Health Professionals Workforce Plan Taskforce

Technical Paper

NSW GOVERNMENT Health

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Technical Paper

The Technical Paper of the Health Professionals Workforce Plan Taskforce is a summary of the data and research that informed the development of the Health Professionals Workforce Plan Discussion Paper. It is not intended to be read as a stand-alone document, but is provided for those who wish to view the data or information related to various sections of the Health Professionals Workforce Plan Discussion Paper. Some sections include additional information to that included in the similar section in the Discussion Paper. As a technical resource for the Discussion Paper some data is presented here without analysis or discussion.

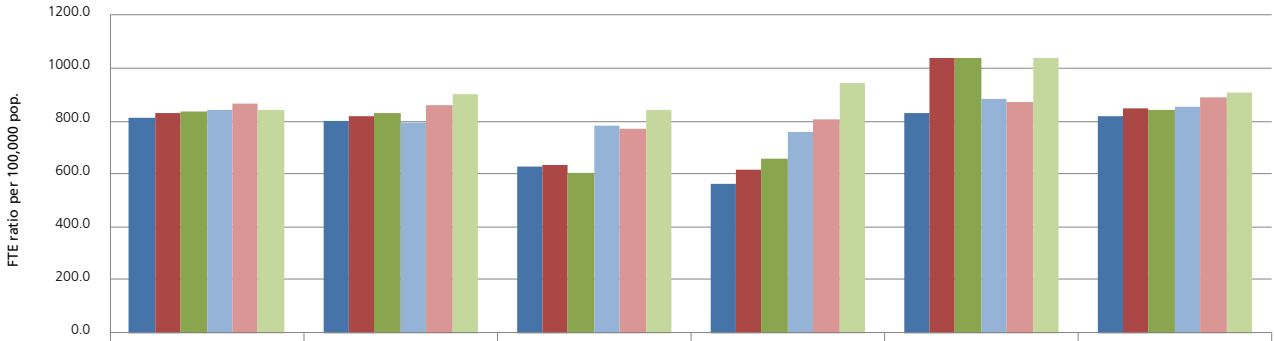
Workforce Trends[1]

Nursing

Registered Nurses

The size of the Registered Nursing workforce (public and private), relative to the population, has not changed dramatically over the period 2005 to 2009. However, the distribution of Registered Nurses as a **FTE to the population** differs by geographic location. The highest FTE ratio to population is in very remote areas, and in NSW there was a sharp increase between 2005 and 2007 in the ratio of Registered Nurses to the population in remote and very remote regions.

FTE (38hpw) Registered Nurses per 100,000 population NSW and Aust comparison

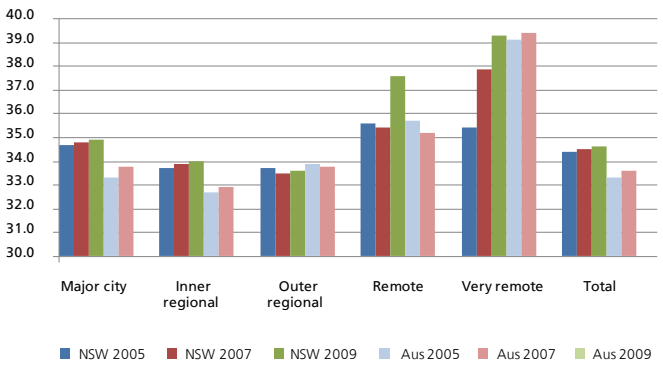


	Major city	Inner regional	Outer regional	Remote	Very remote	Total
2005 NSW	809.8	803.1	626.3	565.3	831.5	819.2
2007 NSW	828.9	818.3	**633.5**	613.3	1038.6	846.6
2009 NSW	837.1	830.1	604.2	660.7	1038.4	843.9
2005 Aust	839.6	797.2	781.6	761.9	886.7	854.9
2007 Aust	865.3	858.0	769.6	804.4	872.3	891.0
2009 Aust	842.3	900.7	843.4	**943.7**	1037.4	905.9

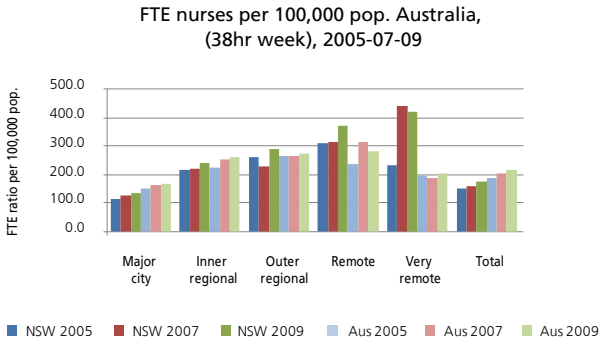
The Outer Regional location is the only geographic area that has seen a decline in the ratio of registered nurses to the population over the time period, albeit a very small decrease. The ratio of Registered Nurses to the population for NSW in 2009 in Outer Regional locations is the lowest ratio across the state and is also significantly lower to the Outer Regional FTE ratio across Australia.

The average hours worked per Registered Nurse differs depending on location. Registered Nurses who indicate their main job is in a remote or very remote geographic location work longer average hours than their counterparts in major cities and inner and outer regional areas. The average hours for NSW compared to the Australian average are higher in every geographic location other than outer regional. The greatest increase in average hours worked in NSW between 2005, 2007 and 2009 has been in very remote locations.

Av. hrs worked per week, RN workforce
NSW and Aus 2005-07-09



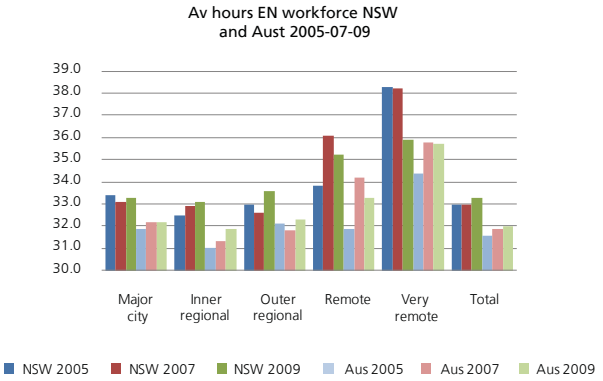
[1] See section on Australian Standard Geographical Classifications for definition of regions.



Enrolled Nurses

In both NSW and Australia there has been an increase in the number of Enrolled Nurses as a proportion of the population between 2005, 2007 and 2009. The ratio of Enrolled Nurses to the population differs between regional areas, and shows a different pattern of distribution to Registered Nurses. The distribution for Enrolled Nurses shows a greater ratio the further one moves from a major city location. Additionally whereas the comparison between NSW and Australia shows a greater proportion across Australia of Registered Nurses working in outer regional and remote areas compared to NSW, for Enrolled Nurses NSW has a higher proportion of Enrolled Nurses to the population in all regions, but markedly higher in remote and very remote regions.

The average hours worked for Enrolled Nurses mirrors the pattern for Registered Nurses in regards to average hours worked by location, and the greater average hours in NSW compared to Australia. Similar to Registered Nurses, Enrolled Nurses who indicate their main job is in a remote or very remote geographic location work longer average hours than their counterparts in major cities and inner and outer regional areas. The average hours for NSW compared to the Australian average are higher in every geographic location. One major difference between the average hours worked for Registered Nurses and Enrolled Nurses is that whereas Registered Nurses have increased their hours in remote and very remote regions the average hours for Enrolled Nurses in these locations has fallen sharply between 2007 and 2009.



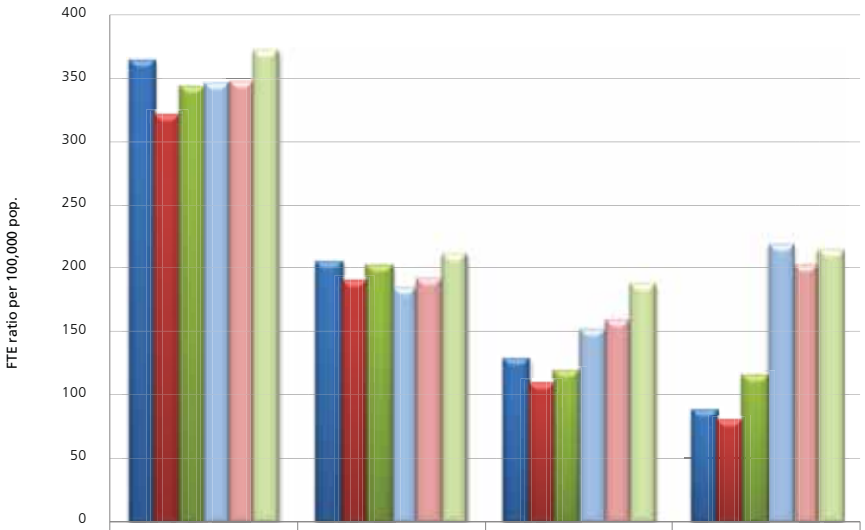
Medical Practitioners

The ratio of medical practitioners to 100,000 of population is based on folllowing data from the Australian Institute of Health and Welfare[2], of which the NSW data is provided via the Medical Labour Force profile. As such the information relates to the entire registered workforce, public, private and non-Government Organisation (NGO).

Across all geographic regions in NSW there was a decrease in the ratio of medical practitioners to the population in 2007. For NSW, only in the remote/very remote category has the ratio of medical practitioners to the population exceeded the 2005 levels.

The NSW Head Count (HC) to population ratio is similar to the Australian ratio for the major city and inner regional areas, although there has been a greater increase in ratio across Australia in major cities compared to NSW between 2007 and 2009. For outer regional and remote/very remote the Head Count ratio to population is higher across Australia compared to NSW.

