Are there any exclusions?

### 3. Authority

- Who has the authority to approve exceptions to the procedure?
- Who has the authority to coordinate the implementation of this procedure (including responsibility for any required electronic or written forms)

### 4. Applicability

- Who should know this procedure?
- Who does the procedure relate to in the organisation?
- To what part of the organisation does this procedure apply? e.g. applies to users of the organisation’s motor vehicles
- Are there any exclusions?

### 5. Associated Procedures/Instructions

In support of this procedure, the following Manuals, Policies, Instructions, Guidelines, and/or Forms apply:

| Name: | Number: |
6. Procedure Detail

Using an approach which is customised to the subject:

- List steps to follow in order to complete the task in compliance with procedure
- Divide into sections marked by indented headings
- Use an introductory section for complex procedures or those with options
- Clearly identify options
- Clearly identify cautions or warnings

If procedure relates to drug administration please include all relevant information under the headings specified below:

- Clinical condition and circumstances for use
- Limitations
- Site of care considerations
- Contra-indications
- Monitoring requirements
- Procedure
- Documentation
- Dosage
- Adverse effects
- Management of complications
- General

7. References

Western Health policies (corporate and unit specific), Australian and State laws and regulations, or other references directly applicable to the procedure.

8. Document History

Number of revisions:

Issue dates:

9. Sponsor

State the individuals or committees name and title

10. Approval Authority

State the name of the committee or persons title

11. Authorisation Authority

State the name of the committee or persons title
WESTERN HEALTH POLICY AND PROCEDURE/GUIDELINE DEVELOPMENT AND REVIEW

Scheduled review initiated by P&P Officer

Initiator identifies need for unscheduled review/new policy/procedure guideline

First section of Submission Form completed and forwarded to Policy & Procedure (P&P) Officer

P&P Officer completes background check (existing/related documents) and forwards submission form to relevant review c’tee.

Policy: Strategic Executive Committee
Clinical Proc/Guide: WH Clinical Function WG
Non-Clinical Proc/G: WH Corporate Function WG

Committee reviews and approves (as indicated) submission (confirms need for development/review; suitable stakeholders, author, sponsor to check developed content; identifies aligned authorisation body)

Submission returned to P&P Officer.

Initiator, Author and Sponsor advised of approval

Not approved – feedback to initiator.

Finalised draft and completed Submission Form submitted to P&P Officer who forwards to designated authorisation body

WH Policy

Strategic Executive C’tee

Authorised

Submission signed by CEO

Board level endorsement required?

No

Corporate Secretary co-ordinates Board endorsement

Yes

To P&P Officer for publication on Intranet and e-mail to all staff

Implementation and education as appropriate

WH Procedure

Clinical – Clinical Gov. C’tee

Authorised

Submission signed by CGC Chair

Divisional Proc.

Divisional Meeting (M’ment/Quality)

Non-Clinical – Relevant Director

Authorised

Submission signed by Exec Director

Yes

Board level initiation for dev/review?

No

Practice takes place within or involves a single division/department or profession.

Practice is multi-disciplinary and takes place in multiple divisions/departments.

Divisional Proc.

Authorised

Submission signed by Director / Equivalent

Practice is multi-disciplinary and takes place in multiple divisions/departments.
Appendix 10: Assessment Form – Nurse Practitioner Candidate

NP Candidate Name ........................................ Presentation date: .........................................................
Reviewer Name Qualification ......................... Qualification: .................................................................

Presenting problem:

Score: 1 (not applicable): 2 (dependent): 3 (assisted/supervise): 4 (guided): 5 (independent)

