

Evaluation of the Advanced Musculoskeletal Physiotherapy Program

Final Report

*Department of Health
and Human Services*

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Disclaimer

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The information and commentary (together the 'Information') contained in this report have been prepared by PwC from material provided by the Department and from the twelve participating sites in the evaluation of the Advanced Musculoskeletal Physiotherapy Implementation Program (AMP Program).

Accordingly, while the statements made in this report are given in good faith, PwC accepts no responsibility for any errors in the information provided by the Department or other parties nor the effect of any such errors on our recommendations or report.

Acknowledgements

This report was produced by PwC on behalf of the Department of Health and Human Services Victoria. Sincere thanks go to the project lead team, made up of representatives from Alfred Health, St Vincent's Hospital, Melbourne Health and the Department who provided oversight, guidance and mentoring support to the twelve participating sites in implementing their AMP models.

Notes

This report should be read in conjunction with the AMP Project Team Final Report.

Glossary

AMP	Advanced Musculoskeletal Physiotherapist
AMP Program	Advanced Musculoskeletal Physiotherapy Implementation Program
AOA	Australian Orthopaedic Association
DNA	Did Not Attend
DNW	Did Not Wait
ED	Emergency Department
EDSTIRC	Emergency Department Soft Tissue Injury Review Clinic
IPA	Individual Patient Attributable
MUA	Manipulation Under Anaesthetic
NIPA	Non-individual Patient Attributable
OOS	Occasion of Service
PAR	Post Arthroplasty Review
VIRIAF	Victorian Innovation and Reform Impact Assessment Framework

1. *Executive Summary*

The Advanced Musculoskeletal Physiotherapy Implementation Program (AMP Program) involves the Victoria-wide implementation of advanced musculoskeletal physiotherapists in post-arthroplasty review (PAR) clinics, emergency departments (ED), orthopaedic outpatient clinics and neurosurgery outpatient clinics. Each of these models is described below:

PAR: this model involves the AMP conducting patient reviews after joint replacement surgery in an outpatient setting. Common objectives of PAR models included optimising the use of orthopaedic surgeon's time and experience and improving the outpatient experience of patients following surgery.

ED: this model involves the AMP treating patients presenting to the ED with acute musculoskeletal injuries or planned re-presentations.

ED Soft tissue injury review clinic (EDSTIRC): this model focuses on patients with acute musculoskeletal injuries who often present to the ED and are then referred to outpatient orthopaedic consultant clinics – leading to demand for these services exceeding outpatient capacity.

Neurosurgery screening services: this model involves the review and management of patients with spinal pain by the AMP in an outpatient setting. Patients with spinal pain who are referred in by a GP for a specialist appointment are first assessed by the AMP.

The AMP Program was implemented across the four models outlined above across 12 different health services in Victoria (mix of metropolitan, regional and rural) from September 2014 to June 2015. Implementation sites were supported by a lead mentor team to implement key frameworks of clinical governance, operational guidelines and stakeholder engagement.

How the AMP Program met its objectives

The principal objectives of the AMP Program were to improve patient access to service and reduce waiting times, to improve quality of care and the patient journey and to optimise utilisation of medical specialists' time and expertise. Each of these objectives was realised, evidenced in the following key findings:

Improved access to care: there was a reduction in wait days from referral to appointment (16% to 93% reduction) for a specialist appointment in the three PAR models that collected this data; in the EDSTIRC model, the average wait days (from referral to appointment) for an orthopaedic fracture clinic appointment fell by 6 days (9 days compared to 15 in the baseline period). The average wait days for an orthopaedic consultant clinic appointment fell by 30 days (220 days compared to 250 in the baseline period); in the ED model there was a reduction in wait time for patients to be seen by the ED medical officer during AMP hours; the neurosurgery screening model led to an additional 200 available appointments over the evaluation period. This was due to an expansion to the pre-existing neurosurgery clinic which allowed for more patients to be seen, thereby improving access to care.

Improved quality of care and the patient journey: in all PAR models and in the EDSTIRC model, there was an increase in the proportion of patients met with best practice care; prior to the AMP program, there were no standardised review points in place with the AMP Program leading to a consistent and standardised patient pathway; over the 3,152 planned OOS over the ten month period, there was only one riskman incident and one written patient complaint across all models. Both of these were due to process errors rather than being related to patient care.

Optimised use of medical specialists' time and expertise: three PAR models saw a reduction in number of review patients seen by the specialists suggesting better matching of skillset to task; there were three PAR models that saw an increase in the number of new patients seen by the specialist (ranging from a 20% to a 44% increase).

These results reinforce the success of the AMP model in a variety of settings and emphasise the value of implementing the AMP model across other sites.

Purpose of this report

The aim of this report is to detail key results and findings from an evaluation of the AMP Program, examining the impacts of workforce redesign following implementation of AMP clinics across Victoria.

The evaluation was external and was informed by an assessment of the AMP Program across the twelve different Victorian health services. The framework underpinning the evaluation of the AMP program is the Victorian Innovation and Reform Impact Assessment Framework (the VIRIAF) – a framework that supports the evaluation of workforce innovation projects.

Key findings

Key findings relating to efficiency, effectiveness, sustainability and feasibility of the AMP Program are detailed below. For more detail around each of these findings, refer to Section 4 of this report.

Efficiency of the AMP Program

PAR model

- The AMP Program was found to be cost efficient
- The recurrent cost per planned OOS ranged from \$40 to \$77, with a mean cost of \$58.
- The forecasted recurrent cost per planned OOS is expected to range from \$26 to \$81, with a mean forecasted cost of \$51. This is based on average monthly throughput (in terms of planned OOS) over the months of March – September 2015.
- There was one metropolitan PAR model that captured the reduction in the number of manipulations under anaesthetic (MUAs). There was a 7.5% (30MUAs) reduction, equating to estimated savings of \$237,600.

ED model

- The AMP Program was found to be cost efficient
- The recurrent cost per OOS was \$91.
- The forecast recurrent cost per planned OOS is expected to be \$82. This is based on average monthly throughput (in terms of planned OOS) over the months of March – September 2015.

EDSTIRC model

- The AMP Program was found to be cost efficient
- The recurrent cost per OOS was \$30
- The forecast recurrent cost per OOS is expected to be \$29. This is based on average monthly throughput (in terms of planned OOS) over the months of March – September 2015.

Neurosurgery model

- There was insufficient data collected to determine cost efficiency of this model
- The recurrent cost per OOS was \$82
- The forecast recurrent cost per OOS is expected to be \$79

Total projected savings across all models

- The average saving per OOS across the ten models that collected baseline data was \$36.
- Efficiency savings forecast over 12 months based on expected OOS (assuming number of clinics remains consistent) across all sites are **\$85,507**.
- Assuming a 'full time' scenario, with 10 clinics per week, the total efficiency savings over the ten sites are expected to be **\$860,945**.

Effectiveness of the AMP Program

PAR model

- The AMP Program was found to be cost effective.
- There was an increase in the proportion of patients met with evidence based care in the PAR model compared to the baseline. The proportion of patients that had a condition specific/functional measure taken ranged from 87% to 100% across all PAR models, compared to 0% in the baseline period. The proportion of patients that had a quality of life measure taken ranged from 87% to 100% across all PAR models, compared to 0% in the baseline period.
- Prior to the AMP Program, many sites did not have standardised review points in place and therefore the AMP program has led to a consistent and standardised patient pathway post-surgery. Of the ten PAR models, eight met the Australian Orthopaedic Association guidelines with an initial review between 2 and 6 months post-surgery with another review between one and two years post-surgery.
- Of the three sites that collected data on the change in average wait days for an orthopaedic specialist appointment, all three reported a reduction:
 - One metropolitan site reported a reduction from 332 days to 205 days in the current period (38% reduction).
 - A second metropolitan site reported a reduction from 29 days to 2 days in the current period (93% reduction).
 - A regional site reported a reduction from 58 days in the private model to 49 days in the current period (16% reduction).
- Three PAR models had a reduction in the number of review patients seen by the specialists suggesting better matching of skillset to task. This was out of six sites that collected this data. These results were:
 - One metropolitan site reported a reduction from 1846 patients in the baseline period to 1326 patients in the current period (28% reduction).
 - One regional site reported a reduction from 2158 days in the baseline period to 1978 patients in the current period (8% reduction).
 - A second regional reported a reduction from 630 days in the baseline period to 401 days in the current period (36% reduction).
- There were three PAR models that reported an increase in the number of new patients seen by the specialist (ranging from a 20% to a 44% increase). This was out of six sites that collected this data. These results were:
 - One metropolitan site reported an increase from 402 patients in the baseline period to 511 patients in the current period (27% increase).
 - A second metropolitan site reported an increase from 379 patients in the baseline period to 546 patients in the current period (44% increase).
 - A regional site reported an increase from 361 patients in the baseline period to 433 patients in the current period (20% increase).
- There was increased surgeon capacity created through the PAR model, with savings per OOS ranging from \$23 to \$64. Total forecast savings over a twelve month period across all seven PAR sites that collected relevant data are estimated at **\$74,904**.

ED model

- In the ED model, there was a reduction in unplanned ED representations within 28 days (85 compared to 107 in the baseline period).
- Average patient wait time for those patients seen by the ED medical officer in AMP hours has reduced. From September 2014 to January 2015, the average wait time to be seen by an ED medical officer during AMP hours was 22 minutes, compared to the baseline which was 30 minutes.

EDSTIRC model

- In the EDSTIRC model, there were a total of 35 (73%) shoulder dislocations met with evidence based practice and 62 (57%) knee injuries met with evidence based practice. This compares to an average of 37% (shoulder dislocations) and 33% (knee injuries) in the baseline period.
- In the EDSTIRC model, average wait days (from referral to appointment) for an orthopaedic fracture clinic appointment fell by 6 days (9 days compared to 15 in the baseline period). The average wait days for an orthopaedic consultant clinic appointment fell by 30 days (220 days compared to 250 in the baseline period).
- There was an average of 11 minutes per OOS saved by the specialist in the EDSTIRC model – equating to savings of \$27 per OOS. Forecasting expected OOS in the EDSTIRC over twelve months, total anticipated savings are equal to **\$13,608**.

Neurosurgery model

- There has been an additional 200 available appointments made available over the ten months to June 2015. Given the growing demand for services in the metropolitan area (evidenced in an increase in the number of referrals from 631 to 702 over September 2014-March 2015 compared to the same period the year before), this has had a positive impact on providing greater access to care.
- There were only 24 out of 134 (18%) neurosurgical screening patients who required a formal referral to neurosurgery. Nine of these were deemed appropriate for surgery, whilst many of the remaining were yet to be reviewed. This high rate of surgical conversion indicates the appropriateness of the referral by the AMP to the surgeon. This demonstrates that the AMP was able to manage 56% of referred patients safely and effectively with conservative management.

Across all models

- Over the 3,152 planned OOS over the ten month period, there was only one riskman incident and one written patient complaint across all models. Both of these related to processes rather than patient care.
- There was high patient satisfaction across the AMP Program, with 96% of respondents across all sites responding that they were satisfied being cared for by the physiotherapist (based on a total of 548 respondents across all models)
- 78% of workforce respondents across all the AMP Program felt that they had a good understanding of the role of the AMP (based on a total of 102 respondents across all models).

Sustainability and feasibility of the AMP Program

Across all models

- The AMP Program has strong support from other departments, evidenced in the fact that only 2 out of the 13 AMP models were found to have experienced challenges gaining stakeholder support (both PAR models). Both these cases were due to specialists being required to consult informally on every patient, taking up a larger amount of their time. This version of the model is not expected to continue moving forward.
- In terms of the training and competency package, it needs to be more clearly communicated that the training package is designed to be tailored and modified by each individual site depending on level of experience and the model of care. This was after all 12 participating sites reported that the level of detail in the training package was overwhelming and that they found duplication in some areas, in addition to some areas not being relevant.
- There were three sites that did not reach over 80% capacity (measured by planned OOS over available appointment slots) in the implementation period (March – June 2015) or over the whole period. The reasons behind this however are not expected to prevail moving forward e.g. around surgeon leave, hiring delays, poor initial orthopaedic specialist engagement. Therefore capacity is not expected to impact the sustainability of the AMP Program.
- To date, 10 out of the 13 AMP models have had business cases for continuation of service with ongoing funding approved at a health service level – with three pending decisions. This is despite a tight funding climate and competing major priorities which is an encouraging outcome and is reflective of the positive outcomes achieved by the AMP Program.
- There are few foreseen risks associated to implementing the AMP Program on a wider scale and thus it can be concluded that the AMP Program is both sustainable and feasible.

