Teaching, Training and Research Costing Study Final Report July 2016



In consortia with:



INDEPENDENT HOSPITAL PRICING AUTHORITY

TEACHING, TRAINING AND RESEARCH COSTING STUDY PROJECT REPORT JULY 2016

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Acknowledgements

The authors acknowledge the significant contribution made by IHPA's Teaching, Training and Research Working Group and Teaching, Training and Research Costing Study Technical Group along with the employees of jurisdictional health departments and health services in attending meetings, obtaining project authorisation, extracting data and providing written and verbal feedback on documents associated with this project.

List of Acronyms

ABF	Activity Based Funding
AIHW	Australian Institute of Health and Welfare
ANOVA	Analysis of Variance
ASGC	Australian Standard Geographical Classification
AU-RED	Australian Research Ethics Database
CI	Confidence Interval
DRS	Data Request Specification
FAQ	Frequently Asked Questions
FTE	Full-Time Equivalent
IHPA	Independent Hospital Pricing Authority
HREC	Human Research Ethics Committee
IQR	Interquartile Range
LMS	Learning Management System
NAC	National Hospital Cost Data Collection Advisory Committee
NHCDC	National Hospital Cost Data Collection
NHRA	National Health Reform Agreement
T&T	Teaching and training
TAC	Technical Advisory Committee
TTR	Teaching, Training and Research
TTRWG	Teaching, Training and Research Working Group
TTR CSTG	Teaching, Training and Research Costing Study Technical Group

Executive Summary

ES.1 Background

Paxton Partners was engaged by the Independent Hospital Pricing Authority (IHPA) in September 2014 to conduct a teaching, training and research (TTR) costing study (the costing study). The objective of the project was to undertake a TTR cost and activity data collection at a representative sample of Australian hospitals and produce costed data to inform the development of a TTR classification.

The costing study built on a previous project initiated by IHPA in 2013 to establish nationally consistent, broadly accepted definitions for 'teaching and training' and 'research' (the Definitions and Cost Drivers project), and included a six-month prospective data collection period from May to October 2015 and where available, a retrospective TTR data collection from January to April 2015.

The recommendations and learnings from the Definitions and Cost Drivers project framed the approach to conducting the costing study. Key recommendations and learnings included that:

- three terms provide a basis for differentiating between the range of different TTR activities direct, indirect and embedded teaching and training (T&T). Direct T&T activities occur outside of an episode of care but are directed towards skills and knowledge development. Indirect T&T are 'back office' administrative and coordination activities undertaken by a health service that are essential to facilitate TTR. Embedded T&T describes activities that occur in conjunction with patient care. Data was collected, costed and analysed in terms of these three T&T activity types;
- public health services are predominately seen as facilitators of research, by providing the facilities, governance, administrative and labour resources for research to take place. As a result, the costing study focused on the costs and activities associated with maintaining research capability, rather than the costs associated with delivering research projects themselves;
- the primary resource consumed in the delivery of T&T activities and research capability, is staff time. The approach to data collection for the TTR costing study therefore focused on the human resources associated with receiving and delivering TTR.

ES.2 Quality and completeness of data collected by sites

The data collected for the TTR costing study covered a broad range of TTR activities at the participating sites. Although it was not possible to establish the proportion of overall TTR activity that was collected by each site, the costed data set provides coverage across all clinical professions, and for a large number of individual trainee types within each profession. The data has also been collected at the most granular level possible, to capture and test for differences in how T&T is conducted at the level of specialty (for Medicine), area of practice (for Nursing and Midwifery) and across Allied Health professions.

- **Teaching and training** data reported in trainee profiles, and in direct T&T activities generally improved over the live data collection period. Provision of indirect T&T data was relatively consistent across all tranches.
- **Research** data provided by sites was variable across sites and across tranches. Some sites reported not undertaking any research, and therefore provided no research data. Most sites that provided research data were principal referral metropolitan hospitals with a few outer metropolitan and regional hospitals also able to provide some details.

Most sites were able to provide reasonably comprehensive retrospective data on their general ledger, payroll and trainee profiles. In spite of other gaps in the data, statistical tests did not suggest that there were any material negative impacts of including retrospective data in the analysis.

Embedded T&T was considered a significant and material component of overall T&T costs that was important to capture. Sites were asked to use the Data Request Specification (DRS) to collect data on embedded T&T that was available in existing information systems. However, embedded data provided by sites in the DRS was not used in the costing process as the data received was not as robust or collected as originally assumed. Considering the issues in the DRS embedded activity data, and the fact that the proportions of staff time receiving and delivering embedded T&T could only be obtained through clinician feedback, primary survey data was used as the basis for collecting embedded T&T activity data.

Two rounds of surveys were undertaken to provide details on the amount of time clinical professionals in Medicine, Dentistry, Nursing, Midwifery and Allied Health receive or deliver embedded T&T. Running two separate survey periods was intended to capture seasonal variations on embedded T&T activity across the year. Focus groups were subsequently conducted to identify whether the survey results provided a reasonable starting point for quantifying embedded T&T for the purpose of costing.

Although the variability in embedded T&T was consistently raised as being an important consideration during focus groups, there was a general consensus from focus group participants that the survey result provided a reasonable starting point for modelling embedded T&T costs.

ES.3 Costed data results

ES.3.1 Teaching and training

The output or 'product' of teaching and training is a health professional who has acquired a particular set of clinical skills. This costing study has quantified the contribution of public hospitals towards the acquisition of those skills in terms of the average cost per trainee FTE that received teaching and training, per month. This is the product that has been costed in this study.

FTE was used as the unit of measure for trainee costs (rather than headcount) in order to provide a consistent basis for comparing resource usage across different trainee types. Classification development relies on the ability to compare resource usage across different outputs, and the use of FTE allows for variation in hours worked by different trainee types to be compared on a consistent basis.

Key outcomes from the analysis of costed T&T data included that:

- Average monthly costs for medicine trainees were highest of all professions (\$4,376 per FTE), followed by nursing (\$3,745) and midwifery (\$2,871) and allied health (\$2,667);
- For medicine, costs associated with advanced / vocational trainees were highest (\$5,842 per FTE). Variation in costs was greatest for pre-entry / student trainees;
- Costs are broadly comparable for procedural and non-procedural training and between basic and advanced trainee registrars. However, costs per FTE for advanced trainee registrars were approximately 15% higher than for basic trainee registrars for procedural specialties;
- For nursing, costs associated with Graduate Assistants in Nursing (\$5,654 per FTE) and Graduate Registered Nurses (\$5,199) were highest;
- For allied health, costs associated with specialist / advanced scope of practice trainees were highest (\$3,609 per FTE);
- Average monthly costs per FTE across most allied health professions were around \$3,000. No single profession showed systematically higher or lower costs across all phases of T&T;
- Findings relating to midwifery and dentistry were limited due to small sample sizes;
- Analyses across geography and peer group showed some variation. At the trainee type level, average costs per FTE were generally higher in non-metropolitan hospitals, compared to metropolitan hospitals;
- Modelled results for embedded T&T had a substantial bearing on total costs for each trainee type, and accounted for over 80% of total T&T costs in most cases.

ES.3.2 Research

Over the period of data collection (January-October inclusive), total research costs of \$4.56 million were reported by sites participating in the costing study. Of these total costs, \$4.53 million (99.2%) were reported by hospitals located in metropolitan areas.

Across peer groups, 89.4% of research costs were reported by principal referral hospitals, with Public acute group A hospitals accounting for 10.2% and Public acute group B hospitals 0.4%.

Of total research costs reported by sites, 94.6% were related to research capability. The remaining 5.4% related to State and Territory-funded research. No valid data was provided for research residual balances.

The greatest volume of research capability costs were attributed to research directorate administration and research support and coordination, which together accounted for over \$3 million (67%) of the total reported research costs.

In addition to research costs, the costing study also collected data from sites in relation to research activities/outputs. A total of 9,155 research project activities were reported by participating sites –of which almost 79% related to clinical research, human research or clinical trials.

Analysis of total research costs per activity did not identify any relationships. Costs per research output were highly variable both across, and within different types of hospitals – possibly as a result of differences in how sites reported research activities.

ES.3.3 Classification development

The results of the TTR costing study have demonstrated the feasibility of identifying and costing a teaching and training product. The costed data set supplied to IHPA provides an appropriate basis to develop a classification for T&T.

Although this project demonstrated that it might be possible to cost research capability, it did not identify a relationship between research capability costs and research outputs. Consequently, the costing study did not identify a research product to support classification development for research.

Key outcomes

The principal purpose of the costing study was to establish a costed data set from which to develop a TTR classification. The outcomes resulting from the costing study and analysis findings suggest that:

- 1. the available data does provide an adequate starting point for the development of a T&T classification using average T&T costs per trainee FTE to derive relative cost comparisons between trainee types;
- 2. although the costing study results appear to be broadly suitable for T&T classification development, some limitations in the available T&T data should be noted, including that:
 - participating sites were not able to capture the full range of trainees and T&T activities, so the available data does not reflect a fully absorbed T&T cost;
 - the impact of embedded T&T heavily influenced total comparative T&T results. The modelled results for embedded T&T represented over 80% of total T&T costs, but were derived from a relatively small number of survey responses. Variations in how respondents provided data to the survey and limited response sample size mean that the costed data for embedded T&T will include a margin of error that cannot be quantified;
 - **three jurisdictions opted to participate in the costing study.** The results may not therefore be fully representative of how TTR is conducted across all jurisdictions, however this is unlikely to be significant enough to influence classification development;
 - while the study period attempted to capture the impact of seasonal variations in training conducted for different trainee types, particularly initial graduate training activities delivered at the start of the calendar year, there were limited data systems available to capture T&T activities retrospectively (from January to April 2015).
- 3. due to limited quantity and quality of research data collected, there is a low degree of confidence that results relating to research capability are adequately representative to define a State and Territory funded research classification from this data set.
- 4. the results of the costing study suggest that key TTR data elements that may be valuable collecting on an ongoing basis include:
 - For teaching and training:
 - the number and type of trainee FTE employed (or placed) at a public hospital; and
 - o For research:
 - the labour resources that are responsible for delivering research capability.
- 5. further development of systems and processes would need to occur for a robust ongoing TTR data collection to be feasible in Australian public hospitals. Key developments that would need to take place include:
 - o expanded roll out of electronic learning management systems to capture direct T&T activities;
 - **improved identification of trainees and research capability positions** is introduced to hospital human resources systems;
 - implementation of systems to identify pre-entry student trainees and associated pre-entry student time in clinical placements.
- 6. The findings from this costing study should be applied to **establish a more standardised approach to capturing TTR data as part of the National Hospital Cost Data collection.**

Document structure

This document is structured as follows:

- **Section 1** introduces the project context, objective, scope and factors that have informed the project methodology;
- Section 2 provides a summary of the project methodology;
- Section 3 discusses the process to select and recruit sites to participate in the costing study, and presents the profile of sites that participated;
- Section 4 describes the approaches that were used by the consulting team to cost TTR;
- Section 5 discusses the process that was undertaken to determine how to cost teaching and training that occurs in conjunction with patient care (embedded T&T);
- Section 6 provides an overview of the scope of data that was provided by sites, along with the extent to which that data complied with specified collection rules;
- Section 7 presents the results of analysis on the costed T&T data that was collected throughout the project;
- Section 8 presents the results of analysis on the costed research data that was collected throughout the project;
- Section 9 describes the costed data files that were submitted to IHPA, how they may be used, considerations for using the data files and how key elements of TTR data collection may be implemented on an ongoing basis in Australian public hospitals.

1 Introduction

This section provides the context to the project and the project's objectives, scope and methodology.

1.1 Project context

In June 2013 IHPA initiated a project to define TTR and identify associated cost drivers for activity based funding (ABF) purposes (the Definitions and Cost Drivers project). This project established nationally consistent, broadly accepted definitions for 'teaching and training' and 'research', identified a range of potential cost drivers for both concepts and provided a framework for developing a classification for teaching and training (T&T).

Paxton Partners was engaged by the Independent Hospital Pricing Authority (IHPA) in September 2014 to conduct a teaching, training and research (TTR) costing study (the costing study). The overarching objective of the costing study was to undertake a TTR cost and activity data collection at a representative sample of Australian hospitals, and thereby develop a costed data file to inform the development of a TTR classification.

The costing study built on the Definitions and Cost Drivers project, and included a six-month prospective data collection period from May to October 2015. Additionally, the costing study collected retrospective TTR data from January to April 2015 where it was available.

1.2 Project scope

The scope of the TTR costing study was influenced largely by the provisions of the National Health Reform Agreement (NHRA), and subsequently the outcomes and recommendations of the Definitions and Cost Drivers project.

1.2.1 The National Health Reform Agreement

Schedule A, Clause A1 of the NHRA describes the funding to be provided by the Commonwealth Government for TTR, and in doing so clearly set the scope parameters within which IHPA's work is undertaken. The relevant sections of Clause A1 state that:

... (in addition to a range of other services) "the Commonwealth will fund:

- Teaching and training functions **funded by States undertaken in public hospitals or other organisations** (such as higher education providers and training providers); and
- Research funded by States undertaken in public hospitals."

1.2.2 Focus on clinical teaching and training activities

A vast range of activities that occur in public health services could be categorised as being related to teaching, training or research. An important consideration for IHPA was to identify those activities that are considered differential drivers of costs to deliver TTR activities in health services.

The costing study therefore did not intend to capture all activities that may be considered as TTR in a public health service. Instead it focused on clinical TTR activities, which were considered to have a material influence on health service resource requirements (and ultimately costs), and thus best differentiate one hospital's costs from another.

1.2.3 Focus on recurrent costs

While it was recognised that the provision of TTR requires both recurrent and capital resources, Clause A95 of the NHRA sets the focus of IHPA's work program on pricing recurrent costs – stating that "Capital will **not** be explicitly priced by the IHPA...". Consequently, the focus of the costing study was how TTR activity may influence a health service's recurrent costs.

1.2.4 Definitions

A core output of the Definitions and Cost Drivers project was the development of new nationally agreed definitions for 'teaching and training' and 'research'. These definitions were developed taking into account the scope considerations articulated within the NHRA, and were agreed following an extensive consultation process involving over 400 stakeholders from health services, jurisdictional health departments, peak bodies, interest groups and the general public. The new definitions of 'teaching and training' and 'research' for ABF purposes were approved by the Pricing Authority in February 2014, and are provided below.

Teaching and training describes:

"the activities provided by or on behalf of a public health service to facilitate the acquisition of knowledge, or development of skills. These activities must be required for an individual to:

- attain the necessary qualifications or recognised professional body registration to practice;
- acquire sufficient clinical competence upon entering the workforce; or
- undertake specialist/advanced practice

in Medicine, Dentistry, Nursing, Midwifery or Allied Health."

Research describes:

"The activities undertaken in a public health service where the primary objective is the advancement of knowledge that ultimately aims to improve consumer and patient health outcomes and/or health system performance. The activity must be undertaken in a structured and ethical way, be formally approved by a research governance or ethics body, and have potential for application outside of the health service in which the activity is undertaken.

For ABF purposes, the definition of research relates to:

the public health service's contribution to maintain research capability, excluding the costs of research activities that are funded from a source other than the State or Territory or provided in kind."

1.3 Determinants of the project methodology

The recommendations and learnings from the Definitions and Cost Drivers project (provided at Attachment A) have framed the approach to conducting the costing study, as discussed below.

1.3.1 Nature of T&T (direct/indirect/embedded)

A consistent theme throughout the Definitions and Cost Drivers project was the intrinsic and often inseparable link between activities that support both TTR and clinical service delivery.

The Definitions and Cost Drivers project identified three terms that provide a basis for differentiating between the range of different TTR activities:

- **Direct activities** are distinct and separable activities that occur outside of an episode of care but are directed towards skills and knowledge development (in the case of teaching and training) or the generation of new knowledge (in the case of research). In the teaching and training context, direct activities may include lectures, tutorials and workshops. In the context of research, direct activities relate to the conduct of research.
- Indirect activities are those 'back office' administrative and coordination activities undertaken by a health service that are essential to facilitate TTR. These activities may include the coordination of preentry student placements, rotations, educational program development or negotiation with higher education providers.
- Embedded activities which describe where TTR occurs in conjunction with patient care.

Recommendation 10 of the Definitions and Cost Drivers project stated that "any further work to identify the costs associated with teaching and training should attempt to separately identify its associated direct, indirect and embedded cost components". The approach to collecting T&T data during the costing study therefore attempted to separately capture each type of TTR activity to ensure the materiality of each could be better understood.

Complexities associated with capturing embedded T&T were noted at an early stage in the Definitions and Cost Drivers project. A detailed survey of clinicians and **pre-entry** students was undertaken as part of this project to obtain primary data on embedded T&T across jurisdictions and professions. The process to develop and deliver this survey is described in Section 5. Future studies of embedded T&T at a detailed level may provide some further insight.

1.3.2 Nature of Research

The Definitions and Cost Drivers project highlighted that public health services are predominately seen as facilitators of research, by providing the facilities, governance, administrative and labour resources for research to take place. As a result, the costing study focused on the costs and activities associated with maintaining research capability, and thus indirect research, rather than the costs associated with delivering research projects themselves.

The Definitions and Cost Drivers project noted that obtaining data on research activities for the purpose of cost driver analysis was problematic, and ultimately restricted the analysis of research cost drivers to an exploratory level only. As a result, Recommendation 15 of the Definitions and Cost Drivers project stated that "IHPA should consider undertaking a research-specific data collection as part of the recommended costing study of T&T activities, to understand the nature of research capability costs".

The scope and approaches to data collection used in the costing study also took into account the difficulties encountered in the Definitions and Cost Drivers project, and aimed to provide a more comprehensive research data collection that provided a better understanding of the costs States incur to support research that is delivered at public hospitals.

1.3.3 Other key implications

The Definitions and Cost Drivers Project identified that the primary resource consumed in the delivery of T&T activities and research capability, is staff time. The approach to data collection for the TTR costing study therefore focused on the human resources associated with receiving and delivering TTR. This included trainees, clinical staff who deliver teaching and training, clinical administration departments, clinical education departments, offices of clinical training, research directorates and research administration departments. However, there was also recognition that delivering T&T incurs non-labour costs that should be captured and costed. Sites were therefore asked to submit data on both labour and non-labour costs.

The Definitions and Cost Drivers Project also identified that TTR data is not systematically collected in Australian public hospitals. Consequently, detailed data collection templates and processes needed to be developed. Following the recommendations of the Definitions and Cost Drivers Project, these documents allowed collection of data on:

- the professional group, phase of teaching and training and specialty (for Medicine and Dentistry), area of practice (for Nursing and Midwifery) and profession (for Allied Health), in which a trainee was engaged;
- International medical professionals in training;
- direct, indirect and embedded T&T activities;
- revenue items.

1.3.4 Role of IHPA advisory bodies

Throughout the project, IHPA advisory bodies played a key role in the formulation, review and endorsement of key project deliverables, and provided guidance on the study's approach. This included:

- the **Teaching, Training and Research Working Group (TTRWG)**, which comprises jurisdictional health authorities, clinicians and peak body and interest groups that are involved in the delivery of TTR. The TTRWG was an important reference forum and provided guidance on all aspects of the costing study.
- the **Teaching, Training and Research Costing Study Technical Group (TTR CSTG)**, which was formed as a sub group to the Teaching, Training and Research Working Group (TTRWG). The TTR CSTG provided detailed feedback on the technical, and logistical aspects of the project.
- the **Technical Advisory Committee (TAC) and NHCDC Advisory Committee (NAC)**, which provided feedback on technical matters contained within written reports, as required.

2 Project Methodology

A six stage project methodology was employed to deliver the costing study, as illustrated in Figure 1. The key activities undertaken within each stage are described in the following sections.



2.1 Stage 1: Project initiation and planning

The primary objective of Stage 1 was to confirm the project schedule, deliverables, timeframes, task responsibilities, governance, stakeholder engagement, quality assurance and risk management – as summarised in the Project Plan. This document then guided the approach to delivering subsequent stages of the project methodology.

2.2 Stage 2: Site selection and implementation planning

The objective of Stage 2 was to select and recruit a representative sample of health services to participate in the costing study. Information on the site selection process is provided in Section 3. Once all participating sites had been confirmed, ethical approval and project authorisation was obtained in conjunction with each State's requirements.

Following selection and appointment of sites, site coordinators were also appointed. Site coordinators provided a key linkage between the consulting team and other site staff, and were primarily responsible for the collection and submission of TTR data for the costing study.

2.3 Stage 3: Develop and test costing methodology

The aim of Stage 3 was to gather information to inform the development of a robust and credible costing methodology and associated data collection process. Since the costing study's purpose was to inform classification development, the study did not seek to understand the absolute costs of TTR, but rather the cost differential between different types of TTR activities. This was reflected in the costing methodologies.

Key tasks undertaken within Stage 3 included:

- consultations with representatives of participating sites, government departments, peak bodies and the general public;
- a stakeholder workshop to present and validate consultation outcomes;
- development of a detailed costing methodology.

In consultation with IHPA, the TTRWG, TTR CSTG, TAC and NAC, the consulting team then developed the detailed costing methodologies for T&T and research. Further information on the costing methodology is presented in Section 4.

2.4 Stage 4: Develop data collection infrastructure

Stage 4 involved the development of a Data Collection Toolkit which consolidated all of the information that sites required in relation to data collection, and included a:

- Data Request Specification (DRS) a Microsoft Excel file that specified the data items to be collected by sites, data descriptions, required formats and value rules for site data submissions.
- **Data Collection Process** which described the recommended processes site coordinators should adopt to collect each data item and subsequently securely transfer data.
- **Data Quality Assurance Framework** which outlined the quality assurance processes that should be undertaken to ensure that the data collected to inform the costing study was complete and robust.

The Data Collection Toolkit ensured that all relevant data could be identified, collected and quality assured on a consistent and efficient basis by:

- providing a standardised template for all sites to use;
- accounting for differences in circumstances between sites; and
- being detailed and comprehensive.

To ensure that sites were familiar with the data collection requirements and processes, the consulting team developed and piloted training materials before training site coordinators and other relevant site representatives, in the use of the Data Collection Toolkit.

2.5 Stage 5: Cost data collection

The aim of Stage 5 was to ensure that the cost and activity data collected was comprehensive, representative and robust. Costing of data submitted by participating sites was undertaken by the consulting team. The main role of participating sites was to source and securely submit TTR data. Two types of data collection took place:

- 1. **retrospective data collection** captured data for January to April 2015 (inclusive) in recognition of the seasonality of T&T activity and stakeholder feedback that this timeframe was key to capturing an intensive period of training activity for some professions;
- 2. **prospective data collection** captured data over a six-month period from 1 May to 31 October 2015 (inclusive).

Sites were required to submit data in three main tranches, with the option of providing retrospective data in Tranche 1 or later in the collection period, as shown in Table 1.

Data submission tranche	Data reporting period	Site submission date
Tranche 1	January-May or May	12 June
Retrospective data tranche	January-April	31 July
Tranche 2	June-August	15 September
Tranche 3	September-October	16 November

Table 1: Key timeframes for data collection and submission

Sites were requested to submit data in tranches so that the quality and completeness of their data could be identified and assessed on an ongoing basis. This process supported the progressive identification and resolution of key data collection and quality assurance issues over the course of the study.

The consulting team supported sites through the period of live data collection and provided a number of support tools in addition to the Data Collection Toolkit, as shown in Table 2.

Table 2: Documentation, in	iformation and suppor	rt materials provided	to sites by the	consulting team

Support material	Description		
'Help desk' support	 The consulting team was available to answer site queries remotely during the Pilot test and period of live data collection, by telephone or email 		
	A response was usually provided within 24 hours		
	Most queries were received during Tranche 1 and 2		
Onsite support	• One site experienced issues that could not be resolved remotely, so the consulting team travelled to this site to provide on-site assistance		
Study web page	• A publicly available web page provided information on the costing study's key objectives, approach and governance arrangements		
	• The website included a password-protected portal that provided sites with access to relevant project documentation, a discussion forum, frequently asked questions and contact details for the consulting team and other sites		

Support material	Description		
Fortnightly Site Information Bulletin	 A fortnightly Site Information Bulletin was emailed to site coordinators The bulletins provided examples of good practice, key target timeframes, milestones for the upcoming fortnight and recent site questions and answers Site Information Bulletins were also posted on the study web page 		
Monthly site coordinator teleconferences	 A monthly forum was held by teleconference, where all sites were invited to discuss issues or provide feedback to the consulting team Teleconferences were generally very well attended by sites, discussion was productive and resulted in the identification and resolution of a number of issues that enhanced the process and outcomes of the costing study 		

The scope of data submitted by sites, as well as site compliance with data collection processes, is presented in Section 6.

2.6 Stage 6: Data preparation and reporting

The key objectives of Stage 6 were to provide a robust, representative and accurate TTR costing dataset to IHPA for classification purposes, and to report to IHPA on the process, findings and key outcomes of the costing study.

Data was costed at the completion of each of the three tranches of data collection, once TTR data had been received from sites and quality assured by the consulting team.

Once all three tranches of data had been submitted by participating sites and costed by the consulting team, the consulting team consolidated all tranches of data, completed a final data validation and undertook descriptive and exploratory statistical analyses of the full dataset (refer to Section 6.5.3 for the results of this analysis for T&T, and Section 8 for results of analysis on research).

Once the process for costing the TTR dataset was completed, this Final Report was prepared for comment and feedback from IHPA's advisory committees.

3 Site selection

This section describes the process that was used to select and recruit a representative sample of hospitals to participate in the costing study.

3.1 Site selection process

To ensure that the outcomes of the costing study could be as representative as possible, it was important that the sample of participating sites:

- captured a sufficient volume of cost and activity data to support the development of an initial classification for TTR;
- accurately reflected the costs and activities associated with TTR delivery in Australian health services;
- provided a sample that was reasonably representative of the profile of public hospitals nationally; and
- could support the level of data capture required to underpin classification development.

The process to select sites comprised six steps:

- 1. confirmation of jurisdictions that would participate in the costing study;
- 2. receipt of site nominations from these jurisdictions;
- consultations with nominated sites to obtain an understanding of what TTR activities were provided at each site, who provided TTR activities and the availability of TTR data. Consultations were held with a broad range of stakeholders at each site, including representatives from clinical education and administration units, Finance, Human Resources and research administration units;
- 4. the consulting team recommended to IHPA which sites should participate, based on the availability and ease of data collection and the perceived level of engagement at each site;
- 5. final selection of sites by IHPA; and
- 6. confirmation of participation by 19 sites.

3.2 Profile of participating sites

Table 3 shows the sites that were selected to participate in the costing study. Although recruitment of a sample of 30 sites was originally intended, a total of 19 sites ultimately provided data to the costing study. 18 of these sites finished the data collection phase, as one site did not provide data after Tranche 1.

The Australian Institute of Health and Welfare (AIHW's) revised hospital peer group classification¹ was used to test the geographic representativeness of participating sites. Both the 1999 and 2014 peer group classifications are described in Table 3.

As shown in Table 3, 13 sites (69%) were located in Queensland, five sites (26%) were from Western Australia and one site 5% was located in South Australia.

¹ Australian Institute of Health and Welfare 2015. Australian hospital peer groups. Health services series no. 66. Cat. no. HSE 170. Canberra: AIHW.

Hospital site	Jurisdiction	Geography (ASGC)	Old peer group	New peer group
Armadale-Kelmscott Memorial Hospital	Western Australia	Major Cities	B2 Large regional and remote	Public acute group A
Emerald Hospital	Queensland	Outer Regional	C2 Medium (group 2)	Public acute group C
Gladstone Hospital	Queensland	Inner Regional	C1 Medium (group 1)	Public acute group B
Gold Coast University Hospital	Queensland	Major Cities	A1 Principal referral	Principal Referral
Kalgoorlie Hospital	Western Australia	Outer Regional	C1 Medium (group 1)	Public acute group B
Mackay Base Hospital	Queensland	Inner Regional	A1 Principal referral	Public acute group A
Mount Isa Hospital	Queensland	Remote	B2 Large regional and remote	Public acute group B
Nambour General Hospital	Queensland	Major Cities	A1 Principal referral	Public acute group A
Princess Alexandra Hospital	Queensland	Major Cities	A1 Principal referral	Principal Referral
Proserpine Hospital	Queensland	Outer Regional	C2 Medium (group 2)	Public acute group C
Redcliffe Hospital	Queensland	Major Cities	A1 Principal referral	Public acute group A
Robina Hospital	Queensland	Major Cities	A1 Principal referral	Public acute group A
Rockhampton Hospital	Queensland	Inner Regional	A1 Principal referral	Public acute group A
Rockingham General Hospital	Western Australia	Major Cities	B1 Large Major cities	Public acute group A
The Royal Brisbane & Women's Hospital	Queensland	Major Cities	A1 Principal referral	Principal Referral
Royal Perth Hospital	Western Australia	Major Cities	A1 Principal referral	Principal Referral
Sir Charles Gairdner Hospital	Western Australia	Major Cities	A1 Principal referral	Principal Referral
The Prince Charles Hospital	Queensland	Major Cities	A1 Principal referral	Principal Referral
Women's and Children's Hospital	South Australia	Major Cities	A2 Specialist women's and children's	Combined Women's and Children's

Table 3: Profile of sites that participated in the Costing Study

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Figure 2 shows the profile of participating sites using the 1999 AIHW peer group classification. Figure 3 shows the site profile using the 2014 AIHW peer group classification. Comparison of these figures shows that sites are more evenly distributed in the new peer group classification and consequently, the profile of sites appears to have improved.

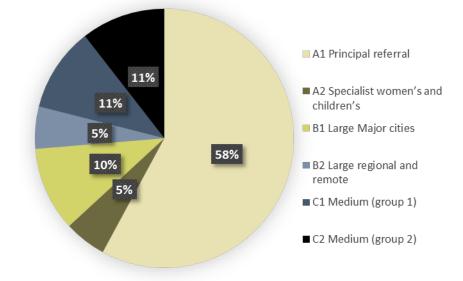
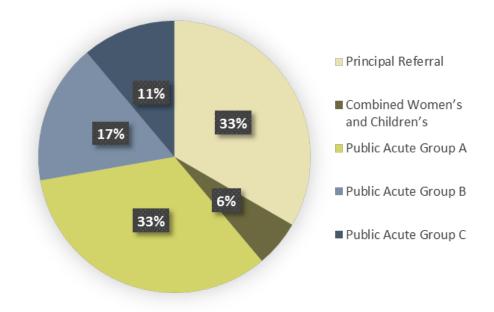


Figure 2: Profile of participating sites using 1999 AIHW hospital peer group classifications

Figure 3: Profile of participating sites using 2014 AIHW hospital peer group classifications



On a geographic basis, Figure 4 shows that almost two thirds of sites were located in major cities. Approximately 32% of sites were located in regional areas and 5% were classified as being remote.

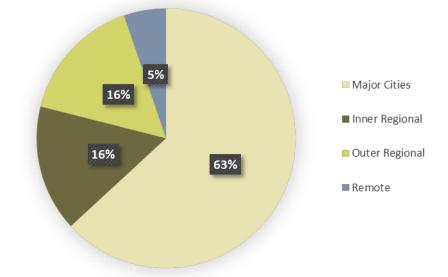


Figure 4: Profile of participating sites, comparison by ASGC Remoteness Area

The representativeness of participating sites was analysed following site selection using the ASGC and 1999 peer group classifications and was found to be sufficient for classification development purposes – appropriately covering professions, trainee levels and relevant health service characteristics.

Analysis of costed T&T data in Section 6.5.3 will be presented in terms of the updated peer group classification, and the ASGC for geography. To ensure no individual site can be separately identified in the results, Women's and Children's Hospital (the only Combined Women's and Children's Hospital that participated in the study) will be included in the Principal Referral peer group.

4 Costing methodologies

This section outlines the costing methodologies for T&T and research.

4.1 Introduction to costing

The process of hospital costing involves the allocation of costs, time and resources (inputs) to a hospital's outputs. This requires identification of:

- the costs of processes or events that are attributable to an output for example, the cost of a
 pathology test, the cost of a day spent in a ward bed and the cost of a minute spent in
 theatre; and
- the costs associated with the hospital that are not attributable to any one output for example, the cost of utilities and payroll services.

The study employed both 'bottom-up' and 'top-down' costing methodologies. Bottom-up costing methodologies 'build up' the cost of a hospital output by:

- 1. identifying relevant activities that are undertaken to support the output;
- 2. matching the resources consumed in the delivery of each activity; and
- 3. calculating the costs associated with each of the resources.

In contrast, 'top-down' costing methodologies seek to break down total hospital costs by:

- 1. identifying relevant activities that are undertaken to support the output;
- 2. identifying cost buckets that are relevant to the output; and
- 3. apportioning costs across activities using statistics.

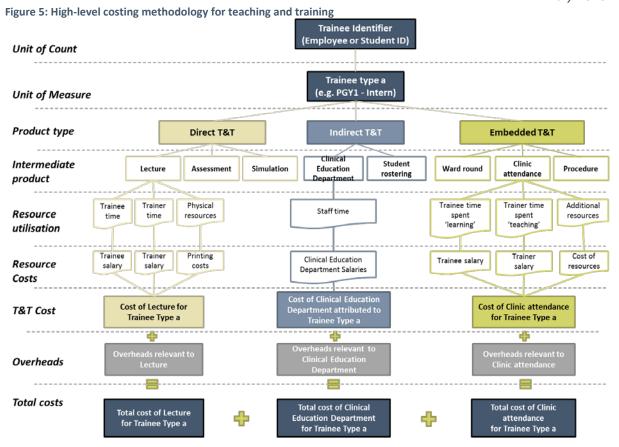
4.2 Teaching and training costing methodology

The T&T costing methodology aimed to identify and attribute costs associated with T&T activities across three T&T product types (direct, indirect and embedded) for each trainee type. The total direct, indirect and embedded costs for each trainee type were summed to determine a total T&T cost for each trainee type.

The T&T costing methodology represented a mix of 'bottom-up' costing, for direct and embedded T&T product types, and 'top-down' costing for the allocation of indirect T&T and overheads. A 'bottom-up' costing methodology was applied for direct and embedded T&T on the basis that the T&T activities are not homogenous – so a 'bottom-up' approach allowed variations in delivery across health services to be captured more accurately. A 'top-down' costing methodology was applied for the allocation of indirect T&T and overheads because these costs often cannot be attributed to individual trainees and were instead attributed to trainee types according to allocation statistics. Although the nature and unit of count for T&T is different to patient costing, the approach to costing T&T was developed to align with current patient costing standards, where appropriate.

