

ALLIED HEALTH STAFFING LEVELS FOR HEALTH SERVICE INPATIENTS IN 2015

PHASE 2 – Casemix Staffing Analysis

These resources, in conjunction with the Macro Staffing Analysis reports, are intended to be utilised by Allied Health leaders and other healthcare managers for workforce planning purposes. The resources outline the average inpatient Allied Health staffing levels in the sampled Victorian public hospitals in 2015, and do not provide recommended or best practice staffing profiles.

The Department of Health and Human Services, through the Chief Allied Health Advisor, commissioned the Allied Health Staffing Analysis Project to better understand inpatient Allied Health (therapy professions) staffing ratios in Victorian public hospitals. This second phase of the project (Casemix Staffing Analysis) examined staffing ratios for clinical groupings.

This document includes data that outlines the Victorian average Equivalent Full Time (EFT) per bed for each clinical group for both acute and sub-acute hospitals. Participating hospitals were also given additional reports, which provide more detailed and comparative information relevant to each hospital.

Data Sources

Hospitals that self-rated their Allied Health activity statistics as “Good” or “Very Good” during Phase 1 of the project were invited to participate in Phase 2. In Phase 2, hospitals submitted hospital separation and Allied Health clinical activity data mapped to an agreed list of clinical groups by profession for the 2015 calendar year. Submitted hospital separation activity data was converted to bed days and then to nominal beds. Allied Health activity data that included the sum of hours (SOH) of Individual Patient Attributable (IPA) activity was converted to nominal EFT using an established ratio.

Submitted data was reviewed to maximise data integrity. Most of the corrected issues were clinical group mapping errors. Further data validation was undertaken in which hospital bed numbers obtained from the Victorian Admitted Episode Dataset were compared to the derived nominal beds, and known hospital profession EFT (from Phase 1 of the project) was compared to the derived nominal EFT. Data was excluded where there was not good correlation for the hospital beds or profession EFT.

Acute Hospitals

Although acute data was submitted by 12 hospitals, data for only 7 hospitals was included in the final analysis due to data validity issues. The participants by hospital size, acuity and inclusion is summarised in Table 1. The participating acute hospitals size, acuity, and overall allied health activity is outlined in Appendix 1.

Table 1: Acute Hospital Participant by Hospital Size & Acuity

| Hospital Size | Bed Days Per Annum | Submitted | Included | Hospital Acuity | WIES per Separation in 2015 | Submitted | Included |
|--------------------|--------------------|-----------|----------|-----------------|-----------------------------|-----------|----------|
| Very Large | >150,000 | 5 | 4 | Very High | > 1.4 | 5 | 3 |
| Large | 80,000 – 150,000 | 2 | 1 | High | 1.25 – 1.4 | 1 | 1 |
| Medium | 30,000 – 80,000 | 2 | 1 | Medium | 1.0 – 1.24 | 4 | 2 |
| Small & Very Small | <30,000 | 3 | 1 | Low | < 1.0 | 2 | 1 |
| Total | | 12 | 7 | Total | | 12 | 7 |

The overall acute hospital Allied Health activity was also considered by profession and is summarised in Appendix 2. The overall clinical activity recorded in Clinical Psychology, Neuro-Psychology, and Prosthetics in the acute setting was quite low and was therefore excluded. Although the overall clinical activity for Allied Health Assistants (AHAs) in the acute setting was high, there were validity issues at several sites with poor correlation between the known EFT and the derived nominal EFT. As such AHAs were excluded from the acute hospital reporting.

The overall clinical activity and the numbers of sites reporting data for the agreed clinical units of ICU and Acute Rehabilitation were also very low, and these units were excluded from the acute hospital reporting.

Sub - Acute Hospitals

Sub-acute data was submitted by 10 hospitals and one sub-acute hospital was subsequently excluded due to data validity issues. The participating sub-acute hospitals size and overall Allied Health activity is summarised in Appendix 1. The participants by hospital size and their inclusion is summarised in Table 2.

Table 2: Sub- Acute Hospital Participants

| Sub-Acute Hospital Size | Sub-Acute Beds | Submitted | Included |
|-------------------------|----------------|-----------|----------|
| Large | 70+ | 4 | 4 |
| Medium | 30-70 | 4 | 4 |
| Small | <30 | 2 | 1 |
| Total | | 10 | 9 |

The overall sub-acute hospital Allied Health activity was also considered by profession and is captured in Appendix 2. The overall clinical activity recorded in Neuro-Psychology, Exercise Physiology, Orthotics and Prosthetics was quite low and was therefore excluded from the sub- acute hospital reporting.