Medical practitioners HC per 100,000 population by location NSW 2005-2007-2009



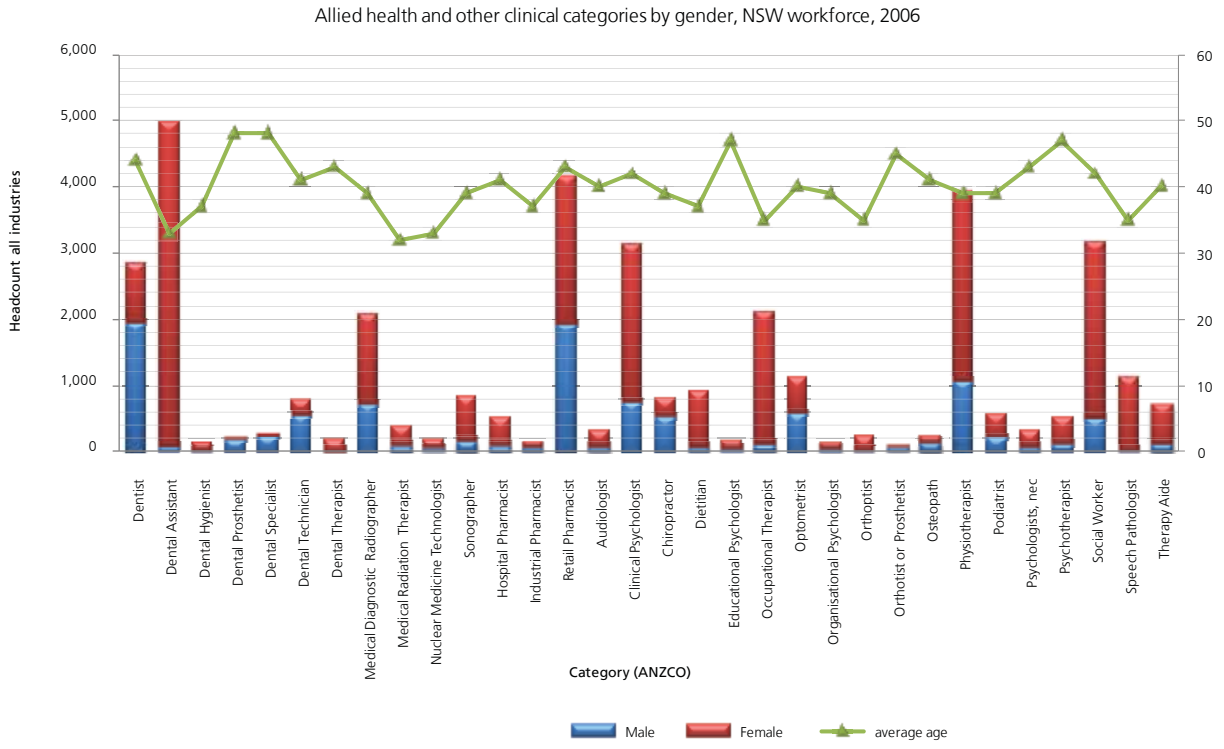
	Major city	Inner regional	Outer regional	Remote / Very Remote
2005 NSW	364	205	128	88
2007 NSW	322	191	109	81
2009 NSW	343	202	119	115
2005 Aust	346	186	153	219
2007 Aust	348	193	161	203
2009 Aust	372	212	188	216

[2] *Sources:* AIHW Medical Labour Force Surveys, 2005,2007 2009; unpublished ABS estimated resident population data.

Allied Health

The previous sections on Nursing and Medical Practitioner trends had data drawn from the Labour Force Profile data gathered via state and national registration bodies. As national registration for Allied Health professionals has only recently commenced the same data sets are not readily available. The latest available data showing the workforce in NSW is from the 2006 Census as reported in the Australian Institute of Health and Welfare[3], and is represented in the graph below.

The largest classification for Allied Health in NSW is retail pharmacy, followed by physiotherapists, social workers and clinical psychologists. The groups with the oldest age profile are educational and organisational psychologists and orthotists/prosthetists.

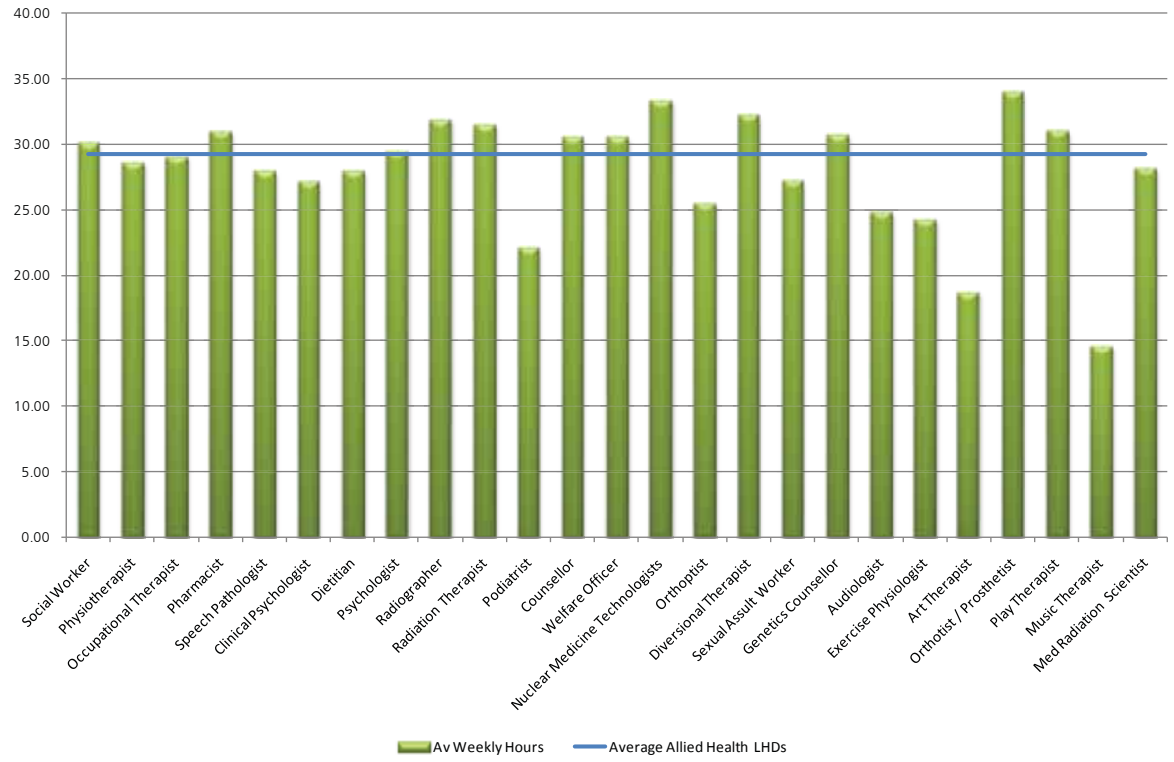


Many Allied Health professionals operate as private businesses and are based within major cities, with low numbers working in regional and remote areas.

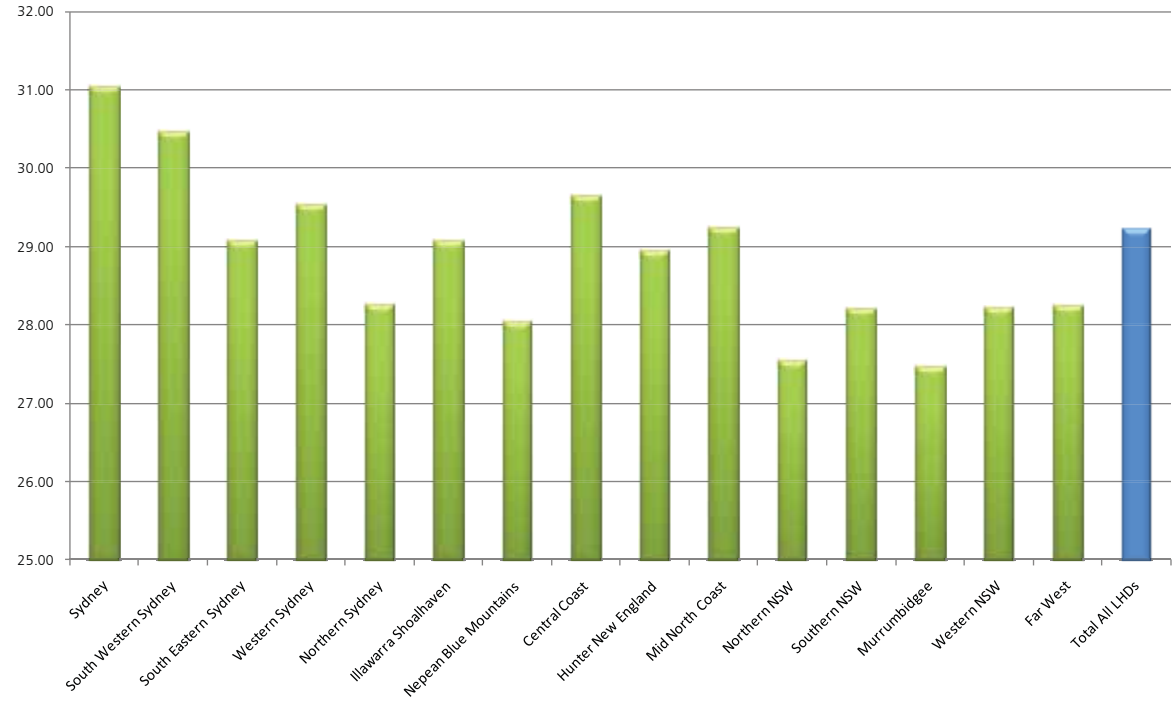
Whilst the hours per week for NSW via the Labour Force Profile aren't available, data is available for the average hours by classification in NSW Health Local Health Districts (May 2011, sourced from Staff State Profile (unaudited State HIE)). Nuclear Medicine Technologists, orthotists/prothetists, radiographers and radiologists have the highest average hours within the Allied Health classifications. Podiatrists, Art and Music Therapists, Audiologists and Genetics Counsellors have the lowest average hours.

[3] Source: AIHW (2009): Health and community labour force 2006, additional material (includes all industries)

Average Hours by Classification - NSW LHDs at May 2011



Average Weekly Hours Allied Health by LHD - May 2011

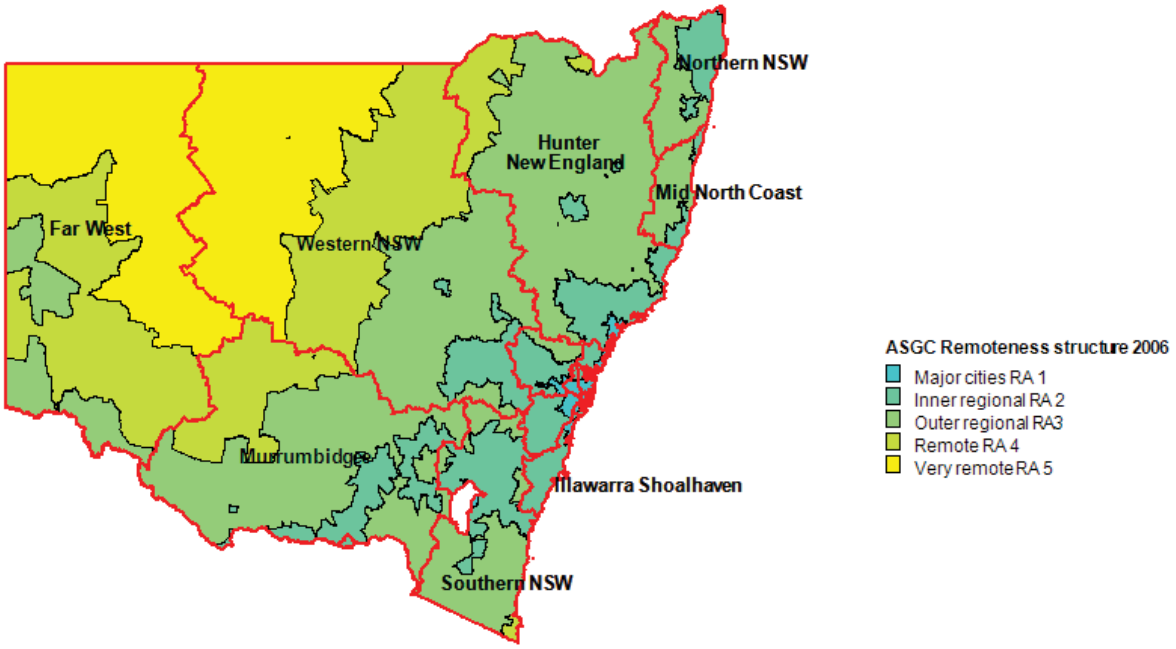


Whilst the information on hours worked is not available by ASGC-RA the hours by LHD, sourced from the Staff State Profile (unaudited State HIE) for May 2011, shows that the LHDs with the greatest proportion of outer regional and remote areas work less average hours than the inner regional and major cities. This pattern is very different to that shown by the Nursing profession.