Data used to cost direct T&T, indirect T&T and overheads were obtained from site DRS data submissions. Data used to cost embedded T&T was obtained from surveys of clinicians and trainees, in conjunction with payroll and trainee profile data drawn from DRS data submissions.

The high-level costing methodology for teaching and training is shown conceptually in Figure 5.



4.2.1 Direct T&T

The process to cost direct T&T using the data provided by sites in the DRS included five steps, which are shown in Figure 6, and described in the following sections.

Figure 6: Steps to cost direct T&T



4.2.1.1 Step One – Calculate trainee labour costs

Trainee labour costs associated with direct T&T Activity X were calculated using the formula described in Box 1.

Box 1: Calculation of trainee labour costs for direct T&T activities

Labour cost for Trainee type A engaged in direct T&T Activity X equals:

(Duration of direct Activity X) x ((Per-minute pay rate of Trainee type A) x (Number of attendees from Trainee type A))

For direct T&T activities where more than one trainee group attends the activity simultaneously, this calculation was replicated for each trainee group. The total trainee labour cost for a given direct T&T activity type then represented the sum of all labour costs for Trainee type A attending direct T&T Activity X in the reporting period.

4.2.1.2 Step Two - Calculate and apportion trainer labour costs

The labour costs of trainers that deliver direct T&T activities were calculated, and then apportioned to the trainees that attended the activities these trainers delivered.

Labour costs of trainers that deliver direct T&T activities were relatively straightforward to calculate, as shown in Box 2.

Box 2: Calculation of trainer labour costs for direct T&T activities

Labour cost for Trainer type A engaged in direct T&T Activity X equals:

(Duration of direct Activity X) x (Per-minute pay rate of Trainer type A)

Once the total costs of trainers were established for each direct T&T activity, these costs were allocated to trainees based on the number of trainee headcount that attended the activity. Box 3 demonstrates the approach to allocating trainer labour costs across trainee types.

Box 3: Allocation of direct T&T trainer labour costs to each trainee type

Trainer cost attributed to trainee type A engaged in direct T&T activity X equals:

(Total trainer labour costs incurred in activity X) x ((Total headcount of attending trainee type A) / (Total number of trainees that attended activity X))

4.2.1.3 Step Three – Calculate and apportion non-labour costs

Non-labour costs incurred in the delivery of direct T&T activities may include those associated with other goods and services, such as printing or technology, used during the delivery of these activities.

The calculation for non-labour costs associated with each direct T&T activity represented the sum of all identifiable non-labour costs, as shown in Box 4.

Box 4: Calculation of direct non-labour costs

Non-labour cost for direct T&T Activity X equals:

(Non-labour cost A) + (Non-labour cost B) + (Non-labour cost C)

Non-labour costs were apportioned across all trainee types that attended the direct T&T activity according to the proportion headcount for each trainee type that attended the activity. Box 5 demonstrates the approach that was used to allocate non-labour costs across trainee types.

Box 5: Allocation of direct T&T non-labour costs to each trainee type

Non-labour cost attributed to trainee type A engaged in direct T&T Activity X equals:

(Total non-labour costs incurred in direct Activity X) x ((Total headcount of attending trainee type A) / (Total number of trainees that attended Activity X))

4.2.1.4 Step Four - Allocate overheads to each trainee type

The process to allocate overheads to trainees receiving direct T&T is described in detail in Section 4.4.

4.2.1.5 Step Five – Determine the total direct T&T cost for each trainee type

The total cost of direct T&T activities for each trainee type represents the sum of the labour, nonlabour and overhead costs associated with each direct T&T activity for trainee type A.

4.2.2 Indirect T&T

The process to cost indirect T&T included four steps, which are shown in Figure 7.



4.2.2.1 Step One - Calculate and apportion indirect T&T labour costs

The total costs for each position that supports indirect T&T was calculated using information from the payroll systems of each site. The payroll systems detail all employee costs for a specific period, for specific positions including ordinary hours, allowances and other and items, which total to a "period balance". This period balance was then allocated to individual positions by dividing by the total number of FTE for that position (cost centre by pay classification). This process is described by the formula in Box 6.

Box 6: Calculation of labour costs for each indirect T&T position

Labour cost for Indirect T&T position A equals:

(Indirect T&T position A period balance) / (Indirect T&T position A FTE)

Some indirect T&T positions supported more than one trainee type. Trainee types were therefore amalgamated into trainee groups and the cost of the indirect position was initially apportioned across the groups that they supported. Some indirect T&T positions may also support both clinical activity and T&T roles. The "% of time allocated to target trainee group" field in the indirect T&T activity input sheets in the DRS identified the proportion of the indirect T&T position's time that was related to T&T for each trainee group. Box 7 shows the approach to allocating indirect T&T positions across trainee groups.

Box 7: Allocation of indirect T&T position labour costs to each trainee group

Indirect T&T position cost attributed to Target trainee group X equals:

(Total indirect T&T position labour cost) x (% of time allocated to Target trainee group X)

The cost of the indirect positions was then apportioned across the trainee types within each trainee group, based on full-time equivalent trainee numbers, using the approach described in Box 8.

Box 8: Allocation of indirect T&T position labour costs to each trainee type

Indirect T&T position cost attributed to trainee type A engaged in indirect T&T Activity X equals:

(Indirect T&T position cost attributed to trainee group X) x ((Total FTE of trainee type A within trainee group X) / (Total trainee FTE in trainee group X))

4.2.2.2 Step Two – Calculate and apportion non-labour costs

Non-labour costs incurred in the delivery of indirect T&T activities may include such cost categories as trainee accommodation (for example), where the associated costs can be identified. The calculation of total non-labour costs associated with indirect T&T represented the sum of all relevant non-labour costs, as shown in Box 9.

Box 9: Calculation of non-labour costs for indirect activities

Non-labour cost for indirect T&T Activity X for trainee group Y equals:

(Non-labour cost A) + (Non-labour cost B) + (Non-labour cost C)

Total non-labour costs were apportioned across the target trainee groups to which they relate. The process to allocate non-labour costs to trainee types was based on relative trainee FTE, using the formula in Box 10.

Box 10: Allocation of indirect T&T non-labour costs to each trainee type

Total non-labour indirect T&T cost attributed to Trainee type A equals:

(Total non-labour costs incurred for target trainee group Y) x ((Total FTE of trainee type A) / (Total FTE of trainee group Y))

4.2.2.3 Step Three -Allocate overhead costs to trainee types

The process to allocate overheads for indirect T&T is described in detail in Section 4.4.

4.2.2.4 Step Four - Determine the total indirect T&T cost for each trainee type

The total cost of indirect T&T activities for each trainee type represented the sum of the labour, nonlabour and overhead costs associated with each indirect T&T activity for trainee type A.

4.2.3 Embedded T&T

As shown in Figure 8, the steps to cost embedded T&T were essentially the same as for direct T&T, except that it was not possible to identify non-labour costs associated with the delivery of embedded T&T. As a result, embedded T&T was costed by applying a four step process, as shown in Figure 8.

Figure 8: Steps to cost embedded T&T



Survey data was used to undertake a bottom-up approach to quantifying the amount of embedded T&T each trainee typically receives, and who provided it. This data was used in conjunction with pay rates (from DRS payroll extracts) and the number of trainee FTE at each site (from DRS trainee profiles).

4.2.3.1 Step One – Calculate trainee labour costs

Trainee labour costs associated with embedded T&T Activity X were calculated using the formula described in Box 11.

Box 11: Calculation of trainee labour costs for embedded T&T activities

Labour cost for Trainee type A engaged in embedded T&T Activity X equals:

(Average minutes in embedded T&T per day) x (Per-minute pay rate of Trainee type A) x (Average % of embedded minutes that Trainee type A spends receiving embedded T&T)

4.2.3.2 Step Two - Calculate and allocate trainer labour costs

The labour costs of trainers that deliver embedded T&T activities were calculated, and then allocated to the trainees that attended the activities these trainers delivered. The calculation of trainer labour costs associated with embedded T&T Activity X incorporated trainer time delivering embedded T&T and trainer time preparing for embedded T&T, using the formula described in Box 12.

Box 12: Calculation of total trainer labour costs for embedded T&T activities delivered to each trainee type

Labour cost for Trainer type Y delivering embedded T&T to Trainee type A equals:

((Average Trainer type Y minutes in embedded T&T per day) x (Per-minute pay rate of Trainer type Y) x (Average % of embedded minutes that Trainer type Y spends delivering embedded T&T)) x ((1 + (Average Trainer type Y preparation time/Average Trainer type Y time delivering embedded T&T))

Profiles of the trainers that deliver embedded T&T to each trainee type were then developed. For example, survey responses from Trainee type A may have indicated that embedded T&T is delivered by:

- Trainer type X 20% of the time
- Trainer type Y 30% of the time
- Trainer type Z 50% of the time.

Labour costs of Trainer type X, Y and Z were then allocated to Trainee type A in these proportions. The ratio of attending trainers to attending trainees (as reported by Trainee type A) was then used to account for instances when more than one trainee or trainer was in attendance. This approach is described in Box 13:

Box 13: Process to allocate total embedded T&T trainer costs to each trainee type

Total trainer costs attributed to trainee type A equals:

(((Labour cost for **Trainer type X**) x (% of time Trainer type X delivers embedded T&T to Trainee type A)) +

((Labour cost for **Trainer type Y**) x (% of time Trainer type Y delivers embedded T&T to Trainee type A)) +

((Labour cost for **Trainer type Z**) x (% of time Trainer type Z delivers embedded T&T to Trainee type A))) x

(Average attending trainers reported by Trainee type A/Average attending trainees reported by Trainee type A)

4.2.3.3 Step Three - Allocate overheads to each trainee type

The process to allocate overheads to trainees receiving embedded T&T is described in detail in Section 4.4

4.2.3.4 Step Four – Determine the total embedded T&T cost for each trainee type

The total cost of embedded T&T activities for each trainee type represents the sum of the labour and overhead costs associated with each embedded T&T activity for Trainee type A. To ensure that embedded T&T costs could be compared on a like-for-like basis to direct and indirect T&T activities (which were reported monthly per trainee FTE in the DRS), total daily embedded T&T labour costs for Trainee type A were converted to a total monthly embedded T&T cost per trainee FTE. This conversion was performed by multiplying the total daily cost (derived as the sum of steps one and two above) by the number of work days in each month. This is shown in Box 14.

Box 14: Calculation to convert daily embedded T&T cost to a monthly amount

Total embedded T&T costs per FTE for trainee type A in Month x equals:

(Total embedded T&T labour costs for Trainee type A) + (Total trainer labour costs allocated to Trainee type A) x Number of week days in Month

Once the total monthly embedded T&T costs for each trainee type had been calculated, this cost was multiplied by the total trainee FTE (as listed in the site's trainee profile) to determine the total monthly embedded T&T cost for each trainee type, at each site. This calculation is shown in Box 15.

Box 15: Calculation of total embedded T&T costs at each site, in each month

Total embedded T&T costs for trainee type A in Month x equals:

(Total embedded T&T cost per FTE for Trainee type A in Month X) x (Total FTE for Trainee type A in Month X)

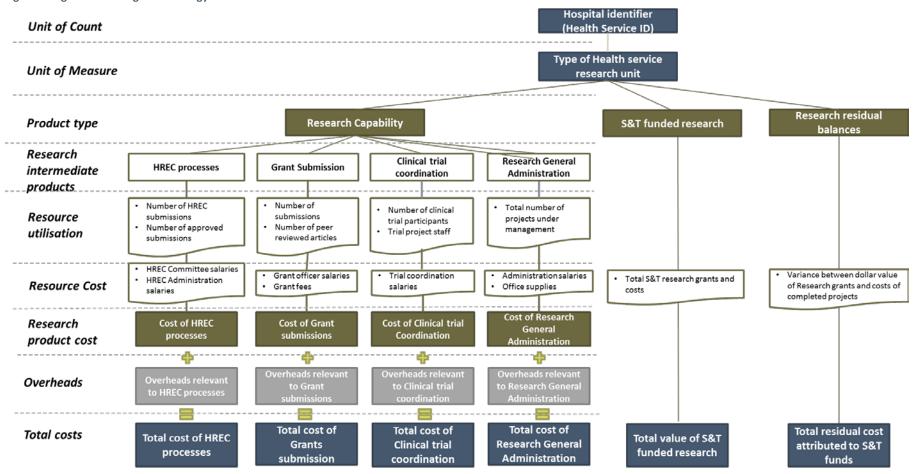
4.3 Research costing methodology

The unit of count for research was the hospital. The approach for research therefore did not focus on allocating costs to individual units of activities (e.g. determining a cost per research grant submission), but instead aimed to identify and categorise the total cost across the hospital (e.g. the cost for supporting research grant submissions).

Figure 9 illustrates the high-level costing methodology for research. For each participating site, data was collected, and costed separately for the following types of research products:

- research capability functions that the health service delivers;
- research project costs associated with State or Territory-funded research grants; and
- residual balances of completed research projects where the balance was offset against State funding streams.

Figure 9: High-level costing methodology for research



4.3.1 Research capability

The process to cost research capability involved four steps, as shown in Figure 10.



4.3.1.1 Step One - Calculate and apportion research capability position labour costs

The total costs for each research capability position were calculated using the formula in Box 16.

Box 16: Calculation of research capability position labour costs

Labour cost for Research capability position A equals:

(Research capability position A period balance) / (Research capability position A FTE)

The cost of the research capability position was then apportioned across research capability intermediate products as shown in Box 17.

Box 17: Allocation of research capability position labour costs to each research capability intermediate product

Research capability position cost attributed to research capability intermediate product X equals:

(Total research capability position labour cost) x (Research capability position FTE for research capability intermediate product X)

4.3.1.2 Step Two - Calculate and apportion non-labour costs

Non-labour costs incurred in the maintenance of research capability may include printing and stationery costs in supporting HREC committee meeting papers. The total non-labour costs associated with research capability intermediate products were calculated by summing the non-labour costs that are associated with each research capability intermediate product, as described in Box 18.

Box 18: Calculation of non-labour costs for research capability intermediate products

Non-labour cost of research capability intermediate product X equals:

(Non-labour cost A) + (Non-labour cost B) + (Non-labour cost C)

4.3.1.3 Step Three - Allocate overheads to each research capability intermediate product

The overhead allocation process for research was performed as described in detail in Section 4.4.

4.3.1.4 Step Four – Determine the total cost for each research capability product

The total cost associated with each research capability intermediate product represents the sum of the labour, non-labour and overhead costs.

4.3.2 State and Territory-funded research

The calculation of total costs for State and Territory-funded research projects involved adding the total costs incurred for each research project. This was a simple one step process, as described in Box 19.

Box 19: Calculation of State and Territory research project costs

Total research project costs equals:

(Research project cost A) + (Research project cost B) + (Research project cost C)

4.3.3 Research residual balances

The calculation of the residual balance of completed research projects, where the balance was offset against State funding streams, was broadly the same as that used for total costs for State and Territory funded research projects. This process essentially involved summing the research residual balances reported by sites in the DRS, as shown in Box 20.

Box 20: Calculation of research residual balance costs

Research residual balance equals:

(Negative research residual balance A) + (Negative Research residual balance B) + (Negative Research residual balance C)

4.4 Overhead allocation process

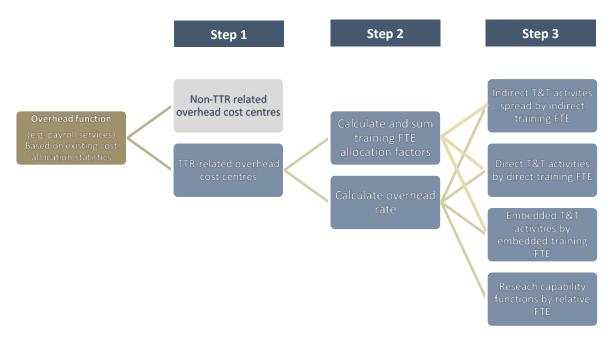
An important costing principle is that all costs are allocated appropriately to the unit of measure being costed. This includes a hospital's corporate overhead costs (e.g. finance department and payroll services).

The overhead allocation methodology that was applied to the costed data differed slightly from what was originally approved in the Costing methodology document. Rather than base the overhead allocation on trainee headcount, it became apparent during data collection that it would be possible to allocate overheads based on the amount of training that trainees undertook (for T&T), and on the staff FTE that support research capability. This provided a more appropriate overhead allocation measure. Although the Data Collection Process document requested that sites only use the DRS to submit overhead cost categories that were related to TTR, it was common for non-TTR relates cost centres to be included in site data submissions. As a result, the consulting team reviewed each site's submission and identified cost centres that were related to TTR, before costing could take place.

Once overheads related to TTR were identified, the overhead allocation methodology comprised a three-step method that was applied to both T&T and research, as illustrated in Figure 11:

- 1. identify total TTR overhead costs;
- 2. calculate allocation factors required to allocate TTR costs. This step is comprised of three substages, including:
 - a. calculate the overhead rate used to allocate TTR overheads to specific trainee types or research capability staff;
 - b. for T&T, calculate 'Training FTE' factors to be used in the overhead allocation process; and
 - c. for T&T, sum direct, indirect and embedded training FTE.
- 3. allocate TTR overhead costs to trainees or research capability products.

Figure 11: Overhead allocation process



4.4.1 Step One – Identify total overhead costs to be allocated to TTR

The consulting team identified the total costs associated with staff-related cost centres by summing their associated costs as reported in the general ledger, as shown in Box 21.

Box 21: Identification of total overhead costs to be allocated to TTR

Total overhead costs to be allocated to TTR equals:

(Costs associated with staff-related cost centre A) + (Costs associated with staff-related cost centre B) + (Costs associated with staff-related cost centre...n)

4.4.2 Step Two (a) – Calculate the overhead rate used to allocate overheads

The 'overhead rate' represents the average staff-related overhead cost per FTE of all staff employed or placed at a hospital. Calculation of the overhead rate represents the first step in the process to allocate TTR overhead costs to the trainees or research capability staff that absorb overhead costs. The calculation used to derive the overhead rate is shown in Box 22.

Box 22: Calculation of the 'overhead rate'

The 'overhead rate' equals:

(Total staff-related overhead costs relevant to TTR) / (Total site FTE reported in the DRS)

4.4.3 Step Two (b) - calculate 'Training FTE' factors for direct, indirect and embedded T&T

For T&T, overhead costs were allocated to each trainee type according to the amount of direct, indirect or embedded T&T (in minutes) that was delivered to each trainee type. Conversion of these training minutes into an equivalent number of FTE represented the next step required to allocate T&T overheads.

The direct and embedded T&T training FTE represented the minutes of direct and embedded T&T undertaken by a trainee type within that period, divided by the total minutes available for an FTE for the period. The training FTE effectively represents the proportion of the trainee's time that has been spent in T&T compared to the time spent in other, non-T&T activities such as clinical service delivery.

Indirect training FTE represents the equivalent FTE of staff that deliver indirect T&T to a given trainee type, based on the target trainee groups that were supported by each indirect T&T resource. Target trainee groups represent groups of trainees to which indirect resources may typically be allocated. Examples include pre-entry students, pre-vocational trainees or advanced / vocational trainees.

Calculation for 'training FTE' for direct, indirect and embedded T&T occurred as Box 23:

Box 23: Calculation of training FTE used to allocate overhead costs for direct, indirect and embedded T&T

Direct training FTE equals:

(Total minutes spent in direct T&T for trainee type A in Month X) / ((Total Trainee type A FTE in Month X) x (Total work days in Month X) x (Total hours worked per day) x (60 minutes per hour))

Indirect training FTE equals:

(Total indirect staff FTE for target trainee group) x (Proportion of indirect staff FTE allocated to target trainee group)) / ((Total FTE of target trainee group) x (FTE of Trainee Type A))

Embedded training FTE equals:

(Total minutes spent in embedded T&T for Trainee type A in Month X) / ((Total Trainee type A FTE in Month X) x (Total work days in Month X) x (Total hours worked per day) x (60 minutes per hour))

4.4.4 Step Two (c) – Calculate the total training FTE factor to be used to allocate overheads

The total training FTE used to allocate overhead costs to trainees represented the sum of direct, indirect and embedded training FTE, as shown in Box 24.

Box 24: Calculation of total training FTE for T&T costs

Total training FTE equals:

(Direct training FTE for Trainee type A) + (Indirect training FTE for trainee type A) + (Embedded training FTE for Trainee type A)

4.4.5 Step Three – Allocate TTR-related overheads to T&T and research capability products

4.4.5.1 Process to allocate overhead costs to trainees for T&T

Total TTR overhead costs identified in step one were allocated to trainee types based on the total (direct + embedded + indirect) training FTE identified above. Box 25 shows the calculation that was used to make the allocation.

Box 25: Calculation of overhead costs to be allocated to trainees for T&T

Overhead allocation for T&T costs to Trainee type A equals:

(Overhead rate) x (Total training FTE for Trainee type A)

4.4.5.2 Process to allocate overhead costs for staff delivering research capability functions

Research-related overhead costs identified in step one were allocated to staff delivering research capability on the basis of research capability staff FTE. Box 26 shows the calculation that was used to make the allocation.

Box 26: Calculation of overhead costs to be allocated to research capability intermediate products

Overhead allocation to research capability functions

(Overhead rate) x (Total FTE for research capability function X in Month A)

5 Costing embedded T&T

This section describes the process that was adopted to collect, analyse and test embedded T&T data, as part of the costing study. This process is summarised in Figure 12.

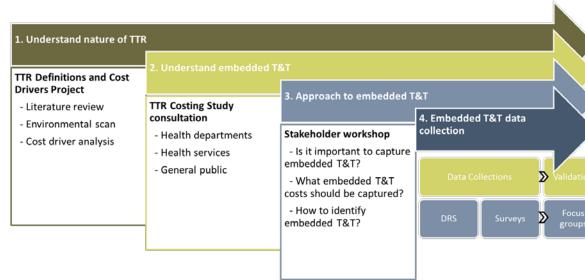


Figure 12: Approach to embedded T&T that was adopted as part of the costing study

5.1 Nature of embedded T&T

Stakeholder consultations undertaken as part of the Definitions and Cost Drivers project identified broad support for the inclusion of embedded T&T as part of the costing study. However, most stakeholders were unsure whether it would be possible to separately identify the embedded component of T&T due to its intrinsic and often inseparable association with patient care. Notwithstanding the challenges that were identified by stakeholders, embedded T&T was considered a significant and material component of overall T&T costs that was important to capture.

5.2 Consultation to understand embedded T&T

Considering the complexities associated with collecting data on embedded T&T, broad-based consultations were undertaken with participating sites, health departments, peak bodies and the general public, as shown in Figure 13.

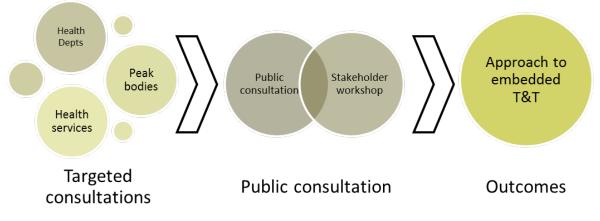


Figure 13: Stakeholder consultation to inform approach to embedded T&T

5.2.1 Targeted consultations

Workshops were held with jurisdictional and health service representatives in participating states to understand the nature of TTR activities delivered at each site and to assess data availability and the practicality of data collection. Relevant executives, clinical education and administration departments, human resources, payroll, finance, clinical costing and research representatives were consulted.

Consultations were also held with eight peak bodies that had a practical understanding of curriculum or registration requirements relevant to the delivery of T&T.

Consultations with health services revealed that some data on embedded T&T would be available from existing information systems. However, in most cases, the data contained in these systems was reported to be incomplete, or only reflective of a subset of the overall trainees and trainers across health services. Although many stakeholders recognised the importance of embedded T&T in a practical sense, many others reflected on the difficulties associated with its collection. Some health services saw the costing study as an opportunity to improve the utilisation of existing systems. Gaps were therefore likely to exist that would need to be filled by primary data collection.

5.2.2 Public consultation

A public consultation paper was prepared to provide the general public with an opportunity to understand the background to the costing study, the context in which was being undertaken, the proposed costing methodology and data items, and to provide comment and advice to assist in finalising the project approach – including whether data on embedded T&T should be collected.

Similar to consultations with health departments and health services, public submissions highlighted the importance of capturing embedded T&T, but also the challenges associated with doing so. A number of submissions provided suggestions for options to capture and quantify embedded T&T data, and also articulated the advantages and disadvantages of these options.

5.2.3 Stakeholder workshop

The outcomes of consultations with sites, health departments, peak bodies and the general public were presented, discussed and used as the basis for determining how embedded T&T would be treated as part of the costing study in a TTRWG workshop held on 12 March 2015. The key outcomes from the workshop included that:

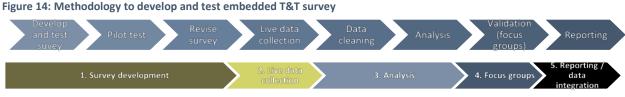
- it was important to capture data on embedded T&T as part of the costing study;
- the basis for quantifying embedded costs should focus on the time associated with trainees and trainers not actively participating in clinical service delivery as a result of engaging in T&T activities (and not patient care slow down or increased used of consumables);
- estimation approaches should be used to identify the proportion of time trainees and trainers spend engaged in embedded T&T;
- embedded T&T surveys, validated by focus groups, should be the primary data collection method.

5.3 Embedded T&T data collection

Sites were asked to use the DRS to collect data on embedded T&T that was available in existing information systems. However, embedded data provided by sites in the DRS was not used in the costing process because the intended source of this data (information systems), was not as widespread as originally understood. To ensure that the data collection was as robust as possible and based on first-hand experience, sites were also asked to collect primary embedded T&T data using surveys.

5.3.1 Primary data collection for embedded T&T

Figure 14 summarises the process to develop, collect, validate and report on primary data collection for embedded T&T. This process included five phases, which comprised of eight stages. Sections 5.3.1.1 to 5.3.1.4 describe these phases in detail.



5.3.1.1 Survey development

An initial draft of the survey was developed by Paxton Partners in consultation with IHPA based upon the parameters that had been agreed at the stakeholder workshop. The intention of the survey was therefore not to conduct an in-depth study of all facets of embedded T&T, but to estimate the time that pre-entry students and clinicians were exclusively receiving or delivering T&T while not simultaneously delivering patient care. As a result, the scope of questions included in the survey was defined in relatively strict terms.

Stakeholder consultations undertaken earlier in the project highlighted that the nature of embedded T&T would differ depending on the setting in which it is conducted. For example, embedded T&T that takes place as part of a ward round will typically be different to that that which is undertaken in theatre, or during an outpatient/clinic session. In order to aid recall, the survey was designed to collect data on five separate types of embedded T&T activities, including:

- 1. ward-based activities, such as bedside patient care, ward rounds and patient consultation that occurred in admitted and emergency department settings. This included activities that took place while a patient was not directly present;
- 2. procedural or surgical interventions, such as theatre or cardiac catheterisation labs or other invasive procedures that might occur in settings such as the emergency department;
- 3. outpatient/clinic-based activities, such as patient consultation that occurs outside of admitted and emergency department settings (e.g. in clinical offices). This included activities that took place while a patient was not directly present (e.g. conversations between a trainer and trainee where T&T was imparted between patient consultations);
- 4. other clinical (non-surgical) procedures, such as delivery suite, pharmacy, diagnostic or other non-surgical activities that occurred in admitted and emergency department settings that did not involve invasive procedures;
- 5. work-based (on-the-job) assessments, such as formal skills/clinical assessments that involved patients.

An initial draft of the survey was developed and presented to the TTRWG and TTR CSTG in May and April 2015 respectively. The survey was then developed online in SurveyMonkey.

A pilot test of the survey was undertaken across four sites from 22 June to 3 July 2015. Feedback was also obtained from site coordinator discussions with key stakeholders at each site.

The feedback obtained through the pilot was used to make minor refinements to the type of questions, wording and format of the survey prior to its release. A copy of the final paper-based embedded T&T survey is provided at Appendix B.

5.3.1.2 Live data collection

Two rounds of clinician surveys were undertaken to provide details on the amount of time clinical professionals in Medicine, Dentistry, Nursing, Midwifery and Allied Health receive or deliver embedded T&T. Running two separate survey periods was intended to capture seasonal variations on embedded T&T activity across the year. Surveys were undertaken from:

- 13 to 26 July; and
- 12 to 25 October.

Each survey round aimed to capture individual clinician responses over a two-week period, so that any variations in activity from day-to-day could be identified.

Site coordinators were provided with a suite of promotional materials and a key messages document in the lead-up to the survey period to maximise clinician awareness and buy-in. Data for a total of 2,784 response days was received.

5.3.1.3 Data cleaning and analysis

At the conclusion of the live data collection period, a descriptive analysis was undertaken to check and remove data anomalies – for example, were the total number of minutes entered were greater than the amount of minutes in a 24 hour day (1,440). These anomalies mostly related to logic errors, such as the number of minutes recorded being greater than the number of minutes in a day, and only occurred for a small number of respondents (less than 5).

5.3.1.4 Focus groups

Focus groups were conducted to identify whether the survey results provided a reasonable starting point for quantifying embedded T&T for the purpose of costing. Invitations to participate in focus groups were extended to all sites but with a focus on those sites where a majority of survey responses were received.

Focus groups were undertaken with a total of eight sites. Two rounds of focus groups were conducted – one in August and another in October. Both rounds of focus groups were undertaken as soon as practicable after the conclusion of each survey period. Sites participating the focus groups included:

- Armadale and Kelmscott Memorial Hospital;
- Central Queensland Hospital and Health Service (Rockhampton, Gladstone and Emerald);
- Kalgoorlie Base Hospital;
- Redcliffe Hospital;
- Sir Charles Gairdiner Hospital;
- Women's and Children's Hospital, South Australia.

To ensure that the discussion could focus on the particular aspects of how embedded T&T is conducted for each profession, separate focus groups were held for Medicine and Dentistry, Nursing and Midwifery and Allied Health wherever possible.

Focus groups were well-attended at most sites, and provided good coverage of both trainers and trainees. Groups typically included trainees from all phases of T&T. Focus group discussions assisted in identifying gaps and inconsistencies in survey results, however, in some cases, discussion/validation was limited by attendance. For example, no assistants in Allied Health or psychology interns responded to the survey, or attended the focus groups.

There were a number of common themes to emerge from the focus group discussions, including:

- recognition that there is a broad variation in how embedded T&T occurs. Most stakeholders believed that the amount of embedded T&T received or delivered may be highly variable between sites, from one day to the next - even for similar levels of staff within the same wards.
- in most cases, the estimates of total time spent in the various types of embedded T&T activities attracted few objections. Where objections were identified, these mostly suggested that the survey results had under-estimated the expected time spent receiving/delivering embedded T&T;
- general consistency in the trainees and trainers that are typically present during various types of embedded T&T activities, although there will always be some variation from day-to-day or from one person to another;
- difficulty completing the survey or understanding its purpose. Focus group attendees reported interpreting some parts of the survey in different ways;
- difficulty in being able to both delineate and quantify time spent receiving T&T and delivering T&T distinctly from patient care.

Although the variability in embedded T&T was consistently raised as being an important consideration, few strong objections were raised to the survey data, which suggested that it provided a reasonable starting point for modelling embedded T&T costs. Some survey results were considered by attendees to be incorrect, for example where pre-entry students delivered T&T. These results were excluded prior to costing data.

5.4 TTRWG and TTR CSTG meeting

A joint TTRWG/TTR CSTG meeting was held in December 2015 to review the results of the embedded T&T data collection (DRS and survey) and focus group validation. The outcomes of this meeting shaped the approach to costing embedded T&T. It was agreed that:

- data received in DRS site submissions should not be used to cost embedded teaching and training. After investigating the embedded data received in the DRS, it was clear that:
 - there were significant gaps in the DRS embedded data between sites and across professional groups within sites. This was due to the inability to identify systems able to capture the embedded T&T activities;
 - reportedly, a high proportion of the DRS embedded data was based on conversations with senior clinicians or managers rather than being collected from individual trainees and trainers. The survey data was therefore considered to be a more objective source of information;
 - the data from the DRS would have needed to be aggregated across sites in order to achieve a sufficient sample size to determine cost differences between trainee types. Applying an average across all sites would have meant that differences between hospitals, geography and peer groups could not be measured, thereby diminishing the value of DRS data, in comparison to survey data;
 - as survey data was always intended to determine the proportion of time trainees and trainers spent receiving or delivering embedded T&T, it was considered that using the survey as the sole source of embedded T&T data would provide the most effective approach.
- it was reasonable to use the available survey data to model embedded T&T;

- the most appropriate level of data should be based on consideration of sample size and data variability specifically, survey responses with a minimum of 30 response days would provide a reasonable degree of confidence that could support the modelling process;
- if either the sample was too small or the data too variable, data should be aggregated to a higher level (for example, aggregating responses from the level of trainee type to the level of phase of T&T); and
- Paxton Partners and IHPA should undertake further work to determine the most appropriate level at which survey data would translate into assumptions for modelling embedded T&T based on sample size.

Following this meeting, the consulting team and IHPA team undertook further work to identify the most granular level at which survey data could support the embedded T&T modelling process. Limitations in the number of survey responses received for some specialties or trainees meant that this process resulted in the aggregation of some results to a higher level in order to obtain a reliable basis for developing assumptions to model embedded T&T.

This process resulted in some loss of granularity where, for example, an insufficient number of responses were received for registrars undertaking vocational training in sub-specialty disciplines. In these cases, survey assumptions were used at the level of trainee type or phase of T&T, rather than specialty. Limitations were particularly acute in relation to Dentistry trainees, where a very low number of responses were received. The final parameters derived from survey results and used as the basis for modelling embedded T&T are provided in Appendix C.

6 Data quality

This section provides an overview of the quality of data submitted by sites in the DRS.

6.1 Scope of data collected in DRS

Due to delays in some sites confirming participation and receiving training, not all sites began collecting data at the start of the data collection period. Additionally, one site only submitted data for Tranche 1. In summary:

- 13 of 19 sites submitted data for Tranche 1;
- 18 of 19 sites submitted data for Tranche 2; and
- 18 of 19 sites submitted data for Tranche 3.