The data outlined in Report 1 (Sub-acute) was compared to staffing ratios from “The Royal Australasian College of Physicians Standards for the Provision of Inpatient Adult Rehabilitation Medicine in Public and Private Hospitals” (2011), which were derived from the “Allied Health Guidelines for Allied Health Resources for Rehabilitation - V10” (2007). See Appendix 3 for the comparison.

Reports

This document includes Report 1 for both acute and subacute:

- **Acute Allied Health Staffing Ratios:** This report highlights the approximate Victorian average EFT per bed for each clinical group for the included acute hospitals.
- **Sub-Acute Allied Health Staffing Ratios:** This report highlights the approximate Victorian average EFT per bed for each clinical group for the included sub-acute hospitals.

Report 1: Acute - Allied Health Staffing Table (Public)

All

Victorian Average EFT per Bed

| Clinical Group | NUT | ORTH | OT | POD | PT | SP | SW |
|---------------------|-------|-------|-------|-------|-------|-------|-------|
| Acute Medical Unit | 0.001 | 0.001 | 0.060 | 0.000 | 0.087 | 0.001 | 0.092 |
| Burns | 0.037 | 0.015 | 0.102 | 0.000 | 0.112 | 0.024 | 0.054 |
| Cardiology | 0.013 | 0.001 | 0.016 | 0.001 | 0.029 | 0.003 | 0.030 |
| Cardiothoracic | 0.017 | 0.001 | 0.016 | 0.001 | 0.076 | 0.007 | 0.022 |
| Colorectal | 0.034 | 0.000 | 0.008 | 0.000 | 0.020 | 0.001 | 0.001 |
| Endocrinology | 0.029 | 0.008 | 0.011 | 0.016 | 0.024 | 0.005 | 0.044 |
| ENT | 0.031 | 0.000 | 0.010 | 0.000 | 0.018 | 0.041 | 0.016 |
| Faciomaxillary | 0.016 | 0.001 | 0.012 | | 0.012 | 0.006 | 0.028 |
| Gastroenterology | 0.029 | 0.000 | 0.009 | 0.001 | 0.018 | 0.004 | 0.048 |
| General Medicine | 0.022 | 0.002 | 0.038 | 0.003 | 0.062 | 0.014 | 0.041 |
| General Surgery | 0.025 | 0.001 | 0.011 | 0.001 | 0.027 | 0.002 | 0.015 |
| Geriatrics | 0.017 | 0.002 | 0.009 | 0.008 | 0.034 | 0.048 | 0.018 |
| Gynaecology | 0.002 | 0.000 | 0.003 | 0.000 | 0.015 | 0.000 | 0.010 |
| Infectious Diseases | 0.029 | 0.001 | 0.012 | 0.002 | 0.039 | 0.004 | 0.043 |
| Neonatal | 0.007 | | 0.003 | | 0.003 | 0.006 | 0.030 |
| Neurology | 0.020 | 0.001 | 0.061 | 0.001 | 0.078 | 0.044 | 0.035 |
| Neurosurgery | 0.030 | 0.010 | 0.072 | 0.000 | 0.095 | 0.023 | 0.053 |
| Obstetrics | 0.001 | 0.000 | 0.000 | 0.000 | 0.014 | 0.000 | 0.028 |
| Oncology | 0.027 | 0.001 | 0.018 | 0.001 | 0.025 | 0.004 | 0.039 |
| Orthopaedics | 0.013 | 0.016 | 0.060 | 0.001 | 0.110 | 0.004 | 0.021 |
| Paediatrics | 0.028 | 0.000 | 0.009 | 0.000 | 0.020 | 0.009 | 0.026 |
| Palliative Care | 0.015 | 0.000 | 0.029 | 0.000 | 0.063 | 0.034 | 0.000 |
| Plastics | 0.010 | 0.006 | 0.019 | 0.001 | 0.027 | 0.003 | 0.016 |
| Psychiatry | 0.011 | 0.000 | 0.000 | 0.000 | 0.001 | 0.000 | 0.002 |
| Renal | 0.021 | 0.002 | 0.010 | 0.006 | 0.013 | 0.002 | 0.032 |
| Respiratory | 0.034 | 0.000 | 0.010 | 0.000 | 0.104 | 0.004 | 0.038 |
| Rheumatology | 0.008 | 0.005 | 0.014 | 0.007 | 0.028 | 0.003 | 0.022 |
| Stroke | 0.041 | 0.001 | 0.107 | 0.001 | 0.130 | 0.113 | 0.045 |
| Transplant | 0.055 | 0.002 | 0.021 | 0.000 | 0.121 | 0.006 | 0.006 |
| Trauma | 0.039 | 0.031 | 0.105 | 0.001 | 0.141 | 0.016 | 0.074 |
| Urology | 0.008 | 0.000 | 0.010 | 0.000 | 0.014 | 0.001 | 0.011 |
| Vascular | 0.014 | 0.013 | 0.017 | 0.029 | 0.034 | 0.003 | 0.013 |

Notes:

Victorian Average EFT per Bed: The Victorian Average Profession EFT per Bed for each Clinical Group.

