

Research protocol

Title

Clinical care ratios: quantifying clinical versus non-clinical care for allied health professionals and assistants: A 5 year follow up.

Investigators

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Introduction and Background

What do we know?

The everyday tasks of allied health professionals and allied health assistants can be divided into direct clinical care and non-direct clinical activity.

Direct clinical care activities provide a service to influence the health status of our patients. It includes, for example, family or team meetings, clinical record keeping, delivery of group programmes, face to face management/therapy, discussions about how to manage a particular patient, relative education programmes and case meetings.

Non-clinical activity includes clinical service management (for example, administrative tasks, professional development, meetings, consultation in professional service issues, quality activities, projects, supervision, attending training), teaching and training (for example, formal teaching or training to students, peers, colleagues, associated meetings and travel, and additional time required to treat a patient due to education to a student at time of treatment), and formal research activities to advance the knowledge of the delivery of care to patients.

Allied health departments in large tertiary teaching hospitals consist of several teams covering various clinical areas (e.g. cardio-respiratory, orthopedics, emergency department). A team has staff members of varying experience and skills to be able to safely and efficiently manage all clinical cases (from simple to more complex), and other operational tasks.

Departments are allocated a yearly budget to cover all necessary expenses. As the cost of staffing is the greatest factor within this budget, it is of utmost importance to optimise workforce planning to most effectively utilise available resources as well as ensure best-quality patient care.

The absence of established systems to support allied health workforce planning prevented accurate costing and led to the development of Clinical Care Ratio (CCR) recommendations. These measure the time spent with direct as opposed to non-direct client care as explained above.

A previous study had collected data from several Australian tertiary hospitals and calculated CCRs according to profession, seniority level and role type. (See below for details). It found decreasing CCRs with increasing seniority level. Results of this project have been published recently. (1)

What are the gaps?

- Data for the previous study is now between 5-10 years old. Models of care, roles and scope of allied health professionals, the allied health workforce profile and requirements to demonstrate clinical governance standards has changed significantly.
- Results from the previous study demonstrated a great difference of CCR between roles within a tier.
- There are no existing CCRs for allied health assistants.
- Other variables apart from profession and experience may exist that can influence CCRs.

CCRs are useful for health service managers to better inform and manage service demand and capacity. Reviewing the current CCR data will assist in further understanding CCRs and existing recommendations for benchmarks.

What do we aim to do?

This study seeks to evaluate data more in-depth taking in to account changes to service delivery requirements and the workforce profile since the previous study. Allied health assistants data will also be analysed.

We will collect more specific data with the aim of establishing relationships of CCRs with regards to full-time versus part-time staff, permanent versus casual staff, gender and acute versus rehabilitation setting.

Study Design

Retrospective data collection and analysis.

Setting/ location

The Australasian Allied Health Benchmarking Consortium (AAHBC) are a group of acute tertiary teaching hospitals in Australia and New Zealand that collect allied health activity data for benchmarking and quality improvements purposes.

Current members of AAHBC include:

- NSW:
 - o Nepean Hospital
- QLD:
 - o Gold Coast University Hospital (GCUH)
 - o Princess Alexandra Hospital (PAH)
- SA:
 - o Flinders Medical Centre (FMC)
 - o Lyell McEwin Hospital (LMH)
 - o Royal Adelaide Hospital (RAH)
- Tasmania:
 - o Royal Hobart Hospital (RHH)
- Victoria
 - o Alfred Health
 - o Austin Health
 - o Barwon Health
 - o Melbourne Health
 - o Monash Health
 - o Western Health
 - o St. Vincent's Hospital
- New Zealand
 - o Canterbury District Health Board
 - o Mt. Hutt District Health Board

The Princess Alexandra Hospital is the main site for this study with Cherie Hearn being the primary investigator. All sites within this consortium had been invited and 10 members agreed to participate (please refer to 'population' section for more details)

Population

Allied Health staff employed by the participating hospitals including the following professions: Audiology, Nutrition & Dietetics, Occupational Therapy, Physiotherapy, Podiatry, Prosthetics & Orthotics, Psychology, Social Work and Speech Pathology.

As the staff structures vary in the different states (in QLD we have the 'Health Practitioner scale', which means an allied health professionals wages would be classified as 'HP3, HP4' etc), AAHBC members have agreed on classifying allied health professionals in different 'tiers' depending on their experience and

responsibilities. These tiers have been ratified amongst the AAHBC members, with local examples given to ensure accuracy.