General ledger and payroll data was consistently comprehensive and complete for all sites. This reflected the ready availability of payroll and finance data.

The number and type of corporate overheads reported by sites showed some variability. Similarly-sized sites submitted a different number and mix of corporate overheads that were relevant to TTR, and a different number of cost centres that were relevant to each type of overhead.

6.1.1 Teaching and Training data

Data reported in trainee profiles, and in direct T&T activities, generally improved over the live data collection period as sites became more familiar with the data collection requirements and also more familiar with of key data custodians responsible for providing this data at each site.

Sites were able to provide training data relating to direct and indirect T&T on a consistent basis across all professions, however, the direct and indirect T&T data between sites varied in detail. Where the scope of data provided by a site was limited to a small number of trainee types, or a small range of direct T&T activities, the site was consulted to clarify the extent to which it was believed that the data reflected the breadth of trainees and training activities at the site.

Provision of indirect T&T data was relatively consistent across all tranches. This was largely due to the nature of indirect T&T resources being relatively stable and structured across months.

As anticipated, details provided for embedded T&T activity data were the most variable. Data from existing systems was sparse and only reflected pockets of embedded T&T activity at best.

On the whole, site coordinators reported that the amount of data provided in the DRS was largely dependent on the availability and willingness of data custodians to provide it. A number of site coordinators reported being unable to consult with certain clinical departments and that there would invariably be gaps in the data. As a result, site coordinators reported that they were unsure what proportion of overall T&T activity they were able to capture.

6.1.2 Research data

The scope of research data provided by sites was variable across sites and across tranches. Some sites reported not undertaking any research, and therefore provided no research data. Most sites that provided research data were principal referral metropolitan hospitals with a few outer metropolitan and regional hospitals able to provide some details.

The number of sites providing most types of research data increased between Tranche 1 and Tranche 3, as shown in Figure 15^2 .

² Exceptions included state and Territory-funded research, where the number of sites providing data decreased from 5 to 3 between Tranche 2 and 3. Although one site provided data for research residual balances for one tranche, this data was

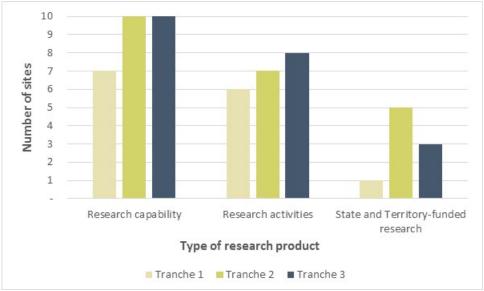


Figure 15: Number of sites providing research data, by Tranche

Research capability was the most frequently reported type of research data in all tranches, followed by research activities. Data on State and Territory-funded research was scarce, while no valid data was provided for research residual balances.

6.1.3 Retrospective data

In total, nine sites (47%) provided retrospective (January to April) data, of which only 3 contained research data.

Most sites were able to provide reasonably comprehensive retrospective general ledger, payroll and trainee profile data, however, site coordinators reported that there were likely to be gaps in the retrospective data provided where existing systems were not available to capture historical data. In spite of these gaps, statistical tests did not suggest that there were any material negative impacts of including retrospective data in the analysis.

To assess whether retrospective data should be used, a one-way analysis of variance (ANOVA) was conducted to compare whether a significant difference existed between the average costs per FTE for retrospective and prospective T&T data submitted as part of the costing study. Subsequent ANOVAs were also developed to test for differences in the average cost per FTE between prospective tranches 1, 2 and 3.

The results of these statistical tests showed:

- no statistically significant differences between results for retrospective (January April 2015) data and Tranche 1, but statistically significant differences between results for retrospective data and both Tranche 2 and Tranche 3;
- no statistically significant difference between results for Tranche 1 and Tranche 2;
- statistically significant differences between results for Tranche 2 and Tranche 3;
- statistically significant differences between results for Tranche 1 and Tranche 3.

not compliant with the data collection rules specified in the Data Collection Process document and was not incorporated into the consolidated data file.

These results suggest that any differences may be due to how data was reported across tranches, or potentially seasonal impacts on T&T activity. They do not suggest that the quality of retrospective data was poor, compared to all prospective tranches of data collection. As a result, both retrospective and prospective data has been included in the analysis presented in this report.

6.2 Compliance with DRS data collection process

This section describes compliance with the data collection process document and how the consulting team dealt with compliance issues.

6.2.1 Compliance with recommended data sources

The Data Collection Process document provided recommended sources of key data elements based upon site visits undertaken by the consulting team. Site-specific differences in data sources were permitted as site coordinators were in the best position to identify and collect TTR data. In practice, data collection approaches varied. For instance, some sites placed a greater emphasis on discussions with staff while others implemented attendance recording systems where existing data collection processes did not exist.

Sites were expected to comply with all data collection rules. The following sections summarise compliance issues that were identified, actions taken to address those issues, and resulting outcomes.

6.2.1.1 General ledger and payroll data

There was generally a high rate of compliance with general ledger and payroll data requirements, with only a few issues being identified that in most cases were not critical for costing purposes. For a very limited number of sites, mismatches were identified between general ledger and payroll account codes, and those used in TTR cost and activity data sheets. Where this occurred, sites were requested to verify the correct account code and re-submit data.

6.2.1.2 Reference tables

In some cases, site-specific inputs to reference tables included trainee types that were out of scope for collection as part of the study. In most cases, out of scope trainees were identified during the consulting team's quality assurance activity. Where this occurred, sites were requested to remove any data reported against these trainee types and re-submit.

6.2.1.3 Direct and embedded T&T activity data

Data compliance issues were most commonly noted in T&T activity data – particularly in Tranche 1 and Tranche 2. The most common data compliance issues encountered during the consulting team's quality assurance included:

- uncertainty in how to use the Event Group ID field. The Event Group ID field was used to
 identify instances where a single T&T event was delivered to multiple trainee types across
 one or more professions in order to allow identification of cross professional and group
 training events. Some sites were unclear on how to use this field particularly those that
 were submitting data for the first time. The consulting team published guidance on the
 costing study website to clarify how the event group ID field should be used, and also worked
 through any queries directly with sites during Site Support Team teleconferences. These
 measures appeared to improve understanding of how to use the event group ID field in
 Tranche 2 and 3, where few issues were identified in use of the event group ID.
- recording pre-entry student FTE within trainee profiles. Issues were identified in how sites recorded pre-entry student FTE within trainee profile tables. The consulting team published a 'ready reckoner' for converting pre-entry student placement hours or days directly to FTE and published this on the costing study website for use by sites. This tool was adopted by some sites, however, other sites reported 1 pre-entry student headcount as 1 FTE for the

duration of the study - presumably because data on placement hours or days was not readily available. Data submitted across all tranches showed that nine out of 19 sites (47%) reported ratios of **pre-entry** student FTE to headcount greater than 70%, which reflects a relatively high ratio for **pre-entry** students.

- **use of the 'specialty' field for Medicine trainees**. Use of the 'specialty' field for Medicine trainees appeared to cause some confusion, with some sites using this field to report the clinical department in which a non-specialist trainee (such as a **pre-entry** student or pre-vocational doctor) is undertaking training, rather than to record the clinical specialty in which an advanced/vocational Medicine trainee is undertaking training. Although the consulting team provided regular guidance about how the specialty field should be used through site information bulletins and website FAQs, some sites continued to report specialty data for **pre-entry** students and pre-vocational trainees.
- mismatches between pay classification data provided in activity sheets, and payroll extracts. In some cases, pay classifications listed in trainee profile data did not correspond to pay classifications provided in T&T activity data. In most cases, mismatches were due to data entry errors. As a result, any costs associated with these mismatched pay classifications could only be allocated to trainees by using the mid-point of the closest matching pay classification. Where mismatches occurred, they were followed-up with the site and corrected.

The consulting team implemented changes to the Tranche 3 DRS that flagged any cells where the pay classification used in direct, indirect or embedded T& data did not correspond to pay classifications listed in the site's payroll extract. This substantially reduced the incidence of mismatches.

• mismatches between trainee type/specialty combinations provided in activity data and trainee profiles. Although trainee profiles were intended to provide an exhaustive list of all trainees at each hospital, it was common for some trainee types (and trainee type/specialty combinations) to have been reported in activity sheets, but not included in the trainee profile. Where this occurred, the consulting team modified the data, as described in Section 6.3.

In Tranches 2 and 3, sites were requested to check the consistency in trainee types reported in trainee profile sheets and the associated direct and embedded activity data. Additional quality assurance mechanisms were also incorporated into the Tranche 3 DRS.

6.2.1.4 Indirect T&T data

Most compliance issues in indirect T&T data were identified and resolved in Tranche 1. Issues related to how the time for indirect T&T resources should be apportioned to relevant trainees through the "% time allocated to target trainee group" field. For some sites, the total percentage time added to more than 100% for each indirect T&T resource. To address this issue, the FAQ section of the Costing Study website was updated to provide illustrated examples of how to complete the indirect T&T data input sheets. Targeted discussions were also held with sites where errors were identified. After these measures were put in place, very few compliance issues were identified in indirect T&T data.

6.2.1.5 Research data

The Data Collection Process identified that residual balance data should only be reported for projects that were completed in each month. However, one site submitted data on residual balances in Tranche 1 for projects that were still ongoing. This data was not incorporated into the costed data file.

6.3 Data exclusion and modification of DRS data

All data that was provided by sites and passed the consulting team's quality assurance process was costed. The costing process sometimes identified additional issues in site data submissions. Where this occurred, the costed data was either flagged for exclusion or modified by the consulting team to ensure that it could be used as part of the costed data file.

6.3.1 Data exclusion

Costed data was flagged for exclusion in the final costed data file where:

- out of scope trainee types or T&T activities were present in the costed data file;
- the costed output resulted in a zero direct and indirect T&T cost for a given trainee type at a particular site. This occurred when data was reported for a particular trainee type in the trainee profile but no associated activity data was provided.

6.3.2 Data modification

Costed data was modified by the consulting team where:

- the number of trainees attending T&T activities was greater than the headcount in the trainee profile
- trainee types were reported in activity sheets, but not included in the trainee profile.
- there were invalid cost centre and pay classification combinations.

6.3.2.1 The number of trainees

The number of trainees attending T&T activities was greater than the headcount in the trainee profile. The consulting team updated the headcount and FTE in the trainee profile to ensure that they were at least as much as the maximum number of trainees that attended any one T&T event. For instance, if 10 Basic Trainee Registrars Year = 3 (Orthopaedics) at site A were identified as attending a tutorial then, at a minimum the headcount in the trainee profile was 10.

The FTE measure was derived by multiplying the new headcount by the ratio of FTE to headcount for that trainee type. For pre-entry students, this ratio was derived from the trainee profile. For all other trainees the ratio was derived from the payroll extract. Using the example in the paragraph above, if site A's payroll extract identified 30 Basic Trainee Registrars Year = 3 across all specialties, and that these trainees represented 15 FTE, the modified FTE would equal 5 (calculated by multiplying the 10 headcount for Orthopaedic trainees by (15 FTE / 30 headcount)).

6.3.2.2 Trainee types were reported in activity sheets, but not included in the trainee profile

A hierarchical approach was used in an attempt to identify and use the most comparable (or reliable) data available. For example, if a site reported activity data for Basic Trainee Registrars Year =3 in Orthopaedics in June, but did not record trainee profile data for this trainee type in this month, the consulting team:

- looked for trainee profile data for Basic Trainee Registrars Year = 3 in an Orthopaedic specialty for other months in the DRS. If data was present, an average across those months was used.
- 2. examined the data for other Basic Trainee Registrars in an Orthopaedic specialty in the trainee profile. If data was present, an average across Basic Trainee Registrar years was used.
- 3. examined data for all registrars (basic and advanced) in an Orthopaedic specialty in the trainee profile. If data was present, an average across all Orthopaedic registrars was used.

- 4. **examined data for all registrars in a comparable specialty in the trainee profile.** For instance, if data was available for 3rd year Basic Trainee Registrars in June for other procedural specialties, then the average across those trainees was used. This differs to the approach described in Section 6.3.2.1, in that trainee profile data (rather than direct T&T data) was used.
- 5. used the method outlined in Section 6.3.2.1 for when the number of attending trainees was greater than the headcount in the trainee profile.

6.3.2.3 Invalid pay classification or cost centre data

Sometimes errors were identified in the cost centres or pay classifications provided by sites. This required the consulting team to assign a comparable cost centre or pay classification in order to allocate costs.

Whenever these errors were encountered the cost centres and pay classifications were checked against the site's payroll extract to see if they were typographic or transposition errors. This was often the case, and the correct pay classification was easy to identify. Where the correct pay classification was not clear, sites were consulted and requested to identify the correct classification.

If pay classifications did not exist within the cost centres provided, a matching pay classification was used from a comparable cost centre.

6.3.2.4 Data modification rate

In total, 844 records (8.4% of the valid records in the data set) were modified by the consulting team to address the reporting issues identified above. 442 records were modified to address cases where the number of trainees attending T&T activities was greater than the number of trainees listed in the trainee profile. 381 records were modified to address issues where no trainee profile data existed.

These modified records comprised \$23,683,240 in total costs, representing 8.6% of total costs reported in the data set. The data preparation process (and removal of the additional 56 records outlined above) reduced the total cost of modified records included in the analysis to \$23,264,673.

The number of records that were modified for each profession included 642 for Medicine, 121 for Nursing, 76 for Allied Health and five for Midwifery.

6.4 Preparation of full data set

The consulting team undertook an extensive analysis of the distribution of costs per FTE across a number of variables, including profession, phase of T&T, site geography (metro or non-metro), peer group, trainee type, and specialty to assess the degree of variation and potential error in the costed results.

Initial descriptive analysis of the costed data highlighted some significant high outlier values for total costs per FTE that were unlikely to reflect the true costs associated with delivering T&T. Further investigation into these outliers showed that they were often caused by DRS data reporting issues and were removed from the analysis as part of the data preparation process outlined below.

Recognising that this project represents the first dedicated TTR costing study, there is no definitive point of reference for what a 'reasonable' range of T&T costs should represent. As a result, a conservative approach to data preparation was adopted whereby the highest 5% of cost per FTE values for each trainee type were not included in the analysis. This approach aimed to eliminate the most extreme outliers which were almost certainly high cost error values³.

³ This approach will result in fewer records being excluded from the analysis, compared to more common methods of data preparation, such as removing any values that are greater than 1.5 times the interquartile range (IQR). A comparison between the two methods demonstrated that 54% more records would be excluded from the analysis with the 1.5 x IQR method.

A conservative data preparation approach aimed to remove any extreme outlier values, while retaining genuine high-cost values (that should be preserved for classification purposes).

Furthermore, since only a small number of low cost outliers were identified in the results, data preparation was not undertaken for low cost values.

The data preparation process resulted in 516 records of 10,446 being excluded from the T&T analysis that is presented in this report. This represents 4.9% of the total records, and 5.6% of total reported costs in the un-prepared data set. Across the entire data set, application of the data preparation process reduced the coefficient of variation by 26%, from 0.58 to 0.44.

Further descriptive analysis following data preparation ensured that this process did not result in a large proportion of data being removed from any particular specialty area of practice or allied health profession.

The final data set submitted to IHPA retains values for the original (un-prepared data), as well as the prepared data based upon both the conservative (top 5% of cost per FTE) and traditional (1.5 x IQR) approaches described above. This will provide IHPA with the flexibility to assess whether differences in the approach to data preparation will materially impact the T&T classification.

6.5 Profile of T&T data

6.5.1 Profile of T&T costs

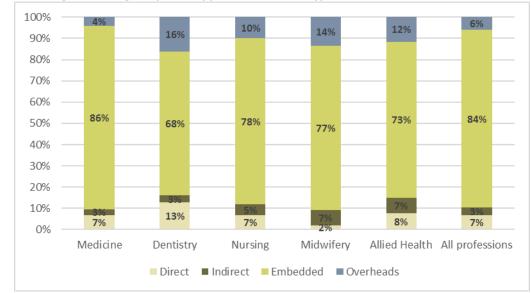
The final, prepared costed data set included 9,523 valid records, amounting to total T&T costs of \$264,980,557 across the 19 sites that participated in the study. Table 4 provides a breakdown of these total costs, by peer group, profession and cost type. Although the definition of teaching and training means that the mix of trainee types included for data collection varies between professions, variability in the mix and number of trainees was predominantly dependent on sites and the completeness of their collection. As such, the information in Table 4 should not be viewed as an exhaustive representation of total T&T costs across professions.

Hospital peer	Activity					
group	type	Medicine	Dentistry	Nursing	Midwifery	Allied Health
	Direct	\$8,336,877	\$36,862	\$4,083,979	\$0	\$808,909
Principal referral	Indirect	\$2,826,357	\$2,528	\$2,293,684	\$10,311	\$577,712
hospitals	Embedded	\$115,026,965	\$65 <i>,</i> 979	\$37,550,733	\$236,540	\$6,077,546
	Overhead	\$5,331,993	\$15,097	\$4,855,507	\$51,082	\$1,223,155
	Direct	\$4,015,801	\$29,055	\$379,369	\$14,437	\$245,086
Public acute group	Indirect	\$1,175,839	\$14,133	\$900,854	\$48,150	\$463,015
A hospitals	Embedded	\$41,775,448	\$283,111	\$13,759,567	\$370,483	\$4,237,803
	Overhead	\$2,282,711	\$68,743	\$1,619,483	\$55,108	\$407,119
	Direct	\$186,891	\$0	\$24,290	\$0	\$9,886
Public acute group	Indirect	\$124,706	\$0	\$72,870	\$0	\$14,678
B hospitals	Embedded	\$879,102	\$0	\$375,252	\$0	\$72,071
	Overhead	\$116,257	\$0	\$62,105	\$0	\$11,835
	Direct	\$83,358	\$0	\$26,878	\$0	\$5,199
Public acute group	Indirect	\$17,367	\$0	\$1,059	\$0	\$2,938
C hospitals	Embedded	\$434,400	\$0	\$224,761	\$0	\$50,494
	Overhead	\$13,429	\$0	\$13,602	\$0	\$0

Table 4: Profile of total T&T costs, by peer group, profession and activity type

Figure 16 shows the profile of total T&T costs, by cost type (direct, indirect, embedded and overheads). This figure shows the prominence of embedded T&T costs in all professions, with most

professions except Dentistry reporting between 73% to 86% of total costs as being related to embedded T&T. Across all professions combined, direct T&T accounted for 7% of total costs, indirect T&T 3%, embedded T&T 84% and overheads 6%.





This cost profile analysis highlights that the modelled embedded T&T costs have a substantial bearing on the overall cost per FTE results that may be used for classification development. The pervasiveness of embedded T&T costs is consistent with feedback obtained throughout stakeholder consultations that embedded T&T is likely to be the most important component of T&T costs.

As discussed in Section 5, the approach to modelling embedded T&T applied assumptions that all trainees listed in site trainee profiles received a given amount of embedded T&T, based on survey response sizes and survey outcomes. Consequently, embedded T&T costs are intended to reflect the full range of embedded T&T that was delivered to all trainees reported in trainee profiles. However, many site coordinators reported that they were not able to capture the full range of direct and indirect T&T that was delivered to trainees. As a result, it is likely that the costed results more fully reflect the embedded T&T that is delivered to trainees, compared to direct and indirect T&T.

It should also be noted that the inclusion of modelled results for embedded T&T reduces the Coefficient of Variation (CV) in the dataset quite substantially – from a CV of 1.36 for direct + indirect costs (across all professions), to 0.44 for direct + indirect + embedded + overhead costs.

Considering the substantial reduction in variation as a result of including embedded T&T, statistical tests were undertaken to check whether sufficient variation exists between trainees to support classification development. A one-way ANOVA revealed that statistically significant differences do exist between trainees at each phase, within each profession. The only exception was Midwifery, where no statistically significant difference was found between trainees in the pre-entry and advanced/vocational phases of T&T.

The costed data set separately identifies direct, indirect, embedded and overhead costs, which will allow IHPA to test whether the inclusion or exclusion of certain cost types will materially influence classification development for T&T.

Detailed breakdowns of average T&T costs by activity type are provided in Appendices F, G and H.

6.5.2 Profile of average trainee FTE

Table 5 shows the average monthly trainee FTE that was reported across different hospital types. The greatest number of trainee FTE were reported for metropolitan and principal referral hospitals,

where medicine trainees comprised over 50% of the total. Public acute group B and C hospitals typically reported far lower trainee FTE than principal referral and Public acute group A hospitals. Across all hospitals, very low trainee FTE were reported for dentistry and midwifery.

Profession/Phase	Metro	Non Metro	Principal referral	Public acute A	Public acute B	Public acute C
Medicine	439.6	129.4	1,208.2	428.1	41.9	23.9
Pre-entry/student	81.0	26.9	188.1	110.4	9.6	12.5
Early graduate/pre - vocational	152.7	66.1	420.1	188.9	19.6	11.4
Advanced/vocational	205.9	36.4	600.0	128.7	12.6	not available
Dentistry	7.6	28.0	15.1	55.9	not available	not available
Pre-entry/student	5.8	23.4	11.5	46.7	not available	not available
Early graduate/pre- vocational	not available	4.6	not available	9.2	not available	not available
Advanced/vocational	1.8	not available	3.6	not available	not available	not available
Nursing	199.6	35.8	568.3	161.7	21.2	15.7
Pre-entry/student	87.0	13.2	234.1	72.2	6.8	10.1
Early graduate/pre- vocational	88.1	21.8	245.7	78.9	13.0	5.6
Advanced/vocational	24.5	0.7	88.5	10.6	1.4	not available
Midwifery	11.9	2.8	45.2	10.2	not available	not available
Pre-entry/student	7.0	0.6	39.4	4.4	not available	not available
Early graduate/pre- vocational	3.3	2.2	not available	5.9	not available	not available
Advanced/vocational	1.6	not available	5.7	not available	not available	not available
Allied Health	57.5	31.9	154.1	79.4	8.5	4.4
Pre-entry/student	40.1	11.1	119.0	37.3	2.4	4.4
Early graduate/pre- vocational	14.8	20.8	30.0	42.1	6.1	not available
Advanced/vocational	2.6	not available	5.1	not available	not available	not available
All professions	716.2	227.8	1,990.9	735.2	71.6	44.0

Table 5: Profile of average monthly trainee FTE for each profession, by geography and peer group

6.5.3 Time spent receiving direct T&T

Figure 17 provides the average direct T&T minutes per trainee FTE for each month and profession, and shows that trainees in most professions were typically reported to receive between 100 and 200 minutes of direct T&T per FTE, per month.

Figure 17 also shows some potential seasonal impacts on the volume of direct T&T. For medicine and dentistry, a greater volume of direct T&T was delivered between February and May, whereas the volume of direct T&T appears to increase towards the middle of the calendar year (for nursing) and the end of the year (for allied health).

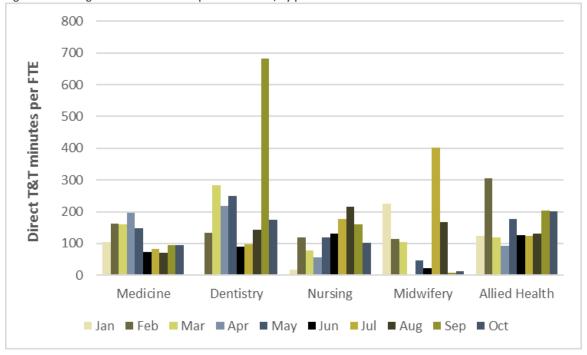


Figure 17: Average direct T&T minutes per trainee FTE, by profession and month

Appendix I provides a detailed breakdown of the average reported direct T&T minutes per FTE per month for each trainee type.

7 Analysis of costed teaching and training data

This section provides the results of analysis undertaken on the costed T&T data that was collected during the project. The analysis presented below uses an **average monthly cost per trainee FTE**⁴ in a **public hospital environment** as the measure of comparison across variables being analysed, since data was collected and submitted by sites on a per-month basis. Data on trainee headcount was also collected by sites and is included in the costed data set provided to IHPA. However, the analysis presented in this report focuses on costs per trainee FTE.

FTE was used as the unit of measure for trainee costs (rather than headcount) in order to provide a consistent basis for comparing resource usage across different trainee types. Classification development relies on the ability to compare resource usage across different outputs, and the use of FTE allows for variation in hours worked by different trainee types to be compared on a consistent basis.

As discussed in section 6.5, the large influence of results for embedded T&T, and the modelling process used to derive results for embedded T&T, should be borne in mind when interpreting the results presented in this section.

7.1 Medicine

Table 6 provides the number of records in the costed data file used to calculate measures of cost and variation for each Medicine trainee type, and shows that average monthly cost per FTE for all Medicine trainees combined was \$4,376.

Advanced/vocational trainees were the highest cost phase of T&T for Medicine, at an average monthly cost of \$5,842 per FTE. This is approximately 1.6 times higher than early graduate/pre-vocational trainees, and 2.8 times higher than pre-entry/student trainees. Average costs for international medical professionals in training were substantially lower than for both basic and advanced registrars.

Coefficients of variation are low for all medicine trainees, which most likely reflect the pervasiveness of embedded T&T, and that assumptions drawn from the embedded T&T survey were applied to all trainees on a relatively consistent basis.

Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Total cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
Medicine	6,811	\$4,376	\$4,333	\$4,419	\$4,931	0.41	\$463	1.26
Pre-entry/student	832	\$2,073	\$1,995	\$2,151	\$2,235	0.47	\$253	2.03
Undergraduate student	553	\$1,995	\$1,948	\$2,042	\$2,013	0.28	\$185	2.08
Postgraduate student	279	\$2,604	\$2,461	\$2,747	\$2 <i>,</i> 880	0.47	\$715	1.59
Early graduate/pre- vocational	2,369	\$3,630	\$3,592	\$3,667	\$3,606	0.26	\$423	1.28
PGY 1	801	\$3,929	\$3,876	\$3,982	\$3 <i>,</i> 885	0.20	\$483	1.28
PGY 2	854	\$4,000	\$3,947	\$4,053	\$3,882	0.20	\$369	1.35

⁴ 'FTE' describes the number of full-time equivalent staff (or pre-entry students) employed (or in the case of pre-entry students, placed) at a public hospital at the end of each month. Sites were requested to report the number of full-time equivalent staff based upon the fraction of hours worked by a staff member (or in the case of pre-entry students, the number of hours placed) as a proportion of a 'full-time' week (40 hours for medicine and dentistry and 38 hours for nursing, midwifery and allied health).

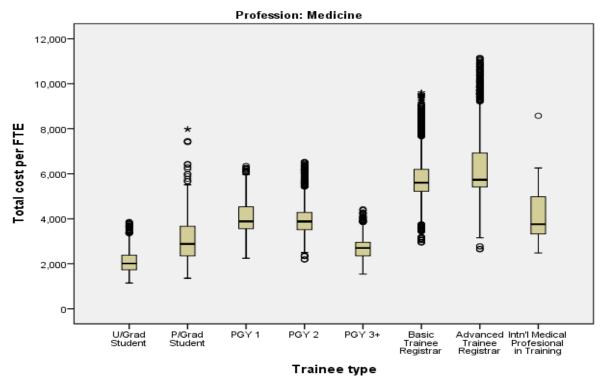
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							July 2010	0
Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Total cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
PGY 3+	714	\$2,679	\$2,642	\$2,717	\$2,700	0.19	\$394	1.18
Advanced/vocational	3,610	\$5,842	\$5,797	\$5,887	\$5,622	0.24	\$586	1.34
Basic Trainee Registrar	2,251	\$5,751	\$5,706	\$5,796	\$5,606	0.18	\$518	1.41
Advanced Trainee Registrar	1,283	\$6,092	\$5,998	\$6,186	\$5,735	0.28	\$717	1.21
International medical professionals in training	76	\$4,659	\$4,414	\$4,904	\$3,755	0.23	\$640	1.09

Notes: 'n' indicates the number of records in the costed data set that have been used to derive these measures; Definitions of each trainee type are provided at Appendix K and 'D + I' = Direct and Indirect T&T, including relevant overheads

Figure 18 shows the distribution in monthly cost per FTE by Medicine trainee type, which reflects quite large variation in monthly costs per FTE for registrars and postgraduate students in particular. While the variation in costs for registrars is likely to be associated with the wide range of specialties, the variation in postgraduate students may reflect differences in how pre-entry student FTE was reported, as discussed in Section 6.2.1.

Figure 18: Distribution of monthly cost per FTE for Medicine trainees



7.1.1 Costs of vocational training between procedural and non-procedural specialties

Table 7 presents total monthly costs per FTE for all basic and advanced trainee registrars between procedural and non-procedural specialties. The aim was to test the hypothesis that different training requirements were associated with procedural versus non-procedural medical college requirements. It should be noted that categorisation of some medical specialties as either 'procedural or 'non-procedural' does not reflect the true nature of some specialties where there may be a substantial component of both types of practice (Cardiology provides a good example).

Table 7 shows that costs are broadly comparable for procedural and non-procedural training and between basic and advanced trainee registrars. However, costs per FTE for advanced trainee registrars were approximately 15% higher than for basic trainee registrars for procedural specialties. Costs for non-procedural advanced trainee registrars at Public acute group B hospitals were substantially higher than most other vocational trainee types – however, this result may be driven by the fact that these costs only encompass six records in the data set.

When interpreting this table, it should be noted that the process to aggregate embedded T&T survey results has resulted in a loss of granularity at the specialty level, so the results presented in this table do not capture nuances in how embedded T&T is delivered across professions.

In most cases, the number of survey responses received for each individual specialty was not sufficient to derive a specialty-specific embedded T&T result. Consequently, survey results were often aggregated to the level of trainee type, phase of T&T or procedural / non-procedural specialty for the purpose of modelling embedded T&T costs.

This may help explain why the results presented in Table 7 are quite similar across different geographic locations hospital types, trainee types and procedural / non-procedural trainees. Application of similar embedded T&T survey assumptions across most types of medical registrars mean that variations in the costs presented in Table 7 are to be driven by differences in the quantum of direct or indirect T&T, rather than differences in how embedded T&T is delivered across specialties. A more comprehensive collection of embedded T&T survey data with a greater number of responses would provide a more robust analysis of differences in T&T costs across medical specialties, nursing areas of practice and allied health professions.

Table 7: Variations in vocational medical training costs between procedural and non-procedural specialities										
Profession / Phase / Trainee type	All sites	Metro	Non- Metro	Principal referral	Public acute A	Public acute B	Public acute C			
Procedural	\$5 <i>,</i> 888	\$5,834	\$6,435	\$5,848	\$6,028	\$4,819	Not reported			
Basic Trainee Registrar	\$5,613	\$5,581	\$6,050	\$5,508	\$5,856	\$5,472	Not reported			
Advanced Trainee Registrar	\$6,428	\$6,346	\$7,007	\$6,400	\$6,546	\$6,776	Not reported			
Non-procedural	\$5,823	\$5,732	\$6,888	\$5,753	\$6,112	\$5,269	Not reported			
Basic Trainee Registrar	\$5,845	\$5,750	\$7,284	\$5,770	\$6,144	\$6,214	Not reported			
Advanced Trainee Registrar	\$5,785	\$5,689	\$6,479	\$5,717	\$6,036	\$7,918	Not reported			

The rules used to aggregate survey responses are provided in Appendix C. Detailed cost per FTE results for each medical specialty are provided in Appendix G.

'Not reported' = Not reported in site DRS data submissions

7.2 Dentistry

Table 8 provides the number of records in the costed data file used to calculate measures of cost and variation for each Dentistry trainee type. As indicated in Table 8, little data was submitted in relation to Dentistry. Although the average monthly cost per FTE for all Dentistry trainees was \$1,224, there was substantial variation across phases of T&T, from a low of \$1,024 for preentry/student trainees, to \$5,708 for advanced/vocational trainees.

Some key issues driving the relatively low average costs for some dentistry trainee types compared to other professions, include:

- Across all trainee types, limited direct and indirect T&T data was received from sites. No direct T&T activity being reported for dentistry PGY 1s and undergraduate students, resulting in \$0 direct costs. This is unlikely to be an accurate reflection of the direct T&T that is provided to these trainee types;
- Low survey response rates resulted in the same assumptions being applied across all dentistry trainees.
- The low average cost across all dentistry trainees combined is most likely due to the relatively high proportion of dentistry **pre-entry** students (77% of total trainees), relative to other professions. Since **pre-entry** students are not paid, no trainee-related costs were costed for these trainees.

Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Total cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
Dentistry	66	\$1,224	\$838	\$1,611	\$510	1.26	\$234	2.59
Pre-entry/student	51	\$1,024	\$909	\$1,140	\$1,034	0.41	\$105	1.29
Undergraduate student	35	\$1,036	\$877	\$1,194	\$1,061	0.46	\$105	1.46
Postgraduate student	16	\$881	\$783	\$978	\$893	0.22	\$104	0.99
Early graduate/pre- vocational	5	\$2,481	\$2,428	\$2,534	\$2,496	0.02	\$63	0.87
PGY 1	5	\$2,481	\$2,428	\$2,534	\$2,496	0.02	\$47	1.17
Advanced/vocational	10	\$5,708	\$5,589	\$5,828	\$5,721	0.03	\$3,088	0.06
Advanced Trainee Registrar	10	\$5,708	\$5,589	\$5,828	\$5,721	0.03	\$3,088	0.06

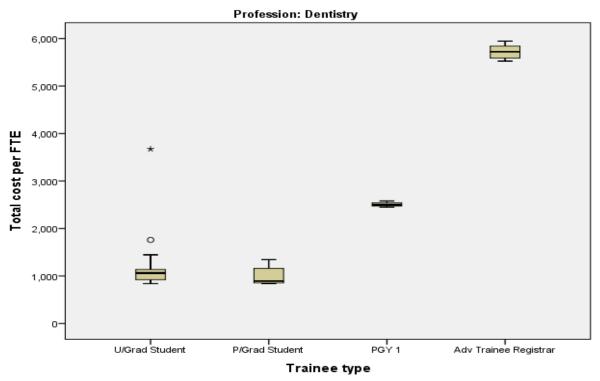
Detailed cost per FTE results, by activity type are provided in Appendix F.