<table>
<thead>
<tr>
<th>Competency</th>
<th>Criteria</th>
<th>Comments</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Assessment</td>
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<tr>
<td>• Analyses the patient situation</td>
<td>Past history</td>
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<td></td>
<td>Current history</td>
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<td></td>
<td>Review diagnostic tests</td>
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<td>Examination</td>
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<td>Documentation</td>
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<tr>
<td>Diagnosis</td>
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<tr>
<td>• Use of interpretive skills to</td>
<td>Identified injury/disease process</td>
<td></td>
<td></td>
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<tr>
<td>make decisions</td>
<td>Diagnosis</td>
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<td></td>
<td>Differential Diagnosis</td>
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<tr>
<td></td>
<td>Consultation with staff</td>
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<td></td>
<td>Patient informed</td>
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<tr>
<td>Treatment</td>
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<tr>
<td>• Develops an individualised</td>
<td>Discuss management plan</td>
<td></td>
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<tr>
<td>therapeutic plan</td>
<td>Implements therapy</td>
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<td>Patient informed</td>
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<td></td>
<td>Patient education</td>
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<tr>
<td>Medications and diagnostics</td>
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<tr>
<td>• Makes complex decisions</td>
<td>Appropriate</td>
<td></td>
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<tr>
<td></td>
<td>*Diagnostics</td>
<td></td>
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<tr>
<td></td>
<td>*Medication</td>
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<td></td>
<td>*Pt education</td>
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<tr>
<td>Consultation &amp; referral</td>
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<tr>
<td>• Engages in collaborative practice</td>
<td>Appropriate</td>
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<tr>
<td></td>
<td>*consultation</td>
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<td></td>
<td>*referral</td>
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<tr>
<td>Patient / staff education</td>
<td>Health teaching</td>
<td></td>
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<tr>
<td></td>
<td>Follow up</td>
<td></td>
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<td></td>
<td>Patient comprehension</td>
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</tbody>
</table>

Comments ...........................................................................................................................................

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<thead>
<tr>
<th>Grade</th>
<th>Performance Criteria</th>
<th>Quality of Performance</th>
<th>Assistance Required</th>
</tr>
</thead>
</table>
| Independent (I) | Level of clinical practice is of a high and safe standard | ☐ Sound level of theoretical knowledge applied effectively in clinical practice  
☐ Coordinated and adaptable when performing skills  
☐ Achieves intended purpose  
☐ Proficient and performs within expected time frame  
☐ Initiates actions independently and / in cooperation with others to ensure safe delivery of patient care. | Without supporting cues                       |
| Supervised (S)      | Level of clinical practice is of a safe standard but with some areas of improvement required | ☐ Correlates theoretical knowledge to clinical practice most of the time  
☐ Coordinated and adaptable when performing skills  
☐ Achieves intended purpose  
☐ Performs within a reasonable time frame  
☐ Initiates actions independently most of the time and / in cooperation with others to ensure safe delivery of patient care. | Requires occasional supportive cues                        |
| Assisted (A)          | Level of clinical practice is of a safe standard but with many areas of improvement required | ☐ Demonstrates limited correlation of theoretical knowledge to clinical practice  
☐ At times lacks coordination when performing skills  
☐ Achieves intended purpose most times  
☐ Performs within a delayed time period  
☐ Lacks initiative and foresight | Requires frequent supportive cues and direction          |
| Dependent (D)          | Level of clinical practice is unsafe if left unsupervised | ☐ Unable to correlate theoretical knowledge to clinical practice  
☐ Lacks coordination when performing skills  
☐ Unable to achieve intended purpose  
☐ Unable to perform within a delayed time period  
☐ No initiative or foresight | Requires continuous supervision and direction          |
Appendix 11: National Competency Standards for the Nurse Practitioner

Standard 1: Dynamic practice that incorporates application of high level knowledge and skills in extended practice across stable, unpredictable and complex situations

**Competency 1.1: Conducts advanced, comprehensive & holistic health assessment relevant to a specialist field of nursing practice**

Performance indicators:
- Demonstrates advanced knowledge of human sciences and extended skills in diagnostic reasoning
- Differentiates between normal, variation of normal and abnormal findings in clinical assessment
- Rapidly assesses a patient's unstable and complex health care problem through synthesis and prioritisation of historical and available data
- Makes decisions about use of investigative options that are judicious, patient focused and informed by clinical findings
- Demonstrates confidence in own ability to synthesise and interpret assessment information including client/patient history, physical findings and diagnostic data to identify normal and abnormal states of health and differential diagnoses
- Makes informed and autonomous decisions about preventive, diagnostic and therapeutic responses and interventions that are based on clinical judgment, scientific evidence, and patient determined outcomes

**Competency 1.2: Demonstrates a high level of confidence and clinical proficiency in carrying out a range of procedures, treatments and interventions that are evidenced based and informed by specialist knowledge.**

Performance indicators:
- Consistently demonstrates a thoughtful and innovative approach to effective clinical management planning in collaboration with the patient/client
- Exhibits a comprehensive knowledge of pharmacology and pharmacokinetics related to a specific field of clinical practice
- Selects/prescribes appropriate medication, including dosage, routes and frequency pattern, based upon accurate knowledge of patient characteristics and concurrent therapies

**Competency 1.3: Has the capacity to use the knowledge and skills of extended practice competencies in complex and unfamiliar environments.**