Australian Standard Geographical Classification – Remoteness Areas (ASGC-RA)

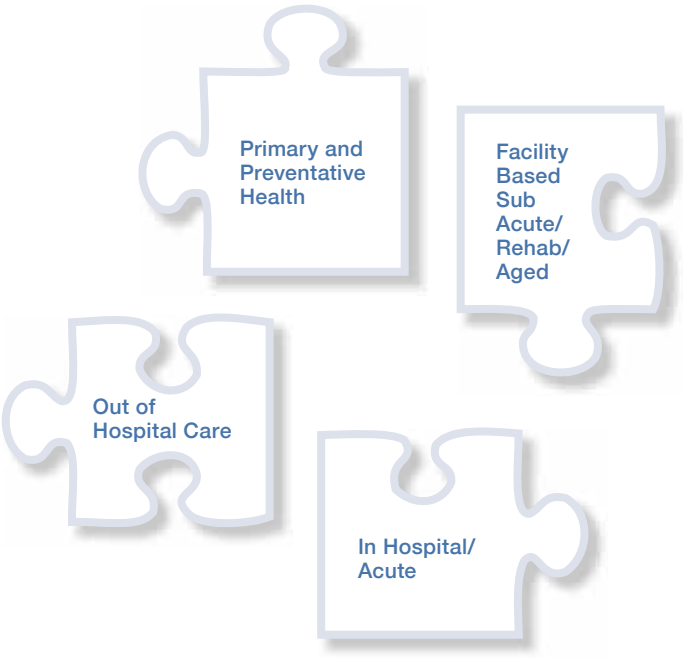
ASGC-RA is a geographic classification system that was developed in 2001 by the Australian Bureau of Statistics (ABS) as a statistical geography structure which allows quantitative comparisons between 'city' and 'country' Australia. The purpose of the structure is to classify data from census Collection Districts (CDs) into broad geographical categories, called Remoteness Areas (RAs). The RA categories are defined in terms of 'remoteness' - the physical distance of a location from the nearest Urban Centre (access to goods and services) based on population size.

The following map[4] shows the ASGC-RA rating for each of the non Sydney LHDs.



[4] LHD boundaries are highlighted in red. Only rural LHDs are labelled Local Health District Boundaries - Statewide and Rural Health Services and Capital Planning Branch, NSW Health. Australian Bureau of Statistics: Australian Standard Geographical Classification (ASGC) Remoteness Structure (RA) Digital Boundaries, Australia, 2006

NSW Health System in Context



Health Service Delivery

The schematic shows the health care settings that the discussions around health service delivery will be grouped. The use of the term "health care settings" is not intended to represent "bricks and mortar" but rather services provided addressing particular needs of patients.

Primary and Preventative Health

Primary health care refers to universally accessible, generalist services, including general practice, and early childhood nursing services that address the health needs of individuals, families and communities across the life cycle. Comprehensive primary health care includes early intervention and health promotion, treatment, rehabilitation and ongoing care. For most people, these services are the first point of contact with the health care system. In the main, private practitioners provide the majority of primary health care services.[6]

The World Health Report found that countries at similar stages of economic development with health care systems organised around the principles of primary health care produce better health outcomes for their populations.[7] Countries more oriented to primary care have residents in better health at lower cost. In the United States health is better in regions that have more primary care physicians, whereas several aspects of health are worse in areas with the greatest supply of specialists.[8]

Primary health care is the part of the health system which Australians use the most. Over four out of five Australians will see a GP or other primary care health professional at least once a year. Primary health care is delivered in the community, outside of hospitals. It covers a wide range of providers such as general practitioners, practice nurses, psychologists, physiotherapists, community health workers and pharmacists.[9]

Critical to good chronic care is prevention. Many of the same risk factors – obesity, poor nutrition, alcohol abuse, inadequate exercise, smoking- that cause one chronic disease are also associated with multiple chronic diseases.[10]

Over four out of five Australians will see a GP or other primary care health professional at least once a year.

In NSW Health the Public Health Division seeks to improve the health and well-being of people in New South Wales through approaches which focus on whole populations. The focus is to work with communities and organisations to create circumstances that promote and protect health, and prevent injury, ill health, and disease. Actions centre on:

- monitoring health and implement services to improve life expectancy and the quality of life
- implementing disease and injury prevention measures

6 NSW Department of Health, 2006. Integrated Primary and Community Health Policy 2007–2012. Sydney: NSW Department of Health [online] http://www.health.nsw.gov.au/policies/pd/2006/pdf/PD2006_106.pdf Accessed 29 August 2011

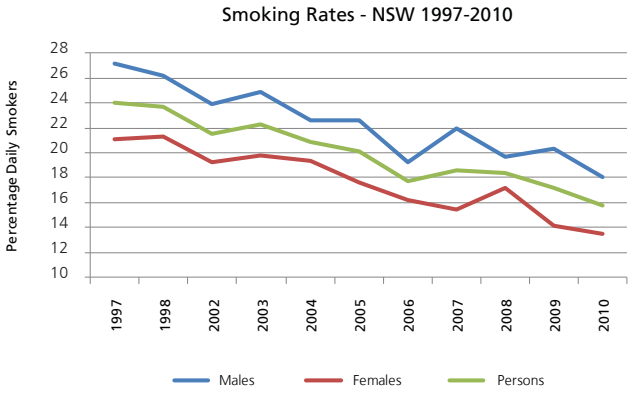
7 World Health Organisation (2008) Primary Health Care. Now More than Ever. [online] http://www.who.int/whr/2008/whr08_en.pdf Accessed 29 August 2011

8 Starfield, B. (2008) Refocusing the system. New England Journal of Medicine. Vol. 359, No. 20, p. 2087-2091 [online] http://www.nejm.org/doi/full/10.1056/NEJMp0805763 Accessed 13 November 2010

9 Commonwealth of Australia (2011) Improving Primary Health Care for All Australians. [online] http://www.yourhealth.gov.au/internet/yourHealth/publishing.nsf/Content/improving-primary-health-care-for-all-australians-toc/$FILE/Improving%20Primary%20Health%20Care%20for%20all%20Australians.pdf Accessed 29 August 2011

10 Anderson, G (2011) For 50 Years OECD Countries Have Continually Adapted To Changing Burdens Of Disease; The Latest Challenge Is People With Multiple Chronic Conditions. [online] http://www.oecd.org/document/17/0,3746,en_2649_37407_48127569_1_1_1_37407,00.html

- promoting and educating people about healthier life styles
- protecting health through disease prevention services and legislation
- ensuring the quality use of medicines, the safe use of poisons, and safe, high quality care in private health facilities.[11]



An example of the success of preventative health measures is the decline in daily smoking. The proportion of daily smokers among adults has shown a marked decline over the past two decades in most OECD countries. Australia has achieved remarkable progress in reducing tobacco consumption, cutting by half the percentage of adults who smoke daily (from 35.4% in 1983 to 16.6% in 2007). Much of this decline in Australia can be attributed to policies aimed at reducing tobacco consumption through public awareness campaigns, advertising bans and increased taxation.[12] In NSW smoking rates have shown a dramatic decline in daily smoking over the last decade.[13]

Out of Hospital Care

NSW Health is committed to the delivery of ***"the right care, to the right person, at the right time and in the right place".*** This commitment is demonstrated through increasing the type and number of services that are delivered out of the hospital environment [14]

For many patients admission to a hospital ward can be avoided, and for others, the time spent in hospital can be reduced through using Out-of-Hospital care. NSW Health delivers much of its care outside of hospitals through community health services, outpatient clinics, day therapy dialysis and palliative care. Services included in the Out-of-Hospital Care program are:

- Hospital Care at Home including Hospital in the Home and Community Acute Post Acute Care Services
- ComPacks
- Advance Care Planning

[11] http://www.health.nsw.gov.au/publichealth/index.asp
[12] OECD (2011). OECD Health Data 2011 How Does Australia Compare [online] http://www.oecd.org/dataoecd/46/38/48295801.pdf Accessed 25 August 2011
[13] Centre for Epidemiology and Research. Health Statistics New South Wales. Sydney: NSW Department of Health. Available at: www.healthstats.doh.health.nsw.gov.au. Accessed 29 August 2011
[14] http://www.health.nsw.gov.au/performance/macca.asp

Out of Hospital Care [15]	
Strategies/Projects	**Outcomes**
Hospital in the Home - Services are able to deliver care in the home environment as they are staffed by or have access to experienced multidisciplinary teams. Services provided include: medical, nursing and allied health care.	In 2008/09 40,495 patients were treated by Hospital in the Home /CAPAC services program. This increased to over 54,000 in 2009/2010.
Advance Care Planning. Advance Care Planning describes the process in which a person plans ahead for health care related decisions in the event they do not have the capacity to make those decisions or communicate for themselves. This process involves the person talking to family, friends and health care professionals about their values and concerns relating to health care.	Advance Care Planning outcomes have been measured through the audit of medical records for people transferred to EDs from Residential Aged Care Facilities. Transfer documentation was examined for the documentation of key Advance Care Planning elements –the "Person Responsible" i.e. the substitute decision maker and the presence of an Advance Care Plan. There was an increase of the person responsible being identified from 16 to 23% and the presence of an Advance Care Plan from 10% to 26% between 2009 and 2010.
ComPacks. Provide patients returning home from hospital with case management and access to community services for a period of up to 6 weeks. The services range from house cleaning and assistance with bathing to assistance with shopping, meal preparation and transport. The case manager is a non-clinical person (i.e. not a nurse, doctor or allied health professional) who helps organise non-clinical community services.	Bed days for the over 75yr + patients show a 10% reduction on the predicted rise.

Community health refers to a range of community based prevention, early intervention, assessment, treatment, health maintenance and continuing care services delivered by a variety of providers. The NSW public health system provides the majority of community health services, including;

- **Aboriginal health services** — health workers who provide consultation and support to other health professionals who may undertake early detection, health promotion and community development work within their local communities. In addition, they provide an important link between their Aboriginal communities and mainstream health services.
- **Allied health services** — providers delivering a range of services in community settings eg physiotherapists, psychologists, occupational therapists, podiatrists, social workers, optometrists and speech pathologists.
- **Child and family health and youth health services** — services provided by Local Health Districts and delivered in community settings such as early childhood clinics, community health centres, local council buildings and in the home.
- **Community health nursing services** — generalist community health nurses providing a range of services across the continuum of care meeting a range of health needs for clients anywhere in the community from community health centres, primary health clinics, schools and universities and client's homes. Community nurses usually work in multidisciplinary teams that ensure the client receives the full range of health care, often focused toward social conditions, illness/ disease prevention or early intervention to prevent exacerbations of chronic illness and unnecessary hospital admission

[15] NSW Health document , Redesign Achievements 2009/2010 (unpublished)

- **Community mental health services** — provide care for people with acute problems and people in crisis. Each service includes after-hours contact as well as long-term care. They also provide programs to promote mental health and prevent mental health problems
- **Multicultural health services** — statewide multicultural health services provide health care, health promotion and community development to communities requiring specialised health care needs. Multicultural health workers are specifically designated to provide clinical services, undertake early detection, health promotion and community development within their local culturally and linguistically diverse (CALD) communities.[16]

In 2008, the New South Wales Population Health Survey estimated that 8.0 per cent of adults attended a community health centre on 1 or more occasions in the last 12 months. A significantly lower proportion of males (6.0 per cent) than females (10.0 per cent) attended a community health centre in the last 12 months. Since 2002, there has been a significant increase in the proportion of adults who attended a community health centre in the last 12 months (6.9 per cent to 8.0 per cent). The increase has been significant in rural health areas.[17]

Palliative Care services provide coordinated medical, nursing and allied health care, delivered wherever possible in the environment of the person's choice. Palliative care involves the provision of physical, psychological and emotional support for patients and their families and carers. It aims to respect the dignity, needs and wishes of the person dying, with particular attention to the needs of different cultural and religious groups. [18]

In NSW Health palliative care services include services provided in public hospitals, community-based and home settings. 190 public hospitals provide palliative care services in NSW. The former Area Health Services advised that in 2009/10 key palliative care services delivered included:

- Public hospital separations 10,421
- Public hospital bed days 115,044
- Centre-based occasions of service 327,099
- Home based occasions of service 145,516

In Hospital-Acute Care

Acute care is generally considered to be short-term medical treatment, usually in a hospital. It can include, for example, patients admitted for an acute illness or injury, recovering from surgery, acute episodes of chronic conditions or maternity care.