Table 8: Measures of cost and variation for Dentistry trainees, by trainee type

Note: 'n' indicates the number of records in the costed data set that have been used to derive these measures; 'NR' = Not reported in site DRS data submissions, Definitions of each trainee type are provided at Appendix J and 'D + I' = Direct and Indirect T&T, including relevant overheads

Figure 19 shows the variation in costs for Dentistry trainees, by trainee type. Low levels of variation are apparent for most trainee types, except postgraduate students.





7.3 Nursing

Table 9 provides the number of records in the costed data file used to calculate measures of cost and variation for each Nursing trainee type. Average costs for early graduate Nursing trainees were highest at \$5,251 per month per FTE. Costs were highest for Graduate Assistants in Nursing, followed by graduate Registered Nurses and Enrolled Nurses. Similarities in costs across all early graduate nursing trainees are largely due to similar assumptions being used across these trainee types when modelling embedded T&T.

Advanced/vocational Nursing graduates cost approximately 29% less on average than early graduate Nursing trainees, while costs for Nursing pre-entry students were 55% lower than for early graduates.

Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Total cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
Nursing	1,399	\$3,745	\$3,645	\$3,845	\$3,408	0.50	\$508	2.34
Pre-entry/student	593	\$2,318	\$2,248	\$2,389	\$1,936	0.37	\$291	1.32
Undergraduate student	547	\$2,327	\$2,256	\$2,397	\$1,905	0.36	\$292	1.17
Postgraduate student	46	\$2,090	\$1,772	\$2,407	\$2,635	0.53	\$262	2.69
Early graduate/pre- vocational	692	\$5,251	\$5,164	\$5,337	\$5,150	0.22	\$590	1.25
Graduate Assistant in Nursing	33	\$5,654	\$5,407	\$5,901	\$4,892	0.13	\$80	4.37
Graduate Enrolled Nurse	138	\$4,993	\$4,785	\$5,201	\$4,850	0.25	\$420	1.91
Graduate Registered Nurse	498	\$5,199	\$5,099	\$5,299	\$5,231	0.22	\$705	1.03

 Table 9: Measures of cost and variation for Nursing trainees, by trainee type

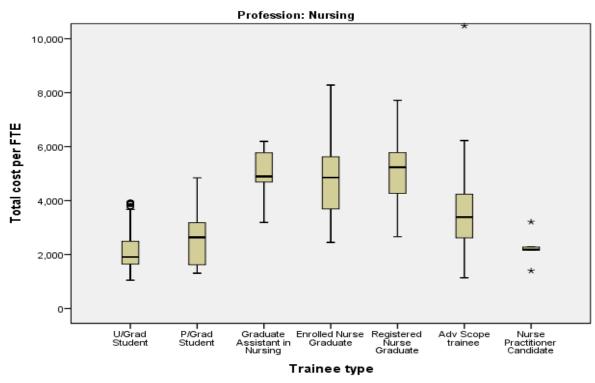
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Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Total cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
Advanced/vocational	114	\$3,739	\$3,486	\$3,991	\$3,346	0.37	\$1,528	0.75
Nurse Practitioner Candidate	5	\$2,246	\$1,679	\$2,812	\$2,187	0.29	\$1,561	0.42
Specialist/advanced scope of practice trainee	109	\$3,761	\$3,506	\$4,016	\$3,384	0.36	\$1,528	0.76

Note: 'n' indicates the number of records in the costed data set that have been used to derive these measures; Definitions of each trainee type are provided at Appendix J and 'D + I' = Direct and Indirect T&T, including relevant overheads

Figure 20 shows that average monthly costs per FTE varied quite substantially for most Nursing trainee types – particularly graduates and specialist/advanced scope of practice trainees. Median values for pre-entry students and early graduate trainees are approximately similar, as is the overall level of variation within each of these phases. Low levels of variation are apparent for Nurse Practitioner candidates, for which very little data was received.





7.4 Midwifery

Table 10 provides the sample size and results used to calculate measures of cost and variation for each Midwifery trainee type. As shown, the number of records relating to Midwifery in the costed data set was relatively low, compared to some other professions, with many trainee types (and phases of T&T) having less than 30 records in total.

In a similar way to Nursing, the average monthly cost per FTE was highest for early graduate/prevocational trainees, followed by advanced/vocational trainees and pre-entry/student trainees.

Some key issues driving the differences in average costs for some midwifery trainee types include very low direct T&T activity reported for pre-entry students, and specialist / advanced scope of practice trainees (\$0 direct cost per FTE). It is unlikely that this is an accurate reflection of the direct T&T provided in practice.

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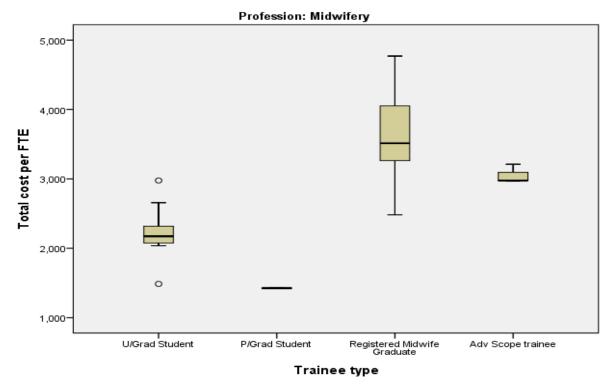
Table 10: Measures of cost and va	arlation for	<u> </u>	ainees, by tra	ainee type				
Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Tot cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
Midwifery	62	\$2,871	\$2,667	\$3,074	\$3,284	0.28	\$316	1.71
Pre-entry/student	16	\$2,359	\$2,133	\$2,584	\$2,087	0.19	\$184	1.16
Undergraduate student	13	\$2,385	\$2,187	\$2,583	\$2,172	0.15	\$181	1.28
Postgraduate student	3	\$1,425	\$1,417	\$1,432	\$1,424	Not calculated	Not calculated	Not calculated
Early graduate/pre- vocational	43	\$3,593	\$3,425	\$3,762	\$3,513	0.16	\$534	1.15
Graduate Registered Midwife	43	\$3,593	\$3,425	\$3,762	\$3,513	0.16	\$534	1.15
Advanced/vocational	3	\$2,995	\$2,840	\$3,150	\$2,975	0.05	\$128	0.56
Specialist/advanced scope of practice trainee	3	\$2,995	\$2,840	\$3,150	\$2,975	0.05	\$128	0.56

Table 10: Measures of cost and variation for Midwifery trainees, by trainee type

Notes: 'n' indicates the number of records in the costed data set that have been used to derive these measures; 'D + I' = Direct and Indirect T&T, including relevant overheads, Definitions of each trainee type are provided at Appendix J and 'Not calculated' = not calculated due to insufficient response size

Figure 21 shows relatively low levels of in variation in monthly costs per FTE for most Midwifery trainee types, except Registered Midwife graduates and specialist/advanced scope of practice trainees. This is likely to reflect the relatively low volume of data submitted for Midwifery trainees.

Figure 21: Distribution of monthly costs per FTE for Midwifery trainees



7.5 Allied Health

Table 11 provides the results for each Allied Health trainee type, and shows that average monthly costs per FTE were highest for postgraduate students, followed by specialist/advanced scope of practice trainees and undergraduate students. Average costs per FTE were relatively consistent across all early graduate Allied Health trainee types, where average monthly costs varied from \$2,614 for psychology interns, to \$2,874 for medical radiation science interns.

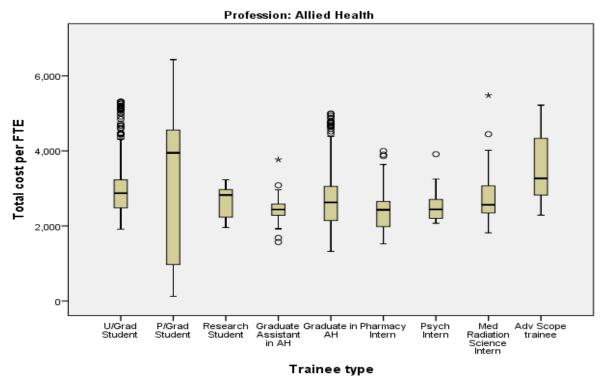
Profession/Phase/Trainee type	n	Avg total cost per FTE/ month	95% Cl Lower bound	95% Cl Upper bound	Median	Coeff of Variation (Total cost)	Avg D+I cost per FTE/ month	Coeff of Variation (D + I)
Allied Health	1,15 6	\$2,667	\$2,606	\$2,728	\$2,719	0.40	\$445	1.28
Pre-entry/student	692	\$2,939	\$2,865	\$3,014	\$2,905	0.34	\$395	1.36
Undergraduate student	580	\$2,936	\$2,877	\$2,995	\$2,873	0.24	\$371	1.42
Postgraduate student	99	\$2,978	\$2,590	\$3,366	\$3,948	0.60	\$642	0.94
Research student	13	\$2,821	\$2,598	\$3,045	\$2,824	0.15	\$391	0.46
Early graduate/pre- vocational	443	\$2,639	\$2,567	\$2,712	\$2,549	0.29	\$614	1.02
Graduate assistant in Allied Health	19	\$2,411	\$2,192	\$2,630	\$2,439	0.20	\$183	3.42
Graduate Allied Health professionals	281	\$2,713	\$2,619	\$2,807	\$2 <i>,</i> 626	0.30	\$642	0.98
Medical radiation science intern	30	\$2,874	\$2,592	\$3,156	\$2 <i>,</i> 563	0.28	\$737	1.09
Pharmacy intern	80	\$2,306	\$2,185	\$2,428	\$2,431	0.24	\$507	0.84
Psychology intern	27	\$2,614	\$2,451	\$2,777	\$2,444	0.17	\$776	0.84
Advanced/vocational	21	\$3,239	\$2,871	\$3,608	\$3,265	0.27	\$371	1.50
Specialist/advanced scope of practice trainee	21	\$3,239	\$2,871	\$3,608	\$3,265	0.27	\$371	1.50

Table 11: Measures of cost and variation for Allied Health trainees, by trainee type

Note: 'n' indicates the number of records in the costed data set that have been used to derive these measures; Definitions of each trainee type are provided at Appendix J and 'D + I' = Direct and Indirect T&T, including relevant overheads

Figure 22 shows the differences in monthly cost per FTE variation across different Allied Health trainee types. Variation is particularly significant for specialist/advanced scope of practice trainees, graduates, postgraduate students and undergraduate students. This may reflect the diversity of Allied Health disciplines, variations in associated T&T intensity and that many advanced scope of practice trainees will be experienced clinicians that command a high salary in their own right.





7.5.1 Teaching and training costs across allied health professions

Table 12 provides the average monthly cost per trainee FTE for each allied health profession for which data was provided to the study, by phase of T&T. Table 12 includes professions that were reported by sites in the DRS, as well as those that were added by specific sites, such as clinical measurement. Although Table 12 does not highlight any allied health professions with systematically higher costs across all phases of T&T, it does show that:

- Average monthly costs per FTE for most professions, in most phases were reported to be around \$3,000;
- Highest costs for pre-entry / student trainees were reported for Pathology, Oral Health and Exercise Physiology;
- Highest costs for early graduate / per-vocational trainees were reported for Radiation Science (Nuclear Medicine), Occupational Therapy and Radiation Science;
- Highest costs for advanced / vocational trainees were reported for Psychology, Pharmacy and Podiatry.

Allied Health profession	Total n	Pre-entry / student	Early graduate / pre-vocational	Advanced / vocational
Physiotherapy	176	\$2,871	\$2,152	\$2,591
Occupational Therapy	169	\$2,984	\$3,305	Not reported
Pharmacy	156	\$2,815	\$2,322	\$4,109
Speech Pathology	123	\$2,930	\$2,803	\$3,056
Radiation Science - Medical Imaging	115	\$2,814	\$2,724	Not reported

Table 12: Average monthly cost per FTE for allied health professions, by phase of T&T

Teaching, Training and Research Costing Study Final Report July 2016

	July				
Allied Health profession	Total n	Pre-entry / student	Early graduate / pre-vocational	Advanced / vocational	
Dietetics / Nutrition	91	\$2,686	\$2,503	Not reported	
Social Work	88	\$3,060	\$2,901	Not reported	
Psychology	84	\$3,168	\$2,773	\$4,276	
Podiatry	43	\$2,347	\$2,597	\$3,365	
Audiology	25	\$3,306	\$2,987	\$3,296	
Oral Health	24	\$3,638	\$2,596	Not reported	
Orthotics / prosthetics	22	\$3,202	\$2,941	Not reported	
Radiation Science - Radiation Therapy	17	\$3,171	\$2,974	Not reported	
Not applicable or not known	15	\$2,374	\$2,532	Not reported	
All Allied Health	13	\$2,374	\$2,679	Not reported	
Radiation Science	13	\$3,377	\$3,114	Not reported	
Cardiac Sciences	11	\$3,006	\$2,898	Not reported	
Exercise Physiology	10	\$3,612	Not reported	Not reported	
Radiation Science - Nuclear Medicine	8	\$3,012	\$4,035	Not reported	
Physiotherapy - Orthopaedic	7	\$1,948	\$2,658	Not reported	
Clinical Measurement	7	\$3,276	\$2,566	Not reported	
Medical Physics	6	Not reported	\$2,574	Not reported	
Pathology science	6	\$6,011	\$2,142	Not reported	

Notes: Not reported = Not reported in site DRS data submissions; Not applicable or not known = data field selected by site coordinators when unsure which AH profession the trainees belonged; Clinical measurement = a site-specific addition to the list of allied health professions reported by some Queensland sites

A detailed breakdown of average monthly trainee costs (by T&T activity type), for each allied health profession are provided in Appendix H.

8 Analysis of research capability results

Figure 23 shows the profile of total research costs submitted by sites, which shows that 95% of costs related to research capability. Only 5% of reported costs were related to state and territory-funded research projects. No valid data was provided for research residual balances.

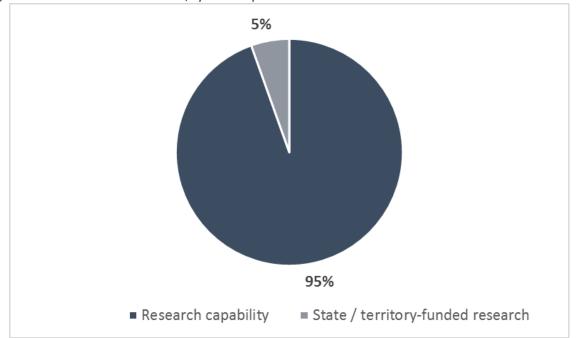


Figure 23: Profile of total research costs, by research product

Figure 24 provides the breakdown of research capability costs, by research capability function, for each hospital peer group that reported research costs to the study. The figure shows that the greatest volume of research capability costs were attributed to research directorate administration and research support and coordination, which together accounted for almost \$3 million of the total reported research costs. It is possible that differences in the approach to reporting research capability functions across sites may impact the attribution of research costs to different research capability functions. For example, it is possible that some functions related to ethics committees or research project registration may have been reported against research directorate administration or research support and coordination.

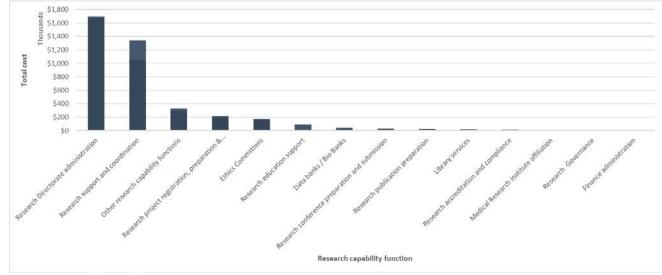


Figure 24: Total research capability costs, by research capability function

Figure 25 shows the profile of total research costs, by hospital peer group. The figure shows that a vast majority of research costs (89.4%) were reported by principal referral hospitals, with Public acute group A hospitals accounting for 10.2% and Public acute group B hospitals 0.1% of total research costs. Although two Public acute group C hospitals participated in the costing study, they did not report any research costs, and have not been shown in the analysis.

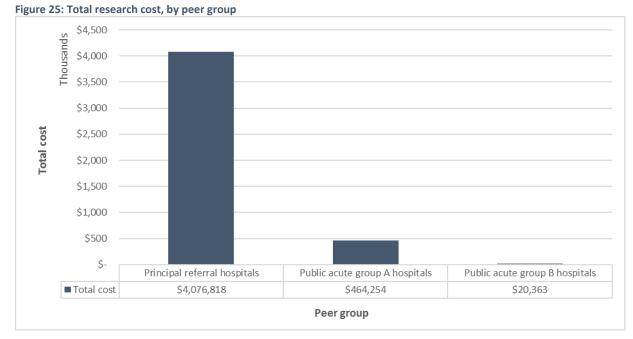


Figure 26 provides the profile of total reported research costs, by cost category, and shows that almost 96% of reported costs related to labour.

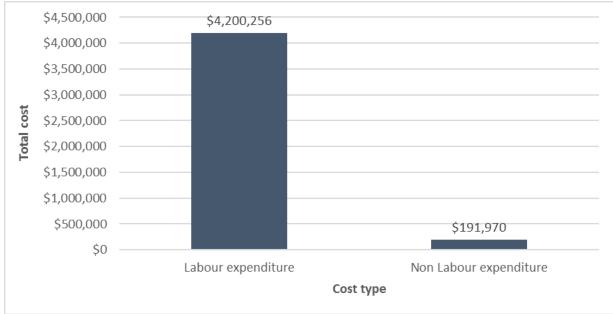


Figure 26: Total research costs, by cost category

8.1 Research activities

Figure 27 shows the profile of research activities that were reported by sites, by hospital peer group. Over 95% of total reported activities took place in principal referral hospitals, with almost 5% accounted for by Public acute group A hospitals. A negligible amount of research activities were reported by Public acute group B hospitals.

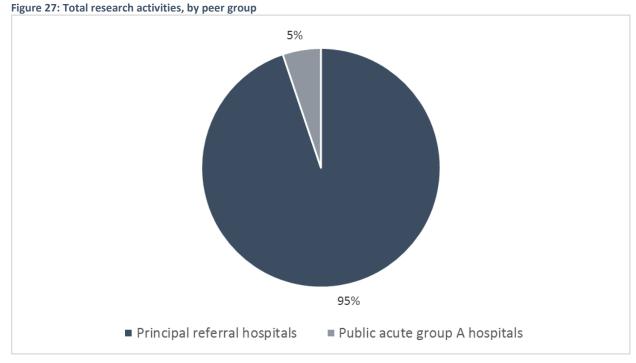


Figure 28 shows the total number of research outputs reported by sites, by type of activity. As shown, the number of research projects was the most commonly-reported research output.

Figure 28: Profile of research activities, by activity type

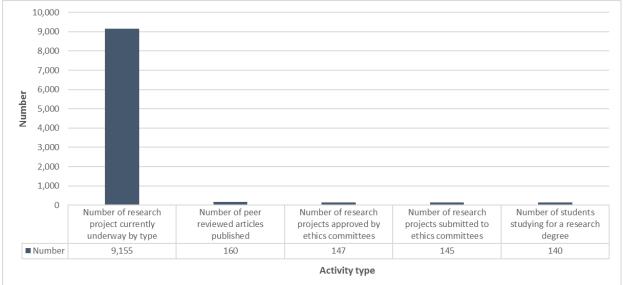


Table 13 shows the profile of reported research activities by type of research and geography.

Almost 79% of all reported research projects were described as being either clinical research, human research or clinical trials. Almost all project reported in non-metropolitan sites were categorised as 'Other research'.

Research type	Metro	Non-metro	Total	% of total
Clinical research	3,796	0	3,796	38.9%
Human research	2,515	0	2,515	25.8%
Clinical trials	1,368	6	1,374	14.1%
Translational research	606	0	606	6.2%

Table 13: Profile of research activities, by research type

Teaching, Training and Research Costing Study Final Report July 2016

Research type	Metro	Non-metro	Total	% of total
Animal research	386	0	386	4.0%
Biosafety research	220	0	220	2.3%
Health Research	103	0	103	1.1%
Social health research	63	0	63	0.6%
Clinical Drug Trial	41	0	41	0.4%
Other research	12	22	35	0.3%
Epidemiological research	16	0	16	0.2%
Total	9,126	28	9,155	100.0%

8.2 Research expenditure per output

Figure 29 shows the average research capability cost per research output for each site that reported both research costs and research activities. This highlights the substantial variation in reported costs per research output across and within peer groups – particularly for principal referral sites. This suggests that it may not be feasible to attempt to derive a relationship between research capability costs and research outputs.

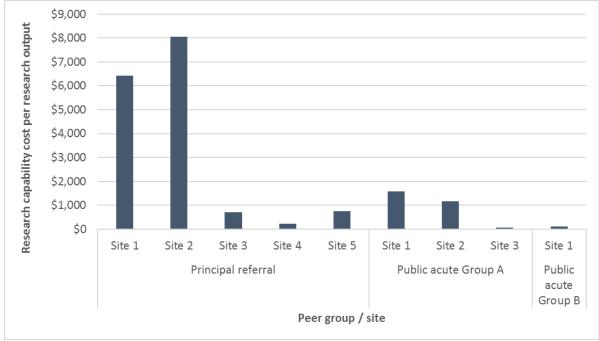


Figure 29: Average research capability cost per research output, by peer group and site

9 Outputs and ongoing collection of TTR data

This section describes how ongoing TTR data collection requirements may be implemented.

9.1 Current processes to cost TTR for NHCDC purposes

Consultations with relevant health service executives, finance, human resources and clinical costing teams during site selection highlighted substantial variation in how TTR data is currently collected and used in hospitals.

In particular, with regard to the current National Hospital Cost Data Collection (NHCDC) costing processes, consultations identified considerable differences in how TTR-related activities and resources are currently being interpreted, classified and costed across different jurisdictions and across different hospitals. In some cases, there was limited knowledge of processes and assumptions used to separate TTR and patient-related costs for submission to the NHCDC. Sites that were consulted reported that:

- TTR was being apportioned as part of the overhead costs of the hospital, based on a figure provided each year by the jurisdictional health authority;
- the cost associated with TTR is bundled into the patient cost dataset using advice provided by the jurisdictional health authority; or
- there were no processes in place to cost TTR and therefore not separated from episodic patient costs.

As a result, there has been little visibility into the actual costs associated with delivering TTR prior to this study, and no consistent approach to costing TTR nationally. Implementation of an ongoing TTR data collection may help to enhance the knowledge of, and availability of data that can support a more standardised nation-wide costing approach for TTR.

Key considerations for future updates to costing standards to incorporate T&T would include how costs associated with embedded T&T would be treated, to avoid duplication with existing patient costing processes. Additionally, consideration may need to be given to the impact of a different unit of count for T&T (trainee FTE), and how efficient data collection and costing processes for trainee-level data can best be implemented.

9.2 Ongoing implementation of data collection requirements

Since the costing study was undertaken for the specific purpose of classification development, it is unlikely that the scale, scope and granularity of data collected for this project would be possible on an ongoing basis. However, the study did highlight a number of improvements to current systems and processes that have the potential to increase the availability of relevant TTR data elements captured by hospitals in a more robust and efficient way

9.3 Costed data files for TTR

The main outputs of the Costing Study are costed data files to inform development of a TTR classification. Separated costed data files for T&T and research, have been developed as outputs of the TTR Costing Study.

The list of fields that are included in the costed data files for T&T and research are provided in Appendix D.

9.3.1 How might the data be used?

The costing study was the first time that a dedicated and extensive TTR cost and activity data collection took place across multiple jurisdictions in Australia. The results of the costing study are therefore expected to provide benefits to a range of users, including:

- improving the understanding of the similarities and differences in TTR provision across different hospitals, States and Territories and geographic locations;
- providing participating sites with an initial understanding of the nature, level of staff involvement and costs of their respective TTR delivery;
- costed TTR results of participating sites' data may provide a tool for those hospitals to use for planning purposes, and for respective States and Territories to use in their own funding, classification or costing systems, should they so choose; and
- improve the scope and quality of TTR cost data reported to the NHCDC.

9.4 Practical improvements for TTR data collection

9.4.1 Teaching and training

While it would be practically difficult to systematically cost some aspects of T&T on an ongoing basis (e.g. embedded T&T), the costing study highlighted that collection of key data elements may assist hospitals to gain a better understanding of the resources they provide to support T&T. The most important of these is the type and number of trainee FTE employed by (or placed at) a public hospital.

9.4.1.1 Trainee FTE

The importance of collecting accurate FTE data is a result of embedded T&T being responsible for the highest proportion of the cost per FTE. As embedded costs are applied at the trainee type level, the number of FTE at a site is the main cost driver for T&T costs.

The capability of hospitals to collect the number and type of trainee FTE varied. Although data on trainee FTE, headcount and salaries can be obtained from payroll and general ledger systems, sites reported that it is not always possible to identify specific trainee types within this data, since pay classifications or other data elements may not uniquely identify all trainee types. For example, sites reported that the same Nursing payroll classification may capture both graduates and second or third-year nurses. Additionally, classifications of vocational medical trainees as 'basic' or 'advanced' are not uniform across jurisdictions, and the same pay classification at a given site may simultaneously relate to an experienced 'basic' registrar, or a less experienced 'advanced' registrar.

Data on **pre-entry** student placements is typically held by education providers, rather than health services. As a result, not all sites were able to source data for the number of **pre-entry** student clinical placement hours or days, and instead reported **pre-entry** student headcount values as FTE. This presents a challenge to accurately quantifying the number of **pre-entry** students placed at a hospital and may require that hospitals establish closer relationships with education providers in order to access data on clinical placement hours or days.

Although all sites used clinical costing software as part of their costing processes, sites reported that the majority of time and resources devoted to these systems principally supported costing of patient-based activity. The broader use of these clinical information systems in conjunction with payroll classifications that are more closely aligned to individual trainee types may also allow the capture of more accurate data to support costing of T&T.

9.4.1.2 Direct and indirect activity

After the number and type of trainee FTE, secondary priorities for ongoing collection may include direct and indirect T&T activities that trainees are engaged in.

Site consultations highlighted clear differences in the amount and nature of direct T&T activities that take place from one site to another, and across different trainee types. Understanding these activities therefore provides a basis for understanding variability in overall T&T costs. Individual clinical department systems, spreadsheets and rosters provided source data to identify these activities in some cases, however, sites reported that data on direct T&T activities, and trainee attendance to them, is not currently available in information systems for most hospitals.

A number of sites reported that they were in the processes of deploying electronic Learning Management Systems (LMSs), to capture activities that were both in-scope of the TTR definition (such as attendance to lectures, tutorials or online training courses), but also some activities not in scope (such as organisational or mandatory training courses). While the sites involved in the implementation of these LMS systems acknowledged that they were initially focused on a particular clinical professional groups, many were hoping to use the costing study as an enabler to broaden their application across other professional groups, and to improve the amount of direct T&T activity data that is captured into the future.

Ongoing collection of indirect T&T data may be feasible but may require that hospitals identify the human resources that provide indirect T&T across professions and clinical departments. This is likely to be a manual process that could be performed by a project officer or other role similar to the site coordinators that were employed during the costing study. Starting points for identifying indirect T&T resources should focus on the number of staff in medical and nursing administration / education departments, along with allied health staff that coordinate or manage T&T activities for **pre-entry** students and trainees. Considering the relative stability of indirect resources that were reported over the course of the costing study, this information should only need to be reviewed and refreshed once or twice a year.

9.4.2 Research

The costing study identified that a majority of research costs related to ongoing State and Territoryfunding are associated with research capability. As a result, research capability is most likely to be the focus of any ongoing future research data collection requirement.

Although general ledger and payroll data provided the basis for quantifying the resources and costs associated with research capability, there were a number of challenges in obtaining this data that would need to be overcome for an ongoing collection to be feasible. Primarily, research capability positions were not straightforward to identify at most sites because pay classifications for research staff were often common to other administrative or clinical roles.

Implementation of approaches to enhance the ability to uniquely identify research capability positions may therefore help to ensure that the headcount, FTE and pay data for positions that support research capability can be clearly and quickly identified through existing payroll and general ledger data collections.

9.4.3 Conclusions

The results of the costing study suggest that it is possible to identify a T&T product that can be costed and potentially, classified.

Although this project demonstrated that it may be possible to cost research capability, it did not identify a relationship between research capability costs and research outputs. Consequently, the costing study did not identify a research product to support classification development for research.

The results of this study suggest that there may be value in public hospitals collecting some key TTR data elements on an ongoing basis, including:

- for teaching and training:
 - \circ the number and type of trainee FTE employed (or placed) at a public hospital; and
- for research:
 - the labour resources that are responsible for delivering research capability.

Although some systems and processes already exist to collect these data elements at most hospitals, further development of systems and processes may be required to ensure that robust TTR data can be collected on an ongoing basis.

Appendix A : Recommendations of the Definitions and Cost Drivers project

<u>Recommendation 1</u>: That any further work conducted by IHPA on teaching and training be undertaken on the basis that the term 'teaching and training' describes:

"the activities provided by or on behalf of a public health service to facilitate the acquisition of knowledge, or development of skills. These activities must be required for an individual to:

- • attain the necessary qualifications or recognised professional body registration to practice;
- • acquire sufficient clinical competence upon entering the workforce; or
- undertake specialist/advanced practice

in Medicine, Dentistry, Nursing, Midwifery or Allied Health."

<u>Recommendation 2</u>: That the Australian Hospital Patient Costing Standards are updated to align with the new definition of 'teaching and training' that has been approved by the Pricing Authority.

<u>Recommendation 3</u>: That IHPA should seek to provide further guidance on how terms contained within the new definitions should be interpreted, including:

- • necessary qualifications;
- recognised professional body;
- • sufficient clinical competence;
- • specialist/advanced practice; and
- • Allied Health

<u>Recommendation 4</u>: That any further work conducted by IHPA on research be undertaken on the basis that the term 'research' describes:

"the activities undertaken in a public health service where the primary objective is the advancement of knowledge that ultimately aims to improve consumer and patient health outcomes and/or health system performance. The activity must be undertaken in a structured and ethical way, be formally approved by a research governance or ethics body, and have potential for application outside of the health service in which the activity is undertaken."

and that for ABF purposes, the definition of research relates to:

"the public health service's contribution to maintain research capability, excluding the costs of research activities that are funded from a source other than the State or Territory or provided in kind".

Recommendation 5: That the Australian Hospital Patient Costing Standards are updated to align with the new definition of 'research' that has been approved by the Pricing Authority.

<u>Recommendation 6</u>: Any future work to develop a classification of teaching and training activities for ABF purposes should aim to collect data on the potential cost driver variables for which data was not available during this project, including:

- • differences in teaching and training requirements of vocational medical trainees between procedural and non-procedural specialties; and
- • the number of international medical professionals in training.

<u>Recommendation 7</u>: Any future work to develop a classification of teaching and training activities for ABF purposes should aim to collect data on all trainee professional groups that are in scope of the definition of 'teaching and training' for ABF purposes.

Recommendation 8: that IHPA should consider renaming the trainee clusters in the HTTA DSS to provide a clearer basis for differentiating between trainees at each phase of teaching and training.

Recommendation 9: Any future work to assess the costs associated with the delivery of teaching and training should consider the extent to which revenues received by public health services for delivering teaching and training activities offset teaching and training costs.

<u>Recommendation 10</u>: Any further work to identify the costs associated with teaching and training should attempt to separately identify its associated direct, indirect and embedded cost components.

<u>Recommendation 11</u>: The unit of count in a future classification of teaching and training should be the number of full-time equivalent trainees either placed (as students) or employed by a public health service.

<u>Recommendation 12</u>: The scope of a future classification for teaching and training activities should be defined by two primary criteria:

- 1. the professional group in which a trainee is employed (or placed):
 - medical;
 - **Dentistry**;
 - Nursing and Midwifery; or
 - Allied Health.
- 2. the phase of teaching and training in which the individual is engaged:
 - pre-entry/student;
 - early graduate/pre-vocational; or
 - advanced/vocational.

<u>Recommendation 13</u>: Any future work to identify the costs to deliver teaching and training activities should identify a preferred classification structure, based upon either 'professional group' or 'phase of teaching and training' as the initial splitting variable.

Recommendation 14: IHPA should consider a comprehensive costing study to investigate the costs of delivering teaching and training for ABF purposes, subject to acceptance of the cost and data requirements by jurisdictions. At a minimum, the costing study should seek to:

- Separately understand the direct, indirect and embedded costs to deliver teaching and training, including a detailed assessment of the feasibility of estimating, modelling or quantifying the teaching and training costs that are embedded within patient care;
- Gather data on other key variables (including potential cost drivers and trainee groups) that could not be analysed as part of the cost driver analysis of this project;
- Identify whether variations exist in teaching and training cost and intensity between clinical professional groups in various phases of their training; and
- Understand the extent to which revenues received by public health services for delivering teaching and training activities may offset teaching and training costs.

<u>Recommendation 15</u>: IHPA should consider undertaking a research-specific data collection as part of the recommended costing study of teaching and training activities, to understand the nature of research capability costs.

Recommendation 16: That IHPA should engage with jurisdictions to understand the basis upon which they have reported the costs of research activities for 2014-15.

Appendix B : Embedded T&T survey (paper version)

B. 1. Privacy notice

This survey is collected on behalf of the Independent Hospital Pricing Authority (IHPA) by Survey Monkey and by IHPA's subcontractor, the Paxton Partners Consortium. Information collected via the survey will only be used by IHPA and its sub-contractor for the purpose of costing T&T activities that occur in conjunction with patient care. IHPA does not usually disclose this information to anyone else or to overseas recipients.

Further information about IHPA's privacy practices, including accessing and amending your personal information or making a privacy complaint, is set out in IHPA's <u>Privacy Policy</u>.

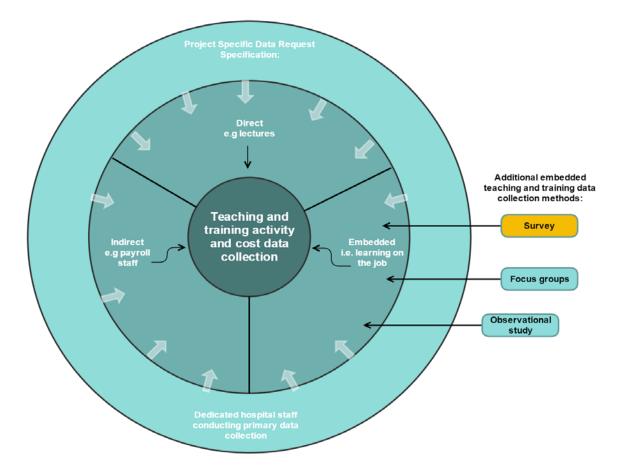


B. 2. Introduction

B. 2. 1. Purpose of T&T costing study

The overarching study is a teaching, training and research (TTR) cost and activity data collection that will be used to develop a TTR classification. The survey is one of various approaches that will provide information on teaching and training (T&T) that occurs in public hospitals in conjunction with patient care (embedded T&T) as illustrated in the figure below.