These results show that the AMP Program was cost efficient, cost effective and sustainable and reinforce the success of the AMP model in a variety of settings. This emphasises the value of implementing and expanding the use of the AMP model across Victorian health services.

2. Background

2.1. The Advanced Musculoskeletal Physiotherapy Implementation Program

In Victoria there is continuing momentum for workforce redesign and reform with strong emphasis on scaling up and embedding successful innovative workforce models as part of usual contemporary service delivery. The 2012 Health Workforce Reform Implementation Taskforce endorsed workforce reforms in Victoria, and identified increasing the utilisation of advanced allied health roles that have been demonstrated to improve access and quality of care as a key priority. In line with this priority, there has been an increase in the introduction and/or expansion of the range of advanced musculoskeletal physiotherapy services in Victoria. These services utilise the expertise of experienced musculoskeletal physiotherapists to work in roles traditionally undertaken by medical staff managing musculoskeletal conditions presenting to emergency departments, orthopaedic and neurosurgical outpatient clinics.

The Advanced Musculoskeletal Physiotherapy Implementation Program (AMP Program) represents the Victoria-wide implementation of advanced musculoskeletal physiotherapists in post-arthroplasty review (PAR) clinics, emergency departments (ED) and neurosurgery outpatient clinics.

The AMP Program is underpinned by the following objectives:

1. to implement AMP models with a focus on PAR clinics and orthopaedic, neurosurgery and rheumatology services in appropriate health services across Victoria as part of normal service delivery
2. to develop and embed the full range of AMP models as a cost effective model of care to manage increasing demand, particularly for orthopaedic and neurosurgical services
3. to improve patient access to services and reduce waiting times
4. to improve quality of care and the patient journey
5. to optimise utilisation of medical specialists' time and expertise.

2.2. Participating sites

In 2013, twelve health services across Victoria were selected through an Expression of Interest process to roll out a range of AMP models in PAR clinics, neurosurgery screening services, ED soft tissue injury review and primary contact musculoskeletal physiotherapist in the ED. Each of these models is described below:

PAR: this model involves the AMP conducting patient reviews after joint replacement surgery in an outpatient setting. Common objectives of PAR models included optimising the use of orthopaedic surgeon's time and experience and improving the outpatient experience of patients following surgery.

ED: this model involves the AMP treating patients presenting to the ED with acute musculoskeletal injuries or planned re-presentations.

ED Soft tissue injury review clinic (EDSTIRC): this model focuses on patients with acute musculoskeletal injuries who often present to the ED and are then referred to outpatient orthopaedic consultant clinics – leading to demand for these services exceeding outpatient capacity.

Neurosurgery screening services: this model involves the review and management of patients with spinal pain by the AMP in an outpatient setting. Patients with spinal pain who are referred in by a GP for a specialist appointment are first assessed by the AMP.

There were two PAR models (one rural and one regional) that operated a public/private model (with all the rest conducting reviews for public patients). Both services established a PAR clinic where the orthopaedic surgeons also operated and consulted privately. There were some patients seen by the AMP at these services

that would have previously been seen privately by the surgeon at significant cost to public patients. This led to a shift in costs from the private to the public sector.

The AMP program aimed to build on the significant number of AMP services already in place in a large number of health services, embedding the use of the AMP model as part of usual service delivery in the management of musculoskeletal conditions. The participating sites and the respective AMP model in place are detailed in Table 1.

There were a total of 13 individual AMP models evaluated across the 12 participating sites (Northern Health has implemented both a neurosurgery screening clinic and a PAR clinic).

Table 1: AMP Program - Participating Sites

Participating site	AMP Model	Location	Metro/Regional
1. Albury Wodonga Health	Post-arthroplasty review clinic	Albury; Wodonga	Rural
2. Austin Health	Post-arthroplasty review clinic	Melbourne	Metro
3. Ballarat Health	Post-arthroplasty review clinic	Ballarat	Regional
4. Barwon Health	Post-arthroplasty review clinic	Geelong	Metro
5. Bendigo Health	Post-arthroplasty review clinic	Bendigo	Regional
6. Eastern Health	Post-surgical review clinic <i>(N.B. this has been grouped with post arthroplasty review models in the analysis presented in this report)</i>	Eastern metropolitan area (incl. Box Hill and Maroondah)	Metro
7. Echuca Health	ED	Echuca	Rural
8. Monash Health	Post-arthroplasty review clinic	South East Melbourne	Metro
9. Northern Health	Post-arthroplasty review clinic Neurosurgery screening clinic	North Melbourne	Metro
10. Peninsula Health	ED soft tissue injury review clinic	Mornington Peninsula	Metro
11. South West Healthcare	Post-arthroplasty review clinic	Warrnambool	Regional
12. Western Health	Post-arthroplasty review clinic	West Melbourne	Metro

2.3. Scope of work

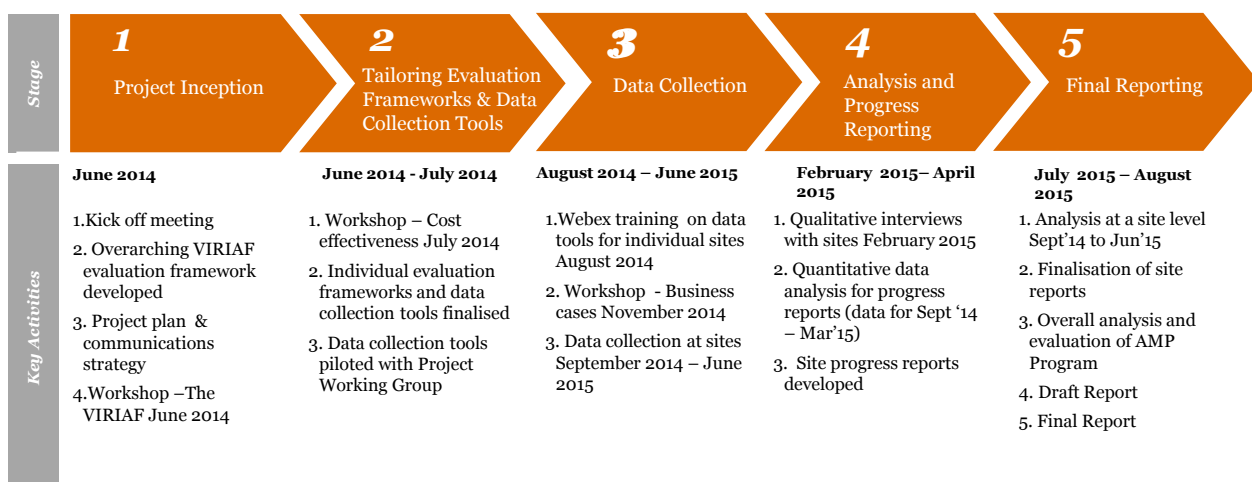
PwC was engaged by the Victorian Department of Health and Human Services (the Department) in mid-2014 to undertake an evaluation of the AMP program, with the aim to:

- assess and report the degree to which the overarching objectives of the AMP program have been met
- understand the initial impact of the AMP program, particularly around the appropriateness and feasibility of the program
- undertake an assessment of the cost efficiency and cost effectiveness of the program.

The Victorian Innovation and Reform Impact Assessment Framework (VIRIAF) was used as the basis for the individual site level evaluations to inform understanding of contextual factors at individual sites and to posit likely impacts of the model informed by trends observed at smaller group levels.

The approach to evaluate the AMP program consisted of five key stages. Each of these stages and core activities completed are detailed in Figure 1.

Figure 1: Overview of AMP evaluation approach



The evaluation has been based on data that was collected across the twelve participating sites throughout the project. There were several limitations of the evaluation which should be considered in the context of the results presented in this report:

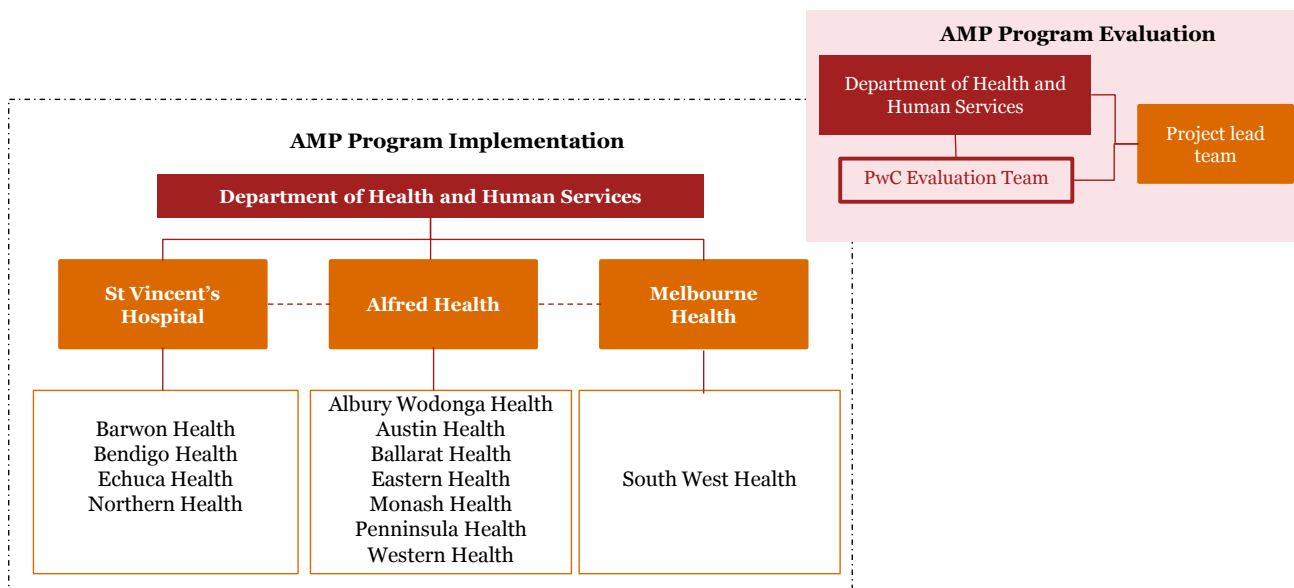
- Findings informing the assessment of the sustainability and feasibility of the program were largely drawn from qualitative data collected through interviews with participating sites in February 2015. This presents a nine month time lag between the interviews and the completion of this report in which circumstances could have changed at the site level.
- The evaluation period included an initial set up or establishment phase where most clinics were still operating at below full capacity.
- There was limited baseline data available for collection at some sites, which resulted in a small sample of baseline data being extrapolated out over the entire period. This has an impact on the reliability of results.
- The workforce satisfaction survey was only taken once in December 2014 which was still in the 'establishment phase'. Workforce satisfaction results may have changed had the survey been taken again at the end of the evaluation at which point staff would have been expected to be more familiar with the AMP program.

For more detail of these limitations, refer to Section 5.4.

2.4. Project governance

A project lead team — made up of Alfred Health, St Vincent’s Hospital and Melbourne Health and the Department — provided oversight, guidance and mentoring support to the twelve participating sites in implementing their AMP models. These relationships are depicted in Figure 2. The project lead team further provided clinical guidance and input to the evaluation of the AMP program and were consulted in all key stages of work. The PwC project team worked in collaboration with the Department and the project lead team throughout the evaluation – this relationship depicted in Figure 2.

Figure 2: Project governance



2.5. Target audience

The primary audience for the evaluation of the AMP program is the Department and Victoria's health service executives, with the evaluation intended to inform the Department and health services as to whether AMP models can successfully be implemented and scaled up as alternative pathways that make better use of health service resources than the traditional medical pathway. The evaluation is intended to provide evidence to the Department around the extent to which the AMP program is cost efficient, cost effective (examining patient/system outcomes) and sustainable. This information will be used by the Department and health service executives to inform future decision making around the most effective and efficient service models for musculoskeletal conditions.