An episode of acute care for an admitted patient is one in which the principal clinical intent is to do one or more of the following:

- manage labour (obstetric),
- cure illness or provide definitive treatment of injury,
- perform surgery,
- relieve symptoms of illness or injury (excluding palliative care),
- reduce severity of illness or injury,
- protect against exacerbation and/or complication of an illness and/or injury which could threaten life or normal functions,
- perform diagnostic or therapeutic procedures.[19]

Admission to hospital is generally through an Emergency Department, or through a referral from a specialist as a "booked admission".

Between January and March 2011 patients admitted for acute care or maternity and birth comprised 97% of all admitted episodes in NSW hospitals. Most of these episodes were overnight admissions (56%) and this percentage has not changed over the previous two years. Patients stayed a total of 1,294,785 bed days during the quarter. On average, patients stayed 3.4 days in hospital. There were 17,886 babies born, up 3% from the same quarter one year ago. [20]

The reasons for admission to hospital from Emergency Department for the period January to March 2011 by Diagnosis Related Groups (DRGs) shows the highest volume of reasons for admissions was for chest pain, digestive disorders, cellulitis, gastroenteritis, and kidney and urinary tract infections. [21]

16 NSW Department of Health, 2006. *Integrated Primary and Community Health Policy 2007–2012*. Sydney: NSW Department of Health [online] http://www.health.nsw.gov.au/policies/pd/2006/pdf/PD2006_106.pdf Accessed 29 August 2011

17 New South Wales Population Health Survey 2008 (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

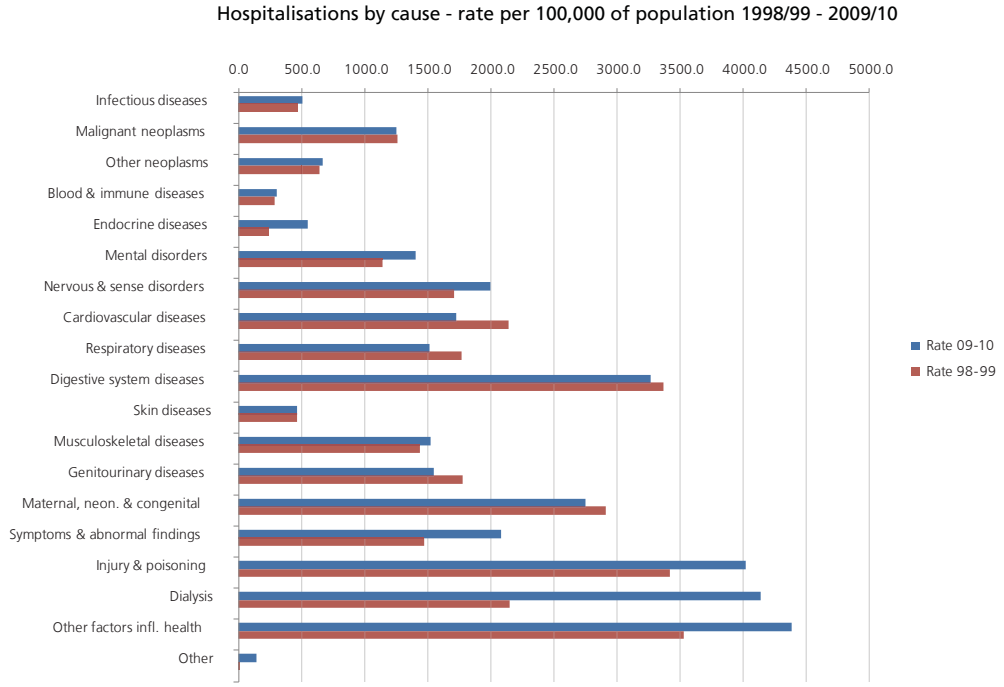
18 NSW Health (2010) NSW Palliative Care Strategic Framework 2010-2013 [online] http://www.health.nsw.gov.au/policies/pd/2010/PD2010_003.html

19 http://www.bhi.nsw.gov.au/glossary

20 Bureau of Health Information (2011)

21 NSW Health (2011) Ministerial Taskforce on Emergency Care (MTEC) Emergency Department Reports unpublished data

The graph below shows the rate of hospitalisation by cause for the periods 1998-1999 and 2009-2010.[22] It can be seen than the rate of many causes of hospitalisation has remained relatively similar for the 10 year period. There have been falls in hospitalisations caused by cardiovascular disease, respiratory diseases, digestive system diseases, genitourinary diseases and maternal and neonatal. Increases can be seen for endocrine, mental disorders, nervous and sense disorders, injury and poisoning and dialysis – the largest area of growth of causes for hospitalisations in the 10 year period.



Facility Based Sub Acute/ Rehab/ Aged

Facility Based Sub Acute / Rehab/Aged

Subacute care treats individuals of low and moderate acuity. Such care is provided after, or instead of, acute hospitalisation for purposes such as evaluation and treatment of active or unstable medical conditions, to offer frequent recurrent monitoring of a patient's clinical course, and to provide moderately complex or risky treatment requiring significant skill, judgment, or monitoring. Care sites other than hospitals can often meet the needs of individuals whose conditions are of moderate or low acuity.[23]

Subacute care is given for a limited time (several days to several months) until a specific goal is accomplished, such as stabilising a condition or completing a predetermined treatment course. The care requires the coordinated services of physicians, nurses, and other relevant professional disciplines to assess and manage these conditions and perform the necessary procedures. Although subacute and long-term nursing home care can overlap somewhat, they have different emphases. Subacute care is short-term care related to recent illness or injury that must accommodate underlying functional impairments and chronic conditions that affect short- and intermediate-term recovery.[24]

Subacute care, within this framework, encompasses periods of care that may be offered in and outside of acute hospital environments, but which focus primarily on aspects of care other than typical acute care requirements. As such, services like rehabilitation and a large proportion of hospital based aged care fall within this definition. Similarly, wards or sites that offer primarily subacute care may be described as subacute care facilities.[25]

22 Centre for Epidemiology and Research. Health Statistics New South Wales. Sydney: NSW Department of Health. Available at: www.healthstats.doh.health.nsw.gov.au. Accessed 28 July 2011.
23 Levenson S 2000. "The future of subacute care." *Clinics in Geriatric Medicine* 16(4): 683-700
24 Levenson S 2000. "The future of subacute care." *Clinics in Geriatric Medicine* 16(4): 683-700
25 Gray, L. (2002) Subacute care and rehabilitation. *"Australian Health Review"* 25 (5) 140-144

Rehabilitation

Rehabilitation care in NSW is defined as the provision of care that aims to:

- restore functional ability for a person who has experienced an illness or injury
- enable regaining function and self-sufficiency to the level prior to that illness or injury within the constraints of the medical prognosis for improvement
- develop functional ability to compensate for deficits that cannot be medically reversed.[26]

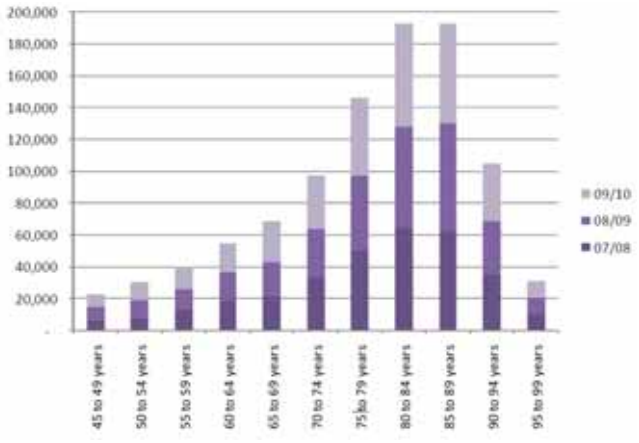
The setting in which rehabilitation takes place is principally defined by the patient's changing needs over time and the availability of rehabilitation services in particular areas. The rehabilitation patient journey is not a linear process and pathways are individually determined based on:

- the patient's level of functional impairment (including ability to function safely in a given environment);
- medical acuity and prognosis; and
- access to rehabilitation services.

An inpatient rehabilitation journey most often commences with an acute presentation related to acute illness (eg stroke), trauma (eg fracture), elective surgery (eg joint replacement) or significant functional debilitation (eg decreased mobility due to chronic disease or ageing). This journey continues through to transfer of care to an alternate setting or discharge from rehabilitation either with or without further support services.[27]

With a strong focus on restoring function after an acute hospitalisation older people are the largest users of rehabilitation services. This patient population tends to take longer to recover, especially after hospitalisation, and requires an enhanced focus on continuity of care and follow-up in the community to avoid further decline.[28]

Rehabilitation patient age profile in NSW over three years [29]



(Source: HIE data, Demand and Performance Evaluation Branch NSW Health, Nov 2010)

In terms of bed days the highest volume of patient activity for the period 2009/10 was attributed to stroke, representing 25%, fractures representing 19% and other disabling impairments representing 18% of all inpatient public rehabilitation bed days.

The following co-morbidities were most frequent:

- Cardiac related diagnoses (including ischemic heart disease and atrial fibrillation and cardiac failure); (19% of admissions).
- Arthritis and osteoporosis (12% of admissions)
- Other chronic and complex care conditions including chronic obstructive pulmonary disease, renal failure, asthma (5% of admissions).
- Diabetes (5% of admissions). [30]

A review of Local Health District Sub Acute plans reveals some common themes in regards to current service delivery, including:

- The focus within facility based services is largely on rehabilitation services followed by palliative care. Geriatric Evaluation and Management (GEM) is considered the third priority and psycho geriatric services is based on availability of funding.
- The development of Rapid Response outreach services.
- An increased need for community based mental health programs for older people.
- Significant growth in activity which some areas recording over 100% growth in inpatient separations.