Teaching and training data collection - across professions, across the country



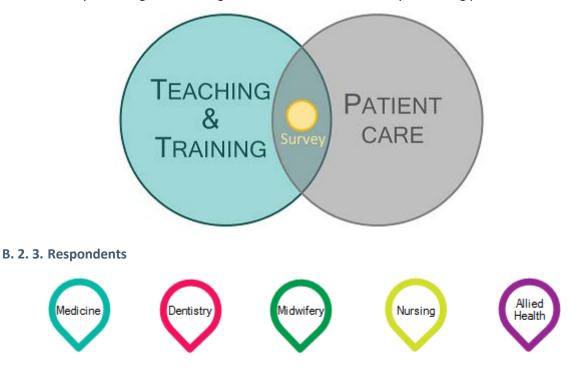
Through extensive consultation, IHPA has determined that there are three types of T&T activities that are in-scope for the costing study:

- Direct: distinct and separable activities occurring outside of an episode of care (e.g. lectures, tutorials and workshops).
- Indirect: 'back office' administrative and coordination activities that facilitate teaching and training (e.g. utilities, maintenance, placement management).
- Embedded activities that occur in conjunction with patient care (e.g. ward rounds).

The survey intends to capture data on embedded T&T activities only. As shown in the figure, data on direct and indirect T&T is being collected through other approaches.

B. 2. 2. Purpose of this survey

We recognise that the delivery of T&T and patient care is often a joint and complimentary process, however, we needed to find a discrete and replicable method of comparing the amount of embedded T&T that takes place. As a result, the survey does not intend to capture the exact dynamics of embedded T&T – instead, it asks students and clinicians to estimate the time that they are exclusively receiving or delivering T&T while not simultaneously delivering patient care.



Students, new graduates, pre-vocational staff, registrars, staff completing advanced studies and the clinicians that train them - across all clinical professions.

B. 2. 4. Data identifiability

We are not requesting identifiable data.

B. 2. 5. Other Questions

Please contact your hospital's Site Coordinator, if you have any questions.

B. 3. Survey questions

Please write name of the hospital where you work:

Please select your profession:

- □ Medicine
- □ Dentistry
- □ Nursing
- □ Midwifery
- □ Allied Health

Please write your job title: Select one from the attached Job Title list at Attachment A

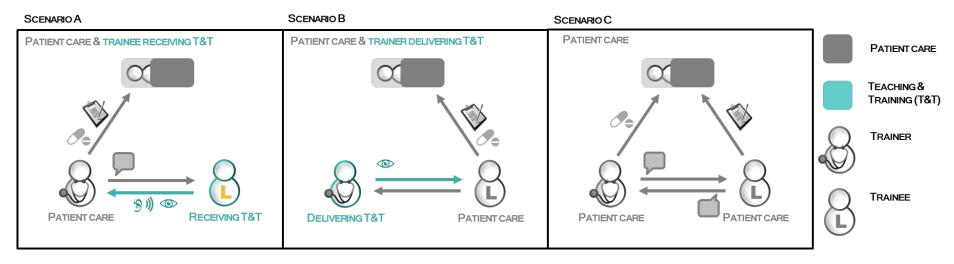
Please write your specialty/area of practice (if applicable): Select one from the attached Specialty/Area of Practice list at Attachment B

For what week are you submitting this survey?

- 🗆 Mon 12 Sun 18 October
- □ Mon 19 Sun 25 October

For this survey we need you to think about the amount of time you spent engaged in different activity types and break it down as follows:

- a) The proportion spent exclusively receiving T&T from a trainer (i.e. another clinician) with no involvement in patient care e.g. a trainee observing/listening to a trainer explain or demonstrate something. (Scenario A).
- b) The proportion spent exclusively <u>delivering T&T to a trainee (i.e. a student or clinician)</u> with no involvement in patient care e.g. a trainer observing/supervising a trainee treat a patient, answer questions or present a patient history/case. (Scenario B).
- c) The remaining proportion of time you spent <u>delivering patient care (even if T&T is taking place simultaneously</u>). (Scenario C).



While completing this survey, please do not enter data for any days that you did not work or any activities that you did not undertake.

Activity types

Please see the activity types and their examples in the below table.

Туре	Examples
Ward Based Activities	Such as bedside patient care, ward rounds and patient consultation occurring in admitted and emergency department settings. Note that ward-based patient care may include activities that take place while a patient is not directly present

Туре	Examples
Procedural or surgical interventions	Such as theatre or cardiac catheterisation labs or other invasive procedures that may occur in settings such as the emergency department
Outpatient/clinic based activities	Such as patient consultation that occurs outside of admitted and emergency department settings (e.g. in clinical offices). Note that this may include activities that take place while a patient is not directly present (e.g. conversations between a trainer and trainee where T&T is imparted between patient consultations)
Other clinical (non-surgical) procedures	Such as delivery suite, pharmacy, diagnostic or other non-surgical activities occurring in admitted and emergency department settings that do not involve invasive procedures
Work based (on the job) assessments	Such as formal skills/clinical assessments involving patients

Monday	
Question	

Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

Tuesday
Question

Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

Wed	nesday
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Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

Thursday

Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

Frid	av
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Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

Saturday	
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Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

Question	Ward Based Activities	Procedural or surgical interventions	Outpatient/clinic based activities	Other clinical (non- surgical) procedures	Work based (on the job) assessments
Total time (mins)					
Receiving T&T from a clinician (%)					
Delivering T&T to a clinician or student (%)					
Delivering patient care (%)					
Average number of <u>trainees</u> that received T&T (include yourself if you received T&T)					
Average number of <u>trainers</u> responsible for delivering this T&T (include yourself if you delivered T&T)					
Type of trainer that delivered most of the T&T. Select one from the attached Trainer Type list at Attachment C. If you were responsible for <u>delivering</u> most of the T&T please enter 'Self'					
Trainer preparation time for this activity (mins). Please <u>only</u> complete if you were a trainer that delivered T&T					

If you would like to provide any feedback on this survey, please use the box below.

End of survey

B. 4. Job title list

Medicine	Dentistry	Nursing	Midwifery	Allied Health
Undergraduate Student = Year 1	Undergraduate Student = Year 1	Undergraduate Student = Year 1	Undergraduate Student = Year 1	Undergraduate Student = Year 1
Undergraduate Student = Year 2	Undergraduate Student = Year 2	Undergraduate Student = Year 2	Undergraduate Student = Year 2	Undergraduate Student = Year 2
Undergraduate Student = Year 3	Undergraduate Student = Year 3	Undergraduate Student = Year 3	Undergraduate Student = Year 3	Undergraduate Student = Year 3
Undergraduate Student = Year 4	Undergraduate Student = Year 4	Undergraduate Student > Year 4	Undergraduate Student > Year 4	Undergraduate Student = Year 4
Undergraduate Student = Year 5	Undergraduate Student = Year 5	Postgraduate Student = Year 1	Postgraduate Student = Year 1	Undergraduate Student = Year 5+
Undergraduate Student = Year 6	Undergraduate Student = Year 6	Postgraduate Student = Year 2	Postgraduate Student = Year 2	Postgraduate Student (Graduate entry)
Postgraduate Student = Year 1	Postgraduate Student = Year 1	Graduate Assistant in Nursing = Year 1	Graduate Assistant in Midwifery = Year 1	Research Student
Postgraduate Student = Year 2	Postgraduate Student = Year 2	Graduate Enrolled Nurse = Year 1	Graduate Enrolled Midwife = Year 1	Graduate Assistant in Allied Health = Year 1
Postgraduate Student = Year 3	Postgraduate Student = Year 3	Graduate Registered Nurse = Year 1	Graduate Registered Midwife = Year 1	Graduate in Allied Health = Year 1
Postgraduate Student = Year 4	Postgraduate Student = Year 4	Nurse re-entry trainee	Midwife re-entry trainee	Intern = Year 1
Research Student	Research Student	Research Student	Research Student	Intern = Year 2
PGY 1	PGY 1	Nurse Practitioner Candidate	Clinical Educator (External)	Postgraduate Student (Advanced scope of practice)
PGY 2	PGY 2	Clinical Educator (External)	Clinical school appointment	Specialist/Advanced scope of practice trainee
PGY 3+	PGY 3+	Clinical Nurse Consultant	Enrolled Midwife (clinician)	Advanced Allied Health practitioner
Basic Trainee Registrar = Year 1	Basic Trainee Registrar = Year 1	Clinical Nurse Educator	Registered Midwife (clinician)	Clinical Educator
Basic Trainee Registrar = Year 2	Basic Trainee Registrar = Year 2	Clinical school appointment	Midwife Practitioner	Clinical school appointment
Basic Trainee Registrar = Year 3	Basic Trainee Registrar = Year 3	Enrolled Nurse (clinician)	Unit Manager	Clinician
Basic Trainee Registrar Year 4+	Basic Trainee Registrar Year 4+	Registered Nurse (clinician)	Senior/Advanced Scope of Practice Midwife	Senior clinician
Advanced Trainee Registrar = Year 1	Advanced Trainee Registrar = Year 1	Nurse Practitioner	Staff Development Midwife	Other Allied Health professional
Advanced Trainee Registrar = Year 2	Advanced Trainee Registrar = Year 2	Nurse Unit Manager	Other Midwife professional	
Advanced Trainee Registrar = Year 3	Advanced Trainee Registrar = Year 3	Senior/Advanced Scope of Practice Nurse		

Medicine	Dentistry	Nursing	Midwifery	Allied Health
Advanced Trainee Registrar Year 4+	Advanced Trainee Registrar Year 4+	Staff Development Nurse		
International medical professional in training	International dental professional in training	Other Nurse professional		
Consultant	Consultant			
Clinical academic	Clinical academic			
Visiting Medical Officer	Visiting Dental Officer			
Other Medical Professional	Other Dental Professional			

B. 5. Specialty/Area of Practice list

Medicine	Nursing	Midwifery	Allied Health
Addiction Medicine	Emergency Medicine	Midwifery Education	Audiology
Anaesthesia	Intensive Care Medicine	Midwifery General	Dietetics/Nutrition
Dermatology	Mental health	Operating Theatre	Dietetics/Nutrition - Diabetes
Emergency Medicine	Nursing Education	Other area of practice	Occupational Therapy
General Practice	Nursing General		Optometry
Intensive Care Medicine	Operating Theatre		Orthotics/prosthetics
Intensive Care Medicine - Paediatric Intensive Care Medicine	Other area of practice		Pathology science
Medical Administration			Pharmacy
Obstetrics And Gynaecology			Physiotherapy
Obstetrics And Gynaecology - Gynaecological Oncology			Physiotherapy - Neurology
Obstetrics And Gynaecology - Maternal–Fetal Medicine			Orthopaedic
Obstetrics And Gynaecology - Obstetrics And Gynaecological Ultrasound			Podiatry
Obstetrics And Gynaecology - Reproductive Endocrinology And Infertility			Psychology
Obstetrics And Gynaecology - Urogynaecology			Radiation Science
Occupational And Environmental Medicine			Radiation Science - Medical Imaging
Ophthalmology			Radiation Science - Nuclear Medicine
Paediatrics			Radiation Science - Radiation Therapy
Paediatrics - Clinical Genetics			Social Work
Paediatrics - Community Child Health			Speech Pathology
Paediatrics - General Paediatrics			Other Allied Health profession
Paediatrics - Neonatal And Perinatal Medicine			
Paediatrics - Paediatric Cardiology			
Paediatrics - Paediatric Clinical Pharmacology			
Paediatrics - Paediatric Emergency Medicine			
Paediatrics - Paediatric Endocrinology			
Paediatrics - Paediatric Gastroenterology And Hepatology			

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Medicine	Nursing	Midwifery	Allied Health
Paediatrics - Paediatric Haematology			
Paediatrics - Paediatric Immunology and Allergy			
Paediatrics - Paediatric Infectious Diseases			
Paediatrics - Paediatric Intensive Care Medicine			
Paediatrics - Paediatric Medical Oncology			
Paediatrics - Paediatric Nephrology			
Paediatrics - Paediatric Neurology			
Paediatrics - Paediatric Nuclear Medicine			
Paediatrics - Paediatric Palliative Medicine			
Paediatrics - Paediatric Rehabilitation Medicine			
Paediatrics - Paediatric Respiratory And Sleep Medicine			
Paediatrics - Paediatric Rheumatology			
Pain Medicine			
Palliative Medicine			
Pathology			
Pathology - Anatomical Pathology			
Pathology - Chemical Pathology			
Pathology - General Pathology			
Pathology - Haematology			
Pathology - Immunology			
Pathology - Microbiology			
Pathology - Forensic Pathology			
Physician			
Physician - Cardiology			
Physician - Clinical Genetics			
Physician - Clinical Pharmacology			
Physician - Endocrinology			
Physician - Gastroenterology and Hepatology			

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Medicine	Nursing	Midwifery	Allied Health
Physician - General Medicine			
Physician - Geriatric Medicine			
Physician - Haematology			
Physician - Immunology and Allergy			
Physician - Infectious Diseases			
Physician - Medical Oncology			
Physician - Nephrology			
Physician - Neurology			
Physician - Nuclear Medicine			
Physician - Respiratory and Sleep Medicine			
Physician - Rheumatology			
Psychiatry			
Public Health Medicine			
Radiation Oncology			
Radiology			
Radiology-Diagnostic Radiology			
Radiology-Diagnostic Ultrasound			
Radiology-Nuclear Medicine			
Rehabilitation Medicine			
Sexual Health Medicine			
Sport and Exercise Medicine			
Surgery			
Surgery - Cardio-Thoracic Surgery			
Surgery - General Surgery			
Surgery - Neurosurgery			
Surgery - Orthopaedic Surgery			
Surgery - Otolaryngology			
Surgery - Oral And Maxillofacial Surgery			

Medicine	Nursing	Midwifery	Allied Health
Surgery - Paediatric Surgery			
Surgery - Plastic Surgery			
Surgery - Urology			
Surgery - Vascular Surgery			

B. 6. Trainer type list

Trainer Type
Self
Medicine & Dentistry - PGY 1
Medicine & Dentistry - PGY 2
Medicine & Dentistry - PGY 3+
Medicine & Dentistry - Basic Trainee Registrar
Medicine & Dentistry - Advanced Trainee Registrar
Medicine & Dentistry - Consultant
Medicine & Dentistry - Clinical academic
Medicine & Dentistry - Visiting Medical Officer
Medicine & Dentistry - Other Medical Professional
Medicine & Dentistry - Other Dental Professional
Nursing & Midwifery - Graduate Enrolled Nurse = Year 1
Nursing & Midwifery - Graduate Registered Nurse/Midwife = Year 1
Nursing & Midwifery - Enrolled Nurse (clinician)
Nursing & Midwifery - Registered Nurse/Midwife (clinician)
Nursing & Midwifery - Clinical Educator (External)
Nursing & Midwifery - Clinical Nurse Consultant
Nursing & Midwifery - Clinical Nurse Educator
Nursing & Midwifery - Clinical school appointment
Nursing & Midwifery - Staff Development Nurse/Midwife
Nursing & Midwifery - Nurse Unit Manager
Nursing & Midwifery - Senior/Advanced Scope of Practice Nurse/Midwife
Nursing & Midwifery - Nurse/Midwife Practitioner
Nursing & Midwifery - Other Nurse/Midwife trainer types
Allied Health - Graduate in Allied Health = year 1
Allied Health - Clinician
Allied Health - Senior clinician
Allied Health - Clinical Educator

Appendix C : Parameters used to model embedded T&T

As discussed in Section 5, the process to calculate embedded T&T costs relied upon the development of a range of assumptions about who delivers and receives embedded T&T, which were derived from clinician surveys. This appendix describes key elements in the process to develop the assumptions that were used to model embedded T&T, and also provides the specific parameters that were used in the modelling process.

This appendix presents these parameters in three sections:

- 1. Rules that were used to identify the level at which survey responses would be analysed to develop assumptions
- 2. The assumptions used to identify the time trainees and trainers spent engaged in embedded T&T
- 3. The assumptions used to identify the trainers that delivered T&T to each trainee type.

C. 1. Rules used to develop assumptions for modelling embedded T&T

C. 1. 1. Sample size

In some cases, survey response rates were likely to be too small to use as the basis for deriving reliable estimates of embedded T&T activity. For example, it was not desirable to rely on responses from two trainees as the basis for estimating the time graduate nurses spent engaged in embedded T&T.

Upon recommendation by Paxton Partners and IHPA, the TTRWG and TTR CSTG considered 30 response days to be an acceptable response size to use as the basis for deriving assumptions about embedded T&T ('the 30 rule'). For instance, a 'phase level' grouping may be further disaggregated by also applying a 'procedural and non-procedural' grouping.

The general hierarchy used to apply the 30 rule detailed below, from the most granular level (preferred) to less granular was:

- 1. Trainee type and specialty / area of practice / allied health profession
- 2. Trainee type (for medicine, dentistry, nursing and midwifery) or allied health profession (for allied health)
- 3. Specialty / area of practice (for medicine, dentistry, nursing and midwifery) or trainee type (for allied health)
- 4. Phase of T&T and specialty / area of practice / allied health profession
- 5. Phase of T&T and Procedural / non-procedural specialty (for medicine only)
- 6. Phase of T&T
- 7. Trainee or trainer status
- 8. Profession

For example, if the number of survey response days for a given trainee type at the 'Phase of T&T and specialty level' was less than 30, then the number of survey response days for the 'Phase of T&T and procedural / non-procedural' level relevant to that trainee type would be investigated to see if the 30 rule was achieved. If it was, then survey data was used at the 'Phase of T&T ad procedural / non-procedural' level. If the 30 rule was not achieved, then the number of response days at the 'Phase of T&T' level was investigated, and so on until a sample of 30 was achieved at a lower level in the hierarchy.

C. 1. 1. 1. Exceptions

A small number of exceptions to the 30 rule were implemented to take account of specific feedback from the TTRWG and TTR CSTG, or unique aspects of the data. The exceptions to the 30 rule included:

- If a group has a sample size between 25 and 30 and is significantly heterogeneous from the next, less granular level up, the group with the response size of 25 or more was used without aggregating further. For example, in the 'allied health non-trainee group', pharmacy trainees with a sample size of 27 were used to develop survey assumptions, rather than rolling up to 'all allied health'. Conversely, within the 'nursing pre-entry phase level' the 'nursing postgraduate student' sample size of 27 would not be sufficiently heterogeneous from the 'pre-entry phase' (which would include undergraduate students also) to warrant lowering the sample size limit. Therefore the 'postgraduate group' would roll-up to the 'pre-entry' phase level for nursing.
- The TTRWG and the TTR CSTG suggested that dentistry is very different from any other profession. As a result, available data for dentistry was used even though the number of survey response days received for trainees and trainers was 17 and 14 respectively.
- Limited data was available on the number of trainers that deliver T&T to certain trainee types. As a result, the available data was used as the basis for identifying the trainers that delivered T&T to each trainee type, and the 30 rule was not applied. Since trainer costs cannot be allocated without this data, the TTRWG and TTR CSTG supported using the data available. Data was be grouped where it was reasonable and feasible to do so to increase the robustness of data.
- All midwifery data was grouped with nursing data due to low midwifery sample sizes. The midwifery 'non-trainee group' was the only midwifery group large enough to comply with the 30 rule, however the data for this group appeared sufficiently similar to nursing 'non-trainees' to suggest that all midwifery data should be combined with nursing data. It should be noted that midwifery representatives were present at the joint TTRWG and TTR CSTG meeting on 18 December 2015, and members did have some reservation amalgamating midwifery and nursing data. However the grouping was thought to provide more representative data than midwifery alone.

C. 1. 1. 2. Survey data not used to develop assumptions

Focus groups were undertaken to test and validate results obtained from clinician and trainee surveys, and the outcomes of these focus groups resulted in some survey results being excluded from consideration on the basis that clinician feedback suggested the results were incorrect, or the result of misinterpretation by survey respondents.

As a result of this feedback, survey data that reported pre-entry students delivering embedded T&T (and subsequent preparation time) were not included in the process to develop assumptions, and were not used to model embedded T&T.

C. 2. Levels at which survey assumptions were applied, by trainee type

Profession	Phase of T&T	Trainee type	Specialty / Area of practice / Allied health profession	Level at which survey assumptions were applied	Total response days for level
Allied health	Adv / vocational	Adv scope of practice	Dietetics / Nutrition	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Occupational Therapy	Allied health - Occ Therapy trainees	30
Allied health	Adv / vocational	Adv scope of practice	Other	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Other	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Pharmacy	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Physiotherapy	Allied health - Physio trainees	51
Allied health	Adv / vocational	Adv scope of practice	Physiotherapy - Neurology	Allied health - Physio trainees	51
Allied health	Adv / vocational	Adv scope of practice	Podiatry	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Psychology	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Radiation Science - Nuclear Medicine	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Radiation Science - Medical Imaging	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Radiation Science - Radiation Therapy	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Social Work	Allied Health - All trainees	110
Allied health	Adv / vocational	Adv scope of practice	Speech Pathology	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Dietetics / Nutrition	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Occupational Therapy	Allied health - Occ Therapy trainees	30
Allied health	Adv / vocational	Graduate Asst in AH	Other	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Pharmacy	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Physiotherapy - Neurology	Allied health - Physio trainees	51
Allied health	Adv / vocational	Graduate Asst in AH	Podiatry	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Psychology	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Radiation Science - Nuclear Medicine	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Radiation Science - Medical Imaging	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Radiation Science - Radiation Therapy	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Social Work	Allied Health - All trainees	110
Allied health	Adv / vocational	Graduate Asst in AH	Speech Pathology	Allied Health - All trainees	110
Allied health	Early grad / pre-voc	Graduate	Dietetics / Nutrition Allied health - Graduates		44
Allied health	Early grad / pre-voc	Graduate	Occupational Therapy	Allied health - Trainees in Occ Therapy	30

Profession	Phase of T&T	Trainee type	Specialty / Area of practice / Allied health profession	Level at which survey assumptions were applied	Total response days for level
Allied health	Early grad / pre-voc	Graduate	Other	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Physiotherapy	Allied health - Graduates in Physio	32
Allied health	Early grad / pre-voc	Graduate	Physiotherapy - Neurology	Allied health - Graduates in Physio	32
Allied health	Early grad / pre-voc	Graduate	Podiatry	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Psychology	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Radiation Science - Medical Imaging	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Radiation Science - Radiation Therapy	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Social Work	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Speech Pathology	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Graduate	Radiation Science - Nuclear Medicine	Allied health - Graduates	44
Allied health	Early grad / pre-voc	Medical radiation science intern	Radiation Science - Medical Imaging	Allied health - All Early Grad trainees	46
Allied health	Early grad / pre-voc	Medical radiation science intern	Radiation Science - Nuclear Medicine	Allied health - All Early Grad trainees	46
Allied health	Early grad / pre-voc	Medical radiation science intern	Radiation Science - Radiation Therapy	Allied health - All Early Grad trainees	46
Allied health	Early grad / pre-voc	Pharmacy intern	Pharmacy	Allied health - All Early Grad trainees	46
Allied health	Early grad / pre-voc	Psychology intern	Psychology	Allied health - All Early Grad trainees	46
Allied health	Pre-entry / stud	P/Grad Stud	Dietetics / Nutrition	Allied health - P/Grad students	27
Allied health	Pre-entry / stud	P/Grad Stud	Occupational Therapy	Allied health - Students in Occ Therapy	36
Allied health	Pre-entry / stud	P/Grad Stud	Other	Allied health - P/Grad students	27
Allied health	Pre-entry / stud	U/Grad Stud	Occupational Therapy	Allied health - U/Grad students in Occ Therapy	26
Allied health	Pre-entry / stud	U/Grad Stud	Other	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Pharmacy	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Physiotherapy	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Physiotherapy - Neurology	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Podiatry	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Psychology	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Radiation Science - Nuclear Medicine	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Radiation Science - Medical Imaging	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Radiation Science - Radiation Therapy	Allied health - U/Grad students	37
Allied health	Pre-entry / stud	U/Grad Stud	Social Work	Allied health - U/Grad students	37

Profession	Phase of T&T	Trainee type	Specialty / Area of practice / Allied health profession	Level at which survey assumptions were applied	Total response days for level
Allied health	Pre-entry / stud	U/Grad Stud	Speech Pathology	Allied health - U/Grad students	37
Dentistry	Adv / vocational	Adv Trainee Reg	Not applicable	Dentistry - All trainees	17
Dentistry	Adv / vocational	Basic Trainee Reg	Not applicable	Dentistry - All trainees	17
Dentistry	Adv / vocational	International dental professional in training	Not applicable	Dentistry - All trainees	17
Dentistry	Early grad / pre-voc	Graduate Dental practitioner	Not applicable	Dentistry - All trainees	17
Dentistry	Early grad / pre-voc	PGY 1	Not applicable	Dentistry - All trainees	17
Dentistry	Early grad / pre-voc	PGY 2	Not applicable	Dentistry - All trainees	17
Dentistry	Early grad / pre-voc	PGY 3+	Not applicable	Dentistry - All trainees	17
Dentistry	Pre-entry / stud	P/Grad Stud	Not applicable	Dentistry - All trainees	17
Dentistry	Pre-entry / stud	U/Grad Stud	Not applicable	Dentistry - All trainees	17
Medicine	Adv / vocational	Adv Trainee Reg	Other Non-procedural	Medicine - Adv Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Adv Trainee Reg	Other Paediatrics	Medicine - Adv Regisrars (Paediatrics)	37
Medicine	Adv / vocational	Adv Trainee Reg	Paediatrics	Medicine - Adv Regisrars (Paediatrics)	37
Medicine	Adv / vocational	Adv Trainee Reg	Paediatrics - General	Medicine - Adv Regisrars (Paediatrics)	37
Medicine	Adv / vocational	Adv Trainee Reg	Paediatrics - Neonatal and perinatal medicine	Medicine - Adv Regisrars (Paediatrics)	37
Medicine	Adv / vocational	Adv Trainee Reg	Paediatrics - Paediatric emergency medicine	Medicine - Adv Regisrars (Paediatrics)	37
Medicine	Adv / vocational	Adv Trainee Reg	Physician	Medicine - Adv Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Adv Trainee Reg	Physician - General medicine	Medicine - Adv Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Adv Trainee Reg	Physician - Geriatric medicine	Medicine - Adv Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Adv Trainee Reg	Radiology	Medicine - Adv Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Adv Trainee Reg	Anaesthesia	Medicine - Adv Regisrars (Procedural)	71
Medicine	Adv / vocational	Adv Trainee Reg	Other Procedural	Medicine - Adv Regisrars (Procedural)	71
Medicine	Adv / vocational	Adv Trainee Reg	Other Surgery	Medicine - Adv Registrars (Surgery)	59
Medicine	Adv / vocational	Adv Trainee Reg	Surgery - General	Medicine - Adv Registrars (Surgery)	59
Medicine	Adv / vocational	Adv Trainee Reg	Surgery - Orthopaedic surgery	Medicine - Adv Regisrars (Orthopaedic Surgery)	38
Medicine	Adv / vocational	Basic Trainee Reg	Other Non-procedural	Medicine - Basic Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Basic Trainee Reg	Other Physician	Medicine - Basic Regisrars (Physician)	37
Medicine	Adv / vocational	Basic Trainee Reg	Paediatrics	Medicine - Basic Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Basic Trainee Reg	Physician	Medicine - Basic Regisrars (Physician)	37

Profession	Phase of T&T	Trainee type	Specialty / Area of practice / Allied health profession	Level at which survey assumptions were applied	Total response days for level
Medicine	Adv / vocational	Basic Trainee Reg	Physician - Cardiology	Medicine - Basic Regisrars (Physician)	37
Medicine	Adv / vocational	Basic Trainee Reg	Physician - General medicine	Medicine - Physician - General Medicine	52
Medicine	Adv / vocational	Basic Trainee Reg	Radiology	Medicine - Basic Regisrars (Non-procedural)	34
Medicine	Adv / vocational	Basic Trainee Reg	Anaesthesia	Medicine - Adv / vocational trainees (Procedural)	82
Medicine	Adv / vocational	Basic Trainee Reg	Other Procedural	Medicine - Adv / vocational trainees (Procedural)	82
Medicine	Adv / vocational	Basic Trainee Reg	Surgery	Medicine - Adv / vocational trainees (Procedural)	82
Medicine	Adv / vocational	Basic Trainee Reg	Surgery - General	Medicine - Adv / vocational trainees (Procedural)	82
Medicine	Adv / vocational	Basic Trainee Reg	Surgery - Orthopaedic surgery	Medicine - Adv / vocational trainees (Procedural)	82
Medicine	Early grad / pre-voc	PGY 1	Not applicable	Medicine - PGY1s	142
Medicine	Early grad / pre-voc	PGY 2	Not applicable	Medicine - PGY2s	79
Medicine	Early grad / pre-voc	PGY 3+	Not applicable	Medicine - PGY3+s	67
Medicine	Adv / vocational	Intn'l med prof'l in training	General Practice	Medicine - Adv / vocational trainees	185
Medicine	Adv / vocational	Intn'l med prof'l in training	Other	Medicine - Adv / vocational trainees	185
Medicine	Pre-entry / stud	P/Grad Stud	Not applicable	Medicine - P/Grad students	134
Medicine	Pre-entry / stud	Research Stud	Not applicable	Medicine - All students	136
Medicine	Pre-entry / stud	U/Grad Stud	Not applicable	Medicine - All students	136
Midwifery	Adv / vocational	Adv scope of practice	Not applicable	Nursing & Midw - All trainees	263
Midwifery	Adv / vocational	P/Grad Midwifery Stud	Not applicable	Nursing & Midw - All trainees	263
Midwifery	Early grad / pre-voc	Graduate Asst in Midwifery	Not applicable	Nursing & Midw - All trainees	263
Midwifery	Early grad / pre-voc	Graduate Enrolled Midwife	Not applicable	Nursing & Midw - All trainees	263
Midwifery	Early grad / pre-voc	Graduate Registered Midwife	Not applicable	Nursing & Midw - All trainees	263
Midwifery	Pre-entry / stud	P/Grad Stud	Not applicable	Nursing & Midw - All students	159
Midwifery	Pre-entry / stud	Research Stud	Not applicable	Nursing & Midw - All students	159
Midwifery	Pre-entry / stud	U/Grad Stud	Not applicable	Nursing & Midw - U/Grad students	131
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Other	Nursing & Midw - Adv / vocational trainees	26
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Emergency Medicine	Nursing & Midw - Adv / vocational trainees	26
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Intensive Care Medicine	Nursing & Midw - Adv / vocational trainees	26
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Mental health	Nursing & Midw - Adv / vocational trainees	26
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Nursing Education	Nursing & Midw - Adv / vocational trainees	26

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Profession	Phase of T&T	Trainee type	Specialty / Area of practice / Allied health profession	Level at which survey assumptions were applied	Total response days for level
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Operating Theatre	Nursing & Midw - Adv / vocational trainees	26
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Midwifery Education	Nursing & Midw - Adv / vocational trainees	26
Midwifery	Adv / vocational	Senior / Adv Scope Midwife	Midwifery General Nursing & Midw - Adv / vocational trainees		26
Nursing	Adv / vocational	Adv scope of practice	Not applicable	Nursing - All trainees	250
Nursing	Adv / vocational	Nurse Practitioner Candidate	Not applicable	Nursing - All trainees	250
Nursing	Adv / vocational	Nurse re-entry trainee	Not applicable	Nursing - All trainees	250
Nursing	Adv / vocational	P/Grad nursing Stud	Not applicable	Nursing - All trainees	250
Nursing	Early grad / pre-voc	Graduate Asst in Nursing	Not applicable	Nursing - All Early Grad trainees	92
Nursing	Early grad / pre-voc	Graduate EN	Not applicable	Nursing - All Early Grad trainees	92
Nursing	Early grad / pre-voc	Graduate EN	Emergency Medicine	Nursing - All Early Grad trainees	92
Nursing	Early grad / pre-voc	Graduate RN	Not applicable	Nursing - Graduate Registered Nurses	90
Nursing	Pre-entry / stud	P/Grad Stud	Not applicable	Nursing - All students	158
Nursing	Pre-entry / stud	Research Stud	Not applicable	Nursing - All students	158
Nursing	Pre-entry / stud	U/Grad Stud	Not applicable	Nursing - U/Grad students	131
Nursing	Adv / vocational	Senior / Adv Scope Nurse	Not applicable	Nursing - All trainees	250
Nursing	Adv / vocational	Senior / Adv Scope Nurse	Emergency Medicine	Nursing - Emergency Medicine	33
Nursing	Adv / vocational	Senior / Adv Scope Nurse	Intensive Care Medicine	Nursing - Intensive Care Medicine	59
Nursing	Adv / vocational	Senior / Adv Scope Nurse	Nursing Education	Nursing - Mental Health	33
Nursing	Adv / vocational	Senior / Adv Scope Nurse	Nursing General	Nursing - Operating Theatre	239
Nursing	Adv / vocational	Senior / Adv Scope Nurse	Operating Theatre	Nursing - Nursing General	45

C. 3. Assumptions used to identify trainee time in embedded T&T

Profession	Phase of training	Trainee type	Specialty	Avg emb mins (per day)	% Receiving	% Delivering	Mins Delivering T&T	Avg attending trainees	Avg attending trainers	Trainees – Trainer ratio	Preparation time %
	Adv /	Adv scope of	Dietetics /								
Allied health	vocational	practice	Nutrition	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of	Occupational								
Allied health	vocational	practice	Therapy	238.83	56%	4%	9.07	1.28	1.97	1.55	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Other	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Other	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Pharmacy	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Physiotherapy	269.64	12%	27%	78.47	2.66	1.25	0.47	7%
	Adv /	Adv scope of	Physiotherapy -								
Allied health	vocational	practice	Neurology	269.64	12%	27%	78.47	2.66	1.25	0.47	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Podiatry	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Psychology	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of	Radiation Science -								
Allied health	vocational	practice	Nuclear Medicine	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of	Radiation Science -								
Allied health	vocational	practice	Medical Imaging	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of	Radiation Science -								
Allied health	vocational	practice	Radiation Therapy	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Social Work	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Adv scope of									
Allied health	vocational	practice	Speech Pathology	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in	Dietetics /								
Allied health	vocational	AH	Nutrition	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in	Occupational								
Allied health	vocational	AH	Therapy	238.83	56%	4%	9.07	1.28	1.97	1.55	7%
	Adv /	Graduate Asst in									
Allied health	vocational	AH	Other	224.55	34%	18%	42.63	1.95	1.51	0.78	7%