A secondary audience is the participating sites, with individual site progress and final reports prepared with the intention to inform each of the sites' business cases for continued program funding. It should be noted that in Victoria's devolved system of health service governance, individual health services are responsible for local funding and resource allocation decisions. These decisions are made on the basis of business cases in the context of competing local service priorities.

3. Evaluation methodology

3.1. The Victorian Innovation and Reform Impact Assessment Framework (the VIRIAF)

The framework underpinning the evaluation of the AMP program is the VIRIAF – a framework that is closely aligned to the Impact Assessment Framework developed by Health Workforce Australia to support the evaluation of workforce innovation projects and that is tailored specifically to the Victorian context. The VIRIAF promotes standardised evaluation of workforce projects and is designed to support economic evaluation to inform possible wider roll out of successful models.

Two key questions underscore the VIRIAF:

1. Is the program appropriate, considering the efficiency, the effectiveness and the sustainability of the program?

1. The assessment of efficiency involves weighing up the inputs or the investment into the program against the outputs realised. In the context of the AMP program, this involves an assessment of cost (incorporating hours worked and training and research time invested) per occasion of service. More detail on findings against efficiency is included in Section 4.
2. The assessment of effectiveness involves analysing the outcomes of the program, for example against indicators relating to quality of care, access to care and workforce capacity. For example in the context of the AMP program, this includes an assessment of whether or not a larger proportion of post-arthroplasty review patients are meeting their review points on time. More detail on findings against effectiveness is included in Section 4.
3. The assessment of sustainability considers factors that may prevent the continuation of the program. In the context of the AMP program, this includes factors such as orthopaedic surgeon support of the model of care, the applicability of the training and competency package and whether the clinic is at maximum capacity. More detail on findings against sustainability is included in Section 4.

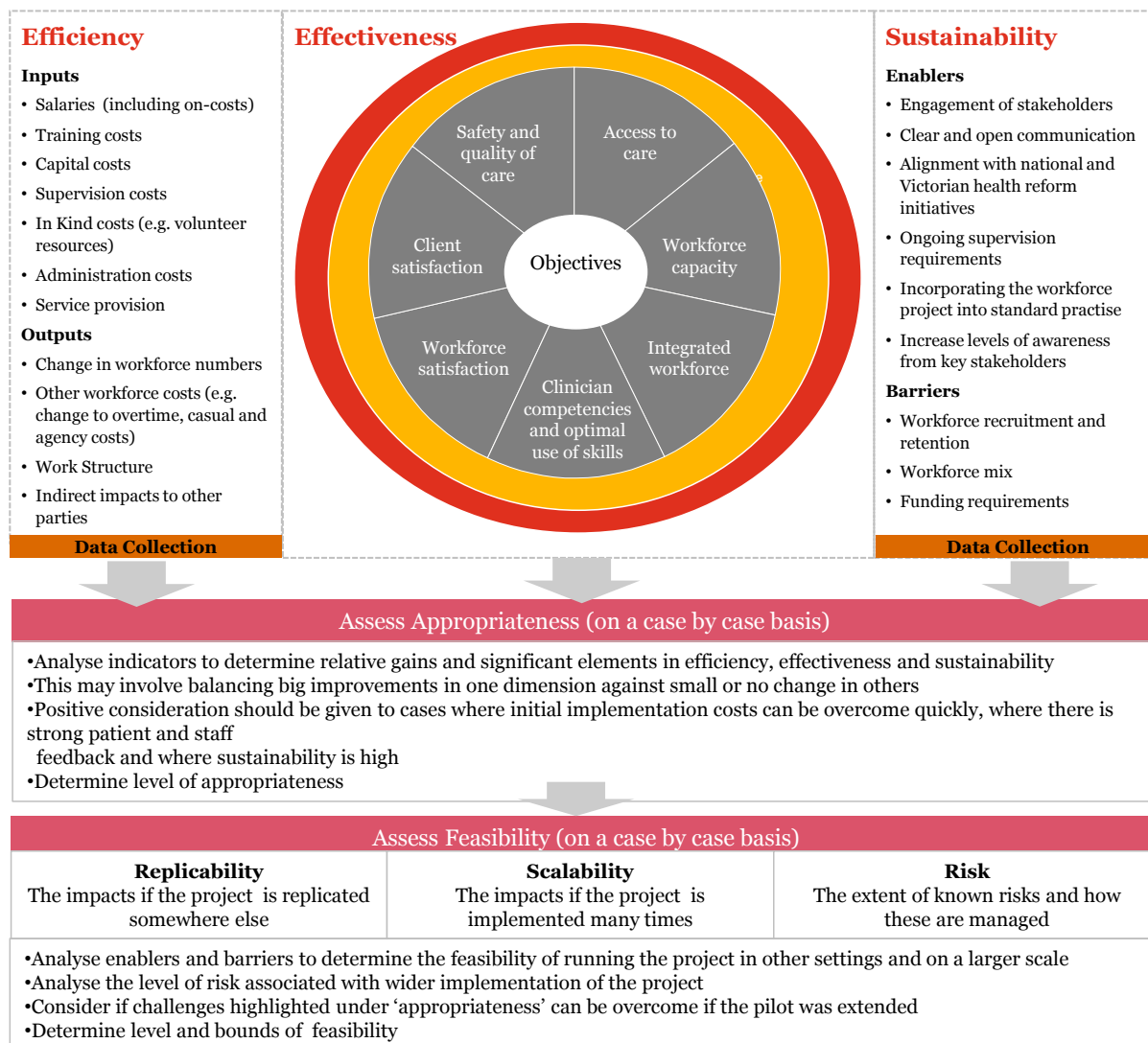
2. Is the program feasible, considering whether it can be replicated on a larger scale and whether identified risks are able to be mitigated?

The assessment of feasibility involves analysing enablers and barriers to implementing the program in other settings and on a larger scale as well as an assessment of potential risks and whether or not they can be mitigated. In the context of the AMP program, barriers to implementing the program in other settings may include stakeholder resistance to adopting a new model of care, a lack of appropriately qualified staff to fill AMP roles or difficulties in reshaping funding models and organisational resource allocations to enable wider adoption.

Findings around the feasibility of the AMP Program are detailed in Chapter 5.

The specific components of the VIRIAF are detailed in Figure 3.

Figure 3: The VIRIAF



Source: <https://www2.health.vic.gov.au>

3.2. Assessing the efficiency of the AMP Program

Data collection

Data to inform the assessment of the cost efficiency of the AMP Program was collected from the 12 participating sites through an Excel Data Collection Tool (*Appendix 1 details the data collection tool*). Key data inputs towards the calculations associated to cost efficiency were:

- Average wage rates for all staff types involved in the baseline scenario and the AMP model
- Total hours invested in the AMP program (including individual patient attributable time, non-individual patient attributable time, research time and training time)
- Estimated proportion of time that is recurring (i.e. excluding time associated to the initial set up or establishment of the AMP model)
- Total occasions of services, Did Not Attends and Did Not Waits
- Average cost of an OOS through the baseline pathway and current pathway

- Recurring cost of an OOS through the current pathway

Determining cost efficiency

Both the recurrent cost per OOS (based on time invested) and the change in the cost per OOS through the patient pathway were calculated to inform the assessment of cost efficiency.

To determine the recurrent cost per OOS, this involved first determining the total number of hours (including individual patient attributable time, non-individual patient attributable time, research time and training time) invested in the AMP program, and then determining what proportion of this time is considered to be recurring. That is, excluding time directly associated with the establishment or initial set up of the AMP model.

The total recurring time was valued using average hourly wage rates of the respective staff types involved. This was then divided by the total number of planned OOS (including Did Not Attends and Did Not Waits) to obtain the recurring cost per OOS.

The baseline and current cost per OOS (through the patient pathway) was determined based on valuing the amount of time spent by staff types throughout an average OOS prior to the establishment of the AMP model and then during the AMP model.

For more detail on the approach used to calculate cost efficiency, refer to Appendix 2.

Assumptions

There were a number of assumptions around average wage rates used to determine the cost efficiency of the AMP Program, these outlined in Table 2 below. This data was drawn from participating sites and there was variation in the average wage rates used at each grade level.

Table 2: Assumptions used in determining the cost efficiency of the AMP Program

Assumption	Average award rate	Average wage rate used and range	Notes
Grade 2 AMP hourly wage rate*	\$34.63 - \$40.96	\$50-\$50 (mean \$50)	n=1
Grade 3 AMP hourly wage rate*	\$42 - \$47.20	\$43-\$56 (mean \$49)	n=12
Grade 4 AMP hourly wage rate*	\$53.07	\$49-\$69 (mean \$58)	n=10
Administration hourly wage rate		\$23-\$33 (mean \$27)	n=10
Orthopaedic clinic physio hourly wage rate		\$44-\$44 (mean \$44)	n=1
Physiotherapy manager hourly wage rate		\$57-\$66 (mean \$61)	n=2
Nurse hourly wage rate		\$33-\$38 (mean \$36)	n=2
Research coordinator hourly wage rate		\$33-\$33 (mean \$33)	n=1
Medical roster hourly wage rate (ED specific)		\$109-\$109 (mean \$109)	n=1
Specialist hourly wage rate		\$110-\$250 (mean \$160)	n=10
Proportion training time considered to be recurring		7.5%-15% (mean 14%)	n=13
Value of patient wait time (per hour)		\$29.71 - Drawn from ABS average weekly earnings: \$1,129, November 2014	

Even if the patient is retired, this accounts as a proxy for the value of lost leisure time

*This is based on the full time weekly earnings (and assuming a 38 hour week) classified in <https://www.fwc.gov.au/documents/documents/agreements/fwa/AE896737-2.pdf>

3.3. Assessing the effectiveness of the AMP Program

Data collection

The cost effectiveness of a program involves maximising outcomes for a given set of inputs. The effectiveness of the AMP Program was evaluated through an assessment of the outcomes realised over September 2014 to June 2015. These were compared to the baseline period where data was available. Data to inform the assessment of the cost effectiveness of the AMP Program was collected from the 12 participating sites through the Excel Data Collection Tool (see Appendix 1).

For data relating to the AMP model (current), details of all patients attending each clinic were recorded by staff in the Excel Data Collection Tool. This included information on access to care measures (e.g. patient wait time) and quality of care measures (e.g. did the patient have a functional measure taken at time of appointment). See Appendix 1, Figure 18 for more detail on specific data fields captured in real time on each patient.

Baseline data was also entered into the Excel Data Collection Tool, however rather than this being captured in real time, a combination of methods was used, including: existing reporting systems at the site, retrospective audit of a sample of patient data, consultation with specialists.

Assessment of outcomes

Outcomes were examined in the following categories, aligning to the VIRIAF:

- ***Safety and quality of care:*** for example, examining whether a higher proportion of post arthroplasty review patients met their scheduled review points on time (in accordance with the Australian Orthopaedic Association guidelines), adverse events, complaints/compliments, number of ED representations and whether there was a higher proportion of patients receiving evidence based practice care compared to the baseline.
- ***Access to care:*** for example, whether average wait times for an appointment with the medical specialist have changed with the existence of the AMP model and reduction in waiting lists.
- ***Workforce capacity:*** for example whether medical specialists were able to see more patients or more complex patients.
- ***Clinician competencies and optimal use of skills:*** for example, where appropriate in terms of meeting the AMP guidelines and protocols at each site, the proportion of patients that did not need to be seen by the specialist during the appointment and the proportion of patients being met with evidence based practice.
- ***Client and Workforce Satisfaction:*** for example, the proportion of staff that had a good understanding of the scope of practice of the AMP and the proportion of patients that were satisfied being cared for by the AMP. A patient satisfaction survey and a staff satisfaction survey were developed for data collection against this outcome category. These are included in Appendix 3 and 4 respectively.

At some sites (dependent on context), outcomes realised could be monetised. These outcome indicators were:

- A reduction in the number of ED representations within 28 days (ED, EDSTIRC models)
- A reduction in occupancy time in the ED (ED model)
- A reduction in the number of manipulation under anaesthetics (PAR model)
- An increase in specialist capacity (all models)

Key assumptions/inputs used in these calculations are included in Table 3.