26 NSW Health (2011) *Rehabilitation Redesign Project* [online] http://www.archi.net.au/documents/resources/models/rehab_redesign/rehabilitation-moc.pdf
27 NSW Health (2011) *Rehabilitation Redesign Project* [online] http://www.archi.net.au/documents/resources/models/rehab_redesign/rehabilitation-moc.pdf
28 NSW Health (2011) *Rehabilitation Redesign Project* [online] http://www.archi.net.au/documents/resources/models/rehab_redesign/rehabilitation-moc.pdf
29 NSW Health (2011) *Rehabilitation Redesign Project*[online] http://www.archi.net.au/documents/resources/models/rehab_redesign/rehabilitation-moc.pdf
30 NSW Health (2011) *Rehabilitation Redesign Project* [online] http://www.archi.net.au/documents/resources/models/rehab_redesign/rehabilitation-moc.pdf

NSW Health Workforce

The following workforce graphs[31] show the FTE for each occupational group as an FTE and as an FTE per 100,000 of population. This approach is useful to enable comparison to reporting FTE data without any context to relative size though it is not necessarily indicative of service delivery in a particular LHD.

Medical

For the medical workforce the ratios in metropolitan locations are fairly similar except for Sydney LHD. The higher ratio to the population for Sydney LHD may be a factor of referrals, particularly to Royal Prince Alfred, from outside their geographic area. The FTE of medical workforce to population for outer metropolitan LHDs is comparable to and slightly higher than, the metropolitan Sydney LHDs. In regard to the rural and regional LHDs, other than Southern and Murrumbidgee LHDs the FTE ratio would not appear to be significantly different, however in the main the rural and regional LHDs are more geographically dispersed and have a larger number of facilities. Southern LHD has the lowest FTE of medical workforce to population. This ratio is further complicated by the situation where 88% of the medical workforce is comprised of Agency Doctors and Visiting Medical Officers (VMOs).

Nursing

For the nursing workforce, other than Sydney LHD, the ratio of nursing FTE to the population rises the further one moves from the metropolitan areas, that is the FTE per population is higher in the outer metropolitan LHDs than the Sydney metropolitan, and the rural and regional are higher than the inner and outer metropolitan LHDs, again excepting Southern LHD. This may be a factor of a greater role undertaken by Nursing Workforce in outer metropolitan and rural and regional areas, and of changes in skills mix.

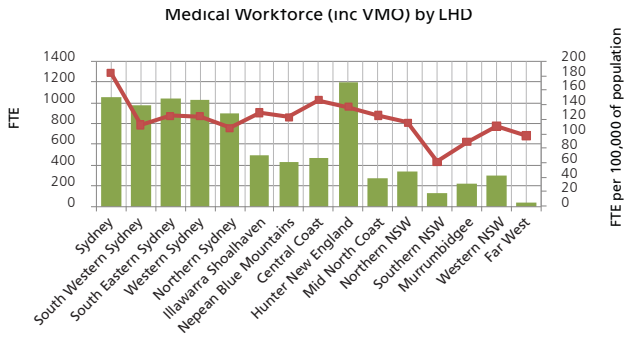
Allied Health

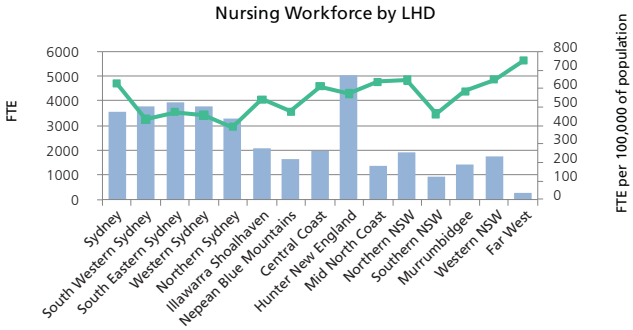
The ratio of the Allied Health workforce to the population is slightly higher in the outer metropolitan LHDs (Illawarra-Shoalhaven and Central Coast) and the Northern area LHDs (Hunter New-England, Mid North Coast and Northern NSW). The southern and western rural LHDs and the Sydney metropolitan LHDs would seem to have a very similar profile of Allied Health workforce (excepting Sydney LHD which has the highest ratio to population overall). However, the FTE ratio comparing Sydney to Rural needs to take into account the greater distances a patient may have to travel to access those services.

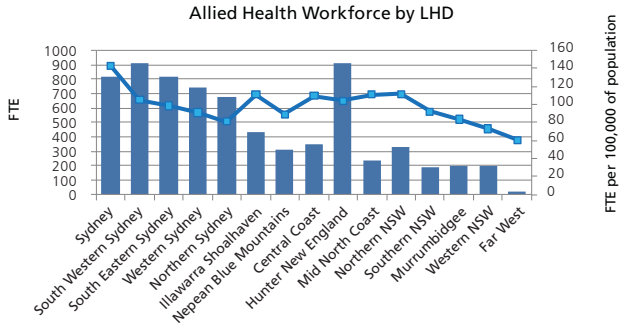
Oral Health

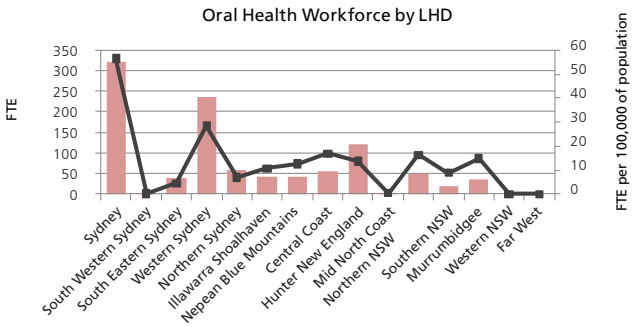
The profile for Oral Health does not follow a pattern based on location. In the main the provision of Oral Health services is mainly private the NSW Health profile reflects where there is a concentration of Oral Health Services across LHDs, for example, Sydney Dental Clinic in Sydney LHD and Westmead Dental school in Western Sydney LHD.

[31] The data for the workforce graphs is sourced from the Staff State Profile (unaudited State HIE) for June 2011. VMO FTE has been calculated as a combination of fee for service payments and sessional hours.





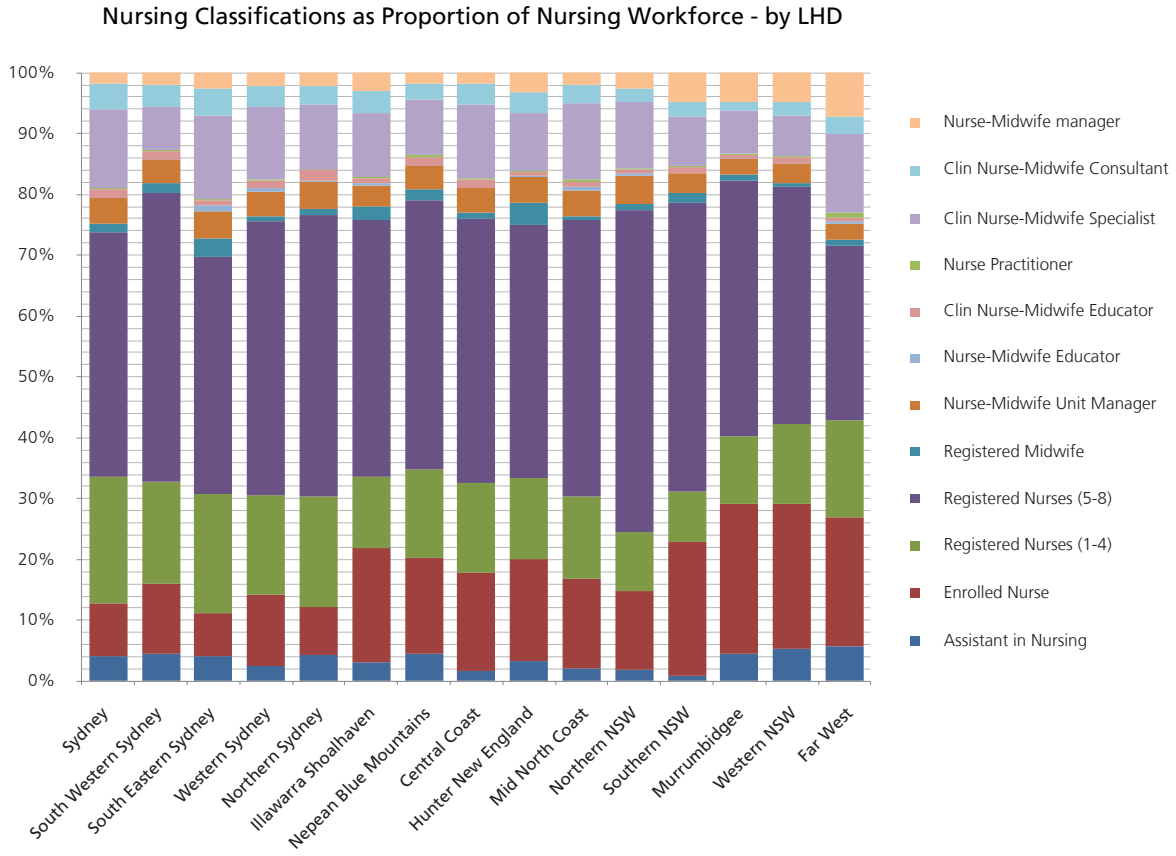




Another factor to take into account in looking at the workforce by LHD or geographic region is the relative make up of the profession to determine whether there are any issues in regards to the relative experience of staff.

Nursing

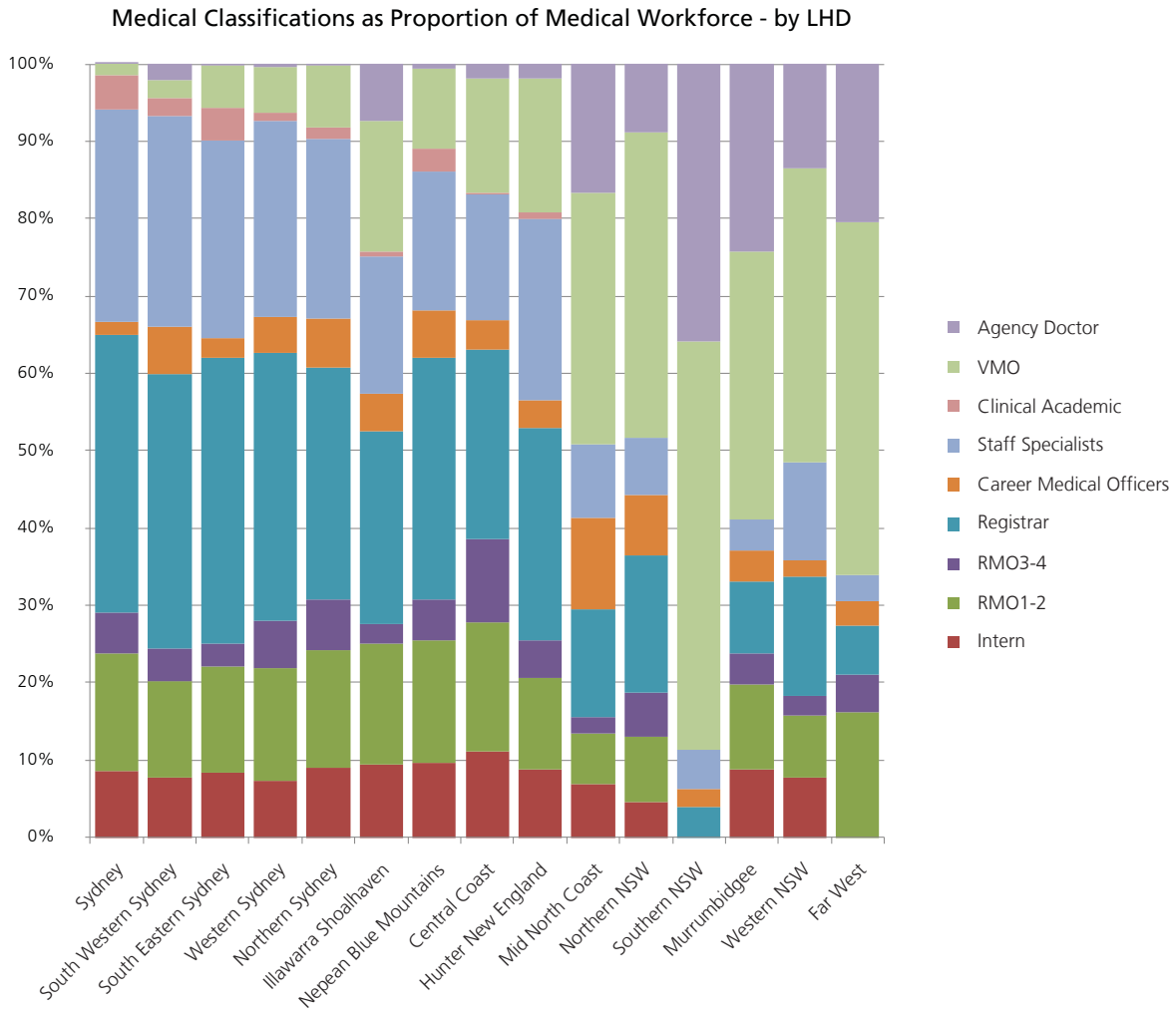
The following graph shows the distribution of Nursing classifications within each LHD, that is, the proportion of each classification within all nursing employees within each LHD. Murrumbidgee, Western NSW and the Far West LHDs