Performance indicators:
- Actively engages community/public health assessment information to inform interventions, referrals and coordination of care
- Demonstrates confidence and self-efficacy in accommodating uncertainty and managing risk in complex patient care situations
- Demonstrates professional integrity, probity and ethical conduct in response to industry marketing strategies when prescribing drugs and other products
- Uses critical judgment to vary practice according to contextual and cultural influences
- Confidently integrates scientific knowledge and expert judgment to assess and intervene to assist the person in complex and unpredictable situations

**Competency 1.4: Demonstrates skills in accessing established and evolving knowledge in clinical and social sciences, and the application of this knowledge to patient care and the education of others.**

Performance indicators:
- Critically appraises and integrates relevant research findings in decision making about health care management and patient interventions
- Demonstrates the capacity to conduct research/quality audits as deemed necessary in the practice environment
- Demonstrates an open-minded and analytical approach to acquiring new knowledge
- Demonstrates the skills and values of lifelong learning and relates this to the demands of extended clinical practice

Standard 2: Professional efficacy whereby practice is structured in a nursing model and enhanced by autonomy and accountability

**Competency 2.1: Applies extended practice competencies within a nursing model of practice.**

Performance indicators:
- Readily identifies the values intrinsic to nursing that inform nurse practitioner practice and an holistic approach to patient/client/community care
- Communicates a calm, confident and knowing approach to patient care that brings comfort and emotional support to the client and their family
- Demonstrates the ability and confidence to apply extended practice competencies within a scope of practice that is autonomous and collaborative
- Creates a climate that supports mutual engagement and establishes partnerships with patients/carer/family
- Readily articulates a coherent and clearly defined nurse practitioner scope of practice that is characterised by extensions and parameters
**Competency 2.2: Establishes therapeutic links with the patient/client/community that recognise and respect cultural identity and lifestyle choices.**

Performance indicators:
- Demonstrates respect for the rights of people to determine their own journey through a health/illness episode while ensuring access to accurate and appropriately interpreted information on which to base decisions.
- Demonstrates cultural competence by incorporating cultural beliefs and practices into all interactions and plans for direct and referred care.
- Demonstrates respect for differences in cultural and social responses to health and illness and incorporates health beliefs of the individual/community into treatment and management modalities.

**Competency 2.3: Is proactive in conducting clinical service that is enhanced and extended by autonomous and accountable practice**

Performance indicators:
- Establishes effective, collegial relationships with other health professionals that reflect confidence in the contribution that nursing makes to client outcomes.
- Readily uses creative solutions and processes to meet patient/client/community defined health care outcomes within a frame of autonomous practice.
- Demonstrates accountability in considering access, clinical efficacy and quality when making patient-care decisions.
- Incorporates the impact of the nurse practitioner service within local and national jurisdictions into the scope of practice.
- Advocates for expansion to the nurse practitioner model of service that will improve access to quality, cost-effective health care for specific populations.

**Standard 3: Clinical leadership that influences and progresses clinical care, policy and collaboration through all levels of health service.**

**Competency 3.1: Engages in and leads clinical collaboration that optimize outcomes for patients/clients/communities**

Performance indicators:
- Actively participates as a senior member and/or leader of relevant multidisciplinary teams.
- Establishes effective communication strategies that promote positive multidisciplinary clinical partnerships.
- Articulates and promotes the nurse practitioner role in clinical, political and professional contexts.
- Monitors their own practice as well as participating in intra and inter-disciplinary peer supervision and review.

**Competency 3.2: Engages in and leads informed critique and influence at the systems level of health care.**

Performance indicators:
- Critiques the implication of emerging health policy on the nurse practitioner role and the client population.
- Evaluates the impact of social factors (such as literacy, poverty, domestic violence and racial attitudes) on the health of individuals and communities and acts to moderate the influence of these factors on the specific population/individual.
- Maintains current knowledge of financing of the health care system as it affects delivery of care.
- Influences health care policy and practice through leadership and active participation in workplace and professional organizations and at state and national government levels.
- Actively contributes to and advocates for the development of specialist, local and national, health service policy that enhances nurse practitioner practice and the health of the community.
Appendix 12: Position Description - Stroke Nurse Practitioner

NURSE PRACTITIONER POSITION DESCRIPTION

<table>
<thead>
<tr>
<th>Position Title:</th>
<th>Stroke Nurse Practitioner</th>
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<tbody>
<tr>
<td>Program / Business Unit:</td>
<td>Neurology / Stroke Unit</td>
</tr>
<tr>
<td>Location / Campus:</td>
<td>Footscray</td>
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<tr>
<td>Classification:</td>
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<tr>
<td>Type of Employment:</td>
<td>Full Time</td>
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<tr>
<td>Accountable and Responsible to:</td>
<td>Divisional Director of Medicine, Aged Care and Cancer Services</td>
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<td></td>
<td>Head of Unit - Neurology</td>
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<tr>
<td>Direct Reports:</td>
<td>None</td>
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<tr>
<td>Date of Preparation:</td>
<td>August 2009</td>
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Role Statement:

The Nurse Practitioner is a registered nurse who has acquired the expert knowledge base, complex decision-making skills and clinical competencies for expanded practice.