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											July 2010
Profession	Phase of training	Trainee type	Specialty	Avg emb mins (per day)	% Receiving	% Delivering	Mins Delivering T&T	Avg attending trainees	Avg attending trainers	Trainees – Trainer ratio	Preparation time %
	Adv /	Graduate Asst in									
Allied health	vocational	AH	Pharmacy	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in	Physiotherapy -								
Allied health	vocational	AH	Neurology	269.64	12%	27%	78.47	2.66	1.25	0.47	7%
	Adv /	Graduate Asst in									
Allied health	vocational	AH	Podiatry	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in									
Allied health	vocational	AH	Psychology	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in	Radiation Science -								
Allied health	vocational	AH	Nuclear Medicine	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in	Radiation Science -								
Allied health	vocational	AH	Medical Imaging	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in	Radiation Science -								
Allied health	vocational	AH	Radiation Therapy	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in									
Allied health	vocational	AH	Social Work	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Adv /	Graduate Asst in									
Allied health	vocational	AH	Speech Pathology	224.55	34%	18%	42.63	1.95	1.51	0.78	7%
	Early grad /		Dietetics /								
Allied health	pre-voc	Graduate	Nutrition	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /		Occupational								
Allied health	pre-voc	Graduate	Therapy	175.40	30%	5%	9.49	2.27	2.44	1.08	7%
	Early grad /										
Allied health	pre-voc	Graduate	Other	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /										
Allied health	pre-voc	Graduate	Physiotherapy	324.97	8%	12%	40.87	2.40	1.43	0.60	7%
	Early grad /		Physiotherapy -								
Allied health	pre-voc	Graduate	Neurology	324.97	8%	12%	40.87	2.40	1.43	0.60	7%
	Early grad /										
Allied health	pre-voc	Graduate	Podiatry	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /										
Allied health	pre-voc	Graduate	Psychology	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /		Radiation Science -								
Allied health	pre-voc	Graduate	Medical Imaging	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /		Radiation Science -								
Allied health	pre-voc	Graduate	Radiation Therapy	251.32	15%	10%	25.58	2.31	1.86	0.81	7%

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											July 2010
Profession	Phase of training	Trainee type	Specialty	Avg emb mins (per day)	% Receiving	% Delivering	Mins Delivering T&T	Avg attending trainees	Avg attending trainers	Trainees – Trainer ratio	Preparation time %
	Early grad /										
Allied health	pre-voc	Graduate	Social Work	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /										
Allied health	pre-voc	Graduate	Speech Pathology	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /		Radiation Science -								
Allied health	pre-voc	Graduate	Nuclear Medicine	251.32	15%	10%	25.58	2.31	1.86	0.81	7%
	Early grad /	Medical radiation	Radiation Science -								
Allied health	pre-voc	science intern	Medical Imaging	247.82	15%	8%	22.35	2.37	1.78	0.75	7%
	Early grad /	Medical radiation	Radiation Science -								
Allied health	pre-voc	science intern	Nuclear Medicine	247.82	15%	8%	22.35	2.37	1.78	0.75	7%
	Early grad /	Medical radiation	Radiation Science -								
Allied health	pre-voc	science intern	Radiation Therapy	247.82	15%	8%	22.35	2.37	1.78	0.75	7%
	Early grad /										
Allied health	pre-voc	Pharmacy intern	Pharmacy	247.82	15%	8%	22.35	2.37	1.78	0.75	7%
	Early grad /										
Allied health	pre-voc	Psychology intern	Psychology	247.82	15%	8%	22.35	2.37	1.78	0.75	7%
	Pre-entry /		Dietetics /								
Allied health	stud	P/Grad Stud	Nutrition	260.12	67%	0%	0.94	1.45	2.05	1.41	7%
	Pre-entry /		Occupational								
Allied health	stud	P/Grad Stud	Therapy	267.14	64%	3%	8.88	1.00	1.76	1.76	7%
	Pre-entry /										
Allied health	stud	P/Grad Stud	Other	260.12	67%	0%	0.94	1.45	2.05	1.41	7%
	Pre-entry /		Occupational								
Allied health	stud	U/Grad Stud	Therapy	248.89	53%	5%	13.82	1.00	1.03	1.03	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Other	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Pharmacy	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Physiotherapy	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /		Physiotherapy -								
Allied health	stud	U/Grad Stud	Neurology	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Podiatry	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Psychology	249.46	44%	14%	38.36	1.04	1.10	1.06	7%

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										July 2010	
Profession	Phase of training	Trainee type	Specialty	Avg emb mins (per day)	% Receiving	% Delivering	Mins Delivering T&T	Avg attending trainees	Avg attending trainers	Trainees – Trainer ratio	Preparation time %
	Pre-entry /		Radiation Science -								
Allied health	stud	U/Grad Stud	Nuclear Medicine	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /		Radiation Science -								
Allied health	stud	U/Grad Stud	Medical Imaging	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /		Radiation Science -								
Allied health	stud	U/Grad Stud	Radiation Therapy	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Social Work	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Pre-entry /										
Allied health	stud	U/Grad Stud	Speech Pathology	249.46	44%	14%	38.36	1.04	1.10	1.06	7%
	Adv /										
Dentistry	vocational	Adv Trainee Reg	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Adv /										
Dentistry	vocational	Basic Trainee Reg	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
		International									
		dental									
	Adv /	professional in									
Dentistry	vocational	training	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Early grad /	Graduate Dental									
Dentistry	pre-voc	practitioner	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Early grad /										
Dentistry	pre-voc	PGY 1	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Early grad /										
Dentistry	pre-voc	PGY 2	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Early grad /										
Dentistry	pre-voc	PGY 3+	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Pre-entry /										
Dentistry	stud	P/Grad Stud	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Pre-entry /				100/	0.04					694
Dentistry	stud	U/Grad Stud	Not applicable	423.16	19%	9%	39.03	5.68	1.63	0.29	6%
	Adv /		Other Non-		2024	4 5 6 /					0.00
Medicine	vocational	Adv Trainee Reg	procedural	223.47	20%	15%	36.01	3.46	2.14	0.62	9%
	Adv /				220/	00/					001
Medicine	vocational	Adv Trainee Reg	Other Paediatrics	81.75	22%	8%	7.06	1.57	2.00	1.27	9%
	Adv /			o4 ==	220/	001					001
Medicine	vocational	Adv Trainee Reg	Paediatrics	81.75	22%	8%	7.06	1.57	2.00	1.27	9%

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				Avg emb			Mins	Avg	Avg	Trainees –	
Profession	Phase of training	Trainee type	Specialty	mins (per day)	% Receiving	% Delivering	Delivering T&T	attending trainees	attending trainers	Trainer ratio	Preparation time %
	Adv /		Paediatrics -								
Medicine	vocational	Adv Trainee Reg	General	81.75	22%	8%	7.06	1.57	2.00	1.27	9%
	Adv /		Paediatrics - Neonatal and								
Medicine	vocational	Adv Trainee Reg	perinatal medicine	81.75	22%	8%	7.06	1.57	2.00	1.27	9%
	Adv /		Paediatrics - Paediatric emergency								
Medicine	vocational	Adv Trainee Reg	medicine	81.75	22%	8%	7.06	1.57	2.00	1.27	9%
Medicine	Adv / vocational	Adv Trainee Reg	Physician	223.47	20%	15%	36.01	3.46	2.14	0.62	9%
	Adv /	0	Physician -								
Medicine	vocational	Adv Trainee Reg	General medicine	223.47	20%	15%	36.01	3.46	2.14	0.62	9%
Medicine	Adv / vocational	Adv Trainee Reg	Physician - Geriatric medicine	223.47	20%	15%	36.01	3.46	2.14	0.62	9%
	Adv /										
Medicine	vocational	Adv Trainee Reg	Radiology	223.47	20%	15%	36.01	3.46	2.14	0.62	9%
Medicine	Adv / vocational	Adv Trainee Reg	Anaesthesia	240.68	22%	8%	21.26	2.66	2.30	0.87	9%
	Adv /	<u> </u>									
Medicine	vocational	Adv Trainee Reg	Other Procedural	240.68	22%	8%	21.26	2.66	2.30	0.87	9%
Medicine	Adv / vocational	Adv Trainee Reg	Other Surgery	229.58	21%	4%	10.33	2.78	2.40	0.86	9%
Medicine	Adv / vocational	Adv Trainee Reg	Surgery - General	229.58	21%	4%	10.33	2.78	2.40	0.86	9%
	Adv /		Surgery - Orthopaedic		1.00/	70/					0.00
Medicine	vocational	Adv Trainee Reg	surgery	197.68	18%	7%	14.86	3.17	2.71	0.85	9%
Medicine	Adv / vocational	Basic Trainee Reg	Other Non- procedural	298.89	17%	16%	52.02	2.55	2.00	0.79	9%
Medicine	Adv / vocational	Basic Trainee Reg	Other Physician	178.50	31%	6%	12.06	2.67	3.00	1.13	9%
Medicine	Adv / vocational	Basic Trainee Reg	Paediatrics	227.01	23%	11%	28.16	2.61	2.50	0.96	9%
Medicine	Adv / vocational	Basic Trainee Reg	Physician	178.50	31%	6%	12.06	2.67	3.00	1.13	9%

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	Dhase of			Avg emb		0/	Mins	Avg	Avg	Trainees –	Ducucation
Profession	Phase of training	Trainee type	Specialty	mins (per day)	% Receiving	% Delivering	Delivering T&T	attending trainees	attending trainers	Trainer ratio	Preparation time %
	Adv /		Physician -								
Medicine	vocational	Basic Trainee Reg	Cardiology	178.50	31%	6%	12.06	2.67	3.00	1.13	9%
	Adv /		Physician -								
Medicine	vocational	Basic Trainee Reg	General medicine	123.85	31%	19%	25.50	2.20	1.30	0.59	9%
	Adv /										
Medicine	vocational	Basic Trainee Reg	Radiology	227.01	23%	11%	28.16	2.61	2.50	0.96	9%
	Adv /				221						221
Medicine	vocational	Basic Trainee Reg	Anaesthesia	249.78	8%	1%	2.14	1.39	0.83	0.60	9%
	Adv /			240 70	00/	10/	2.4.4	4.30	0.00	0.60	09/
Medicine	vocational	Basic Trainee Reg	Other Procedural	249.78	8%	1%	2.14	1.39	0.83	0.60	9%
Madiaina	Adv /	Decis Traince Dec	Gungan	240.79	8%	1%	2.14	1.20	0.02	0.00	9%
Medicine	vocational	Basic Trainee Reg	Surgery	249.78	070	170	2.14	1.39	0.83	0.60	976
Medicine	Adv / vocational	Basic Trainee Reg	Surgery - General	249.78	8%	1%	2.14	1.39	0.83	0.60	9%
Weutene	Vocational	Dasie Hamee Keg	Surgery -	249.78	070	170	2.14	1.59	0.85	0.00	570
	Adv /		Orthopaedic								
Medicine	vocational	Basic Trainee Reg	surgery	249.78	8%	1%	2.14	1.39	0.83	0.60	9%
	Early grad /	Busic Humee Reg	surgery	215170	0,0	_,,	2.1.1	1.00	0.00	0.00	0,0
Medicine	pre-voc	PGY 1	Not applicable	255.70	29%	2%	5.12	2.62	1.51	0.57	9%
	Early grad /										
Medicine	pre-voc	PGY 2	Not applicable	299.17	20%	2%	5.28	2.22	1.38	0.62	9%
	Early grad /										
Medicine	pre-voc	PGY 3+	Not applicable	243.09	16%	9%	22.61	3.25	1.33	0.41	9%
	Adv /	Intn'l med prof'l									
Medicine	vocational	in training	General Practice	230.00	32%	38%	94.44	4.61	1.61	0.35	9%
	Adv /	Intn'l med prof'l									
Medicine	vocational	in training	Other	230.00	32%	38%	94.44	4.61	1.61	0.35	9%
	Pre-entry /										
Medicine	stud	P/Grad Stud	Not applicable	187.34	74%	1%	1.55	2.16	1.31	0.60	9%
	Pre-entry /					10/					201
Medicine	stud	Research Stud	Not applicable	185.26	73%	1%	2.25	2.17	1.31	0.60	9%
	Pre-entry /			105.55	720/	4.07				0.55	001
Medicine	stud	U/Grad Stud	Not applicable	185.26	73%	1%	2.25	2.17	1.31	0.60	9%
	Adv /	Adv scope of	Natandissis	272.64	20%	1 70/	F2 04	2.47	1 50	0.00	1 / 0/
Midwifery	vocational	practice	Not applicable	273.61	30%	17%	53.91	2.17	1.50	0.69	14%

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Profession	Phase of training	Trainee type	Specialty	Avg emb mins (per day)	% Receiving	% Delivering	Mins Delivering T&T	Avg attending trainees	Avg attending trainers	Trainees – Trainer ratio	Preparation time %
	Adv /	P/Grad Midwifery				_					
Midwifery	vocational	Stud	Not applicable	273.61	30%	17%	53.91	2.17	1.50	0.69	14%
	Early grad /	Graduate Asst in									
Midwifery	pre-voc	Midwifery	Not applicable	273.61	30%	17%	53.91	2.17	1.50	0.69	14%
	Early grad /	Graduate									
Midwifery	pre-voc	Enrolled Midwife	Not applicable	273.61	30%	17%	53.91	2.17	1.50	0.69	14%
Midwifery	Early grad / pre-voc	Graduate Registered Midwife	Not applicable	273.61	30%	17%	53.91	2.17	1.50	0.69	14%
<i>.</i>	Pre-entry /										
Midwifery	stud	P/Grad Stud	Not applicable	256.29	42%	12%	33.76	2.21	1.48	0.67	14%
;	Pre-entry /										
Midwifery	stud	Research Stud	Not applicable	256.29	42%	12%	33.76	2.21	1.48	0.67	14%
	Pre-entry /										
Midwifery	stud	U/Grad Stud	Not applicable	254.48	46%	13%	36.26	1.34	1.41	1.05	14%
-	Adv /	Senior / Adv									
Midwifery	vocational	Scope Midwife	Other	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
	Adv /	Senior / Adv	Emergency								
Midwifery	vocational	Scope Midwife	Medicine	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
	Adv /	Senior / Adv	Intensive Care								
Midwifery	vocational	Scope Midwife	Medicine	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
	Adv /	Senior / Adv									
Midwifery	vocational	Scope Midwife	Mental health	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
-	Adv /	Senior / Adv									
Midwifery	vocational	Scope Midwife	Nursing Education	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
	Adv /	Senior / Adv									
Midwifery	vocational	Scope Midwife	Operating Theatre	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
	Adv /	Senior / Adv	Midwifery								
Midwifery	vocational	Scope Midwife	Education	235.62	4%	47%	114.75	5.60	1.20	0.21	4%
	Adv /	Senior / Adv									
Midwifery	vocational	Scope Midwife	Midwifery General	235.62	4%	47%	110.77	5.60	1.20	0.21	0%
	Adv /	Adv scope of									
Nursing	vocational	practice	Not applicable	271.82	32%	17%	51.11	2.03	1.54	0.76	12%
	Adv /	Nurse Practitioner			2224						420/
Nursing	vocational	Candidate	Not applicable	271.82	32%	17%	51.11	2.03	1.54	0.76	12%

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											July 2010	
Profession	Phase of training	Trainee type	Specialty	Avg emb mins (per day)	% Receiving	% Delivering	Mins Delivering T&T	Avg attending trainees	Avg attending trainers	Trainees – Trainer ratio	Preparation time %	
	Adv /	Nurse re-entry										
Nursing	vocational	trainee	Not applicable	271.82	32%	17%	51.11	2.03	1.54	0.76	12%	
	Adv /	P/Grad nursing										
Nursing	vocational	Stud	Not applicable	271.82	32%	17%	51.11	2.03	1.54	0.76	12%	
	Early grad /	Graduate Asst in										
Nursing	pre-voc	Nursing	Not applicable	331.97	33%	4%	13.67	1.41	1.86	1.32	12%	
	Early grad /											
Nursing	pre-voc	Graduate EN	Not applicable	331.97	33%	4%	13.67	1.41	1.86	1.32	12%	
	Early grad /		Emergency									
Nursing	pre-voc	Graduate EN	Medicine	331.97	33%	4%	13.67	1.41	1.86	1.32	12%	
	Early grad /											
Nursing	pre-voc	Graduate RN	Not applicable	341.97	31%	2%	6.69	1.47	1.94	1.32	12%	
	Pre-entry /											
Nursing	stud	P/Grad Stud	Not applicable	255.09	42%	12%	33.49	2.22	1.49	0.67	12%	
	Pre-entry /											
Nursing	stud	Research Stud	Not applicable	255.09	42%	12%	33.49	2.22	1.49	0.67	12%	
	Pre-entry /											
Nursing	stud	U/Grad Stud	Not applicable	254.48	46%	13%	35.77	1.34	1.41	1.05	12%	
	Adv /	Senior / Adv										
Nursing	vocational	Scope Nurse	Not applicable	271.82	32%	17%	47.36	2.03	1.54	0.76	4%	
	Adv /	Senior / Adv	Emergency									
Nursing	vocational	Scope Nurse	Medicine	115.83	3%	22%	25.99	1.33	1.33	1.00	4%	
	Adv /	Senior / Adv	Intensive Care									
Nursing	vocational	Scope Nurse	Medicine	122.50	-	97%	124.05	3.11	1.00	0.32	4%	
	Adv /	Senior / Adv										
Nursing	vocational	Scope Nurse	Nursing Education	660.00	10%	50%	343.04	15.00	3.00	0.20	4%	
	Adv /	Senior / Adv										
Nursing	vocational	Scope Nurse	Nursing General	180.00	-	42%	77.96	1.00	1.00	1.00	4%	
	Adv /	Senior / Adv										
Nursing	vocational	Scope Nurse	Operating Theatre	387.00	2%	61%	243.87	2.63	1.25	0.48	4%	

T1 T1 T2 T2 Т3 Т3 % % % Professio Trainer 1 (T1) Mins Trainer 2 (T2) Mins Trainer 3 (T3) Mins All other Phase of Trainee type Specialty training Trainer type Deliv Deliv Trainer type Deliv Deliv Trainer type Deliv Deliv trainers % n T&T T&T **T&T** T&T T&T T&T Not applicable Not Not Not Not Not applicable Not applicable Adv / applicable applicable applicable applicable Allied Health -Allied vocationa Adv scope of Dietetics / health 100.0% 63.2 practice Nutrition Senior clinician Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied vocationa Occupational Allied Health -Adv scope of health Senior clinician 100.0% 63.2 practice Therapy Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied vocationa Adv scope of Allied Health health practice Other Senior clinician 100.0% 63.2 Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied Health -Allied vocationa Adv scope of 63.2 health practice Other Senior clinician 100.0% Not applicable Not applicable Adv / Not Not Not Not Not applicable applicable applicable applicable applicable Allied vocationa Adv scope of Allied Health -63.2 health Senior clinician 100.0% practice Pharmacy Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied Health -Allied vocationa Adv scope of health practice **Physiotherapy** Senior clinician 100.0% 63.2 Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied vocationa Adv scope of Physiotherapy -Allied Health health Neurology Senior clinician 100.0% 63.2 practice Not applicable Not applicable Not applicable Not Not Not Not Adv / applicable applicable applicable applicable Allied vocationa Allied Health -Adv scope of 63.2 health Podiatry Senior clinician 100.0% practice Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied vocationa Adv scope of Allied Health -Psychology health 100.0% 63.2 practice Senior clinician Not applicable Not Not Not applicable Not Not Not applicable Adv / **Radiation Science** applicable applicable applicable applicable Allied vocationa Adv scope of - Nuclear Allied Health health practice Medicine Senior clinician 100.0% 63.2 Not applicable Not Not Not applicable Not Not Not applicable Adv / applicable applicable applicable applicable Allied vocationa Adv scope of **Radiation Science** Allied Health health - Medical Imaging 100.0% practice Senior clinician 63.2

C. 4. Assumptions used to identify trainers that delivered T&T to each trainee type

													July 2010	
					T1	T1		T2	T2		Т3	Т3		
Professio	Phase of	Tusings trues	Cupataltu	Trainer 1 (T1)	%	Mins	Trainer 2 (T2)	%	Mins	Trainer 3 (T3)	%	Mins	All other	
n	training	Trainee type	Specialty	Trainer type	Deliv	Deliv	Trainer type	Deliv	Deliv	Trainer type	Deliv	Deliv	trainers %	
					T&T	T&T		T&T	T&T		T&T	T&T		
	Adv /		Radiation Science				Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Adv scope of	- Radiation	Allied Health -				applicable	applicable		applicable	applicable		
health	I	practice	Therapy	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Adv scope of		Allied Health -				applicable	applicable		applicable	applicable		
health	I	practice	Social Work	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Adv scope of		Allied Health -				applicable	applicable		applicable	applicable		
health	I	practice	Speech Pathology	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate	Dietetics /	Allied Health -				applicable	applicable		applicable	applicable		
health	I	Asst in AH	Nutrition	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate	Occupational	Allied Health -				applicable	applicable		applicable	applicable		
health	1	Asst in AH	Therapy	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate		Allied Health -				applicable	applicable		applicable	applicable		
health	1	Asst in AH	Other	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate		Allied Health -				applicable	applicable		applicable	applicable		
health	I	Asst in AH	Pharmacy	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate	Physiotherapy -	Allied Health -				applicable	applicable		applicable	applicable		
health	I	Asst in AH	Neurology	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate		Allied Health -				applicable	applicable		applicable	applicable		
health	I	Asst in AH	Podiatry	Senior clinician	100.0%	63.2								
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate		Allied Health -				applicable	applicable		applicable	applicable		
health	1	Asst in AH	Psychology	Senior clinician	100.0%	63.2								
	Adv /		Radiation Science				Not applicable	Not	Not	Not applicable	Not	Not	Not applicable	
Allied	vocationa	Graduate	- Nuclear	Allied Health -				applicable	applicable		applicable	applicable		
health	1	Asst in AH	Medicine	Senior clinician	100.0%	63.2								

													JUIY 2016
					T1	T1		T2	T2		T3	Т3	
Professio	Phase of	T uriu - turu	C	Trainer 1 (T1)	%	Mins	Trainer 2 (T2)	%	Mins	Trainer 3 (T3)	%	Mins	All other
n	training	Trainee type	Specialty	Trainer type	Deliv	Deliv	Trainer type	Deliv	Deliv	Trainer type	Deliv	Deliv	trainers %
	_				T&T	T&T		T&T	T&T		T&T	T&T	
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable
Allied	vocationa	Graduate	Radiation Science	Allied Health -				applicable	applicable		applicable	applicable	
health	1	Asst in AH	- Medical Imaging	Senior clinician	100.0%	63.2							
	Adv /		Radiation Science				Not applicable	Not	Not	Not applicable	Not	Not	Not applicable
Allied	vocationa	Graduate	- Radiation	Allied Health -				applicable	applicable		applicable	applicable	
health	1	Asst in AH	Therapy	Senior clinician	100.0%	63.2							
	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable
Allied	vocationa	Graduate		Allied Health -				applicable	applicable		applicable	applicable	
health	1	Asst in AH	Social Work	Senior clinician	100.0%	63.2							
-	Adv /						Not applicable	Not	Not	Not applicable	Not	Not	Not applicable
Allied	vocationa	Graduate		Allied Health -				applicable	applicable		applicable	applicable	
health	1	Asst in AH	Speech Pathology	Senior clinician	100.0%	63.2							
										Allied Health -			
										Other allied			
Allied	Early grad		Dietetics /	Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Nutrition	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad		Occupational	Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Therapy	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
-										Allied Health -			
										Other allied			
Allied	Early grad			Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Other	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad			Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Physiotherapy	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad		Physiotherapy -	Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Neurology	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%

July 2016

Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
										Allied Health - Other allied			
Allied	Early grad			Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Podiatry	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
	, p.e. ree				0010/0			1.1070		Allied Health -			1011/0
										Other allied			
Allied	Early grad			Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Psychology	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad		Radiation Science	Allied Health -			Allied Health -	/		health			
health	/ pre-voc	Graduate	- Medical Imaging	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
			Radiation Science							Allied Health - Other allied			
Allied	Early grad		- Radiation	Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Therapy	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
liculti	7 pre voe	Graduate	merupy		33.070	03.2	Cimician	24.370	47.1	Allied Health -	20.070	00.2	13.170
										Other allied			
Allied	Early grad			Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Social Work	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad			Allied Health -			Allied Health -			health			
health	/ pre-voc	Graduate	Speech Pathology	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
Allied	Early grad		Radiation Science - Nuclear	Allied Health -			Allied Health -			Other allied health			
health	Early grad / pre-voc	Graduate	- Nuclear Medicine	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
	/ pre-voc	Medical	INEUICITE		59.070	05.2		24.370	47.1	Allied Health -	20.070	00.2	13.1/0
		radiation								Other allied			
Allied	Early grad	science	Radiation Science	Allied Health -			Allied Health -			health			
health	/ pre-voc	intern	- Medical Imaging	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%

July 2016

Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
		Medical								Allied Health -			
		radiation	Radiation Science							Other allied			
Allied	Early grad	science	- Nuclear	Allied Health -			Allied Health -			health			
health	/ pre-voc	intern	Medicine	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
		Medical								Allied Health -			
		radiation	Radiation Science							Other allied			
Allied	Early grad	science	- Radiation	Allied Health -			Allied Health -			health			
health	/ pre-voc	intern	Therapy	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad	Pharmacy		Allied Health -			Allied Health -			health			
health	/ pre-voc	intern	Pharmacy	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Early grad	Psychology		Allied Health -			Allied Health -			health			
health	/ pre-voc	intern	Psychology	Senior clinician	39.6%	63.2	Clinician	24.5%	47.1	professional	20.8%	88.2	15.1%
										Allied Health -			
										Other allied			
Allied	Pre-entry		Dietetics /	Allied Health -			Allied Health -			health			
health	/ stud	P/Grad Stud	Nutrition	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
										Other allied			
Allied	Pre-entry	_ /	Occupational	Allied Health -			Allied Health -			health			
health	/ stud	P/Grad Stud	Therapy	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
										Other allied			
Allied	Pre-entry			Allied Health -			Allied Health -			health			
health	/ stud	P/Grad Stud	Other	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
										Other allied			
Allied	Pre-entry		Occupational	Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Therapy	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%

July 2016

Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
										Allied Health -			
Allied	Pre-entry			Allied Health -			Allied Health -			Other allied health			
health	/ stud	U/Grad Stud	Other	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
incutti	7 5100	of Grad Stad	Other	Chinician	40.770	47.1		30.370	05.2	Allied Health -	5.070	00.2	0.570
										Other allied			
Allied	Pre-entry			Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Pharmacy	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
										Other allied			
Allied	Pre-entry			Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Physiotherapy	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
مالنعط	Due entre		Dhusiathananu							Other allied			
Allied health	Pre-entry / stud	U/Grad Stud	Physiotherapy - Neurology	Allied Health - Clinician	46.7%	47.1	Allied Health - Senior clinician	38.9%	63.2	health professional	5.6%	88.2	8.9%
nearth			Neurology	Clinician	40.7%	47.1		56.9%	05.2	Allied Health -	5.0%	00.2	0.9%
										Other allied			
Allied	Pre-entry			Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Podiatry	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
										Other allied			
Allied	Pre-entry			Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Psychology	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
			Radiation Science							Other allied			
Allied	Pre-entry		- Nuclear	Allied Health -	46 70/	47.4	Allied Health -	20.00/	C 2 2	health	F (0)	00.2	0.001
health	/ stud	U/Grad Stud	Medicine	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional Allied Health -	5.6%	88.2	8.9%
										Other allied			
Allied	Pre-entry		Radiation Science	Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	- Medical Imaging	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%

July 2016

Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
										Allied Health -			
			Radiation Science							Other allied			
Allied	Pre-entry		- Radiation	Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Therapy	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
										Other allied			
Allied	Pre-entry			Allied Health -			Allied Health -			health			
health	/ stud	U/Grad Stud	Social Work	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional	5.6%	88.2	8.9%
										Allied Health -			
				AU12 1.1. 1.1						Other allied			
Allied	Pre-entry		Crossel Dathalasu	Allied Health -	46 70/	47.1	Allied Health -	20.00/	C 2 2	health		00.7	0.00/
health	/ stud	U/Grad Stud	Speech Pathology	Clinician	46.7%	47.1	Senior clinician	38.9%	63.2	professional Not applicable	5.6% Not	88.2 Not	8.9% Not applicable
	A alu /			Medicine &			Medicine &				applicable	applicable	
	Adv / vocationa	Adv Trainee		Dentistry - Other Dental			Dentistry - Clinical						
Dontistry	vocationa		Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
Dentistry		Reg		Medicine &	91.7%	105.0	Medicine &	0.5%	70.7	Not applicable	Not	Not	Not applicable
	Adv /			Dentistry - Other			Dentistry -				applicable	applicable	
	vocationa	Basic		Dental			Clinical						
Dentistry	I	Trainee Reg	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
Dentistry		Internationa		Medicine &	51.770	105.0	Medicine &	0.370	70.7	Not applicable	Not	Not	Not applicable
	Adv /	l dental		Dentistry - Other			Dentistry -				applicable	applicable	
	vocationa	professional		Dental			Clinical						
Dentistry	1	in training	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
				Medicine &			Medicine &			Not applicable	Not	Not	Not applicable
		Graduate		Dentistry - Other			Dentistry -				applicable	applicable	
	Early grad	Dental		Dental			Clinical						
Dentistry	/ pre-voc	practitioner	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
· · · ·	·			Medicine &			Medicine &			Not applicable	Not	Not	Not applicable
				Dentistry - Other			Dentistry -				applicable	applicable	
	Early grad			Dental			Clinical						
Dentistry	/ pre-voc	PGY 1	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				

July 2016

													July 2010
					T1	T1		T2	T2		T3	T3	
Professio	Phase of	T aria a k ara	Constaller.	Trainer 1 (T1)	%	Mins	Trainer 2 (T2)	%	Mins	Trainer 3 (T3)	%	Mins	All other
n	training	Trainee type	Specialty	Trainer type	Deliv	Deliv	Trainer type	Deliv	Deliv	Trainer type	Deliv	Deliv	trainers %
					T&T	T&T		T&T	T&T		T&T	T&T	
				Medicine &			Medicine &			Not applicable	Not	Not	Not applicable
				Dentistry - Other			Dentistry -				applicable	applicable	
	Early grad			Dental			Clinical						
Dentistry	/ pre-voc	PGY 2	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
	-			Medicine &			Medicine &			Not applicable	Not	Not	Not applicable
				Dentistry - Other			Dentistry -				applicable	applicable	
	Early grad			Dental			Clinical						
Dentistry	/ pre-voc	PGY 3+	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
			•••	Medicine &			Medicine &			Not applicable	Not	Not	Not applicable
				Dentistry - Other			Dentistry -				applicable	applicable	
	Pre-entry			Dental			Clinical						
Dentistry	/ stud	P/Grad Stud	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
				Medicine &			Medicine &			Not applicable	Not	Not	Not applicable
				Dentistry - Other			Dentistry -				applicable	applicable	
	Pre-entry			Dental			Clinical						
Dentistry	/ stud	U/Grad Stud	Not applicable	Professional	91.7%	105.0	academic	8.3%	70.7				
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee	Other Non-	Dentistry -			Medical			Trainee			
Medicine	1	Reg	procedural	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	1	Reg	Other Paediatrics	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	1	Reg	Paediatrics	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%

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Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee	Paediatrics -	Dentistry -	00.00/	50.0	Medical	F 00/		Trainee	4 70/	25.6	2.5%
Medicine		Reg	General	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
			De ediatorias				Medicine &			Medicine &			
	A		Paediatrics -				Dentistry -			Dentistry -			
	Adv /		Neonatal and	Medicine &			Visiting Medical			Advanced Trainee			
Madiaina	vocationa	Adv Trainee	perinatal	Dentistry -	00.00/	50.0		F 00/	41.0		1 70/	25 C	2.5%
Medicine		Reg	medicine	Consultant	90.9%	59.0	Officer Medicine &	5.0%	41.0	Registrar	1.7%	25.6	2.5%
			Paediatrics -				Dentistry -			Medicine & Dentistry -			
	Adv /		Paediatric	Medicine &						Advanced			
		Adv Trainee					Visiting Medical			Trainee			
Medicine	vocationa		emergency	Dentistry - Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
Wedicine		Reg	medicine	Consultant	90.9%	59.0	Medicine &	5.0%	41.0	Medicine &	1.7%	25.0	2.5%
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	I	Reg	Physician	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
Weuterne		Neg	Filysiciali	Consultant	50.576	39.0	Medicine &	5.076	41.0	Medicine &	1.770	23.0	2.378
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee	Physician -	Dentistry -			Medical			Trainee			
Medicine		Reg	General medicine	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
Wiedleine	-	Neg	General medicine	Consultant	50.570	55.0	Medicine &	5.070	41.0	Medicine &	1.770	23.0	2.576
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee	Physician -	Dentistry -			Medical			Trainee			
Medicine		Reg	Geriatric medicine	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
	1.				22.373	20.0	Medicine &	21070		Medicine &	,3		2.3,0
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	1	Reg	Radiology	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%

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Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	1	Reg	Anaesthesia	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine		Reg	Other Procedural	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	1	Reg	Other Surgery	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee		Dentistry -			Medical			Trainee			
Medicine	1	Reg	Surgery - General	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /		Surgery -	Medicine &			Visiting			Advanced			
	vocationa	Adv Trainee	Orthopaedic	Dentistry -			Medical			Trainee			
Medicine	1	Reg	surgery	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic	Other Non-	Dentistry -			Medical			Trainee			
Medicine		Trainee Reg	procedural	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical			Trainee			
Medicine	1	Trainee Reg	Other Physician	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%