have the greater proportion of Assistant in Nursing and Enrolled Nurse classifications. However, they also have a greater proportion of Nurse Manager positions, so there is a greater reliance on both junior and senior staff in the rural/ remote LHDs.

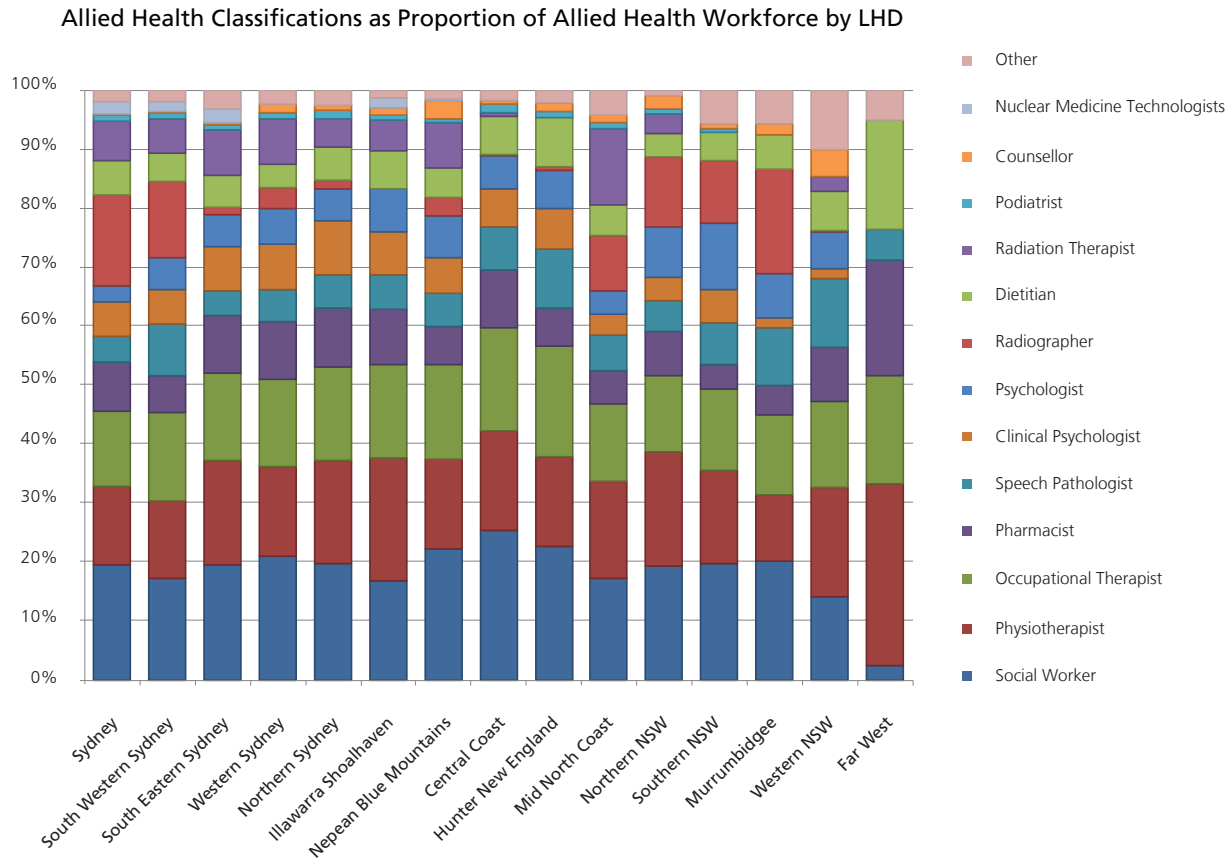
Medical

The following graph shows the distribution of Medical Practitioner classifications within each LHD, that is the proportion of each classification within all Medical Practitioners within each LHD. The graph highlights the greater reliance on short-term contracted doctors in the rural and remote LHDs, especially in Southern NSW and the Far West LHDs. Central Coast LHD has the largest proportion of Junior Medical Officers (Intern and RMO). Mid North Coast LHD has the largest proportion of Career Medical Officers. Care needs to be taken in interpretation of proportion of junior doctors due to the rotational nature of their appointments during their pre-vocational and vocational training.



Allied Health

The following graph shows the distribution of Allied Health Professionals within each LHD. Care needs to be taken with analysis of this information as there is a greater proportion on Allied Health staff temporarily appointed to Health Reform Transitional Organisations, who will not be reflected in this graph. An example of this would be the level of radiographers in South Eastern Sydney and Illawarra-Shoalhaven LHDs, as medical imaging staff are employed in a business unit that sits under the Health Reform Transitional Organisation and are therefore not reflected in the number of employees in each LHD.

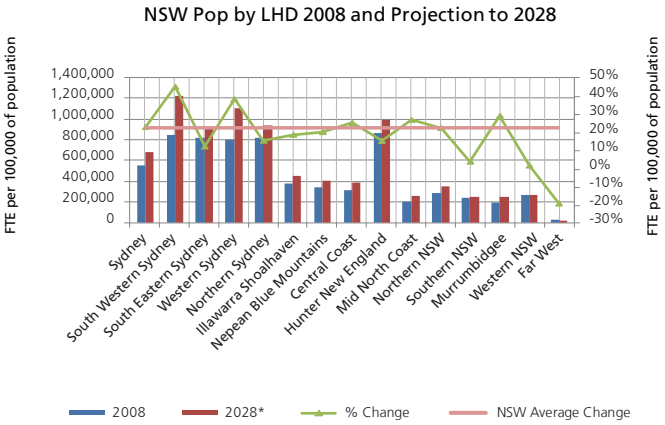


Future projections

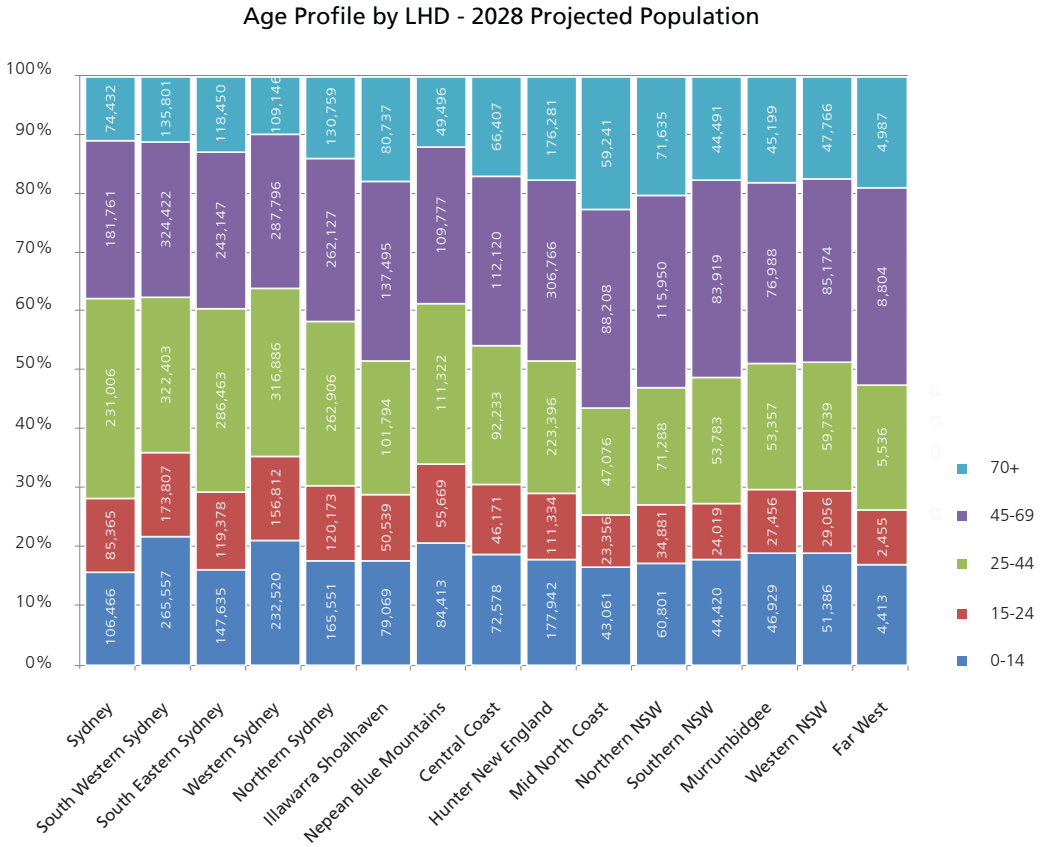
Population

The NSW Department of Planning has released New South Wales Statistical Local Area Population Projections, 2006-2036. They project that the NSW population will grow by 22.3% between 2008 and 2028, increasing from 7.015 million to 8.578m, an increase of 1.563m. The strongest population growth will occur in the following Statistical Local Areas (SLAs): Western Sydney, parts of central Sydney, regional areas on or near the coast, the Sydney-Canberra corridor and some regional centres (Central and South Coast).[32] At the same time, many SLAs with small populations usually located in more remote parts of the State (under 5,000 people) are projected to decline in population.

The projected population growth by Local Health District (LHD)[33] shows the population increase by each of the LHDs in NSW. Consistent with the projections from the NSW Department of Planning by SLA the biggest growth for LHDs is in South Western and Western Sydney, Southern NSW and the Mid-North Coast. The areas of lowest and even negative growth are Far West NSW, Western NSW and Murrumbidgee.