The Nurse Practitioner role includes assessment and management of clients using nursing knowledge and skills and may include, but is not limited to, the direct referral of patients to other health care professionals, prescribing medications, and ordering diagnostic investigations. The Nurse Practitioner role is grounded in the nursing profession’s values, knowledge, theories and practice and provides innovative and flexible health care delivery that complements other health care providers. The scope of practice of the Nurse Practitioner is determined by the context in which the Nurse Practitioner is authorised to practice.

Key Working Relationships:

Internal
Divisional Director
Medical Director
Nurse Unit Manager
Clinical Nurse Consultants
Medical staff
Nursing staff
Allied health staff

External
Patients and their significant others

Key Accountabilities:

Practice at an advanced level within the specified scope of practice in the provision of high quality, culturally sensitive patient care in partnership with patients, significant others and other members of the multidisciplinary team:

- Act as a positive role model, provide expert nursing knowledge to the multidisciplinary team and be accountable and responsible for advanced levels of decision-making.
- Perform comprehensive patient assessments and demonstrate skill in the diagnosis and treatment of acute and chronic illness within the specified scope of practice and in collaboration with other members of the multidisciplinary team.
- Document clinical case management.
• Demonstrate comprehensive understanding of specific pharmaceuticals and diagnostic tests related to Stroke.
• Prescribe medications and other treatments within the specified scope of practice.
• Initiate and interpret diagnostic and radiological tests specific to the scope of practice.
• From within the specified scope of practice refer patients to other health professionals as necessary.
• Evaluate the effectiveness of the client’s response to the clinical case management and take appropriate action.
• Practice within a clinical framework that is evidence based, relevant and current, and is in accordance with the standards prescribed by the Australian Nursing and Midwifery Council, Nurses Board of Victoria Guidelines, Western Health Clinical policies and procedures, and departmental policies and procedures.
• Recognise limits to own practice and consult appropriately, facilitating the patient’s access to appropriate interventions or therapies.
• Adhere to all aspects of confidentiality in regard to patients, carers and staff.
• Identify potential adverse outcomes and implement proactive strategies for risk minimization and ensuring patient safety is maintained.

Foster a high standard of service provision by demonstrating clinical leadership and maintaining collaborative relationships with all disciplines:

• Establish effective, collaborative and professional relationships with patients, members of the multidisciplinary team and other stakeholders to ensure an integrated approach to patient care across the continuum of care.
• Be able to work autonomously within the multidisciplinary team.
• Assume a team leadership role when required.
• Apply conflict resolution skills when dealing with problems involving all levels of staff, patients and their significant others and the public.
• Build partnerships with other health services developing similar roles.

Undertake research and development and continuous improvement activities to meet specified clinical nursing needs:

• Contribute to the development of professional practice, including participation in and promotion of evidence based practice and research.
• Initiate, develop and maintain clinical practice guidelines which are evidence based and ensure a high standard of care for patients.
• Actively participate in quality improvement processes through the initiation, planning, implementation and evaluation of programs.
• Evaluate current research and coordinate the liaison with key stakeholders to implement change processes to reflect research findings.
• Coordinate policy and procedure development and review in consultation with key stakeholders.
• Participate in organisational committees/working groups as required.

Ensure ongoing effective clinical service provision in the specified clinical discipline:

• Review current service and liaise with key stakeholders to develop a model of service for future service needs.
• Be open to innovative and flexible clinical practice models, both community and hospital based as appropriate, with the primary focus being the patient and the continuity of their care.
• Build mutually beneficial relationships with community groups and organisations.