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Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
							Medicine &			Medicine &			
	A shu (Dentistry -			Dentistry -			
	Adv /	Desia		Medicine &			Visiting			Advanced			
Madiaina	vocationa	Basic	Deediatrica	Dentistry - Consultant	90.9%	59.0	Medical Officer	5.0%	41.0	Trainee	1.7%	25 C	2.5%
Medicine		Trainee Reg	Paediatrics	Consultant	90.9%	59.0	Medicine &	5.0%	41.0	Registrar Medicine &	1.7%	25.6	2.5%
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical			Trainee			
Medicine	I	Trainee Reg	Physician	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
wiedicine		Trainee Neg	FITYSICIAIT	Consultant	50.576	39.0	Medicine &	5.076	41.0	Medicine &	1.770	23.0	2.370
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic	Physician -	Dentistry -			Medical			Trainee			
Medicine		Trainee Reg	Cardiology	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
					00.070	00.0	Medicine &	0.070		Medicine &	1,0		,
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic	Physician -	Dentistry -			Medical			Trainee			
Medicine	1	Trainee Reg	, General medicine	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical			Trainee			
Medicine	1	Trainee Reg	Radiology	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical			Trainee			
Medicine		Trainee Reg	Anaesthesia	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical			Trainee			
Medicine		Trainee Reg	Other Procedural	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%

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Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /			Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical			Trainee			
Medicine	1	Trainee Reg	Surgery	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /	. .		Medicine &			Visiting			Advanced			
	vocationa	Basic		Dentistry -			Medical	= 00/		Trainee	4 70/		2 54
Medicine		Trainee Reg	Surgery - General	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /	Davia	Surgery -	Medicine &			Visiting			Advanced			
	vocationa	Basic	Orthopaedic	Dentistry -	00.00/	50.0	Medical	F 00/	44.0	Trainee	4 70/	25.0	2.5%
Medicine		Trainee Reg	surgery	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
							Medicine &			Madiaina Q			
				Medicine &			Dentistry - Advanced			Medicine &			
	Forly grad						Trainee			Dentistry - Basic Trainee			
Medicine	Early grad / pre-voc	PGY 1	Not applicable	Dentistry - Consultant	66.1%	59.0	Registrar	14.8%	25.6		10.1%	19.7	8.9%
Medicine	7 pre-voc	PGTI		Consultant	00.1%	59.0	Medicine &	14.0%	25.0	Registrar	10.1%	19.7	0.9%
							Dentistry -			Medicine &			
				Medicine &			Advanced			Dentistry -			
	Early grad			Dentistry -			Trainee			Basic Trainee			
Medicine	/ pre-voc	PGY 2	Not applicable	Consultant	66.1%	59.0	Registrar	14.8%	25.6	Registrar	10.1%	19.7	8.9%
Wedicine	7 pre-voc	FULZ		Consultant	00.176	55.0	Medicine &	14.070	23.0	Registial	10.170	19.7	0.976
							Dentistry -			Medicine &			
				Medicine &			Advanced			Dentistry -			
	Early grad			Dentistry -			Trainee			Basic Trainee			
Medicine	/ pre-voc	PGY 3+	Not applicable	Consultant	66.1%	59.0	Registrar	14.8%	25.6	Registrar	10.1%	19.7	8.9%
Wedicine	7 pre-voc				00.170	33.0	Medicine &	14.070	23.0	Medicine &	10.170	1.7.7	0.570
							Dentistry -			Dentistry -			
	Adv /	Intn'l med		Medicine &			Visiting			Advanced			
	vocationa	prof'l in		Dentistry -			Medical			Trainee			
Medicine		training	General Practice	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar	1.7%	25.6	2.5%
weather		l annig	General Flactice	Consultant	50.570	55.0	Unicer	3.070	41.0	registial	1.770	20.0	2.370

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Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
							Medicine &			Medicine &			
							Dentistry -			Dentistry -			
	Adv /	Intn'l med		Medicine &			Visiting			Advanced			
Madicina	vocationa	prof'l in	Othor	Dentistry -	00.0%	50.0	Medical Officer	F 00/	41.0	Trainee	1 70/	25.6	2 59/
Medicine	1	training	Other	Consultant	90.9%	59.0	Officer	5.0%	41.0	Registrar Medicine &	1.7%	25.6	2.5%
				Medicine &			Medicine &			Dentistry -			
	Pre-entry			Dentistry -			Dentistry - PGY			Basic Trainee			
Medicine	/ stud	P/Grad Stud	Not applicable	Consultant	42.1%	59.0	1	15.9%	4.7	Registrar	15.2%	19.7	26.9%
	,	.,				0010	_	201070		Medicine &	1012/0	1017	
				Medicine &			Medicine &			Dentistry -			
	Pre-entry	Research		Dentistry -			Dentistry - PGY			Basic Trainee			
Medicine	/ stud	Stud	Not applicable	Consultant	42.1%	59.0	1	15.9%	4.7	Registrar	15.2%	19.7	26.9%
										Medicine &			
				Medicine &			Medicine &			Dentistry -			
	Pre-entry			Dentistry -			Dentistry - PGY			Basic Trainee			
Medicine	/ stud	U/Grad Stud	Not applicable	Consultant	42.1%	59.0	1	15.9%	4.7	Registrar	15.2%	19.7	26.9%
				Nursing &									
				Midwifery -			Nursing &			Nursing &			
				Senior/Advance			Midwifery -			Midwifery -			
	Adv /			d Scope of			Registered			Staff			
A	vocationa	Adv scope of	N N N N	Practice	50.00/	402.2	Nurse/Midwife	22.20/	56.2	Development	44.40/	445.0	16 70/
Midwifery		practice	Not applicable	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
				Nursing & Midwifery -			Nursing &			Nursing &			
				Senior/Advance			Midwifery -			Midwifery -			
	Adv /	P/Grad		d Scope of			Registered			Staff			
	vocationa	Midwifery		Practice			Nurse/Midwife			Development			
Midwifery		Stud	Not applicable	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
	-			Nursing &	00.070					Nursing &	/0		/
				Midwifery -			Nursing &			Midwifery -			
		Graduate		Registered			Midwifery -			Staff			
	Early grad	Asst in		Nurse/Midwife			Clinical Nurse			Development			
Midwifery	/ pre-voc	Midwifery	Not applicable	(clinician)	65.5%	56.3	Educator	12.0%	226.9	Nurse/Midwife	9.2%	115.3	12.0%

July 2016

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Ductocci				Tueinen 4 (T4)	T1	T1	Tueinen 2 (T2)	T2	T2	Tueinen 2 (T2)	T3	T3	
Professio	Phase of	Trainee type	Specialty	Trainer 1 (T1)	%	Mins	Trainer 2 (T2)	%	Mins	Trainer 3 (T3)	%	Mins	All other
n	training			Trainer type	Deliv T&T	Deliv T&T	Trainer type	Deliv T&T	Deliv T&T	Trainer type	Deliv T&T	Deliv T&T	trainers %
				Nursing &	IGI	IGI		ାରା	IœI	Nursing &	IGI	ାରୀ	
				Midwifery -			Nursing 9			-			
		Graduate		Registered			Nursing & Midwifery -			Midwifery - Staff			
				•									
	Early grad	Enrolled	Not overline bla	Nurse/Midwife		56.2	Clinical Nurse	12.00/	226.0	Development	0.20/	445 0	12.00/
Midwifery	/ pre-voc	Midwife	Not applicable	(clinician)	65.5%	56.3	Educator	12.0%	226.9	Nurse/Midwife	9.2%	115.3	12.0%
				Nursing &						Nursing &			
				Midwifery -			Nursing &			Midwifery -			
		Graduate		Registered			Midwifery -			Staff			
	Early grad	Registered		Nurse/Midwife			Clinical Nurse			Development	/		
Midwifery	/ pre-voc	Midwife	Not applicable	(clinician)	65.5%	56.3	Educator	12.0%	226.9	Nurse/Midwife	9.2%	115.3	12.0%
				Nursing &			Nursing &			Nursing &			
				Midwifery -			Midwifery -			Midwifery -			
				Registered			Staff			Clinical			
	Pre-entry			Nurse/Midwife			Development			Educator			
Midwifery	/ stud	P/Grad Stud	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
				Nursing &			Nursing &			Nursing &			
				Midwifery -			Midwifery -			Midwifery -			
				Registered			Staff			Clinical			
	Pre-entry	Research		Nurse/Midwife			Development			Educator			
Midwifery	/ stud	Stud	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
				Nursing &			Nursing &			Nursing &			
				Midwifery -			Midwifery -			Midwifery -			
				Registered			Staff			Clinical			
	Pre-entry			Nurse/Midwife			Development			Educator			
Midwifery	/ stud	U/Grad Stud	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
				Nursing &									
				Midwifery -			Nursing &			Nursing &			
				Senior/Advance			Midwifery -			Midwifery -			
	Adv /	Senior / Adv		d Scope of			Registered			Staff			
	vocationa	Scope		Practice			Nurse/Midwife			Development			
Midwifery	1	Midwife	Other	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%

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					T1	T1		T2	T2		Т3	Т3	5419 2010
Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	% Deliv T&T	Mins Deliv T&T	Trainer 2 (T2) Trainer type	% Deliv T&T	Mins Deliv T&T	Trainer 3 (T3) Trainer type	% Deliv T&T	Mins Deliv T&T	All other trainers %
	Adv / vocationa	Senior / Adv Scope	Emergency	Nursing & Midwifery - Senior/Advance d Scope of Practice			Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			
Midwifery		Midwife	Medicine	Nurse/Midwife Nursing &	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
	Adv / vocationa	Senior / Adv Scope	Intensive Care	Midwifery - Senior/Advance d Scope of Practice			Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			
Midwifery	1	Midwife	Medicine	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
Midwifery	Adv / vocationa I	Senior / Adv Scope Midwife	Mental health	Nursing & Midwifery - Senior/Advance d Scope of Practice Nurse/Midwife	50.0%	103.2	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	22.2%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	11.1%	115.3	16.7%
Midwifery	Adv / vocationa	Senior / Adv Scope Midwife	Nursing Education	Nursing & Midwifery - Senior/Advance d Scope of Practice Nurse/Midwife	50.0%	103.2	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	22.2%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	11.1%		16.7%
	Adv /	Senior / Adv Scope		Nursing & Midwifery - Senior/Advance d Scope of Practice	30.0%	103.2	Nursing & Midwifery - Registered Nurse/Midwife	22.270	50.5	Nursing & Midwifery - Staff Development	11.170	113.3	10.7%
Midwifery		Midwife	Operating Theatre	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%

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													5019 2010
Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
	Adv / vocationa	Senior / Adv Scope	Midwifery	Nursing & Midwifery - Senior/Advance d Scope of Practice			Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			
Midwifery	1	Midwife	Education	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
	Adv / vocationa	Senior / Adv Scope	Midwifery Genera	Nursing & Midwifery - Senior/Advance d Scope of Practice			Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			
Midwifery		Midwife	1	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
	Adv / vocationa	Adv scope of		Nursing & Midwifery - Senior/Advance d Scope of Practice			Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			
Nursing	1	practice	Not applicable	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%
	Adv / vocationa	Nurse Practitioner		Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			Nursing & Midwifery - Clinical Educator			
Nursing	1	Candidate	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
	Adv / vocationa	Nurse re- entry		Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			Nursing & Midwifery - Clinical Educator			
Nursing	1	trainee	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
	Adv / vocationa	P/Grad		Nursing & Midwifery - Senior/Advance d Scope of Practice			Nursing & Midwifery - Registered Nurse/Midwife			Nursing & Midwifery - Staff Development			
Nursing		nursing Stud	Not applicable	Nurse/Midwife	50.0%	103.2	(clinician)	22.2%	56.3	Nurse/Midwife	11.1%	115.3	16.7%

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Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
				Nursing &						Nursing &			
				Midwifery -			Nursing &			Midwifery -			
		Graduate		Registered			Midwifery -			Staff			
	Early grad	Asst in		Nurse/Midwife			Clinical Nurse			Development			
Nursing	/ pre-voc	Nursing	Not applicable	(clinician)	66.2%	56.3	Educator	10.8%	226.9	Nurse/Midwife	10.0%	115.3	11.5%
				Nursing &						Nursing &			
				Midwifery -			Nursing &			Midwifery -			
				Registered			Midwifery -			Staff			
	Early grad			Nurse/Midwife			Clinical Nurse			Development			
Nursing	/ pre-voc	Graduate EN	Not applicable	(clinician)	66.2%	56.3	Educator	10.8%	226.9	Nurse/Midwife	10.0%	115.3	11.5%
				Nursing &						Nursing &			
				Midwifery -			Nursing &			Midwifery -			
				Registered			Midwifery -			Staff			
	Early grad		Emergency	Nurse/Midwife			Clinical Nurse			Development			
Nursing	/ pre-voc	Graduate EN	Medicine	(clinician)	66.2%	56.3	Educator	10.8%	226.9	Nurse/Midwife	10.0%	115.3	11.5%
				Nursing &						Nursing &			
				Midwifery -			Nursing &			Midwifery -			
				Registered			Midwifery -			Staff			
	Early grad			Nurse/Midwife			Clinical Nurse			Development			
Nursing	/ pre-voc	Graduate RN	Not applicable	(clinician)	66.2%	56.3	Educator	10.8%	226.9	Nurse/Midwife	10.0%	115.3	11.5%
				Nursing &			Nursing &			Nursing &			
				Midwifery -			Midwifery -			Midwifery -			
				Registered			Staff			Clinical			
	Pre-entry			Nurse/Midwife			Development			Educator			
Nursing	/ stud	P/Grad Stud	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
				Nursing &			Nursing &			Nursing &			
				Midwifery -			Midwifery -			Midwifery -			
				Registered			Staff			Clinical			
	Pre-entry	Research		Nurse/Midwife			Development			Educator			
Nursing	/ stud	Stud	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%
				Nursing &			Nursing &			Nursing &			
				Midwifery -			Midwifery -			Midwifery -			
				Registered			Staff			Clinical			
	Pre-entry			Nurse/Midwife			Development			Educator			
Nursing	/ stud	U/Grad Stud	Not applicable	(clinician)	64.1%	56.3	Nurse/Midwife	12.4%	115.3	(External)	8.5%	84.0	14.4%

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													July 2010
Professio n	Phase of training	Trainee type	Specialty	Trainer 1 (T1) Trainer type	T1 % Deliv T&T	T1 Mins Deliv T&T	Trainer 2 (T2) Trainer type	T2 % Deliv T&T	T2 Mins Deliv T&T	Trainer 3 (T3) Trainer type	T3 % Deliv T&T	T3 Mins Deliv T&T	All other trainers %
Nursing	Adv / vocationa I	Senior / Adv Scope Nurse	Not applicable	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	64.1%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	12.4%	115.3	Nursing & Midwifery - Clinical Educator (External)	8.5%	84.0	14%
Nursing	Adv / vocationa I	Senior / Adv Scope Nurse	Emergency Medicine	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	64.1%	56.31	Nursing & Midwifery - Staff Development Nurse/Midwife	12.4%	115.3	Nursing & Midwifery - Clinical Educator (External)	8.5%	84.0	14%
Nursing	Adv / vocationa I	Senior / Adv Scope Nurse	Intensive Care Medicine	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	64.1%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	12.4%	115.3	Nursing & Midwifery - Clinical Educator (External)	8.5%	84.0	14%
Nursing	Adv / vocationa I	Senior / Adv Scope Nurse	Nursing Education	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	64.1%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	12.4%	115.3	Nursing & Midwifery - Clinical Educator (External)	8.5%	84.0	14%
Nursing	Adv / vocationa I	Senior / Adv Scope Nurse	Nursing General	Nursing & Midwifery - Registered Nurse/Midwife (clinician)	64.1%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	12.4%	115.3	Nursing & Midwifery - Clinical Educator (External)	8.5%	84.0	14%
Nursing	Adv / vocationa I	Senior / Adv Scope Nurse	Operating Theatre	Nursing & Midwifery - Registered Nurse/Midwife (Clinician)	64.1%	56.3	Nursing & Midwifery - Staff Development Nurse/Midwife	12.4%	115.3	Nursing & Midwifery - Clinical Educator (External)	8.5%	84.0	14%

Note: 'NR' = No trainer data received through embedded T&T survey

Appendix D : Field list and description for costed data files

D. 1. Teaching and training data file

Output Field	Description
Site ID	The site identifier used in the costing study DRS.
Site name	The name of the hospital to which the site ID relates.
Peer group	The new (2014) hospital peer group classification.
Geography	The ASGC geographical classification for the site.
Metro_Non-metro	Identifies whether the hospital is located in a metropolitan or non-metropolitan location
Year	The calendar year in which the data was collected.
Month	The calendar month in which data was collected.
Profession	The clinical profession of the trainee type as reported by the site in the DRS. Valid values include Medicine, Dentistry, Nursing, Midwifery or Allied Health.
Profession_grouped	The clinical profession of the trainee type, grouped by the consulting team for similar professions. Valid values include Medicine and Dentistry, Nursing and Midwifery and Allied Health.
Trainee type submitted by site	The specific clinical role in which an individual is employed or placed within a public health service, as reported by sites in the DRS. This field may include site-specific trainee types reported by the site that were not in the pre-defined list of trainee types provided in the DRS.
DRS trainee type	The clinical role in which an individual is employed or placed within a public health service, grouped by the consulting team so that any site-specific trainee types fit within the response options provided pre-defined list of trainee types in the DRS.
Summary trainee type_Level 2	Provides a higher-level grouping of trainee types than the 'Trainee type' and 'DRS trainee type' fields that consolidates the same trainee type across all years into a single category. For instance, Basic Trainee Registrars year 1, 2, 3 or 4+ are classified as 'Basic Trainees Registrars' using the Level 2 trainee type field.
	Summary trainee type_level 2 should be used as the primary filter for trainee types when using the data set.
Summary trainee type_Level 1	Provides a higher-level grouping of trainee types than the 'Summary trainee type_level 2' field. For instance, both Basic and Advanced Trainee Registrars would be consolidated into a 'Registrar' category, or all PGY1s, PGY2s and PGY3+s would be classified as 'pre-vocational doctors' in the level 3 trainee type.
Phase of T&T	Describes the phase of T&T in which a trainee is employed or placed within a health service. This represents the highest level at which a trainee may be grouped within the data set. Valid values across all professions include 'Pre-entry/student', 'Early graduate/pre-vocational' and 'Advanced/vocational'.
Specialty	The specific discipline (for Medicine and Dentistry), area of practice (for Nursing and Midwifery) or profession (for Allied Health) in which the trainee type is training, as reported by sites in the DRS.
	Since the specialty is as reported by sites in the DRS, it may include clinical specialties reported by sites for trainee types that are not specifically engaged in specialist (advanced/vocational) training.

Table 14: Output fields included in the costed data file for teaching and training

Output Field	Description
Medical college	The medical college reported by sites in the DRS that is associated with the specialty in which a trainee receives training.
Procedural or non- procedural	Whether the field in which a Medicine trainee is training relates to a procedural or non-procedural specialty. This field will only apply to basic and advanced trainee registrars.
Trainee headcount	Describes the number of trainee headcount that was employed (or placed) at the health service in a given month.
Trainee FTE	Describes the number of trainee FTE that was employed (or placed) at the health service in a given month.
Direct training time	Total direct T&T training time reported for each trainee type in each month, at each site in the DRS.
Direct trainee cost	Provides the total costs associated with each trainee type receiving direct T&T activities in each month, at each site.
Direct trainer cost	Provides the total costs associated with trainers delivering direct T&T activities to each trainee type in each month, at each site.
Total direct cost	provides the total costs of direct T&T activities incurred for a given trainee type at each site, in each month. Represents the sum of the 'Direct trainee' and 'Direct trainer' fields.
Total indirect cost	Provides the total indirect T&T costs allocated to a given trainee type in each month, at each site.
Total direct + indirect cost_excl overheads	Provides the total costs associated with direct and indirect T&T combined (excluding overheads), for to a given trainee type in each month, at each site.
Overhead cost_direct + indirect	Provides the total overhead costs related to direct and indirect T&T that were allocated to a given trainee type in at each site, in each month.
Embedded trainee cost	Provides the total costs associated with each trainee type receiving embedded T&T activities in each month, at each site. Calculated by the consulting team using modelled embedded T&T survey results and trainee profile data.
Embedded trainer cost	Provides the total costs associated with trainers delivering embedded T&T activities to each trainee type in each month, at each site. Calculated by the consulting team using modelled embedded T&T survey results and trainee profile data.
Total embedded cost	Provides the total costs of embedded T&T activities incurred for a given trainee type at each site, in each month. Represents the sum of the 'Embedded trainee' and 'Embedded trainer' fields.
Overhead cost_embedded	Provides the total overhead costs related to embedded T&T that were allocated to a given trainee type in at each site, in each month.
Total overhead cost	Provides the total overhead costs that were allocated to a given trainee type in at each site, in each month.
Total cost	Total T&T cost for each trainee type in the month. Represents the sum of the 'Total direct cost', 'Total indirect cost', 'Total embedded cost' and 'Overhead cost' fields reported for each trainee type at each site, in each month.
Total direct cost per trainee FTE	Describes the average total direct T&T costs incurred per FTE of a given trainee type, at each site in each month.

Output Field	Description
Total indirect cost per trainee FTE	Describes the average total indirect T&T costs incurred per FTE of a given trainee type, at each site in each month.
Total direct + indirect cost per trainee FTE	Provides the total costs associated with direct and indirect T&T combined (including overheads), for to a given trainee type in each month, at each site.
Total embedded cost per trainee FTE	Describes the average total embedded T&T costs incurred per FTE of a given trainee type, at each site in each month.
Total overhead cost per trainee FTE	Describes the average total overhead costs incurred per FTE of a given trainee type, at each site in each month.
Total cost per trainee FTE_untrimmed	Describes the average total T&T costs incurred per FTE of a given trainee type, at each site in each month – including all values
Total cost per trainee FTE_trimmed_5pc	Describes the average total T&T costs incurred per FTE of a given trainee type, at each site in each month – excluding values trimmed using the 'top 5% of each trainee type' method described in Section 6.4.
Total cost per trainee FTE_trimmed IQR method	Describes the average total T&T costs incurred per FTE of a given trainee type, at each site in each month – excluding values trimmed using the '1.5 x IQR' method described in Section 6.4.
Total direct cost per trainee headcount	Describes the average total direct T&T costs incurred per headcount of a given trainee type, at each site in each month.
Total indirect cost per trainee headcount	Describes the average total indirect T&T costs incurred per headcount of a given trainee type, at each site in each month.
Total embedded cost per trainee headcount	Describes the average total embedded T&T costs incurred per headcount of a given trainee type, at each site in each month.
Total overhead cost per trainee headcount	Describes the average total overhead costs incurred per headcount of a given trainee type, at each site in each month.
Total cost per trainee headcount	Describes the average total T&T costs incurred per FTE of a given trainee type, at each site in each month.
No Direct or Indirect cost_flag	Flags where no direct or indirect costs were recorded for a given record, or where an out of scope trainee was reported.
Exclude from analysis_flag	Flags whether the record should be excluded from analysis as a result of the trainee type being out of scope, or zero costs being reported for the trainee. Value of '1' indicates that the record should be excluded from analysis.
Modified_flag	Flags whether the FTE or headcount for the record was modified by the consulting team as a result of reporting issues in the DRS. Value of '1' indicates that the record was modified.
Modified_reason code	Where 'Modified_flag' equals '1', the reason code field describes the method used to modify the data. Reason codes correspond to the six bullet points contained within Section 6.3 – 'Data exclusion and modification'.

D. 2. Research costs data file

Table 15: Output fields included in the costed data file for research

Output Field	Comment
Site ID	The site identifier used in the costing study DRS.
Site name	The name of the hospital to which the site ID relates.

Output Field	Comment
Peer group	The new (2014) hospital peer group classification.
Geography	The ASGC geographical classification for the site.
Year	The calendar year in which the data was collected.
Month	The calendar month in which data was collected.
Research funding type	The type of research product for which data was reported. Valid values correspond to each research input sheet in the DRS, and include 'Research capability' or 'State/Territory-funded research'.
Research description	The type of research function (or activity) within each research funding type, as reported by the site in the DRS.
Position title	Description of the position title relevant to each listed research capability function.
Headcount	Describes the number of staff headcount for each position that was employed to deliver the relevant research capability function at each site, in each month.
FTE	Describes the number of full-time equivalent staff for each position that were employed to deliver the relevant research capability function at each site, in each month.
Non-labour cost/revenue description	The description of any non-labour cost or revenue items associated with research capability or state and territory-funded research projects.
Cost	Provides the cost that was incurred to support each research capability function, or state and territory-funded research project in the period. For research capability, the 'Cost' field includes both labour and non-labour costs.
Cost per FTE	For research capability, the cost per FTE field provides the average cost per staff FTE that is employed to deliver the relevant research capability function.

D. 3. Research activities data file

A second file of supporting data was also provided to describe the research activities and outputs that were produced at each site.

Table 16 shows the fields that are included in the activity data file for research.

|--|

Output Field	Comment
Site ID	The site identifier used in the costing study DRS.
Site name	The name of the hospital to which the site ID relates.
Peer group	The new (2014) hospital peer group classification.
Geography	The ASGC geographical classification for the site.
Month	The calendar month in which data was collected.
Number of students studying for a research degree	The number of students studying towards a higher-education degree by research, at Masters level or above, that are being supervised by an employee of the health service
Number of peer-reviewed articles published	Number of published peer-reviewed articles where the primary author is employed by the health service (excluding abstracts, conference proceedings and 'in press' articles), for each type of research.

Output Field	Comment
Number of projects submitted to ethics committees	Total number of research projects submitted to a health service Ethics Committee (excluding low-risk projects), for each type of research.
Number of projects approved by ethics committees	Total number of research projects approved by a health service Ethics Committee (excluding low-risk projects), for each type of research.
Number of research projects currently underway – All research	Total number of research projects currently underway at the site, for each type of research. that were funded by a source other than State or Territory monies
Number of research projects currently underway – Biosafety research	Total number of research projects currently underway at the site categorised as 'Biosafety research', for each type of research that were funded by a source other than State or Territory monies
Number of research projects currently underway – Clinical research	Total number of research projects currently underway at the site categorised as 'Clinical research', for each type of research that were funded by a source other than State or Territory monies
Number of research projects currently underway – Clinical trials	Total number of research projects currently underway at the site categorised as 'Clinical trials', for each type of research that were funded by a source other than State or Territory monies
Number of research projects currently underway – Epidemiological research	Total number of research projects currently underway at the site categorised as 'Epidemiological research', for each type of research that were funded by a source other than State or Territory monies
Number of research projects currently underway – Translational research	Total number of research projects currently underway at the site categorised as 'Translational research', that were funded by a source other than State or Territory monies
Number of research projects currently underway – Other research	Total number of research projects currently underway at the site categorised as 'Other research', that were funded by a source other than State or Territory monies
Number of research projects currently underway – Total	Total number of research projects currently underway at the site for all project types combined, that were funded by a source other than State or Territory monies

Appendix E : Average cost per FTE by trainee type

	All		Non-	Duincing	Public	Public	Public	All
Profession/Phase/Trainee type	(Incl	Metro	Metro	Principal referral	acute A	acute B	acute C	(Excl
All professions	emb) \$4,040	\$4,084	\$3,782	\$4,196	\$3,691	\$4,094	\$3,457	emb) \$400
Medicine	\$4,376	\$4,434	\$4,049	\$4,518	\$4,061	\$3,994	\$3,614	\$391
Pre-entry/student	\$2,073	\$2,078	\$2,054	\$2,058	\$2,054	\$3,101	\$2,506	\$223
Undergraduate student	\$1,995	\$1,993	\$2,001	\$2,023	\$1,946	\$2,238	\$2,471	\$164
Postgraduate student	\$2,604	\$2,546	\$3,550	\$2,269	\$3,042	\$3,639	\$3,235	\$624
Early graduate/pre-vocational	\$3,630	\$3,601	\$3,741	\$3,597	\$3,673	\$3,802	\$4,836	\$366
PGY 1	\$3,929	\$3,909	\$4,019	\$3,873	\$4,051	\$4,180	\$5,004	\$426
PGY 2	\$4,000	\$3,941	\$4,259	\$3,958	\$4,049	\$4,102	\$5,079	\$316
PGY 3+	\$2,679	\$2,570	\$2,981	\$2,539	\$2,861	\$3,076	\$3,441	\$332
Advanced/vocational	\$5,842	\$5,773	\$6,648	\$5,787	\$6,065	\$5,039	NR	\$471
Basic Trainee Registrar	\$5,751	\$5,686	\$6,772	\$5,678	\$6,001	\$6,167	NR	\$391
Advanced Trainee Registrar	\$6,092	\$6,006	\$6,741	\$6,047	\$6,274	\$6,776	NR	\$654
International medical	\$4,659	\$5,056	\$3,668	\$5,122	\$2,855	\$3,793	NR	\$590
professionals in training								-
Dentistry	\$1,224	\$1,695	\$1,139	\$1,695	\$1,139	NR	NR	\$108
Pre-entry/student	\$1,024	\$960	\$1,035	\$960	\$1,035	NR	NR	\$42
Undergraduate student	\$1,036	\$955	\$1,050	\$955	\$1,050	NR	NR	\$37
Postgraduate student	\$881	\$1,187	\$869	\$1,187	\$869	NR	NR	\$1,125
Early graduate/pre-vocational	\$2,481	NR	\$2,481	NR	\$2,481	NR	NR	\$ 39
PGY 1	\$2,481	NR	\$2,481	NR	\$2,510	NR	NR	\$39
Advanced/vocational	\$5,708 \$5,708	\$5,708	NR	\$5,708	NR	NR	NR	\$2,836
Advanced Trainee Registrar		\$5,708	NR	\$5,708	NR	NR	NR 63.366	\$2,836
Nursing	\$3,745	\$3,704	\$4,153	\$3,864	\$3,422	\$4,723	\$3,366	\$438 \$240
Pre-entry/student	\$2,318	\$2,325	\$2,242	\$2,441	\$1,987	\$2,789	\$2,771	\$240
Undergraduate student	\$2,327	\$2,335	\$2,221	\$2,449	\$2,008	\$2,593	\$2,136	\$242
Postgraduate student	\$2,130	\$1,985	\$2,426	\$2,133	\$1,523	\$3,875	\$3,514	\$175
Early graduate/pre-vocational	\$5,251	\$5,216	\$5,508	\$5,429	\$4,823	\$5,591	\$5,712	\$517
Graduate Assistant in Nursing	\$5,655	\$5,654	NR	\$5,669	\$4,997	NR	NR	\$65 ¢250
Graduate Enrolled Nurse	\$5,057	\$4,997	\$4,936	\$5,274	\$4,641	\$5,432	NR	\$350
Graduate Registered Nurse	\$5,338	\$5,142	\$5,532	\$5,373	\$4,844	\$5,599	\$5,712	\$620
Advanced/vocational	\$3,739	\$3,739	\$3,861	\$3,802	\$3,186	\$3,861	NR	\$1,377
Nurse Practitioner Candidate Specialist/advanced scope of	\$2,246	\$2,246	NR	NR	\$2,246	NR	NR	\$898
practice trainee	\$3,761	\$3,761	\$3,861	\$3,802	\$3,346	\$3,861	NR	\$1,384
Midwifery	\$2,871	\$2,796	\$3,367	\$2,639	\$3,050	NR	NR	\$237
Pre-entry/student	\$2,359	\$2,383	\$1,671	\$2,587	\$1,931	NR	NR	\$140
Undergraduate student	\$2 <i>,</i> 385	\$2,383	\$2,658	\$2,587	\$1,909	NR	NR	\$128
Postgraduate student	\$2,114	NR	\$1,425	NR	\$1,425	NR	NR	\$469
Early graduate/pre-vocational	\$3,593	\$3,566	\$3,659	NR	\$3,593	NR	NR	\$403
Graduate Registered Midwife	\$3,593	\$3,566	\$3,659	NR	\$3,593	NR	NR	\$454

								JUIY 2016
Profession/Phase/Trainee type	All (Incl emb)	Metro	Non- Metro	Principal referral	Public acute A	Public acute B	Public acute C	All (Excl emb)
Advanced/vocational	\$2,995	\$2,995	NR	\$2,995	NR	NR	NR	\$114
Specialist/advanced scope of practice trainee	\$2,995	\$2,995	NR	\$2,995	NR	NR	NR	\$765
Allied Health	\$2,667	\$2,670	\$2,657	\$2,709	\$2,597	\$3,000	\$2,690	\$371
Pre-entry/student	\$2,939	\$2,906	\$3,139	\$2,908	\$3,009	\$3,008	\$2,690	\$317
Undergraduate student	\$2,936	\$2,897	\$3,196	\$2,891	\$3,032	\$3,008	\$2,690	\$292
Postgraduate student	\$2,978	\$3,026	\$2,829	\$3,070	\$2,715	NR	NR	\$571
Research student	\$2,821	\$2,821	#DIV/0 !	\$2,821	NR	NR	NR	\$362
Early graduate/pre-vocational	\$2,639	\$2,981	\$2,706	\$3,120	\$2,629	\$2,997	NR	\$537
Graduate Allied Health professionals	\$2,713	\$2,987	\$2,688	\$2,868	\$2,590	\$3,018	NR	\$563
Graduate assistant in Allied Health	\$2,411	\$2,564	\$2,758	NR	\$2,411	NR	NR	\$176
Medical radiation science intern	\$2,874	\$2,914	\$3,213	\$2,870	\$2,878	NR	NR	\$633
Pharmacy intern	\$2,306	\$3,144	\$2,749	\$2,139	\$2,537	\$2,872	NR	\$419
Psychology intern	\$2,614	\$2,701	\$2,473	\$2,787	\$2,380	NR	NR	\$729
Advanced/vocational	\$3,239	\$3,609	NR	\$3,635	\$2,834	NR	NR	\$291
Specialist/advanced scope of practice trainee	\$3,239	\$3,609	NR	\$3,254	\$2,834	NR	NR	\$291

Note: 'NR' = Not reported in site DRS data submissions

Appendix F : Average cost per FTE by T&T activity type

Section 6.5 highlighted the large influence of embedded T&T in overall costs per trainee FTE. Table 15 to Table 21 show the breakdown of average costs per FTE for direct T&T, indirect T&T embedded T&T and overheads, for each trainee type within each profession.