The Age Profile for the projected population by 2028 shows that each LHD will be potentially dealing with different burdens of health care based on the demographics of its population. Mid North Coast, Illawarra Shoalhaven and Northern NSW will be dealing with a larger proportion of older residents, whilst South Western Sydney, Western Sydney and Nepean Blue Mountains will have a proportionally younger aged community. Sydney and South Eastern Sydney LHDs will have the largest proportion of working age population, whilst Mid North Coast, Murrumbidgee and Central Coast LHDs will have the smallest proportion of working age population.

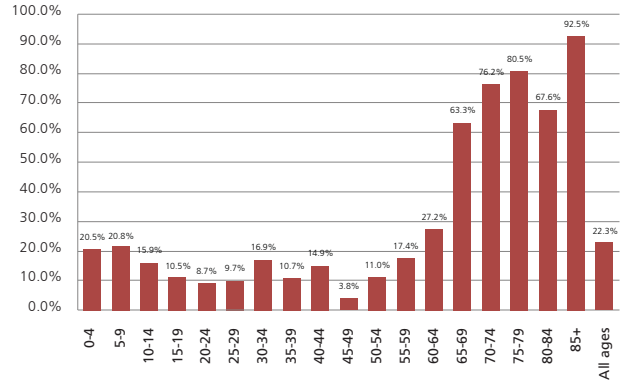


32 Population NSW Bulletin April 2010

33 Centre for Epidemiology and Research. Health Statistics New South Wales. Sydney: NSW Department of Health. Available at: www.healthstats.doh.health.nsw.gov.au. Accessed 4 Aug 2011

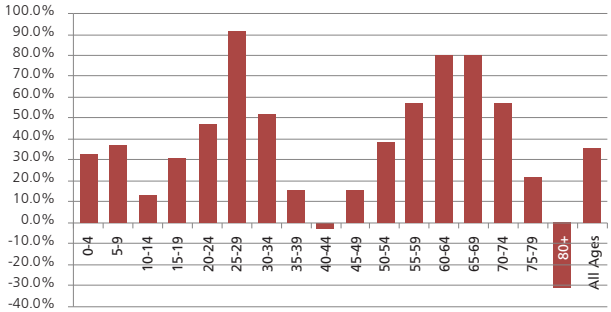
The projected growth in the population by age group shows a greater growth in those aged 65 and over and smaller growth in those of working age.

Percentage growth in age, NSW population, 2008 to 2028



Source: Health Statistics NSW: Estimated residential population and projected population by age and sex, NSW, 2008 to 2028

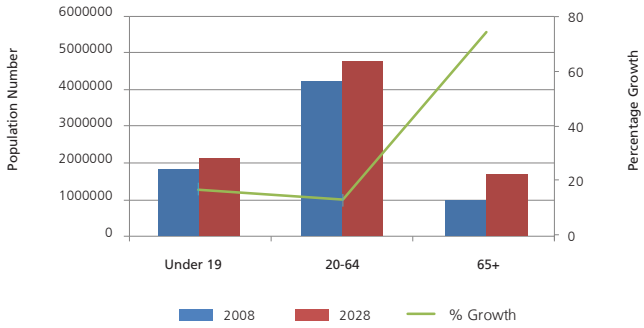
Projected Growth in Age NSW Aboriginal population 2006-2021



Source: NSW Aboriginal Housing Office (2008) Indicative New South Wales Indigenous Population Projections 2006 to 2021

Whilst the data for the same period is not available for the Aboriginal population, data for a similar period shows a much different projected growth in age groups for the NSW Aboriginal population. There is a larger projected growth for the Aboriginal population than the average growth in NSW, a much larger projected increase for younger age groups, and a smaller growth for those aged over 70.

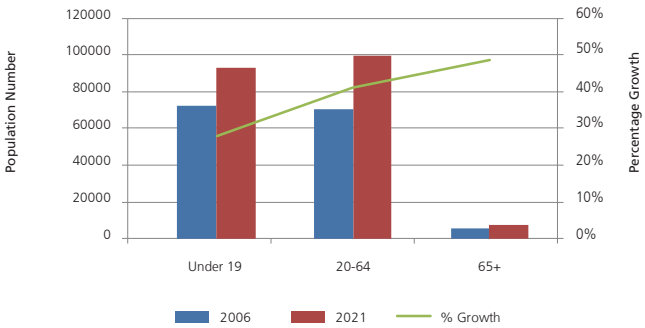
Growth in Age Groups NSW 2008-2028



In looking at the relative size of the working age population (20-64) to both younger and older age groups it can be seen that the largest growth is in the over 65 age group. 45.7% of the projected growth of the population (0.714m) will be in the age group of 65 years and older, with an estimate growth of 74.1% (more than three times total population growth).[34]

For the Aboriginal population the growth in the younger age groups mitigates this effect. Whilst the age group over 65% has the largest growth the difference in growth between the age groups is not as stark.

Projected Growth in Age Groups - Aboriginal Population NSW 2006-2021



- In the 12 months to December 2010, net overseas migration (NOM) contributed to 58% of the State's population growth, while natural increase (births minus deaths) contributed to 40%
- At the same time there was a net loss due to interstate migration of 11,200 persons to neighbouring States, the largest net loss among States and Territories.[35]

34 Health Statistics NSW: Estimated residential population and projected population by age and sex, NSW, 2008 to 2028

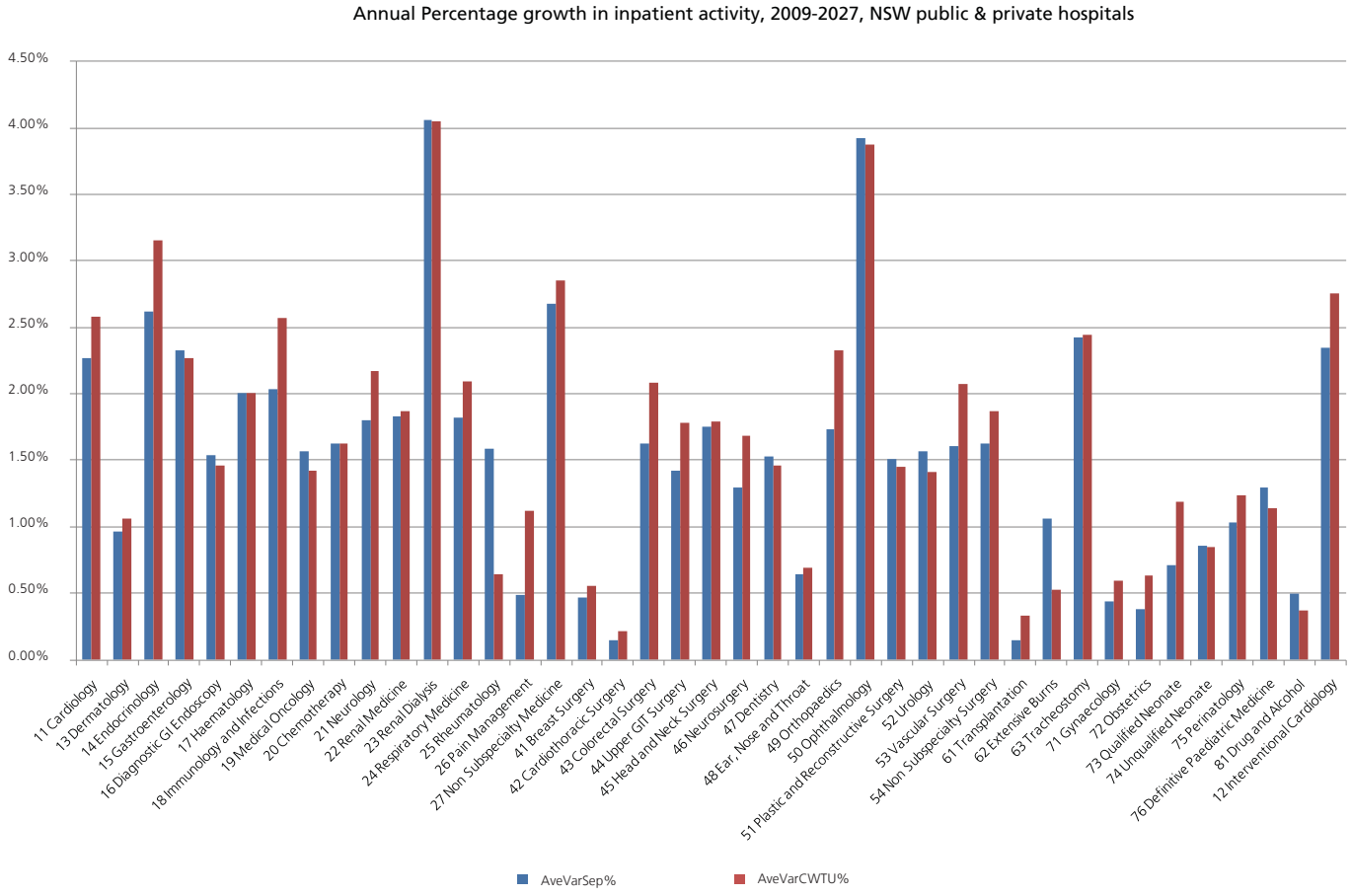
35 Koleth, E. (2010) *Population issues for Sydney and NSW: Policy frameworks and responses.* Briefing Paper No. 5/2011 NSW parliamentary Library Research Service.

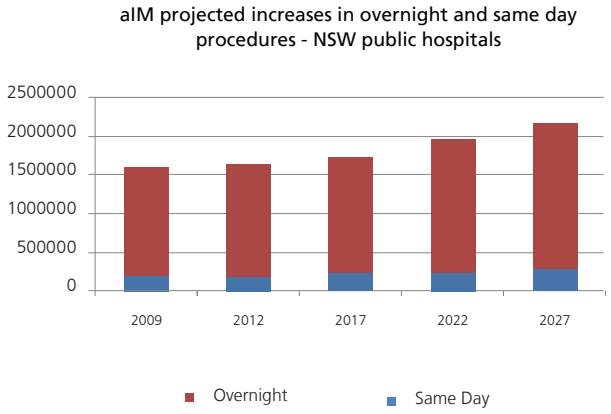
Service Delivery

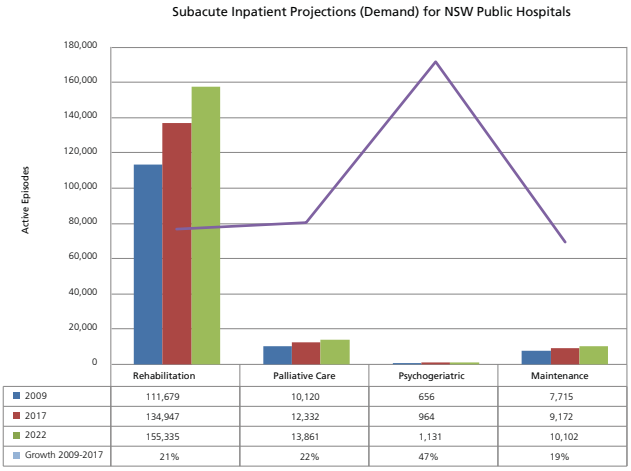
Acute

The inpatient projection model used by NSW Health, aIM 2010 (Acute Inpatient Model), has been developed to take into account projected growth in inpatient activity based on specialty groupings (SRGs – service reference groups). The latest projections use 2009 as the base year, and project inpatient activity to 2027. The specialties in the aIM data have been mapped to medical specialist categories, which are then weighted to estimated specialist numbers by speciality. Growth rates were analysed for both separations (number of patients) and case weighted technical units (CWTU). The weighted total growth rate per annum used in the baseline specialist modelling is 1.87% (CWTU).