Report 1: Sub-Acute - Allied Health Staffing Table (Public)

All

Victorian Average EFT per Bed

| i-SNAC | CPSY | NUT | OT | POD | PT | SP | SW | AHA* |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| Amputation | 0.017 | 0.021 | 0.184 | 0.013 | 0.183 | 0.014 | 0.077 | 0.025 |
| Brain Dysfunction | 0.028 | 0.025 | 0.144 | 0.003 | 0.117 | 0.071 | 0.097 | 0.114 |
| Burns | 0.016 | 0.036 | 0.255 | 0.000 | 0.173 | 0.036 | 0.054 | |
| Cardiac | 0.004 | 0.035 | 0.104 | 0.004 | 0.100 | 0.011 | 0.062 | 0.024 |
| GEM | 0.004 | 0.020 | 0.082 | 0.004 | 0.113 | 0.015 | 0.063 | 0.002 |
| Major Multiple Trauma | 0.028 | 0.033 | 0.179 | 0.001 | 0.182 | 0.089 | 0.088 | 0.092 |
| Neurological | 0.017 | 0.023 | 0.111 | 0.001 | 0.130 | 0.052 | 0.068 | 0.007 |
| Orthopaedics | 0.006 | 0.015 | 0.109 | 0.003 | 0.137 | 0.006 | 0.050 | 0.011 |
| Other | 0.008 | 0.030 | 0.111 | 0.003 | 0.122 | 0.019 | 0.068 | 0.010 |
| Pain | 0.010 | 0.020 | 0.105 | 0.004 | 0.142 | 0.007 | 0.057 | 0.012 |
| Spinal Cord | 0.023 | 0.011 | 0.175 | 0.003 | 0.210 | 0.003 | 0.051 | 0.001 |
| Stroke | 0.014 | 0.026 | 0.163 | 0.001 | 0.157 | 0.109 | 0.065 | 0.035 |

Notes:

Victorian Average EFT per Bed: The Victorian Average Profession EFT per Bed for each Clinical Group.

AHA*: 5 out of the 9 sub-acute hospitals submitted AHA data as a separate professional entity. Due to data validity issues at 3 sites only 2 sub-acute hospitals had their AHA data included in this final analysis report. It is assumed that AHA activity is included within professional activity for the remaining 4 hospitals.

Appendix 1 – Hospital Participants

Table 1: Acute Hospital Included Participants by Size, Acuity and Nominal Beds

| Hospital Name | Size | Acuity WIES / Sep | Nominal Beds | Allied Health Episodes |
|-----------------------------------|--------------------|----------------------|-----------------|------------------------------|
| Casey Hospital | Large | Low | 212.9 | 7594 |
| Monash Medical Centre - Clayton | Very Large | Very High | 606.9 | 26245 |
| Dandenong Hospital | Very Large | High | 434.1 | 25158 |
| Monash Medical Centre - Moorabbin | Medium | Very High | 109.5 | 4531 |
| Sandringham Hospital | Small & Very Small | Medium | 67.4 | 6267 |
| The Alfred | Very Large | Very High | 593.5 | 59249 |
| The Northern Hospital | Very Large | Medium | 329.7 | 23999 |

Table 2: Sub- Acute Hospital Included Participants by Size and Nominal Beds

| Hospital Name | Size | Nominal Beds | Allied Health Episodes |
|------------------------------|--------|-----------------|------------------------------|
| Broadmeadows Health Service | Medium | 41.1 | 2949 |
| BECC | Large | 66.1 | 3870 |
| Casey Hospital | Medium | 30.5 | 2496 |
| Caulfield Hospital | Large | 202.9 | 11812 |
| Dandenong Hospital | Medium | 38.4 | 3241 |
| Western Hospital – Footscray | Small | 19.5 | 1321 |
| Kingston Centre | Large | 150.2 | 11195 |
| Sunshine Hospital | Large | 63.0 | 3802 |
| Williamstown Hospital | Medium | 59.3 | 3344 |

NB: Nomenclature of hospitals sourced from the DHHS Victorian Admitted Episode Dataset