Profession/Phase/Trainee type	Direct T&T	Indirect T&T	Embedded T&T	Overheads	Total
Medicine	\$276	\$114	\$3,798	\$188	\$4,376
Pre-entry / student	\$122	\$100	\$1,474	\$377	\$2,073
Undergraduate student	\$84	\$79	\$1,482	\$349	\$1,995
Postgraduate student	\$381	\$243	\$1,415	\$565	\$2,604
Early graduate / pre- vocational	\$242	\$100	\$3,084	\$180	\$3,606
PGY 1	\$316	\$110	\$3,281	\$222	\$3,929
PGY 2	\$180	\$136	\$3,511	\$172	\$4,000
PGY 3+	\$201	\$131	\$2,225	\$122	\$2,679
Advanced / vocational	\$360	\$111	\$5,241	\$130	\$5,842
Basic Trainee Registrar	\$305	\$86	\$5,228	\$133	\$5,751
Advanced Trainee Registrar	\$487	\$167	\$5,320	\$117	\$6,092
International medical professionals in training	\$388	\$203	\$3,792	\$276	\$4,659

 Table 17: Breakdown of average costs per FTE for medicine trainees, by T&T activity type

Table 18: Breakdown of average costs per FTE for dentistry trainees, by T&T activity type

Profession/Phase/Trainee type	Direct T&T	Indirect T&T	Embedded T&T	Overheads	Total
Dentistry	\$66	\$43	\$898	\$218	\$1,224
Pre-entry / student	\$0	\$42	\$778	\$205	\$1,024
Undergraduate student	\$-	\$37	\$779	\$349	\$1,165
Postgraduate student	\$4	\$99	\$764	\$565	\$1,431
Early graduate / pre- vocational	\$-	\$39	\$2,173	\$269	\$2,481
PGY 1	\$-	\$39	\$2,173	\$222	\$2,434
Advanced / vocational	\$2,747	\$88	\$2,280	\$593	\$5,708
Advanced Trainee Registrar	\$2,747	\$88	\$2,280	\$117	\$5,233

Table 19: Breakdown of average costs per FTE for nursing trainees, by T&T activity type

Profession/Phase/Trainee type	Direct T&T	Indirect T&T	Embedded T&T	Overheads	Total
Nursing	\$254	\$185	\$2,937	\$370	\$3,745
Pre-entry / student	\$71	\$169	\$1,739	\$340	\$2,318
Undergraduate student	\$72	\$170	\$1,740	\$345	\$2,327
Postgraduate student	\$39	\$136	\$1,695	\$219	\$2,090
Early graduate / pre- vocational	\$311	\$206	\$4,349	\$384	\$5,251
Graduate Assistant in Nursing / Midwifery	\$1	\$64	\$5,395	\$194	\$5,654
Graduate Enrolled Nurse	\$177	\$173	\$4,273	\$370	\$4,993

Profession/Phase/Trainee type	Direct T&T	Indirect T&T	Embedded T&T	Overheads	Total
Graduate Registered Nurse / Midwife	\$384	\$236	\$4,157	\$422	\$5,199
Advanced / vocational	\$1,225	\$153	\$1,843	\$518	\$3,739
Nurse Practitioner Candidate	\$-	\$898	\$669	\$678	\$2,246
Specialist / advanced scope of practice trainee	\$1,243	\$141	\$1,861	\$516	\$3,761

Table 20: Breakdown of average costs per FTE for midwifery trainees, by T&T activity type

Profession/Phase/Trainee type	Direct T&T	Indirect T&T	Embedded T&T	Overheads	Total
Midwifery	\$44	\$193	\$2,248	\$385	\$2,871
Pre-entry / student	\$0	\$135	\$1,818	\$405	\$2,359
Undergraduate student	\$0	\$130	\$1,840	\$415	\$2,385
Postgraduate student	\$-	\$293	\$1,051	\$81	\$1,425
Early graduate / pre- vocational	\$115	\$288	\$2,803	\$387	\$3,593
Graduate Registered Nurse / Midwife	\$115	\$288	\$2,803	\$387	\$3,593
Advanced / vocational	\$-	\$114	\$2,711	\$170	\$2,995
Specialist / advanced scope of practice trainee	\$-	\$114	\$2,711	\$170	\$2,995

Table 21: Breakdown of average costs per FTE for allied health trainees, by T&T activity type

Profession/Phase/Trainee type	Direct T&T	Indirect T&T	Embedded T&T	Overheads	Total
Allied Health	\$171	\$200	\$1,984	\$312	\$2,667
Pre-entry / student	\$110	\$207	\$2,207	\$415	\$2,939
Undergraduate student	\$90	\$202	\$2,232	\$411	\$2,936
Postgraduate student	\$325	\$247	\$1,944	\$462	\$2,978
Research student	\$-	\$362	\$2,155	\$304	\$2,821
Early graduate / pre- vocational	\$337	\$200	\$1,956	\$146	\$2,639
Graduate Allied Health professionals	\$357	\$206	\$2,017	\$134	\$2,713
Graduate assistant in Allied Health	\$164	\$12	\$2,210	\$26	\$2,411
Medical radiation science intern	\$436	\$197	\$2,030	\$211	\$2,874
Pharmacy intern	\$225	\$194	\$1,664	\$223	\$2,306
Psychology intern	\$433	\$296	\$1,784	\$101	\$2,614
Advanced / vocational	\$147	\$144	\$2,682	\$266	\$3,239
Specialist / advanced scope of practice trainee	\$147	\$144	\$2,682	\$266	\$3,239

Appendix G : Average cost per FTE for medical specialties

Table 22 presents total monthly costs per FTE for all medical specialties for which data was received, by type of advanced/vocational trainee. Shading in each column indicates where the highest and lowest costs per FTE were reported for each cost type (direct, indirect or embedded T&T and overheads).

When interpreting this table, the issues discussed in Section 7.1.1 should be borne in mind – particularly the large influence of embedded T&T in overall T&T costs, along with the process that was used to model embedded T&T, whereby survey results were aggregated to a higher level where a sufficient survey response size was not obtained at the specialty level.

Table 22 shows that embedded T&T costs accounted for a majority of overall costs for each specialty, and that the quantum of embedded T&T costs (and therefore overall costs) was generally quite uniform except for a few specialties. The uniformity in total T&T costs across specialties is likely to reflect the aggregation of survey data and application of the same (or similar) survey assumptions across different specialties.

Specialty	Direct cost per FTE	Indirect cost per FTE	Embedded cost per FTE	Overhead cost per FTE	Average cost per FTE
All advanced / vocational trainees	\$360	\$111	\$5,241	\$130	\$5,842
Procedural	\$383	\$131	\$5,230	\$144	\$5 <i>,</i> 888
Anaesthesia	\$526	\$128	\$4,883	\$175	\$5,713
Emergency Medicine	\$381	\$160	\$4,005	\$201	\$4,747
Obstetrics and Gynaecology	\$351	\$108	\$3,598	\$217	\$4,274
Ophthalmology	\$222	\$175	\$5,062	\$154	\$5,613
All surgery	\$235	\$144	\$5,071	\$138	\$5,588
Surgery	\$254	\$141	\$3,614	\$166	\$4,175
Surgery - Cardio-thoracic surgery	\$70	\$21	\$5,120	\$55	\$5,265
Surgery - General	\$261	\$168	\$3,620	\$247	\$4,296
Surgery - Neurosurgery	\$422	\$127	\$4,152	\$204	\$4,905
Surgery - Oral and maxillofacial surgery	\$257	\$76	\$5,118	\$174	\$5,625
Surgery - Orthopaedic surgery	\$235	\$117	\$3,779	\$199	\$4,330
Surgery - Otolaryngology	\$842	\$190	\$3,746	\$328	\$5,107
Surgery - Paediatric surgery	\$-	\$30	\$5,048	\$125	\$5,203
Surgery - Plastic surgery	\$110	\$182	\$4,128	\$172	\$4,592
Surgery - Urology	\$64	\$164	\$4,155	\$218	\$4,601
Surgery - Vascular surgery	\$212	\$221	\$3,711	\$235	\$4,379
Non-procedural	\$384	\$92	\$5,219	\$128	\$5,823
Dermatology	\$205	\$159	\$4,351	\$189	\$4,904
General Practice	\$278	\$137	\$3,571	\$279	\$4,265
Intensive Care Medicine	\$317	\$110	\$4,718	\$168	\$5,312
Intensive Care Medicine - Paediatric intensive care medicine	\$646	\$52	\$3,723	\$129	\$4,549
Medical Administration	\$332	\$11	\$3,430	\$35	\$3,808
Palliative medicine	\$1,318	\$227	\$4,850	\$280	\$6,675
Psychiatry	\$529	\$167	\$3,575	\$204	\$4,476

Table 22: Average monthly cost per FTE for vocational Medicine trainees, by specialty

Specialty	Direct cost per FTE	Indirect cost per FTE	Embedded cost per FTE	Overhead cost per FTE	July 201 Average cost per FTE
Public health medicine	\$-	\$326	\$5,354	\$51	\$5,730
Rehabilitation Medicine	\$147	\$309	\$3,530	\$246	\$4,232
All radiology	\$626	\$182	\$4,740	\$185	\$5,732
Radiology	\$554	\$186	\$4,530	\$185	\$5,455
Radiation oncology	\$655	\$146	\$4,539	\$182	\$5,522
Radiology-Diagnostic radiology	\$633	\$67	\$2,818	\$408	\$3,926
All Pathology	\$22	\$216	\$5,436	\$77	\$5,752
Pathology - Haematology	\$15	\$229	\$2,968	\$201	\$3,412
Pathology - Microbiology	\$80	\$59	\$6,713	\$89	\$6,941
All Physician	\$317	\$63	\$5,507	\$108	\$5,996
Physician	\$235	\$93	\$5,585	\$113	\$6,026
Physician - Cardiology	\$445	\$39	\$5,854	\$119	\$6,457
Physician - Clinical genetics	\$-	\$59	\$4,074	\$289	\$4,422
Physician - Endocrinology	\$74	\$54	\$4,528	\$152	\$4,808
Physician - Gastroenterology and Hepatology	\$102	\$46	\$3,464	\$162	\$3,773
Physician - General medicine	\$514	\$146	\$3,083	\$287	\$4,029
Physician - Geriatric medicine	\$327	\$105	\$4,345	\$129	\$4,906
Physician - Haematology	\$71	\$43	\$4,847	\$134	\$5,095
Physician - Immunology and allergy	\$98	\$271	\$9,324	\$77	\$9,770
Physician - Infectious diseases	\$1,483	\$213	\$6,178	\$198	\$8,073
Physician - Medical oncology	\$418	\$89	\$3,569	\$226	\$4,302
Physician - Nephrology	\$781	\$101	\$5,430	\$198	\$6,510
Physician - Neurology	\$294	\$255	\$4,678	\$105	\$5,333
Physician - Nuclear medicine	\$524	\$95	\$4,484	\$162	\$5,265
Physician - Respiratory and sleep medicine	\$88	\$38	\$5,332	\$21	\$5,479
Physician - Rheumatology	\$9	\$177	\$3,139	\$247	\$3,572
All Paediatrics	\$363	\$84	\$4,263	\$150	\$4,860
Paediatrics	\$483	\$99	\$3,520	\$232	\$4,334
Paediatrics - General	\$908	\$131	\$3,147	\$216	\$4,403
Paediatrics - Neonatal and perinatal medicine	\$473	\$74	\$3,081	\$291	\$3,918
Paediatrics - Paediatric emergency medicine	\$7	\$27	\$4,612	\$69	\$4,715
Paediatrics - Paediatric gastroenterology and hepatology	\$481	\$90	\$2,673	\$276	\$3,520
Paediatrics - Paediatric intensive care medicine	\$248	\$48	\$4,050	\$106	\$4,452
Paediatrics - Paediatric rehabilitation medicine	\$-	\$84	\$2,990	\$130	\$3,204
Paediatrics - Paediatric rheumatology	\$-	\$90	\$2,990	\$113	\$3,193

Specialty	Direct cost	Indirect cost	Embedded cost	Overhead	Average cost
	per FTE	per FTE	per FTE	cost per FTE	per FTE
Not applicable or not known	\$77	\$90	\$2,924	\$180	\$3,271

Appendix H : Average monthly cost per FTE for allied health professions

Table 23 shows the average monthly cost per FTE for Allied Health trainees by phase of T&T and profession. Colour shading indicates the Allied Health professions with the highest (red) to lowest (green) reported costs for each phase of T&T.

As per the analysis presented in Section 7.1.1, the influence of embedded T&T costs, and the process used to model these costs should be considered when interpreting Table 23. The process used to aggregate small survey response sizes may mean that the embedded T&T component of the costs in the following table are not unique to each allied health profession – instead, survey assumptions may have been applied to some allied health professions at the level of trainee type or phase of T&T, for example.

Of all Allied Health professions, audiology, exercise physiology, oral health and clinical measurement reported among the highest costs per FTE. As shown, these variations are mostly driven by higher direct costs per FTE (for Audiology), higher indirect costs per FTE (for exercise physiology and oral health) and higher overhead costs per FTE (for clinical measurement).

Allied health profession	Direct cost per FTE	Indirect cost per FTE	Embedded cost per FTE	Overhead cost per FTE	Average cost per FTE
All trainees	\$171	\$200	\$1,984	\$312	\$2,667
All Allied Health	\$27	\$352	\$1,914	\$137	\$2,429
Audiology	\$402	\$194	\$2,168	\$431	\$3,196
Cardiac Sciences	\$182	\$53	\$2,256	\$466	\$2,958
Clinical Measurement	\$19	\$135	\$2,374	\$737	\$3,265
Dietetics / Nutrition	\$155	\$235	\$1,847	\$283	\$2,519
Exercise Physiology	\$0	\$858	\$2,180	\$575	\$3,612
Medical Physics	\$0	\$121	\$2,105	\$349	\$2,574
Not applicable or not known	\$125	\$112	\$1,015	\$17	\$1,269
Occupational Therapy	\$200	\$158	\$2,360	\$304	\$3,022
Oral Health	\$0	\$740	\$2,284	\$574	\$3,598
Orthotics / prosthetics	\$149	\$429	\$2,239	\$287	\$3,104
Pathology science	\$0	\$4	\$2,489	\$1	\$2,494
Pharmacy	\$132	\$144	\$1,285	\$172	\$1,733
Podiatry	\$39	\$122	\$1,691	\$513	\$2,365
Psychology	\$339	\$274	\$2,100	\$222	\$2,935
Social Work	\$153	\$253	\$2,258	\$265	\$2,929
Speech Pathology	\$173	\$138	\$2,116	\$243	\$2,670
All physiotherapy	\$196	\$169	\$1,906	\$355	\$2,626
Physiotherapy	\$194	\$169	\$1,910	\$353	\$2,627
Physiotherapy - Orthopaedic	\$469	\$142	\$1,368	\$460	\$2,438
Physiotherapy - Respiratory	0	\$276	\$1,630	\$1,086	\$2,992
All Radiation	\$132	\$190	\$2,115	\$437	\$2,874
Radiation Science	\$67	\$332	\$2,049	\$516	\$2,963
Radiation Science - Medical Imaging	\$72	\$172	\$2,162	\$371	\$2,777

Table 23: Average monthly cost per FTE for Allied Health trainees, by phase of T&T and Allied Health profession

Allied health profession	Direct cost per FTE	Indirect cost per FTE	Embedded cost per FTE	Overhead cost per FTE	Average cost per FTE
Radiation Science - Nuclear Medicine	\$614	\$156	\$2,294	\$357	\$3,421
Radiation Science - Radiation Therapy	\$443	\$76	\$1,947	\$656	\$3,122

Appendix I : Average direct T&T minutes per trainee FTE per month

Profession/Phase/Trainee type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	TOTAL
All professions	89.9	162.9	137.8	150.3	142.0	90.6	112.2	118.3	122.6	103.6	115.4
Medicine	105.2	162.6	159.4	196.4	147.8	72.3	82.8	69.7	94.4	95.5	97.4
Pre-entry / student	144.7	510.4	174.8	316.6	137.1	42.8	48.8	49.4	68.0	69.1	85.5
Undergraduate student	49.5	525.5	62.2	50.3	85.7	25.0	39.8	37.0	51.8	56.6	56.6
Postgraduate student	858.7	465.6	650.7	1,304.4	317.9	286.7	84.4	129.3	182.8	152.1	259.5
Early graduate / pre-vocational	97.7	119.5	145.0	165.4	154.9	66.5	79.3	72.0	103.7	103.1	97.6
PGY 1	87.3	79.6	95.5	187.0	173.5	71.0	76.1	71.1	120.5	122.4	99.0
PGY 2	101.3	130.1	141.1	119.2	94.9	67.6	79.2	69.5	89.8	84.3	85.3
PGY 3+	107.6	164.7	216.4	167.4	217.3	55.3	85.4	77.2	101.3	104.0	110.0
Advanced / vocational	107.1	105.9	175.3	191.2	143.3	90.9	101.0	76.7	95.9	98.8	101.9
Basic Trainee Registrar	130.4	89.8	191.5	223.6	119.7	88.9	95.1	69.2	83.8	83.2	92.5
Advanced Trainee Registrar	90.2	133.9	160.0	153.6	178.9	95.6	112.4	92.8	118.9	125.1	118.7
International medical professionals in training	not reported	106.7	116.7	200.0	214.1	70.1	147.0	110.3	97.7	251.1	143.4
Dentistry	not reported	134.6	283.1	218.7	248.9	89.2	96.8	142.9	682.9	175.4	210.5
Pre-entry / student	not reported	143.8	326.7	248.6	287.0	14.4	not reported	not reported	638.5	not reported	198.9
Undergraduate student	not reported	154.4	350.7	266.9	308.8	14.9	not reported	not reported	not reported	not reported	185.2
Postgraduate student	not reported	not reported	not reported	not reported	13.8	not reported	not reported	not reported	2,929.4	not reported	353.4
Early graduate / pre-vocational	not reported	not reported									
PGY 1	not reported	not reported									
Advanced / vocational	not reported	not reported	not reported	not reported	not reported	960.0	1,200.0	960.0	960.0	1,200.0	1,056.0
Advanced Trainee Registrar	not reported	not reported	not reported	not reported	not reported	960.0	1,200.0	960.0	960.0	1,200.0	1,056.0
Nursing	18.6	118.5	78.8	55.6	119.8	130.2	177.2	216.7	160.4	101.4	140.6
Pre-entry / student	10.6	17.2	30.3	116.9	84.8	148.6	127.8	179.7	136.1	104.7	128.5

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											July 2010
Profession/Phase/Trainee type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	TOTAL
Undergraduate student	2.0	10.4	29.2	115.3	84.9	151.2	131.3	182.1	139.8	108.9	131.3
Postgraduate student	457.1	457.1	71.6	457.1	75.9	30.8	13.0	74.8	73.6	15.4	48.9
Early graduate / pre-vocational	12.8	43.5	35.6	11.9	119.2	85.2	152.1	231.2	135.4	66.4	109.1
Graduate Assistant in Nursing / Midwifery	not reported	not reported	not reported	not reported	555.0	15.4	19.6	not reported	not reported	not reported	1.9
Graduate Enrolled Nurse	4.4	not reported	not reported	not reported	164.4	118.3	268.0	212.7	138.7	177.7	170.1
Graduate Registered Nurse / Midwife	13.3	46.0	37.5	12.5	112.1	82.1	139.7	233.9	135.8	122.6	123.0
Advanced / vocational	64.7	742.0	537.6	29.7	281.9	304.4	728.3	483.6	530.0	485.7	468.1
Nurse Practitioner Candidate	not reported	not reported	not reported								
Specialist / advanced scope of practice trainee	70.1	793.6	569.4	32.0	289.4	304.4	728.3	483.6	530.0	485.7	474.6
Midwifery	225.5	115.3	104.2	2.9	47.2	21.4	402.6	167.4	9.0	13.2	70.9
Pre-entry / student	not reported	not reported	not reported	not reported	not reported	4.3	not reported	not reported	0.7	not reported	1.0
Undergraduate student	not reported	not reported	not reported	not reported	not reported	4.3	not reported	not reported	0.7	not reported	1.1
Postgraduate student	not reported	not reported	not reported								
Early graduate / pre-vocational	225.5	115.3	104.2	3.2	43.6	204.6	91.4	not reported	30.2	32.1	65.7
Graduate Registered Nurse / Midwife	246.6	125.8	111.8	3.5	45.0	208.5	91.4	not reported	32.4	33.7	69.8
Advanced / vocational	not reported	not reported	not reported	not reported	109.1	not reported	1,153.8	941.5	6.8	not reported	392.3
Specialist / advanced scope of practice trainee	not reported	not reported	not reported	not reported	109.1	not reported	1,153.8	941.5	6.8	not reported	392.3
Allied Health	124.1	305.9	120.0	93.6	177.0	126.9	125.0	130.6	203.4	202.0	154.0
Pre-entry / student	150.0	449.3	112.6	110.0	147.0	120.5	117.0	131.7	115.0	119.3	131.0
Undergraduate student	156.6	480.3	96.2	111.6	140.8	100.4	100.4	104.3	115.5	119.6	119.5
Postgraduate student	40.0	241.1	268.0	100.0	221.8	474.2	352.1	386.8	87.0	120.0	325.7
Research student	not reported	not reported	not reported								
Early graduate / pre-vocational	105.9	103.1	110.9	62.5	258.7	159.2	159.6	157.9	536.1	526.6	236.2
Graduate Allied Health professionals	36.6	16.7	15.8	19.7	61.7	151.8	146.2	150.8	300.5	296.0	162.5

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Profession/Phase/Trainee type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	TOTAL
Graduate assistant in Allied Health	not reported	not reported	not reported	not reported	not reported	81.2	97.8	66.9	not reported	not reported	79.2
Medical radiation science intern	287.1	100.0	107.1	168.0	1,685.0	471.4	531.4	62.1	327.6	59.9	430.8
Pharmacy intern	31.3	183.9	212.8	60.8	84.0	94.9	102.2	194.5	1,545.2	1,499.4	478.5
Psychology intern	180.0	255.0	210.0	120.0	180.0	628.9	594.1	365.4	329.7	461.1	393.7
Advanced / vocational	660.0	240.0	1,425.0	1,600.0	305.7	51.4	127.6	32.5	360.0	not reported	184.2
Specialist / advanced scope of practice trainee	660.0	240.0	1,425.0	1,600.0	305.7	51.4	127.6	32.5	360.0	not reported	184.2

Appendix J : T&T costs as a proportion of total recurrent expenditure

Figure 30 shows the proportion of total monthly recurrent expenditure that was related to T&T, for each peer group. The figure aggregates total T&T costs for each peer group, and divides these by the aggregate expenditure reported by each site, within each peer group. It shows that peer group A hospitals reported the greatest proportion of recurrent expenditure related to T&T, followed by principal referral hospitals. Public acute group B and C hospitals reported substantially less T&T costs as a proportion of total recurrent expenditure - between 2.3% to 3.2%.

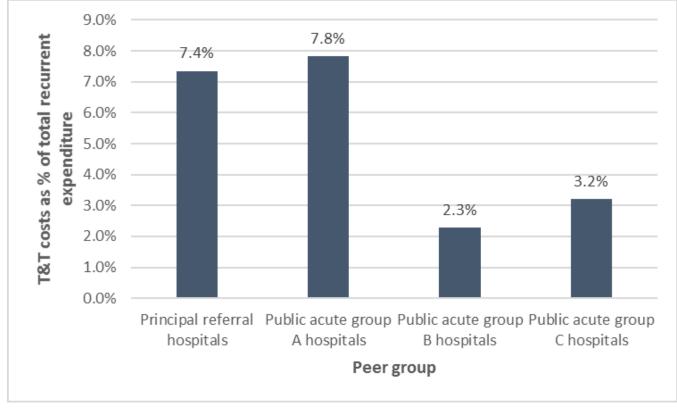


Figure 30: Total T&T costs as proportion of total recurrent expenditure, by peer group

Note: number of hospitals in each peer group include All Hospitals: n= 19; Principal referral: n = 7; Public acute group A: n = 7; Public acute group B: n = 3; Public acute group C: n = 2

Appendix K : Glossary of terms

Activity based funding (ABF): Activity based funding is a means of funding hospitals for the type and volume of services they provide. It offers a clear link between funding and healthcare delivery, which should improve transparency and strengthen incentives for efficiency in public hospital services delivery.

Advanced/vocational phase of T&T: Individuals who are employed by a health service and are undertaking advanced training to specialise in a particular area.

Advanced Trainee Registrar: A medical or dental professional undertaking medical or dental vocational training in a recognised medical or dental specialty training program accredited by the Australian Medical Council or Australian Dental Association.

Allied Health: Health care professions that are distinct from Medicine, Dentistry, Nursing or Midwifery.

Assistant in Allied Health: A person employed under the supervision of an allied health professional who is required to assist with therapeutic and program related activities.

Assistant in Nursing / Midwifery: an employee who works under the direction and supervision of a Registered Nurse, assisting in the performance of nursing duties.

Australian Standard Geographical Classification: The classification system used by the Australian Bureau of Statistics to classify locations across Australia according to remoteness.

Basic Trainee Registrar: A medical or dental professional undertaking basic training as an entry point to admission into training as a specialist medical or dental practitioner.

Classification: a set of codes that provide clinically meaningful ways of relating the types of patients treated by a hospital (or in the case of teaching and training, the types of trainees) to the resources required.

Clinical service delivery: The provision of direct patient care in a health service as opposed to the non-clinical or corporate (administrative, support, management) services required to support the organisation.

Coefficient of Variation: A unit-free measure of spread that describes the amount of variability relative to the mean.

Confidence interval: provides a range of values within which an estimated value (typically the mean) is expected to lie. A 95% confidence interval infers that 95 times out of 100 a value will lie between the lower and upper bounds of the confidence interval.

Correlation coefficient: A quantitative measure of some type of correlation and dependence, meaning statistical relationships between two or more random variables or observed data values.

Costing: The process used to allocate costs, time and resources (inputs) to a hospital's outputs.

Costing methodology: Defines the process of assigning costs to activities delivered in an organisation according to the actual resources consumed to deliver each activity. The TTR costing methodology document that described the approach that was used by the Consulting team to cost data submitted by participating sites.

Costs: The resources (financial and other) that a health service is required to supply to support the provision of teaching and training. Costs may be directly or indirectly related to teaching and training.

Direct teaching and training activities: The theoretical or practical transfer of knowledge that occurs independently from the delivery of patient care.

Direct research activities: Distinct and separable activities that relate to the generation of new knowledge, typically undertaken as part research projects.

Early entry/pre-vocational phase of T&T: Individuals who have recently been employed by a health service, usually in their first years of employment. Includes employed medical professionals that have not yet obtained admission to a vocational medical training program.

Embedded TTR activities: describe events where T&T occurs in conjunction with patient care.

Environmental scan: An assessment of the macro environment investigating multiple factors. Environmental scans draw on contemporary advice from industry participants rather than reproducing known statistics and information. In relation to this project, the term refers to the Environmental Scan that was developed as part of the TTR Definitions and Cost Drivers project, which sought to identify perspectives of a broad range of stakeholders regarding how to define TTR and identify its associated cost drivers.

Enrolled Nurse: a nurse qualified at Diploma-level who provides nursing care, working under the direction and supervision of a Registered Nurse. Includes 'Endorsed Enrolled Nurses', who have completed further medication endorsement to their training.

General ledger: A complete record of financial transactions for an entity.

Graduate Assistant in Allied Health: Assistants in an Allied Health profession undertaking their first year in employment following attainment of their qualification.

Graduate Assistant in Nursing/Midwifery: Assistants in Nursing or Midwifery undertaking their first year in employment following attainment of their qualification.

Graduate in Allied Health: Graduates in an Allied Health profession undertaking their first year in employment following attainment of their qualification.

Graduate Enrolled Nurse: Enrolled Nurses undertaking their first year in employment following attainment of their qualification.

Graduate Oral Health Therapist: Oral Health Therapists undertaking their first year in employment following attainment of their qualification.

Graduate Registered Nurse/Midwife: Registered Nurses or Midwives undertaking their first year in employment following attainment of their qualification.

Headcount: represents each person that is employed in a given role, even if that role is only employed on a parttime basis. For example, three staff who each work 0.3, 0.5 and 1.0 FTE would result in a headcount of three.

Hospital peer group: Define groups of similar hospitals based on shared characteristics, such as size, services provided and location (among others).

Indirect teaching training and research activities: The activities undertaken by a health service that are essential to facilitate teaching and training, but do not involve either a didactic or experiential skills/knowledge transfer.

International Medical Professional in Training: Medical Professionals that have obtained their medical qualification overseas and are seeking registration to practice Medicine in Australia.

Interquartile Range: The range of values in the middle 50% of a data set, assuming the values in the data set are ordered from lowest to highest.

Labour costs: Costs associated with employee related expenses.

Median: The middle value in a data set, if the data was ordered from the lowest to highest value.

Medical Radiation Science Intern: Graduates in an Allied Health profession undertaking their first year in employment following attainment of their qualification.

Non-clinical teaching: Teaching that relates the transfer of knowledge for functions other than clinically based competencies.

Non-labour costs: All type of costs that are not associated with employee related expenses.

Non-procedural medical specialties: Medical specialty disciplines that do not commonly involve the delivery of interventional (surgical) procedures to patients.

Nurse Practitioner Candidate: Nursing professionals that are undertaking training to attain recognition as a Nurse Practitioner.

Nurse re-entry trainee: A formerly Registered Nurse whose registration has lapsed and is undertaking training to re-attain registration.

Outlier: An observation point that is distant from other observations. An outlier may be due to variability in the measurement or it may indicate experimental error; the latter are sometimes excluded from the data set.

Overhead cost: Ongoing expenses not related to direct labour, direct materials or third-party expenses that are incurred in the course of production of goods and services.

Overhead rate: represents the average rate at which overhead costs are attributed to T&T related activities

Pay classification: Codes used in an organisation's human resources and payroll systems to distinguish between that rates of pay attributed to different professional groups, grades and levels

Period balance: the value used in transaction systems (used in the DRS for the TTR costing study) to designate the relevant month of which the activities and transactions relate.

Procedural medical specialties: Medical specialty disciplines that commonly involve the delivery of interventional (surgical) procedures.

Prospective: Collection of data from the present time to a point in the future.

PGY 1: Medical or dental professionals undertaking their first year in employment following attainment of an undergraduate or postgraduate qualification in Medicine or Dentistry.

PGY 2: Medical or dental professionals undertaking their second year in employment following attainment of an undergraduate or postgraduate qualification in Medicine or Dentistry.

PGY 3+: Medical or dental professionals undertaking their third or greater year in employment following attainment of an undergraduate or postgraduate qualification in Medicine or Dentistry and are not engaged in a vocational training program.

Pharmacy Intern: Pharmacy interns undertaking their first year in employment following attainment of their qualification.

Phase of teaching and training: A stage involving specific teaching and/or training requirements, through which a trainee may progress during the course of their career. For the purpose of this project, three main phases of training have been identified, including 'pre-entry/student', 'early entry/prevocational' and 'advancement/vocational'.

Postgraduate student: For medicine and dentistry, a postgraduate student is a person studying towards a graduate entry qualification in medicine or dentistry at an Australian university, after having completed a prior degree. For nursing and allied health, a postgraduate student is a person studying towards a secondary qualification at an Australian university, following attainment of their undergraduate qualification – typically at the level of Graduate Diploma, Masters or PhD

Postgraduate student (advanced scope of practice): Clinical professionals that are employed by the health service and are undertaking postgraduate study to achieve specialist or advanced scope of practice.

Pre-vocational: The base of education in which medical and dental health care professionals develop competencies after completion of their qualification.

Pre-entry/student phase of T&T: Students in clinical professions that are seeking to obtain a qualification prior to entering the workforce.

Pricing Authority: The governing body of IHPA established under the National Health Reform Act 2011.

Prospective data collection: Collection of data during a current period of time (ie. from now into the future).

Psychology Intern: Psychology interns undertaking their first or second year in employment following attainment of their qualification.

Quality assurance: The process that ensures the requirements pertaining to the delivery of any product or service are met.

Recurrent costs / expenditure: Non-capital-related (operating) cost or expenditure.

Research (TTR definition): "The activities undertaken in a public health service where the primary objective is the advancement of knowledge that ultimately aims to improve consumer and patient health outcomes and/or health system performance. The activity must be undertaken in a structured and ethical way, be formally approved by a research governance or ethics body, and have potential for application outside of the health service in which the activity is undertaken.

Research activity: the research outputs that a research entity or health service deliver

Research capability: The physical and human resources, skills and abilities required to undertake research.

Research directorate: A department that administratively supports and facilitates research through infrastructure and resources

Research student: Students studying towards a higher degree by research at an Australian University.

Retrospective data collection: Collection of data relating to a time period that has passed.

Residual balance: describes the balance left after completion of a research project, and is calculated by subtracting the total costs to complete a research project from the total value of the project's research grant.

Site Coordinator: A person appointed by a hospital or health service for the purpose of coordinating the collection and submission of TTR data as part of the TTR Costing Study.

Specialist/Advanced Scope of Practice trainee: Allied Health, Nursing or Midwifery professionals that are undertaking training (either through formal qualifications or accreditation processes) to deliver an advanced scope of practice.

Standard error: The standard deviation of a sampling distribution of a given statistic (typically the mean).

Teaching and training: the activities provided by or on behalf of a public health service to facilitate the acquisition of knowledge, or development of skills. These activities must be required for an individual to:

- attain the necessary qualifications or recognised professional body registration to practice;
- acquire sufficient clinical competence upon entering the workforce; or
- undertake specialist/advanced practice

in Medicine, Dentistry, Nursing, Midwifery or Allied Health."

Tranche: A portion of a whole. In the context of the costing study, Tranche represents one of three periods of data collection.

Supernumerary: In addition to the usual number or a temporary or additional worker.

Undergraduate student: For medicine and dentistry, an undergraduate student is a person studying towards a five or six-year undergraduate Bachelor degree in Medicine or Dentistry. For nursing, midwifery and allied health, an undergraduate student is a person studying towards their first degree at an Australian university.

Vocational training: Training undertaken by medical professionals that have completed intern training (at a minimum) towards recognition as a **s**pecialist medical practitioner.