For more detail on the specific calculations and approach used to calculate the value attached to these outcomes, refer to Appendix 2.

Table 3: Assumptions used in determining the cost effectiveness of the AMP Program

Assumption / Input	Detail
Average cost of an ED representation	\$895
<i>http://www.ihsa.gov.au/internet/ihsa/publishing.nsf/Content/nhcdc-cost-report-2011-2012-round16-html~emergency-department-results~4-1-average-cost-admitted-ed</i>	
Average cost of Manipulation Under Anaesthetic <i>Austin Health</i>	\$8,000
Average cost of a bedday specific to musculoskeletal conditions <i>Peninsula Health</i>	\$1,179
Average hourly wage rate of a specialist (based on data collected across all 12 participating sites)	\$160

3.4. Assessing the sustainability and feasibility of the AMP Program

Data collection

Data to inform the assessment of the sustainability and feasibility of the AMP Program was primarily collected through site interviews which were conducted in February 2015 (the discussion guide followed in the site interviews is included in Appendix 5). Data relating to clinic capacity was collected through the Excel Data Collection Tool.

Assessment of sustainability

The sustainability of the AMP Program was assessed against the following factors:

- **Capacity:** measured by the number of planned occasions of service in relation to the number of available appointment slots in the AMP Clinic. Capacity is a key factor impacting the sustainability of the AMP model. If a clinic is running under capacity, it is not making the most efficient use of resources and is less likely to be sustainable moving forward.
- **The training and competency package and succession planning:** exploring the extent to which this could be used or tailored so that it is sustainable moving forward to train other AMPs, and whether it could be undertaken at a different point in time.
- **Stakeholder engagement:** exploring whether the AMP model is supported by medical and other staff.
- **Infrastructure:** exploring how much room space and other resources are required to deliver the AMP model of care and whether these factors are expected to be hard to come in the future.
- **Overall satisfaction and experience of the AMP:** exploring whether or not the AMPs find the role challenging and enjoyable from a professional development perspective.
- **Availability of funding:** whether ongoing funding was available to continue the AMP model at individual sites.

Assessment of feasibility

Feasibility is closely linked to sustainability, with data informing the assessment of feasibility also collected during the site interviews in February 2015. Conclusions around the feasibility of the AMP model been drawn from an overarching assessment of the identified barriers and enablers related to implementing an AMP model. For example this includes stakeholder engagement, the training and competency package and necessary infrastructure.

3.5. Key evaluation considerations

In undertaking an evaluation of a workforce program such as the Advanced Musculoskeletal Physiotherapy Program, there are a number of important steps for key stakeholders involved (e.g. the evaluator, staff involved in data collection to support the evaluation, staff involved in the development of business cases). These include:

- Understanding the evaluation framework – for example through undertaking a training session.
- Designing a tailored evaluation framework
- Designing single/multiple data collection tools
- Collection of baseline data
- Collection of program (current) data
- Data analysis and reporting

For more detail on what each of these entails, refer to Appendix 6.

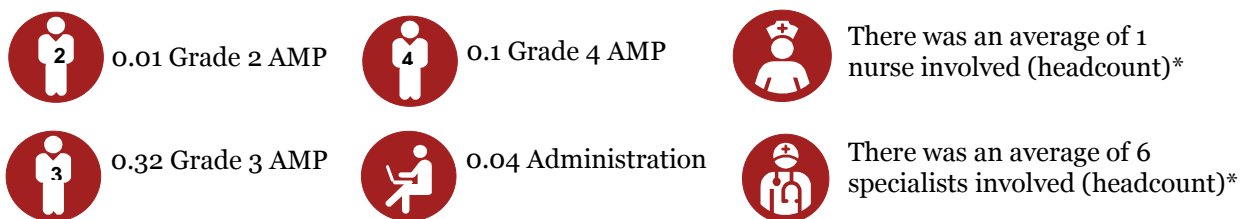
4. Results

4.1. Workforce profile

The average staffing profile (in EFT) by AMP model of care is depicted in the figures below. Note this has been calculated based off hours worked which are expected to be higher than the EFT allocations.

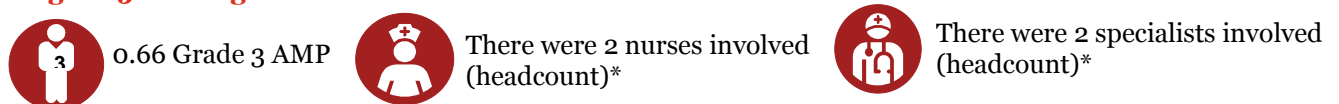
Over the 13 models of care, 27 AMPs have been upskilled and credentialed across Victoria which significantly contributes to a ready workforce in AMPs.

Figure 4: Average PAR workforce model in EFT



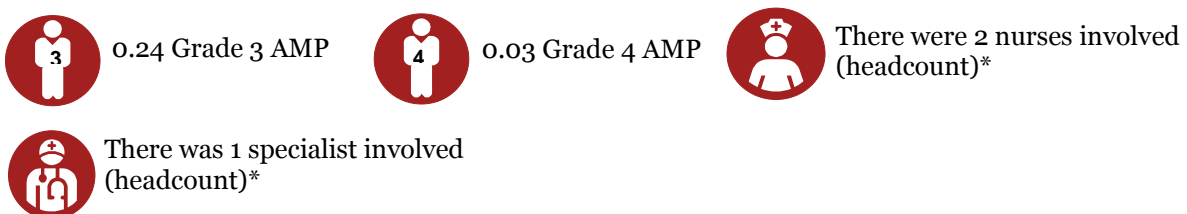
* EFT for these staff types is not included given the minimal amount of hours invested in the AMP program.

Figure 5: Average ED workforce model in EFT*



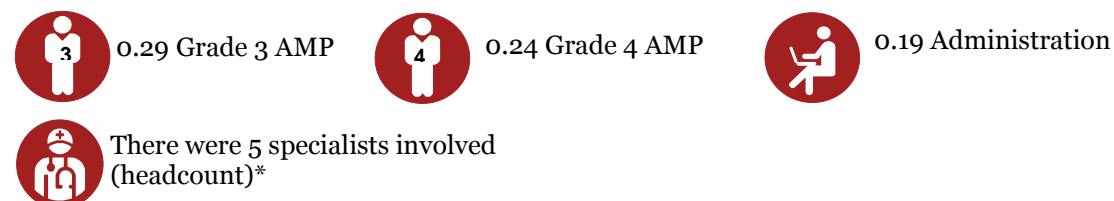
* EFT for these staff types is not included given the minimal amount of hours invested in the AMP program.

Figure 6: Average neurosurgery workforce model in EFT*



* EFT for these staff types is not included given the minimal amount of hours invested in the AMP program.

Figure 7: Average EDSTIRC workforce model in EFT*

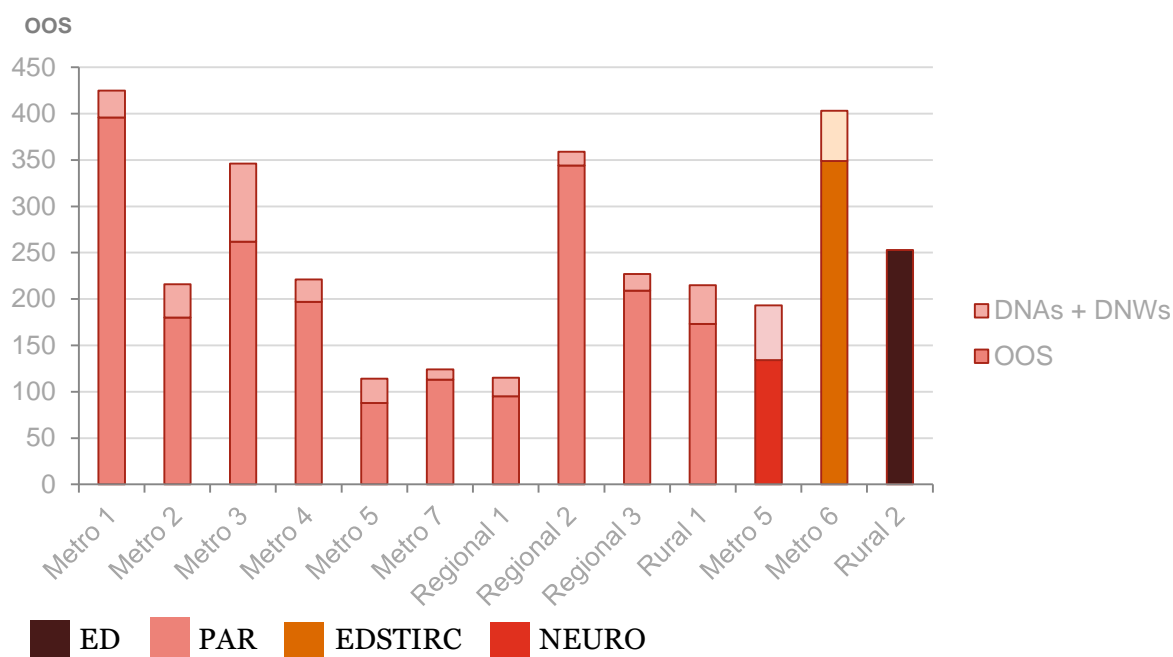


* EFT is not included given the minimal amount of hours invested in the AMP program.

4.2. Overview of activity

There were a total of 3,152 planned OOS (includes DNAs and DNWs) across the thirteen AMP models between September 2014 and June 2015. OOS by site is shown in Figure 8 below.

Figure 8: Activity September 2014 – June 2015



Source: PwC analysis drawn from site data

4.3. Efficiency of the AMP Program

Recurrent cost per OOS

Efficiency was measured by estimating the recurrent cost per planned OOS. This was calculated based on hours invested in the AMP program in terms of:

- Individual patient attributable (IPA) time: *includes activities such as clinical consultation/examination, ordering of radiology, writing letters to the patient's GP and other patient related tasks specific to that occasion of service*
- Non individual patient attributable (NIPA) time: *includes project activities such as time management of bookings, team meeting time and other project or administrative activities that enable the clinic to run*
- Research time: *includes ethics, evaluation and other initial set up and implementation time related to the AMP model*
- Training time: *includes time spent upskilling, completing the training and competency package and attending training days.*

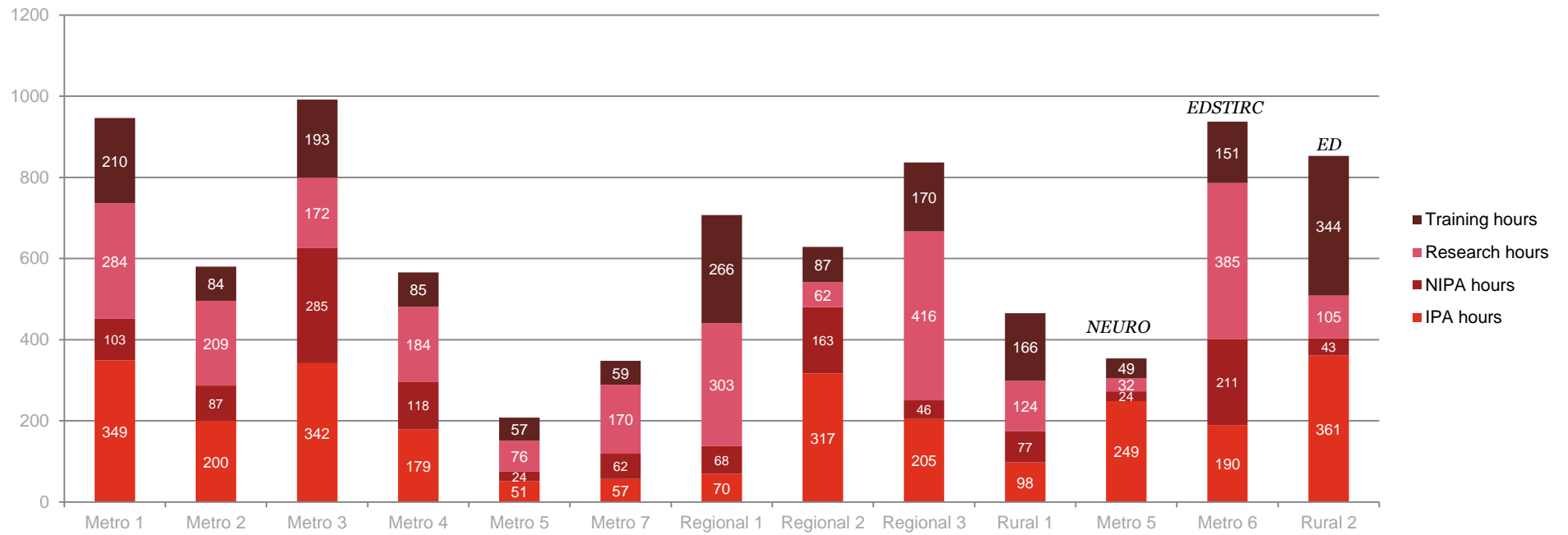
The number of IPA, NIPA, research and training hours was seen to vary across each participating site. This is shown in Figure 9 below. The proportionate share of total time invested (which encompasses IPA, NIPA, research and training time) was seen to range from 10% to 70% for IPA time, 5% to 29% for NIPA time, 9% to 50% for research time and 14% to 40% for training time.