Appendix 2 – Summary of Activity By Profession

Table 1: Included Acute Hospital Allied Health Activity by Profession

| Profession | Sum of Hours | Allied Health Episodes | Nominal EFT | Hospitals |
|--------------------------|-------------------------------------|------------------------|-------------|-----------|
| Physiotherapy | 111037.1 | 51909 | 95.1 | 7 |
| Occupational Therapy | 54928.7 | 29163 | 47.0 | 5 |
| Nutrition | 51115.2 | 21560 | 43.8 | 7 |
| Social Work | 35633.2 | 17678 | 30.5 | 3 |
| Speech Pathology | 20685.5 | 8152 | 17.7 | 6 |
| Orthotics | 4232.2 | 2804 | 3.6 | 2 |
| Podiatry | 2495.7 | 1481 | 2.1 | 2 |
| Allied Health Assistants | Data Not Included in Final Analysis | | | |
| Clinical Psychology | | | | |
| Neuro Psychology | | | | |
| Prosthetics | | | | |

Table 2: Included Sub-Acute Hospital Allied Health Activity by Profession

| Profession | Sum of Hours | Allied Health Episodes | Nominal EFT | Hospitals |
|--------------------------|-------------------------------------|------------------------|-------------|-----------|
| Physiotherapy | 91055.6 | 9819 | 78.0 | 8 |
| Occupational Therapy | 84336.0 | 10357 | 72.2 | 9 |
| Social Work | 25915.1 | 4400 | 22.2 | 4 |
| Speech Pathology | 16450.0 | 2277 | 14.1 | 4 |
| Nutrition | 14494.9 | 4777 | 12.4 | 7 |
| Allied Health Assistants | 7253.3 | 604 | 6.2 | 2 |
| Clinical Psychology | 5045.4 | 1413 | 4.3 | 5 |
| Podiatry | 1999.8 | 1177 | 1.7 | 4 |
| Neuro Psychology | Data Not Included in Final Analysis | | | |
| Exercise Physiology | | | | |
| Orthotics | | | | |
| Prosthetics | | | | |

NB: Some professions were excluded from the overall analysis due to low reported activity and/or data validity issues.

Appendix 3 – Allied Health Rehabilitation Ratios Comparison: Rehab Standards vs Actual Staffing Ratios

The tables below outline a comparison of Allied Health Staffing Ratios (EFT per bed) for inpatient rehabilitation between:

- “The Royal Australasian College of Physicians Standards for the Provision of Inpatient Adult Rehabilitation Medicine in Public and Private Hospitals 2011”. The staffing levels outlined in the RACP standards were derived from “Allied Health Guidelines for Allied Health Resources for Rehabilitation - V10” (2007).
- Allied Health Staffing Analysis Casemix Project. Staffing levels were derived from 2015 activity statistics by i-SNAC (Interim Subacute and Non-Acute Classification) for 9 Victorian sub-acute public hospitals.

| i-SNAC | Rehab Standards Category Mapping | Clinical Psychology EFT Per Bed | | | Nutrition EFT Per Bed | | | Occupational Therapy EFT Per Bed | | | Podiatry EFT Per Bed | | |
|-----------------------|----------------------------------|---------------------------------|-----------|----------|-----------------------|-----------|----------|----------------------------------|-----------|----------|----------------------|-----------|----------|
| | | Project | Standards | Variance | Project | Standards | Variance | Project | Standards | Variance | Project | Standards | Variance |
| Amputation | Amputation | 0.017 | 0.050 | -0.033 | 0.021 | 0.040 | -0.019 | 0.184 | 0.100 | 0.084 | 0.013 | 0.02 | -0.007 |
| Brain Dysfunction | TBI | 0.028 | 0.020 | 0.008 | 0.025 | 0.050 | -0.025 | 0.144 | 0.150 | -0.006 | 0.003 | consult | |
| Burns | <i>Burns specialist*</i> | 0.016 | 0.100 | -0.084 | 0.036 | 0.040 | -0.004 | 0.255 | 0.200 | 0.055 | 0 | 0.003 | -0.003 |
| Cardiac | <i>Cardiac*</i> | 0.004 | 0.003 | 0.001 | 0.035 | 0.040 | -0.005 | 0.104 | 0.050 | 0.054 | 0.004 | 0.01 | -0.006 |
| Major Multiple Trauma | Major Trauma | 0.028 | 0.020 | 0.008 | 0.033 | 0.040 | -0.007 | 0.179 | 0.120 | 0.059 | 0.001 | consult | |
| Neurological | Stroke/Neurology | 0.017 | 0.020 | -0.003 | 0.023 | 0.050 | -0.027 | 0.111 | 0.150 | -0.039 | 0.001 | 0.02 | -0.019 |
| Orthopaedics | Orthopaedic | 0.006 | 0.020 | -0.014 | 0.015 | 0.040 | -0.025 | 0.109 | 0.080 | 0.029 | 0.003 | 0.02 | -0.017 |
| Pain | Pain | 0.010 | 0.060 | -0.050 | 0.02 | 0.040 | -0.020 | 0.105 | 0.100 | 0.005 | 0.004 | consult | |
| Spinal Cord | Spinal Cord Dysfunction | 0.023 | 0.050 | -0.027 | 0.011 | 0.040 | -0.029 | 0.175 | 0.200 | -0.025 | 0.003 | 0.02 | -0.017 |
| Stroke | Stroke/Neurology | 0.014 | 0.020 | -0.006 | 0.026 | 0.050 | -0.024 | 0.163 | 0.150 | 0.013 | 0.001 | 0.02 | -0.019 |