Tier	Subgroup	Definition
AHA	Allied Health Assistant	Operational staff who may or may not possess a Certificate in Allied Health Assistance, who are dedicated to support allied health professions. Data is also being captured as to whether staff are single or multi-professional.
1	Entry level Practitioner	Entry level practitioners who is generally employed to rotate between work areas. New graduates, or rotating base grade staff members who may undertake clinical teaching with support. They will contribute to quality activities.
2	Practitioner	Practitioner who is employed as a more experienced clinician, who is less likely to rotate between work areas, and is developing more specialised skills. They would be involved in clinical teaching. In smaller facilities they may be responsible for service development in an area and provide clinical supervision of staff and students. They will coordinate and may initiate clinical quality improvement activities.
3	Advanced clinician	Staff with clinical expertise. Student coordination would also be undertaken as well as initiating and coordination of the team activity. They will lead quality improvement activities and be involved in research. Data for staff in clinical education positions will not be collected.
3	Clinical leader/supervisor	Staff with clinical expertise who in smaller facilities will be site managers who are responsible for day to day management, including rostering, or in larger facilities the staff responsible for team service development. These staff will be clinical team leaders or programme leaders in large sites with a supervisory role. They will lead quality improvement activities and research. Data for Directors of Professions is not being collected.

Allied health assistants' (no further division of this group has occurred) responsibilities vary from assisting with patient treatments (e.g. to help mobilise a

patient), supervising and administering exercise programs after established by an allied health professional, order and maintain equipment, undertaking screening assessment amongst many other activities and tasks.

As visible from the above definitions, some positions inherently involve less direct clinical time. The aim of this review is to specifically benchmark the positions which are mainly clinical positions (i.e. AHAs, Tier 1, Tier 2 and Tier 3). For the purpose of this study the other tiers or subgroups have been excluded.

Eligibility criteria

Inclusion criteria:

- Tier 1, 2 and 3 allied health professionals with mainly clinical roles.
- Allied health assistants (single profession or multi-professional).
- Staff who were working in the participating hospitals in March 2017.

Exclusion criteria:

- Tier 2 or 3 staff whose predominant responsibility is clinical education.
- Tier 4/5 allied health professionals whose roles are highly specialised or predominantly management.

Outcomes

Percentage time spent in direct or indirect clinical care.

Percentage time spent on non-clinical care

Procedures

Recruitment

Delegates for the abovementioned AAHBC hospitals meet regularly on either a face-to face basis or via videoconference. Communication in between meetings continues via email or phone.

All members had been invited to participate in this study during the meeting. They were given until 31/10/2017 to decide if they were able to participate.

The following 10 AAHBC hospitals have accepted the invitation to participate in this investigation via email. Key persons for each of these hospitals are stated in brackets

- QLD
 - Gold Coast University Hospital (GCUH) (Jill Mahoney)
 - Princess Alexandra Hospital, Metro South Hospital and Health Service (PAH) (Cherie Hearn)
- SA:
 - Flinders Medical Centre (FMC) (Helen Tedesco)

- Lyell McEwin Hospital (Linda Nimmo)
- Royal Adelaide Hospital (RAH) (Adam Govier)
- Tasmania:
 - Royal Hobart Hospital (RHH) (Anne Mullavey)
- Victoria
 - Alfred Health (Lisa Somerville)
 - Melbourne Health (Colin Steel)
 - Monash Health (Danielle Ryan)
 - St. Vincents (Belinda Cary)

Data Collection

Please see attached document as example of the data collection spreadsheet from the previous study after de-identification.

The National Allied Health Case-Mix Committee (NAHCC) Health Activity Classification is the current Australian standard for defining the range of activities provided by allied health professionals.(2) This standard is used by all participating sites to classify data, and is the format for data collection within Australia (<http://www.nahcc.org.au/hierarchy.htm>).

Following is a list of relevant activities and their Definitions. The acronyms are also used in the example spreadsheets I have attached.

Acronym	Activity	Definition
IPA	Individual patient time	Time spent directly with each patient as well as time spent relating to an individual patient's care (e.g. reading the patient's medical records, discussing the case with the treating doctor, education of family members)
NIPA	Non-individual patient time	Time where less than 10 minutes are spent on a specific patient (e.g. ward rounds)
CSM	Clinical service management	Time not relating to patient care but part of the everyday activities e.g. staff meetings, completing hospital required competency trainings, this data entry
TT	Teaching and training	Preparing for and delivering training as part of an official training program (e.g. to nursing staff, allied health students)
RES	Research	Any work leading to or involving a research project that requires Ethics

		approval
Breakdown of time	Direct Clinical Care	IPA+NIPA
	Non-clinical activity	CSM+TT+RES

Allied Health professionals at the participant sites input their activity (as per above criteria) on a daily basis into a computerised database at their individual facilities.

At the PAH allied health team members use a database called 'HBCIS'. Every clinical staff member has to enter their data into this software by using their personal user ID and password. Staff members would then enter the time they have spent for each individual patient they have seen (using the patient's hospital ID number). This data is the 'IPA' time. Once all patient occasions of service for a day has been entered, this time (in minutes) has to be subtracted from the time staff members work each day. In a different screen (the 'Research screen') within HBCIS activities for the remaining time in a staff members work day now needs to be identified. These are the times for NIPA, CSM, TT and RES. This screen does not contain any patient information.