The largest projected growth in is renal medicine, endocrinology and ophthalmology – all specialities associated with the increase in rates of diabetes. There is also a projected growth in non subspeciality medicine. The lowest growth areas are cardiothoracic surgery, transplantation, gynaecology and obstetrics and drug and alcohol.



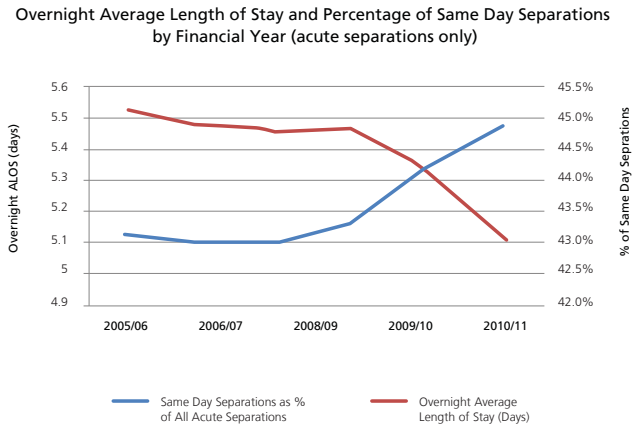




	Rehabilitation	Palliative Care	Psychogeriatric	Maintenance
2009	111,679	10,120	656	7,715
2017	134,947	12,332	964	9,172
2022	155,335	13,861	1,131	10,102
Growth 2009-2017	21%	22%	47%	19%

The projected increases for the Acute Inpatient Model (aIM) type of stay in NSW public hospitals indicates that there is a larger annual increase in same day procedures (2.5%) compared to the annual average increase in overnight hospitalisations (1.9%).

There has been a small but steady decrease in average length of stay in NSW public hospitals over the last decade. This is partly due to an increase in the proportion of patients treated on a same day basis (same day separations), and partly a result of shorter length of stay for patients staying more than one day (overnight average length of stay). The graph below illustrates the two trends.



Overnight average length of stay for acute patients is currently 5.1 days (NSW average), but there is considerable variation between Local Health Districts. Some of this variation is due to a different mix of patients treated at different Local Health Districts.

Workforce Projections

Modelling

The approach to demand modelling used within the models below relates to the method of economic demand, and incorporates the use of current and projected data for the public health sector and private health sector (if modelling whole of workforce). Demand modelling for the whole workforce has been determined through an aggregation of the demand estimates of staff categories within workforces (weighted accordingly) and service demands. The service demands have been determined from the current NSW Acute Inpatient Model (aIM) projections project all acute Diagnosis Related Groups (DRGs) or both public and private hospitals from 2009 to 2027. Growth is estimated to increase by 1.88% per annum over this period.

Nursing

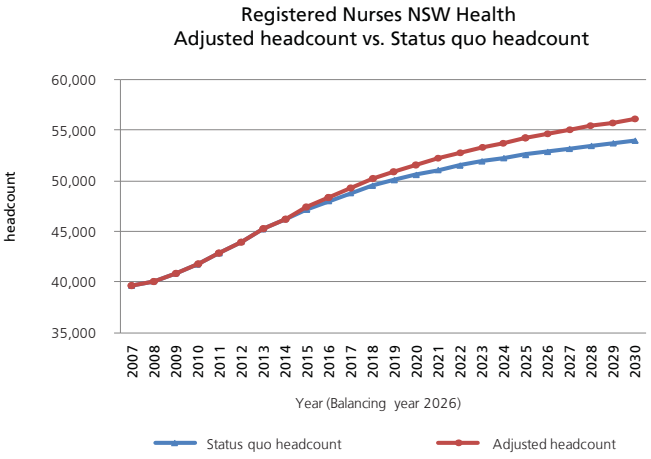
NSW Health - Registered Nurse Workforce

This graph[36] indicates the number of Registered Nurses projected to be working in the NSW public health system under two different scenarios. The status quo headcount represents the scenario where there are no changes to the current training level.

Even without change the projected increase in the size of the Registered Nurse workforce between 2008 and 2028 shows a requirement for an extra 15,000 Registered Nurses.

The adjusted headcount represents the required headcount based on projection of service needs to 2030. To achieve the adjusted headcount there is a requirement to increase training places for registered nurses of **239** students per year.

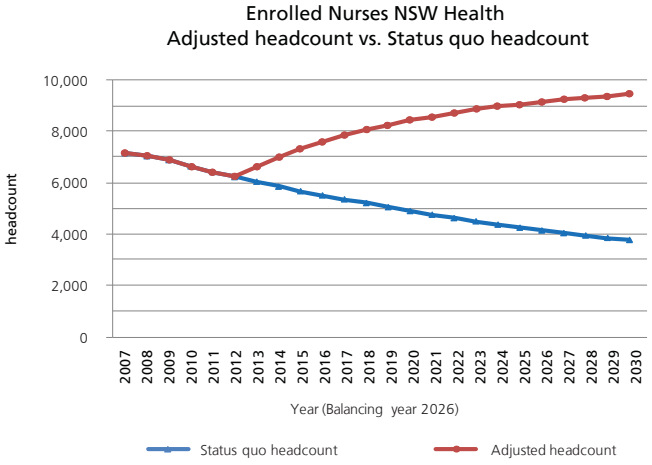
The NSW Health Registered Nursing Modelling has identified high losses in the nursing workforce in the years up to 40 years and around retirement age. Between these periods on average there is more re-entry than losses in the registered nursing workforce. This movement contributes to the factors contributing to the need to train more graduates along with the reduction in average hours worked. An increase in retention is currently being experienced by NSW Health in 2010/11 compared to previous periods. This can be attributed to external factors such as labour market shift due to the Global Financial Crisis and loss of re-entry of the workforce to other sectors other than NSW Health.



Enrolled Nurses

This graph[37] indicates the number of Enrolled Nurses projected to be working in the NSW public health system under two different scenarios. The status quo headcount represents the scenario where there are no changes to the current training level. The adjusted headcount represents the required headcount based on projection of service needs to 2030. To achieve the adjusted headcount there is a requirement to increase training places for Enrolled Nurses by **849** students per year.

The NSW Health Enrolled Nursing modelling has identified high losses in the nursing workforce in the years up to 40 years and around retirement age. Between these periods on average there is more re-entry than losses in the Enrolled Nursing workforce. This movement contributes the factors contributing to the need to train more Enrolled Nurses along with the reduction in average hours worked. An increase in retention is currently being experienced by NSW Health in 2010/11 compared to previous periods. This can be attributed to external factors such as labour market shift due to the Global Financial Crisis and loss of re-entry of the workforce to other sectors other than NSW Health.



[36] 2007 Nurses NSW Labour Force Profile and unpublished NSW Health workforce projections

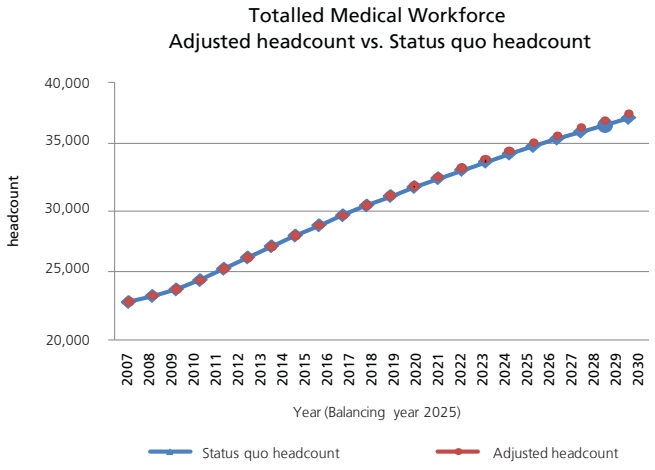
[37] 2007 Nurses NSW Labour Force Profile and unpublished NSW Health workforce projections

Medical

This graph[38] indicates the number of Medical Practitioners projected to be required in the total NSW health system (public and private) under two different scenarios. The status quo headcount represents the scenario where there are no changes to the current training level.

The projected workforce growth required to meet service needs projected to 2030 is 14,258, under current training levels. The adjusted headcount required to meet service needs is 14,664. This adjusted projected increase in the size of the Medical workforce required between 2009 and 2030 shows a need for an extra 406 doctors. The adjusted headcount represents the required headcount based on projection of service needs to 2030. To achieve the adjusted headcount there is a requirement to increase training places for doctors of **38** students per year.

The Medical modelling for NSW has identified high losses in the medical workforce in the initial years of training/work and around retirement age. Between these period on average there is more re-entry than losses in the medical workforce. This movement contributes to the need to train more graduates, together with the reduction in average hours worked. An increase in retention is currently being experienced by NSW Health in 2010/11 compared to previous periods. This can be attributed to external factors such as labour market shift due to the Global Financial Crisis and increasing training being offered.



Allied Health

Initial workforce modelling has been undertaken on 13 of the 26 professional groups within Allied Health employed by NSW Health. This represents 97% of the June 2010 NSW Allied Health Public Health workforce. The scenarios discussed below are based on preliminary estimated demand and further refinement may be required.

It is estimated that for **Psychologists and Clinical Psychologists** NSW Health employs 30.3% of the total NSW Psychology workforce. Assuming baseline growth of 1.8% it is estimated that NSW Health will need approximately 6% additional headcount per year if the current model of care persists.

For **Physiotherapists** NSW Health employs 28.4% of the total estimated NSW Physiotherapy workforce. Initial growth in estimates indicate that NSW Health will need an additional 2.2% workforce headcount per year to meet projected service requirements.

Occupational Therapists are predominately employed by NSW Health and estimated at above 58% of the total estimated NSW Occupational Therapist workforce. Initial growth estimates indicate that NSW Health will need an additional 0.5% growth in headcount per annum.

It is estimated that for **Dieticians** NSW Health employs 44% of the total estimated NSW Dietician workforce. With baseline growth of 1.8% it is estimated that NSW Health will need approximately 2.4% additional headcount per annum if the current model of care persists.

NSW Health employs approximately 52% of the total **Social Worker** workforce in NSW. A range of scenarios estimate a growth in headcount up to 1.4% per annum to meet projected service requirements. Counsellors require a headcount growth of approximately 3.4% per annum, however the size of the NSW workforce for counsellors is difficult to determine due to differential terminology of classifications in use.

For **Radiographers, Radiation Therapists and Nuclear Medicine Technologists** there is a range of additional headcount growth required. Both Radiographers and Radiation Therapists required less than 1% growth in headcount per annum whereas Nuclear Medicine Technologists require a growth of 2.1% per annum.

[38] 2009 Nurses NSW Labour Force Profile and unpublished NSW Health workforce projections

Modelling for **Pharmacists and Speech Therapists** did not indicate any shortage in the initial workforce modelling. However, the initial workforce modelling has not considered initial shortages or meeting national guidelines on patient care, so does not per se indicate that there is not a shortage. Further investigation is required to quantify this. NSW Health employs approximately 12% of the NSW Pharmacy workforce and 52.7% of the NSW Speech Therapist workforce.

SHPN (WDI 110201