The average number of hours invested (across IPA, NIPA, research and training time) per OOS across each of the models was:

- **ED model:** 3.4 hours invested per OOS
- **EDSTIRC model:** 2.3 hours invested per OOS
- **Neurosurgery model:** 1.8 hours invested per OOS
- **PAR model:** 2.9 hours invested per OOS

There was only one regional PAR site (Regional 1 in the figure below) with a ratio of hours invested per OOS above the average (at 6.1 hours per OOS). This was driven to a higher number of training hours invested (at 38% of total hours) with three AMPs completing the competency package during the evaluation period.

Figure 9: Hours invested into the AMP Program

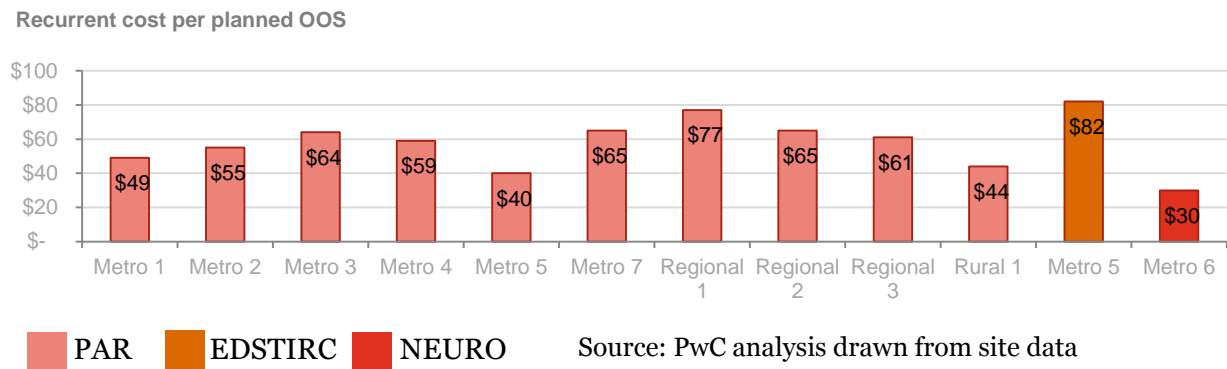


Source: PwC analysis drawn from site data

Only the portion of this time that was expected to be ongoing or recurring was valued. That is time attributed to initial set up/establishment time was excluded. As shown in Figure 10, the recurrent cost per OOS ranged from \$30 (EDSTIRC model) to \$82 (Neurosurgery model). The mean cost per OOS was **\$58** across all services¹. Examining only PAR models, the mean cost per OOS was also **\$58**.

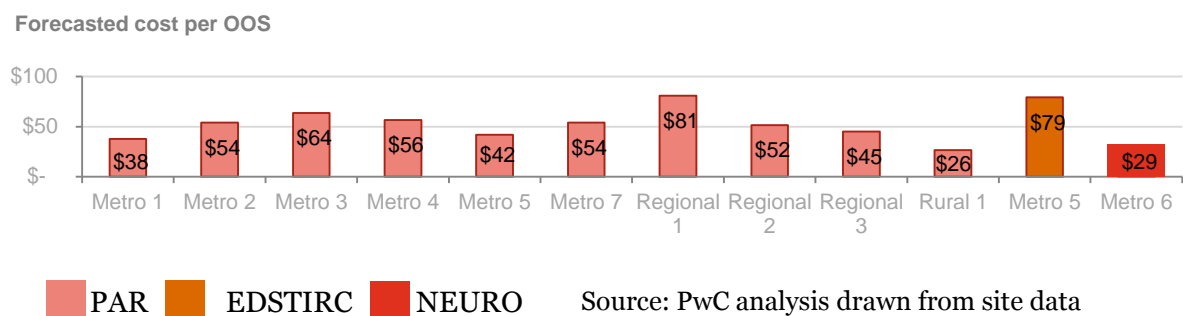
There was no trend observed in terms of recurrent cost per planned OOS in the sites that were operating a public/private model (Rural 1 and Regional 3).

Figure 10: Recurrent cost per planned OOS by service



Assuming the average monthly throughput (in terms of planned OOS) over the months of March – September 2015 as a proxy to calculate the forecasted cost per OOS (considering that many sites were not running at capacity in the first six months of the evaluation period), the mean forecasted cost per OOS is expected to decrease to **\$52**. The mean cost per OOS in PAR models is forecasted to be **\$51**. This is shown in Figure 11.

Figure 11: Forecasted recurrent cost per planned OOS by service



The recurrent cost per OOS was examined separately in the ED given that this model of care was distinctly different to the PAR, Neuro and EDSTIRC models. The recurrent cost per OOS was found to be **\$91**, with this forecasted to decrease to **\$82**.

Savings attributable to the patient pathway

Cost efficiency was also determined by measuring the difference in the value of the current AMP patient pathway compared to the baseline patient pathway. Baseline data on average time spent by

¹ Note the ED model was excluded here given that it does not have the same outpatient model when compared to the EDSTIRC, PAR and Neurosurgery models.

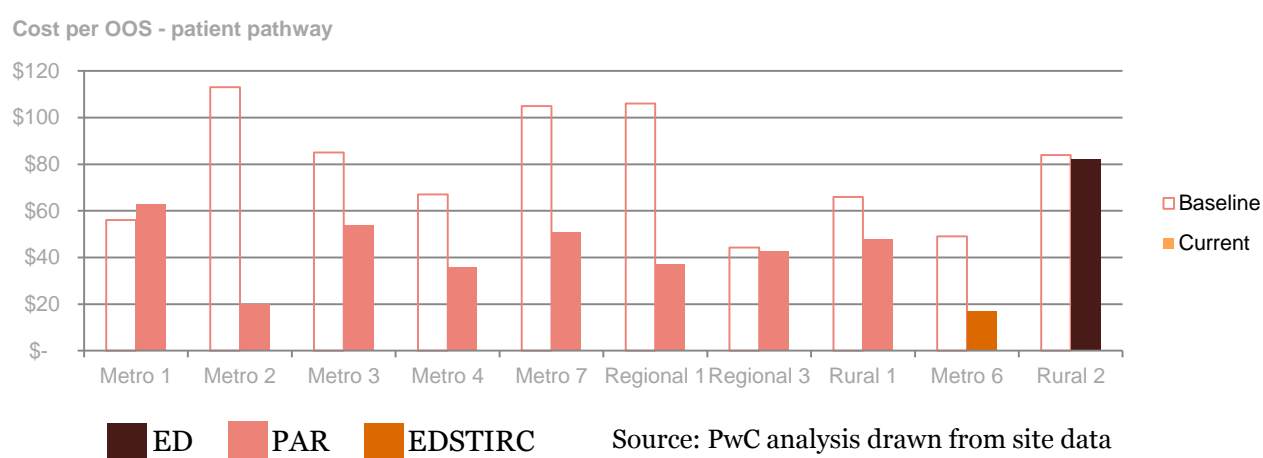
staff members with each patient was collected at 10 out of the 13 AMP models (8 PAR, 1 ED and 1 EDSTIRC).

The average saving per OOS across all ten models was \$36. This was consistent in examining only PAR models.

As shown in Figure 12, there was only one site (Metro 1) where the cost of the current AMP pathway was higher than the baseline pathway. This was given that the AMP spent a larger amount of time on patient administrative items such as follow up referral and letter writing to the GP compared to other models where these tasks were undertaken by administrative staff members. Given the value of AMP time is higher than the value of administration time, this led to an inflated cost per OOS in comparison (the administration time per OOS at this site was none).

There was no trend observed in the cost per OOS (patient pathway) examining those PAR models that operated a public/private model.

Figure 12: Cost per OOS - patient pathway



Expected cost savings over twelve months

Table 4 forecasts the savings attributable to the AMP model over a twelve month period. This is based off average monthly OOS at each service over March – June 2015 (assumed to be reflective of forecasted monthly OOS). Assuming that the number of clinics per week remains consistent for twelve months, total efficiency savings are calculated at **\$85,507** across ten sites (*there were 3 models that did not have data on savings per patient pathway and thus they were excluded from this calculation*).

The total efficiency savings assuming a ‘full time’ scenario have also been calculated. This assumes that two clinics run per day at each site, five days per week (total of 10 clinics per week). The total efficiency savings over the ten sites are expected to be **\$860,945**.

At one metropolitan site, data was collected on the number of manipulations under anaesthetic (MUAs). In both the ED and EDSTIRC models, data was collected on the number of ED representations within 28 days. Total forecasted savings over twelve months attributable to a reduction in MUAs and ED representations for these sites are presented below.

Table 4: Cost efficiency savings over twelve months

Service	Forecasted annual OOS	Savings per OOS	Total efficiency savings over 12 months	Efficiency savings assuming 'full time scenario' (10 clinics per week)	Other monetary savings over 12 months
Metro 1	660	-\$7	-\$4,620	-\$44,100	Savings associated with a reduction in MUAs \$285,120
Metro 2	264	\$93	\$24,552	\$322,245	
Metro 3	420	\$31	\$13,020	\$62,141	
Metro 4	276	\$31	\$8,556	\$89,838	
Metro 6	504	\$32	\$16,128	\$96,768	Savings associated with reduced ED representations: \$40,164
Metro 7	180	\$54	\$9,720	\$140,772	
Regional 1	132	\$69	\$9,108	\$103,388	
Rural 2	336	\$2	\$672	\$3,528	Savings associated with reduced ED representations: \$47,256
Regional 3	372	\$2	\$595	\$4,717	
Rural 1	432	\$18	\$7,776	\$81,648	
Total	3,576		\$85,507	\$860,945	

Source: PwC analysis drawn from site data

4.4. Effectiveness of the AMP Program

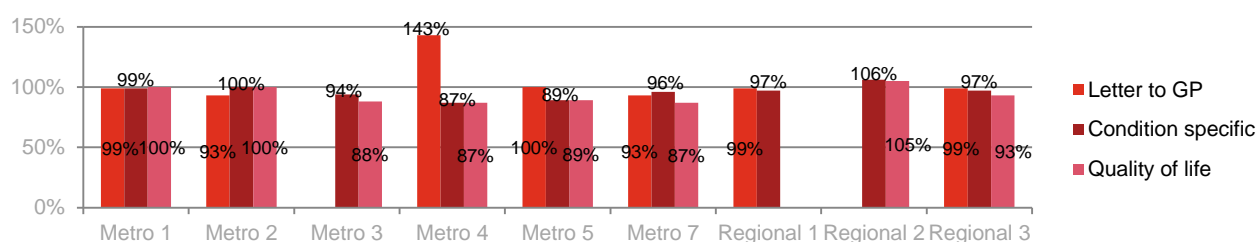
The effectiveness of the AMP Program was analysed through examining the impact on indicators relating to safety and quality of care, access to care, workforce capacity, clinician competencies and patient and workforce satisfaction. The results are presented below.