For the purpose of this study data from only this 'Research' Screen area will be used, which means at this point the individual staff members would be identifiable by their payroll number (staff members will therefore de-identified, see safety considerations).

Every participating hospital has a similar software system/database for the purpose of collecting this data for each staff member.

Key persons at the participating sites will forward their collected data for the specified timeframe, which was set as March 2017, and send it to Cherie Hearn and Julie-Anne Ross as the main members of the research team.

We are asking for a waiver of consent as consent by the individual staff members was not specifically gained for this project. Please refer to the 'Ethical considerations' section for a detailed explanation.

Safety considerations

De-identification

One of the main concerns with regards to safety is the de-identification of participating hospitals, professions and staff members.

Participating hospitals forward their data as a spreadsheet. Prior to sending to the project team each participating hospital will remove the payroll number from the spreadsheet. At this point names of the hospitals, and tier classification may be visible. Individual staff members will not be able to be identified from the data sent to the project team. To de-identify this data further all sensitive information (i.e. hospital names, and tier classification) will be replaced by a numerical code by the project team.

An **example** of this is visible on the SSPS spreadsheet (dictionary tab): In this case, the Princess Alexandra Hospital received the number 8. The Physiotherapy profession received the number 3. A tier 2 clinician received a 6. In this example spreadsheet years were coded numerically as well, this is not applicable in this project as it will involve one time frame only.

Data storage

Data will be stored in a specific folder on a local network drive accessible only to the members of the research team located at the Princess Alexandra Hospital (i.e. Cherie Hearn, Julie- Anne Ross, Adam Semciw and Gertrud Armitt). All data relevant to this study will be kept for 7 years from publication date.

Ethical considerations

Consent has not been gained by individual staff members for use of data for this project.

The biggest risk is that data could be used to assess the performance of individual health professionals, however for following reasons we satisfy the government's recommendations outlined in section 2.3.10 with regards to waiver of consent (3):

- a) We believe this project to be of negligible risk as the data does not contain examine any personal or sensitive information. The lead project this study is based on utilised and examined the same kind of data. It had been deemed a negligible risk as it was implemented through normal practice and didn't involve patient information. Ethics approval had therefore not been required. (*Confirmation attached*)
- b) As we perceive the risks to be negligible, benefits justify not gaining participants' consent.
- c) It may be difficult to contact in order to gain consent due to:

- high number of participants (we expect data from ~1300 staff members) at 10 sites Australia wide

- data will be pulled retrospectively, it is likely that there have been staff movements

d) AAHBC members already collect data routinely through normal practice and undergo annual auditing to ensure data quality. Data are collected according to the NAHCC (National Allied Health Case-mix Committee) Health Activity Classification.

e) Any dissemination of this information will be done so as aggregate/pooled data (e.g. means/ frequencies) so that individual participants can not be identified.

Data will be analysed by an investigator (AS) not involved in management or supervision of any staff.

Institutions will also be de-identified.

f) Data will be sent to 2 investigators' personal email addresses (Cherie Hearn, Julie-Anne Ross). It will be stored in a folder on a network drive accessible only to members of the research team located at the Princess Alexandra Hospital.

g) not applicable

h) not applicable

i) not applicable

Statistical considerations / data analysis

- The "Statistical Package for the Social Sciences" (SPSS) software will be used for statistical analysis.
- CCR: time spent on direct clinical care activities compared to the time spent on non-clinical activities expressed as percentage of direct clinical care of the total workload ($(\text{time in clinical care} / \text{total work time}) * 100$) (1)
- Multiple regression will assess the association between CCR (% dependent variable) and independent variables of profession, tier, full-time/ part-time employment, permanent/ casual employment, acute/ rehabilitation setting and gender.

Outcomes and significance

Benchmarked CCRs that are reflective of seniority level and varying roles of staff members can be utilized to manage available resources and ensure best service delivery. It can assist to ensure appropriate cover in a specific team with regards

to covering clinical case load but also non clinical tasks like managerial work, supervision of junior staff.

We intend to present the results not only to participating sites but also conferences nationally and internationally. At this point presentations are planned at following meetings: Health Roundtable Allied Health Benchmarking group 2018, National Allied Health Conference 2019.

We also intend to present outcomes in peer reviewed publications.

References

- (1) Clinical care ratios: quantifying clinical versus non-clinical care for allied health professionals, published in "Australian Health review"; CSIRO Publishing 2017, 41, 321-326
- (2) www.nahcc.org.au/hierarchy.htm
- (3) National Statement on Ethical Conduct in Human Research;
www.nhmrc.gov.au