Provide education services in the specified clinical discipline:

• Identify, design and provide education programs as required specific to the individual learning needs of patients, their significant others, nursing, and allied health staff and students, community organisations and the wider public.
• Coordinate, develop and maintain appropriate learning tools to facilitate learning.
• Provide equipment in-services in consultation with product representatives and the Centre for Education, as appropriate.
• Provide in-service education sessions as appropriate and requested.
• Coordinate and participate in learning opportunities, formal and informal, in conjunction with the Centre for Education.
• Assist staff in the implementation of patient education at ward level.
• Promote an atmosphere conducive to learning.
Commit to ongoing professional development of self and learning:

- Actively participate in professional development and continuing education, conferences, seminars, committees, working parties and professional groups.
- Present and publish in appropriate professional conferences and journals.
- Remain informed of the current literature.
- Develop strong collegial links and partnerships with other nurse practitioners.
- Seek feedback from key stakeholders on your own performance.
- Participate in annual performance appraisal and identify learning needs.

Support the professional development and learning of other staff:

- Provide clinical leadership in the area of Stroke.
- Act as an advocate, mentor, clinical teacher, resource/support person.
- Share knowledge of research, education and clinical practice issues and knowledge gained from participation in seminars and conferences.
- Assist nursing colleagues in research efforts.
- Encourage other staff to present and publish in appropriate professional conferences and journals.
- Facilitate special interest forums for other staff in the specified clinical discipline.
- Articulate the practices of the Stroke Nurse Practitioner such that the role is known and understood by the community within which the Nurse Practitioner practices and the wider community group.

Contribute to a safe work environment for all staff (mandatory):

- Conduct yourself in a manner that will not endanger yourself or others.
- Follow Western Health’s Occupational Health and Safety policies and procedures.
- Report any unsafe work practices, hazards, near miss incidents and accidents.
- Contribute to safety awareness and promotion by contributing ideas and suggestions.
- Maintain knowledge and practice of infection control / hygiene precautions and Western Health infection control policies and procedures.

Selection Criteria (Qualifications / Experience / Skills):

Essential

- Eligible for registration as a Registered Nurse Division 1 in Victoria and hold a current practicing certificate
- Hold or be working towards Master of nursing
- Demonstrated advanced clinical knowledge
- Have a minimum of 7 years post registration experience, which will include 5 years in the chosen area of specialist practice
- Demonstrated professional and clinical leadership, supervision, team contribution, mentoring, coaching and problem solving skills
- Demonstrated competence in exercising levels of judgement, discretion and decision making in Stroke expected of the nurse specialist or clinical nurse consultant
- Proven commitment to the development of learning, teaching and research oriented work environment within a collaborative, multidisciplinary environment
- Demonstrated high-level communication, liaison, interpersonal and negotiation skills
- Demonstrated commitment to continuing professional development
- Evidence of commitment to quality improvement
- Evidence of participation in the collection of data and report writing
- Demonstrated ability in the operation of various computer software packages and a willingness to learn the databases that are an integral part of patient management and the project
- Demonstrated commitment to providing high quality care and ensuring patient safety

Desirable

- Post Graduate Diploma, or equivalent, in a relevant field
Note that appointment is subject to a satisfactory police records check prior to commencing unless the applicant is already a staff member who is currently employed in a direct care job with Western Health.

**Authorisation required for all position descriptions:**

<table>
<thead>
<tr>
<th>Authorising Manager’s Name:</th>
<th>Authorising Manager’s Title:</th>
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<table>
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<tr>
<th>Authorising Manager’s Signature:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>(this Position Description accurately describes the essential functions assigned to this position)</td>
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<table>
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<table>
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<tr>
<th>Employee’s Signature:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>(I have read this Position Description and I understand its contents)</td>
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</table>

**Authorisation by Executive / Divisional Director for new or generic position descriptions:**

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<thead>
<tr>
<th>Executive / Divisional Director’s Name:</th>
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<tr>
<th>Executive / Divisional Director’s Signature:</th>
<th>Date:</th>
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</table>
Appendix 13: Budget Expenditure

*Stroke Nurse Practitioner – Model Development Project Expenditure*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Assumptions</th>
<th>Expense</th>
</tr>
</thead>
</table>
| Project Manager – Grade 4B (ZJ7)      | • $37.19 / hour plus oncosts  
• 40 hours / week  
• July 7 – August 15 2008 (5 weeks)  
• June 15 – September 4 2009 (12 weeks) | $ 30,347  |
| Lap Top                               | Toshiba Tecra A10 Laptop                                                    | $ 2075    |
| Incidentals                           | • Laminating / printing  
• Stationary  
• Photocopying  
• Mobile Phone  
• Parking /travel | $ 2000    |
| TOTAL                                 |                                                                             | $ 34,422  |