Safety and quality of care

PAR model

At almost all PAR sites, there were close to 100% of patients seen that were met with best practice care in terms of having a condition specific/functional measure and a quality of life measure taken. Further close to 100% of appointments involved a letter being written to the GP. This is shown in Figure 13. This compares to 0% at many sites in the baseline period.

Figure 13: Quality of care indicators



Source: PwC analysis drawn from site data

There was further one metropolitan PAR model that captured the reduction in the number of manipulations under anaesthetic (MUAs). Of the 25 patients audited for collection of the baseline data, there were two patients that had a MUA, making up 8% of the sample. There were two MUAs in the PAR clinic between September 2014 and June 2015, making up 0.5% of total OOS during this period. This equates to a reduction of 7.5% or 30 MUAs. Assuming average cost of a MUA is \$8,000, this equates to savings of **\$237,600**.

Table 5 shows the average proportion of patients meeting review points on time across the applicable models of care. This was determined by the following criteria:

- For review points <12 months, a seven day window either side of the appropriate review point (from date of surgery)
- For review points >= 12 months, a 28 day window either side of the appropriate review point (from date of surgery)

Data on the proportion of patients who met their review points on time was collected and reported on at the review points specified in each health service's AMP model of care. The baseline point of comparison was sourced by each health service and involved an audit of a select sample of patients.

There was variation across sites regarding the timing of review points for PAR patients (ranging from 2 weeks to 10+years depending on the model of care implemented). The most common review point was at 12 months with 9 out of 10 sites incorporating this review point into the model of care.

Prior to the AMP Program, many sites did not have standardised review points in place and therefore the AMP program has led to a consistent and standardised patient pathway post-surgery. Of the ten PAR models, eight met the Australian Orthopaedic Association guidelines with an initial review between 2 and 6 months post-surgery with another review between one and two years post-surgery.

Table 5: Proportion of patients that met their review points on time compared to baseline

PAR model	2 wk	3 wk	6 wk	3 mth	6 mth	12 mth	2 yr	5 yr	7 yr	8 yr	10 yr	10+ yr
Metro 1		Current: 87% (86/89) Baseline: 7%	Current: 76% (150/197) Baseline: 44%		Current: 38% (3/8) Baseline: 24%	Current: 47% (32/68) Baseline: 45%						Metro 1
Metro 2				Current: 53% (17/32) Baseline: 70%		Current: 56% (25/45) Baseline: 50%		Current: 38% (21/56) Baseline: 30%		Current: 12% (2/17) Baseline: 20%	Current: 36% (4/11) Baseline: 10%	Current: 85% (11/13) Baseline: 10%
Metro 3				Current: 36% (4/11) Baseline: 58%	Current: 39% (12/31) Baseline: 17%	65% (35/54) Baseline: 100%	Current: 0% (0/3) Baseline: 63%					
Metro 4			Current: 58% (52/89) Baseline: 58%	Current: 63% (44/70) Baseline: 58%								
Metro 5				Current: 60% (3/5) Baseline: unavailable	Current: 0% (0/6) Baseline: unavailable	Current: 70% (14/20) Baseline: unavailable	Current: 64% (9/14) Baseline: unavailable	Current: 8% (7/8) Baseline: unavailable	Current: 100% (2/2) Baseline: unavailable			
Metro 7			Current: 80% (47/59) Baseline: (28%)		Current: 51% (18/35) Baseline: 57%	Current: 77% (10/13) Baseline: 63%						
Regional 1						Current: 73% (51/70) Baseline: 18%		Current: 8% (2/24) Baseline: 0%			Current: 0% (0/1) Baseline: 0%	

PAR model	2 wk	3 wk	6 wk	3 mth	6 mth	12 mth	2 yr	5 yr	7 yr	8 yr	10 yr	10+ yr
Regional 2			Current: 77% (95/124) Baseline: 50%	Current: 61% (81/133) Baseline: 50%		Current: 87% (46/53) Baseline: 10%						
Regional 3				Current: 75% (79/106) Baseline: 79%		Current: 65% (35/54) Baseline: 98%	Current: 50% (13/26) Baseline: 67%					
Rural 1	Current: 99% (109/110) Baseline: unavailable				Current: 41% (15/37) Baseline: unavailable	Current: 100% (8/8) Baseline: unavailable						

Key: Increase - Decrease compared to the baseline period

Source: PwC analysis drawn from site data

Neurosurgery model

Over the ten months, there were only 24 out of 134 (18%) neurosurgical screening patients who required a formal referral to neurosurgery. Nine of these were deemed appropriate for surgery, whilst many of the remaining were yet to be reviewed. This high rate of surgical conversion indicates the appropriateness of the referral by the AMP to the surgeon. This demonstrates that the AMP was able to manage 56% of referred patients safely and effectively with conservative management.

EDSTIRC model

The AMP model saw a significant increase in the proportion of patients met with evidence based practice. Over the ten month period, there were a total of 35 (73%) of shoulder dislocations met with evidence based practice and 62 (57%) knee injuries met with evidence based practice. This compares to an average of 37% (shoulder dislocations) and 33% (knee injuries) in the baseline period.

Over September 2014 to June 2015, the average proportion of ED representations within 28 days related to musculoskeletal conditions has dropped from an average of 11% in the baseline period to 0%. There was an average reduction of 3.7 ED representations per month when compared to the baseline. Assuming an average cost per ED representation of \$895², this equates to an average monthly saving of **\$3,347**. Total estimated savings attributable to a reduction in ED representations over ten months is **\$33,473**.

ED model

From September 2013 to January 2014, there were 107 unplanned ED representations (within 28 days) specific to musculoskeletal conditions. This compares to 85 between September 2014 and January 2015 in which the AMP model was running. Assuming the average cost of an ED representation of \$895³, this equates to savings of **\$19,690**.

All models

Table 6 shows that on average across all PAR and EDSTIRC models (*for the Neurosurgery model, this data was not collected, and for the ED model this data was excluded given that it does not follow the same outpatient model of care*), the total time per OOS was **38 minutes**. This is made up of an average of 33 minutes with the AMP (includes patient face time and administrative follow up time), 2 minutes with administrative staff and 3 minutes with the surgeon/specialist. The consultation time with the patient was shown to increase compared to the baseline (average 16 minutes with the specialist in the baseline comparison across all sites), with additional time spent by the AMP on providing evidence based care e.g. condition specific/functional measures and quality of life measures.

²<http://www.ihsa.gov.au/internet/ihsa/publishing.nsf/Content/nhcdc-cost-report-2011-2012-round16-html~emergency-department-results~4-1-average-cost-admitted-ed>

³<http://www.ihsa.gov.au/internet/ihsa/publishing.nsf/Content/nhcdc-cost-report-2011-2012-round16-html~emergency-department-results~4-1-average-cost-admitted-ed>

Table 6: Average time (minutes) spent per OOS

Model	Average total time	Average AMP time	Average specialist/ surgeon time	Average administration time
Metro 1 (PAR)	64	61 ⁴	3	0
Metro 2 (PAR)	23	21	2	0
Metro 3 (PAR)	44	39	4	1
Metro 4 (PAR)	32	26	3	3
Metro 5 (PAR)	35	34	1	0
Metro 7 (PAR)	40	38	2	0
Regional 1 (PAR)	40	30	2	8
Regional 2 (PAR)	17	15	2	0
Regional 3 (PAR)	55	38	2	15
Rural 1 (PAR)	44	40	2	2
Metro 6 (EDSTIRC)	24	21	0	3
Across all models	38	33	2	3

Source: PwC analysis drawn from site data

Over the 3,152 planned OOS over the ten month period, there was only one riskman incident and one written patient complaint across the 13 models of care. Both of these occurred at a metropolitan PAR model, with the cause being an administration booking error which was not attributable to the physiotherapist. There were five written compliments over the period (two at the EDSTIRC model and 3 at a metropolitan PAR model).

Access to care

PAR model

In six out of the ten PAR models, data was collected on the number of new and review patients seen by the surgeon compared to the baseline. In terms of change in new patients seen, there were three sites that saw an increase (ranging from 20% to 44%), one site that saw no change, and two sites that saw a reduction (ranging from 9% to 27%). The metropolitan (Metro 3) site that saw the highest reduction in number of new patients seen by the specialist (27%) also followed a model whereby the specialist was required to be consulted with on every patient that attended the PAR clinic. This is expected to have been a key factor driving the reduction.

In terms of change in review patients seen, there were three sites that saw an increase (range from 7% to 34%) and three sites that saw a decrease (range from 8% to 36%). The disaggregated results by site are depicted in Table 7 and Table 8 below.

Based on the results from six sites presented below, it can be concluded that overall, the PAR models led to an increase in the number of patients seen and therefore improved access to care.

⁴ This includes administration time for each patient undertaken by the AMP. This is expected to be delegated to administrative staff moving forward.

Table 7: Change in number of new patients seen by the surgeon in PAR models

	Metro 1	Metro 2	Metro 3	Metro 7	Regional 1	Regional 3
Current period	511	47	946	546	447	433
Baseline period	402	47	1291	379	493	361
Proportionate change from baseline	27%	0%	-27%	44%	-9%	20%
Timeframe	10 months	3 months	7 months	4 months	6 months	10 months

Source: PwC analysis drawn from site data

Table 8: Change in number of review patients seen by the surgeon in PAR models

	Metro 1	Metro 2	Metro 3	Metro 7	Regional 1	Regional 3
Current period	1326	231	4870	1022	1978	401
Baseline period	1846	215	4493	765	2158	630
Proportionate change from baseline	-28%	7%	8%	34%	-8%	-36%
Timeframe	10 months	3 months	7 months	4 months	6 months	10 months

Source: PwC analysis drawn from site data

There were three PAR models that captured data on average wait days for a specialist appointment compared to the baseline period (from referral to when the appointment takes place). The proportionate reduction in wait days ranged from 16% to 93% as detailed in Table 9 below. For the regional site, there was an average 23% increase in the average wait days for public patients – however this was impacted by other variables for example a surgeon recently retiring resulting in an increased number of referrals to the other surgeon.

Table 9: Change in average wait days for a specialist appointment

	Metro 1	Metro 2	Regional 3
Current period	205 days	2 days	Private: 49 days Public: 123 days
Baseline period	332 days	29 days	Private: 58 days Public: 100 days
Proportionate change from baseline	-38%	-93%	Private: -16% Public: 23%

Source: PwC analysis drawn from site data

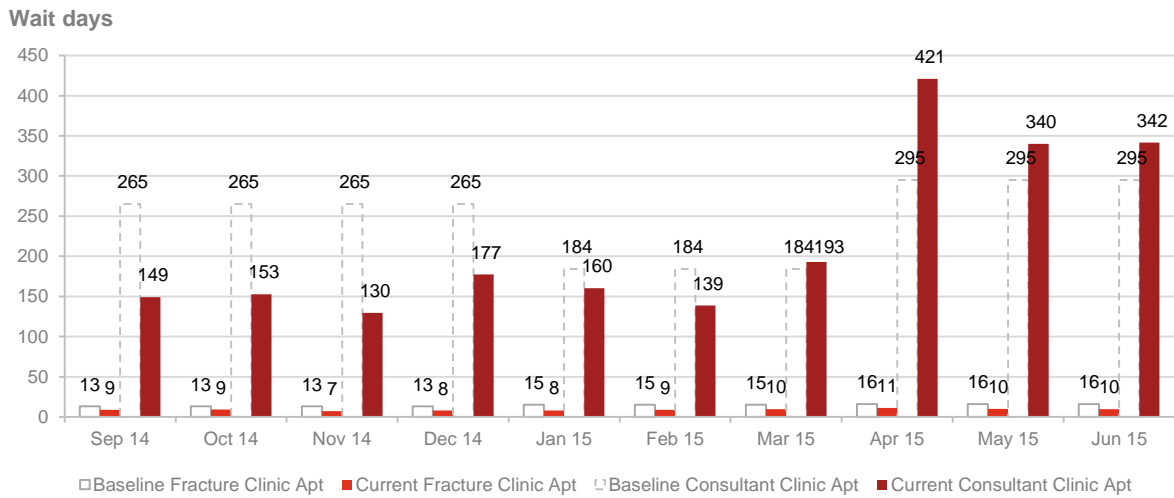
Neurosurgery model

In the neurosurgery screening clinic, there has been an additional 200 available appointments made available over the ten months to June 2015. Given the growing demand for services in the metropolitan area (evidenced in an increase in the number of referrals from 631 to 702 over September 2014-March 2015 compared to the same period the year before), this has had a positive impact on providing greater access to care.