| i-SNAC | Rehab Standards Category Mapping | Physiotherapy EFT Per Bed | | | Speech Pathology EFT per Bed | | | Social Work EFT Per Bed | | | Allied Health Assistant EFT Per Bed | | |
|-----------------------|----------------------------------|---------------------------|-----------|----------|------------------------------|-----------|----------|-------------------------|-----------|----------|-------------------------------------|-----------|----------|
| | | Project | Standards | Variance | Project | Standards | Variance | Project | Standards | Variance | Project | Standards | Variance |
| Amputation | Amputation | 0.183 | 0.150 | 0.033 | 0.014 | consult | | 0.077 | 0.060 | 0.017 | 0.025 | 0.050 | -0.025 |
| Brain Dysfunction | TBI | 0.117 | 0.150 | -0.033 | 0.071 | 0.150 | -0.079 | 0.097 | 0.120 | -0.023 | 0.114 | 0.020 | 0.094 |
| Burns | <i>Burns specialist*</i> | 0.173 | 0.200 | -0.027 | 0.036 | 0.020 | 0.016 | 0.054 | 0.120 | -0.066 | 0 | 0.050 | -0.05 |
| Cardiac | <i>Cardiac*</i> | 0.100 | 0.075 | 0.025 | 0.011 | 0.003 | 0.008 | 0.062 | 0.025 | 0.037 | 0.024 | 0.020 | 0.004 |
| Major Multiple Trauma | Major Trauma | 0.182 | 0.125 | 0.057 | 0.089 | 0.020 | 0.069 | 0.088 | 0.060 | 0.028 | 0.092 | 0.050 | 0.042 |
| Neurological | Stroke/Neurology | 0.130 | 0.150 | -0.020 | 0.052 | 0.150 | -0.098 | 0.068 | 0.100 | -0.032 | 0.007 | 0.050 | -0.043 |
| Orthopaedics | Orthopaedic | 0.137 | 0.125 | 0.012 | 0.006 | 0.010 | -0.004 | 0.05 | 0.050 | 0.000 | 0.011 | 0.050 | -0.039 |
| Pain | Pain | 0.142 | 0.125 | 0.017 | 0.007 | consult | | 0.057 | 0.050 | 0.007 | 0.012 | 0.020 | -0.008 |
| Spinal Cord | Spinal Cord Dysfunction | 0.210 | 0.200 | 0.010 | 0.003 | 0.025 | -0.022 | 0.051 | 0.120 | -0.069 | 0.001 | 0.050 | -0.049 |
| Stroke | Stroke/Neurology | 0.157 | 0.150 | 0.007 | 0.109 | 0.150 | -0.041 | 0.065 | 0.100 | -0.035 | 0.035 | 0.050 | -0.015 |

Not applicable or comparison not possible

* impairment mapping derived from the Guidelines for Allied Health Resources for Rehabilitation 2007

Negative variance of more than 0.025 ie project EFT less than standards

Positive variance of more than 0.025 ie project EFT more than standards

NB. Comparison of the rehab staffing ratios between the sources possesses some limitations. For example:

- Inadequate project data was available for Neuro-Psychology, Prosthetics and Exercise Physiology (in Part 1 of the project only 4 of the 33 hospitals sampled employed Exercise Physiologists).
- A small number of hospitals in the project reported AHAs as a separate professional entity whilst most hospitals reported AHAs under the respective profession (e.g. Physiotherapy, OT) which inflates the project staffing levels under the relevant professions.
- The Rehab Standards do not include specific Orthotics or Prosthetics staffing, the Allied Health Resources document combines “Prosthetics & Orthotics”, whilst the project separated Prosthetics and Orthotics as two distinct professions.