EDSTIRC model

On average over the ten months, the average wait days (from referral to appointment) for an orthopaedic consultant clinic appointment fell by 6 days (9 days compared to 15 in the baseline period). The average wait days for an orthopaedic screening clinic appointment fell by 30 days (220 days compared to 250 in the baseline period). Figure 14 details the comparison on a month to month basis.

Figure 14: Change in orthopaedic wait days for appointment



Source: PwC analysis drawn from site data

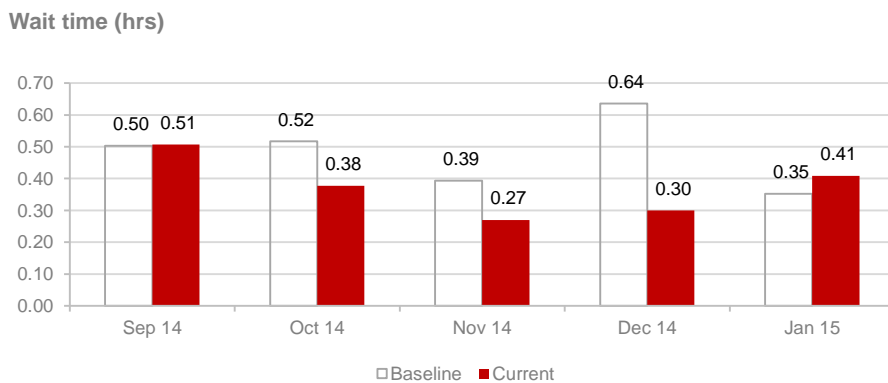
Further, the EDSTIRC was seen to have an impact on the average wait time to be seen in ED for musculoskeletal patients. This fell by an average of 23 minutes (67 minutes in the baseline period compared to 44 minutes in the current period).

ED model

The AMP model in the ED has a flow on impact to other patients seen by ED medical officers during the AMP clinic time. This is in term of freeing up medical officers to see other patients, thereby reducing patient wait time during these hours.

Figure 15 shows that overall, average patient wait time for those patients seen by the ED medical officer in AMP hours has reduced. From September 2014 to January 2015, the average wait time to be seen by an ED medical officer during AMP hours was 0.37 hours or 22 minutes, compared to the baseline which was 0.48 hours or 30 minutes.

Figure 15: Change in patient wait time for patients seen in AMP clinic hours by medical specialist



Source: PwC analysis drawn from site data

Workforce capacity

PAR model

There were time savings attributable to the surgeon/specialist through the establishment of the AMP Program. This was in terms of the total time saved for all AMP OOS. For the seven PAR models where this data was available, the average time saved by the surgeon **per OOS** was 15 minutes (range 7 minutes to 28 minutes). The value of this time saved was calculated based off annual wage data specific to each site.

The total forecasted savings expected over a 12 month period are **\$74,904**. This assumes the average monthly OOS drawn from the last four months of the evaluation period (March – June 2015). This is broken down further in Table 10.

Table 10: Savings - increased surgeon capacity

	Metro 1	Metro 2	Metro 3	Metro 4	Metro 7	Regional 1	Regional 3
Value of time saved per OOS	\$23	\$64	\$28	\$15	\$49	\$47	\$32
Forecasted savings over 12 months	\$15,180	\$16,896	\$11,760	\$4,140	\$8,820	\$6,204	\$11,904
Total savings over all sites	\$74,904						

Source: PwC analysis drawn from site data

Data on a patient's ASA score (*American Society of Anesthesiologists physical status classification system for assessing fitness of cases before surgery*) was collected for PAR models as a proxy for complexity. The average ASA score in the baseline period across all applicable sites was 2.2 compared to 2.3 in the AMP model. Given this marginal difference, it cannot be concluded that specialists were seeing a higher proportion of complex patients as a result of the establishment of the PAR model.

EDSTIRC model

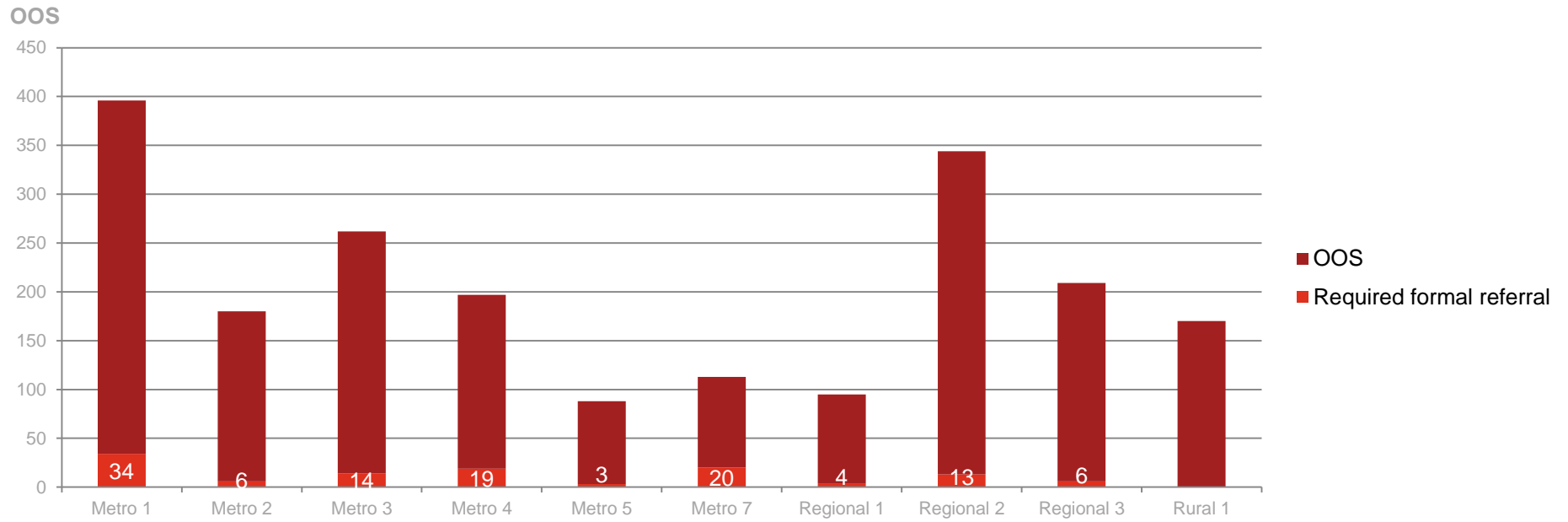
There was an average of 11 minutes per OOS saved by the specialist in the EDSTIRC model – equating to savings of \$27 per OOS. Forecasting expected OOS in the EDSTIRC over twelve months, total anticipated savings are equal to **\$13,608**.

Clinician competencies and optimal use of skills

PAR model

The proportion of formal referrals over OOS at PAR sites ranged from 2% (3 formal referrals out of 173 OOS at Rural 1) to 18% (20 formal referrals out of 113 OOS at Metro 7). The number of formal referrals across each site is detailed in Figure 16 below.

Figure 16: PAR formal referrals



Source: PwC analysis drawn from site data

Neurosurgery model

Of the 134 patients seen in the clinic over the evaluation period, 117 were discharged without needing to be seen by a neurosurgical specialist. This makes up 87% of patients seen over the period which is not only evidence of freed up surgeon capacity but evidence of the AMP's clinical competency.

Client and Workforce Satisfaction

Table 11 shows that there was very high patient satisfaction across all 13 AMP models of care, with 96% of respondents across sites responding that were satisfied being cared for by the physiotherapist. Further 93% of respondents felt that their expectations of appointment were met.

For a more detailed breakdown of select patient satisfaction results, refer to Appendix 8.

Table 11: Patient satisfaction results

Patient satisfaction	Mean	Range
Proportion of patients satisfied being cared for by the physiotherapist (<i>n=584 across 13 AMP models</i>)	96%	88% - 100%
Proportion of patients that felt their expectations of appointment were met (<i>n=580 across 13 AMP models</i>)	93%	84% - 100%

Source: PwC analysis drawn from site data

Table 12 shows that the 78% of workforce respondents across all 13 AMP models felt that they had a good understanding of the role of the AMP and 75% felt that the AMP would enhance the quality of care. Workforce satisfaction was measured in December 2014 – in the first half of the evaluation period. It is expected that if workforce satisfaction was measured again after all AMP models have been established for some time – results would be improved.

For a more detailed breakdown of other workforce satisfaction results, refer to Appendix 7.

Table 12: Workforce satisfaction results

Patient satisfaction	Mean	Range
Proportion of workforce that felt they had a good understanding of the role of the AMP in the model of care (<i>n=102 across 13 AMP models</i>)	78%	60% - 100%
Proportion that felt the AMP would enhance quality of care (<i>n=100 across 13 AMP models</i>)	75%	55% - 100%

Source: PwC analysis drawn from site data

4.5. Sustainability the AMP Program

The assessment of sustainability considers the barriers and enablers impacting the continuation of the program. Sustainability was assessed across each of the 13 AMP models against the following factors: *capacity, the training and competency package, stakeholder engagement, availability of infrastructure, the satisfaction/experience of the AMP(s) themselves and the availability of funding.*

Capacity

Capacity was calculated by the number of planned OOS divided by total available appointment slots each month. Given the first six months of the evaluation period corresponded to the initial set up/establishment of the PAR models, capacity in the last four months (March 2015 – June 2015) is

the most reflective of expected capacity moving forward ('implementation period'). Key findings by model type were:

- *Neurosurgery*: capacity was seen to range from 88% to 100% over March 2015 – June 2015
- *EDSTIRC*: capacity was seen to range from 55% to 100% over March 2015 – June 2015. There were initial administrative challenges experienced in the booking system and a delay in hiring reception staff which explains the fluctuations in capacity.
- *PAR*: capacity was seen to range from 56% to 100% over March 2015 – June 2015. Capacity was seen to fall to 56% at Regional 2 due to orthopaedic staffing and a low number of arthroplasties performed several months earlier. Overall, capacity was seen to be slightly lower in regional/rural areas compared to metropolitan areas which is expected to be due to lower demand and fewer arthroplasties performed at these sites.

Of the twelve models where capacity was measured (note capacity was not measured in the ED model as was not applicable in terms of available appointments), 9 had an average monthly capacity of 80% or more in either the implementation period alone or over the entire ten months. The three sites that did not reach 80% capacity were two regional PAR models and a metro PAR model. At these three sites there were factors that had an impact on capacity including:

- lower than average number of arthroplasties performed several months earlier at one regional site (Regional 2)
- lack of orthopaedic surgeon support at the metro site – impacting the number of patient referrals to the PAR clinic (Metro 3)
- surgeon leave impacting capacity one regional site (Regional 3)

Given the majority of sites were operating at close to full capacity over the period, with valid explanations for why three sites were not – it can be concluded that capacity is not a factor expected to negatively impact the sustainability of the AMP model moving forward.

Refer to the table on the following page for a detailed breakdown of capacity by site.

Capacity by site

Site		Sept'14	Oct'14	Nov'14	Dec'14	Jan'15	Feb'15	Mar'15	Apr'15	May'15	Jun'15
Metro 1 (PAR)	Available Appts.	60	42	36	36	24	48	60	54	72	45
	Planned OOS	48	43	27	32	25	30	66	48	59	47
	Capacity %	80%	102%	75%	89%	104%	63%	110%	89%	82%	104%
Metro 2 (PAR)	Available Appts.	32	41	8	17	8	32	24	40	24	32
	Planned OOS	31	38	8	16	7	31	20	28	20	18
	Capacity %	97%	93%	100%	94%	88%	97%	83%	70%	83%	56%
Metro 3 (PAR)	Available Appts.	55	61	48	40	12	45	55	45	30	52
	Planned OOS	39	49	42	35	5	35	43	30	28	40
	Capacity %	71%	80%	88%	88%	42%	78%	78%	67%	93%	77%
Metro 4 (PAR)	Available Appts.	38	27	30	28	24	18	28	26	27	20
	Planned OOS	26	24	25	24	18	13	21	24	27	19
	Capacity %	68%	89%	83%	86%	75%	72%	75%	92%	100%	95%
Metro 5 (PAR)	Available Appts.	18	12	12	12	12	6	18	14	6	18
	Planned OOS	8	8	12	12	12	6	18	14	6	18
	Capacity %	44%	67%	100%	100%	100%	100%	100%	100%	100%	100%
Metro 7 (PAR)	Available Appts.	19	18	18	18	12	12	18	12	24	13
	Planned OOS	11	12	15	14	9	5	16	7	23	12
	Capacity %	58%	67%	83%	78%	75%	42%	89%	58%	96%	92%
Regional 1 (PAR)	Available Appts.	5	26	23	5	9	23	15	14	14	18
	Planned OOS	5	20	18	5	9	15	9	10	10	14
	Capacity %	100%	77%	78%	100%	100%	65%	60%	71%	71%	78%
Regional 2 (PAR)	Available Appts.	56	56	49	42	23	42	60	63	39	81
	Planned OOS	25	35	32	32	23	32	50	48	22	60
	Capacity %	45%	63%	65%	76%	100%	76%	83%	76%	56%	74%
Regional 3 (PAR)	Available Appts.	30	24	19	24	18	24	48	48	42	36
	Planned OOS	19	13	16	19	15	20	31	30	37	27
	Capacity %	63%	54%	84%	79%	83%	83%	65%	63%	88%	75%
Rural 1 (PAR)	Available Appts.	30	30	20	40	10	44	56	30	40	46
	Planned OOS	4	4	6	13	8	36	46	26	32	40
	Capacity %	13%	13%	30%	33%	80%	82%	82%	87%	80%	87%
Metro 6 (EDSTIRC)	Available Appts.	56	53	25	46	47	50	64	38	50	48
	Planned OOS	48	34	25	46	44	40	35	38	46	47
	Capacity %	86%	64%	100%	100%	94%	80%	55%	100%	92%	98%
Metro 5 (Neuro)	Available Appts.	20	24	24	16	12	20	16	18	24	26
	Planned OOS	18	23	22	16	11	22	14	18	23	26
	Capacity %	90%	96%	92%	100%	92%	110%	88%	100%	96%	100%

Source: PwC analysis drawn from site data

Table 13 summarises the findings against other factors impacting sustainability across the AMP Program. An assessment was made against the proportion of sites where each of the factors was expected to facilitate the sustainability of the AMP model (i.e. enablers).

Table 13: Sustainability indicators

	Number (proportion) of sites where factor is expected to facilitate sustainability of AMP model	Detail
Training and competency	13/13 (100%)	Whilst the training and competency package was found very useful and thorough overall, the majority of sites indicated that it would need to be abbreviated going forward in order for the workload to be manageable in addition to clinical responsibilities. In the event that the training package cannot be abbreviated, it is recommended that key areas of relevance be highlighted so that sites can prioritise learning and training.
Stakeholder engagement	11/13 (85%)	There were only two sites that experienced challenges in gaining orthopaedic support. Both of these were PAR models in metropolitan areas. At both of these sites, a model of care was implemented whereby each patient was informally discussed with the orthopaedic surgeon. Orthopaedic surgeons were seen to be reluctant to give up their time to informally discuss patients with the AMP which was the main factor causing resistance.
Infrastructure	10/13 (77%)	There were three sites where room space presented a challenge moving forward.
Satisfaction and experience of AMP	12/13 (92%)	One site noted that in terms of professional development, a ceiling is quickly reached with this having an impact on the AMP experience/satisfaction.
Availability of funding	10/13 with 3 pending	As of October 2015, there was approval of future funding for 10 out of the 13 AMP models, with 3 pending decision.

Source: PwC analysis drawn from interviews with sites

5. Discussion

5.1. Efficiency of the AMP Program across the Victorian health system

The recurrent cost per OOS was seen to range from \$30 (EDSTIRC model) to \$82 (neurosurgery model)⁵. The mean cost per OOS across all sites was \$58, with this consistent when examining PAR models only. If the forecasted number of OOS (i.e. based on expected higher throughput in the future) is used to calculate the recurring cost per OOS, the mean forecasted cost per OOS reduces to \$52 across all sites (\$51 across PAR models).

The main drivers behind the recurrent cost per OOS were:

- The forecast capacity (in terms of planned OOS as a proportion of available appointment slots) at which the service is expected to be running and the associated throughput (in terms of planned OOS).
- The wage rates used to value time invested in the AMP model. Higher than average wage rates applied at a particular service drive up the current recurring cost per OOS.
- Assumptions were made around the proportion of time invested into the AMP model expected to be recurring.

Of the 10 AMP models that had baseline data available to make an assessment of cost efficiency, 9 were found to be cost efficient (90%)⁶. There was one metropolitan PAR model that experienced a 13% increase in the cost through the AMP patient pathway compared to the baseline (explained due to the AMP undertaking all of the patient administration time). Overall, there was an average 37% reduction in the cost through the AMP patient pathway compared to the baseline pathway across these 10 models. The highest proportionate reduction (82%) was in a PAR model. The ED model experienced a 2% reduction whilst the EDSTIRC model experienced a 65% reduction in cost.

Efficiency savings forecasted over 12 months based on expected OOS (assuming number of clinics remains consistent) across all sites are **\$85,507**. Assuming a 'full time' scenario, with 10 clinics per week, the total efficiency savings over the ten sites are expected to be **\$860,945**.

Efficiencies could be further improved at sites where the AMP was conducting all or the majority of the administration work. This work is expected to be delegated to administration staff in the future, particularly in cases where continued funding has already been granted. This is the case at the one PAR model that was not determined cost effective (due to significantly more time being spent by the AMP per OOS to cover related patient referral/discharge tasks).

Based on these findings, it can be concluded that the AMP program is cost efficient.

⁵ Note the ED model was excluded here due the fact that it does not have the same outpatient model.

⁶ There were three AMP models where a conclusion around cost efficiency was unable to be drawn due to a lack of baseline data.

5.2. Effectiveness of the AMP Program

The effectiveness of the AMP Program was assessed based on analysis of outcome indicators in relation to quality of care, access to care, workforce capacity, clinician competencies and satisfaction. The change in outcome indicators relative to the comparative baseline period was assessed where data was available. Key results by model of care are described below:

PAR model

At almost all PAR sites, there were close to 100% of patients seen that were met with evidence based practice care in terms of having a condition specific/functional measure and a quality of life measure taken. This compares to 0% at many sites in the baseline period. Further close to 100% of appointments involved a letter being written to the GP and there was only 1 patient complaint and riskman incident over the period. This demonstrates improved safety and quality of care.

Prior to the AMP Program, many sites did not have standardised review points in place and therefore the AMP program has led to a consistent and standardised patient pathway post-surgery. Of the ten PAR models, eight met the Australian Orthopaedic Association guidelines with an initial review between 2 and 6 months post-surgery with another review between one and two years post-surgery. This demonstrates improved safety and quality of care.

There was a further increase in the number of patients seen by the specialist at select sites. Of the six sites where this data was collected, three sites saw an increase in the number of new patients seen (ranging from a 20% to a 44% increase). There were three sites that saw an increase in the number of review patients seen by the specialist (ranging from a 7% to a 34% increase) and three sites that saw a reduction in review patients seen (ranging from a 8% to 36% reduction). The reduction in review patients seen at three sites suggests better matching of skillset to task. The increase in patients seen by the specialist demonstrates improved access to care.

There were three PAR models that captured data on average wait days for a specialist appointment compared to the baseline period (from referral to when the appointment takes place). The proportionate reduction in wait days ranged from 16% to 93%, again demonstrating improved access to care.

Neurosurgery model

The neurosurgery screening clinic has resulted in an additional 200 available appointments made available over the ten month period to June 2015. Given the growing demand for services in the metropolitan area this has had a positive impact on providing greater access to care.

Of all patients seen in the clinic over the evaluation period, 87% were discharged without needing to be seen by a neurosurgical specialist – evidence of increased surgeon capacity but also the AMP's clinical competency.

Safety and quality of care was demonstrated in that 44% of formal referrals were deemed appropriate for surgery and there were no riskman incidents or patient complaints over the whole period.

EDSTIRC model

The AMP model in the EDSTIRC saw a significant increase in the proportion of patients met with evidence based practice. Over the ten month period, there was a 36% increase in the number of shoulder dislocations and 24% increase in the number of knee injuries met with evidence based practice. Further, the average proportion of ED representations within 28 days related to musculoskeletal conditions fell from an average of 11% in the baseline period to 0% during the evaluation period and there were no riskman incidents or patient complaints recorded. This is evidence of improved safety and quality of care.

On average over the ten months, the average wait days (from referral to appointment) for an orthopaedic fracture clinic appointment fell by 6 days whilst the average wait days for an orthopaedic screening clinic appointment fell by 30 days. This demonstrates improved access to care.

There was an average of 11 minutes per OOS saved by the specialist in the EDSTIRC model – equating to savings of \$27 per OOS. Forecasting expected OOS in the EDSTIRC over twelve months, total anticipated savings are equal to \$13,608.

ED model

Improved safety and quality of care was observed in that the number of unplanned ED representations within 28 days specific to musculoskeletal conditions fell from 107 to 85 over a five month comparative period. Further there were no riskman incidents or patient complaints reported.

Improved access to care was demonstrated in that average patient wait time for those patients seen by the ED medical officer in AMP hours reduced from 30 minutes to 22 minutes.

Based on these findings against each model of care it can be concluded that the AMP Program is cost effective.

5.3. Sustainability and feasibility of the AMP Program

Sustainability

Overall, it was found that the AMP Program has strong support from other departments, including nursing, orthopaedics and allied health – a key requirement for the sustainability of the program. This is evidenced in the fact that only 2 out of the 13 AMP models were found to have experienced challenges gaining stakeholder support (both metropolitan PAR models). In both these cases, the reason for these challenges were related to the time required by specialists – with both models initially having every patient consulted with informally with the specialist. It was discussed in consultation with these sites, that this was expected to change over time, with consultation only conducted on an as needs basis.

Whilst the training and competency package was found to be thorough and useful across all sites, all found it overwhelming to manage with their clinic and other reporting requirements. Consistent themes that emerged in regards to the training and competency package across all sites were:

- The time required to complete the package was significantly more than what was estimated/budgeted
- It could easily be tailored so that only applicable or relevant modules are included
- A road map or prioritisation list to accompany the package, helping to focus on the most applicable areas and also to differentiate based on prior experience
- Areas of duplication could be removed

In terms of the sustainability of the AMP Program, it needs to be clearly communicated that the training package is designed to be tailored and modified by each individual site depending on level of experience and the model of care.

Both availability of infrastructure and AMP satisfaction are not impeding factors on the sustainability of the program. The AMP(s) were found to be confident with the case load of patients across the program and were predominantly working independently, only seeking the specialist's input on an as needs basis. It was further reported that the program helped build rapport with other departments and provided opportunity for professional growth.

There were three out of twelve sites⁷ that did not reach above 80% capacity over entire evaluation period or in the implementation stage of the evaluation (March – June 2015). Capacity has a direct impact on the level of output of the program and subsequently the overall cost efficiency of the program. The reasons behind these three sites not reaching capacity are not expected to continue – for example they were in relation to:

- lower than average number of arthroplasties performed several months earlier at one regional site
- surgeon leave impacting capacity one regional site
- administrative challenges in terms of booking patients into the AMP clinic
- hiring delays or the training of new staff members impacting number of patients booked into the AMP clinic
- identifying appropriate patients to attend the AMP clinic and achieving a consistent referral stream
- poor orthopaedic specialist engagement in the program with this impacting the volume of patients directed to the AMP clinic

Therefore capacity is not expected to impact the sustainability of the AMP Program.

To date, there have been 10 out of the 13 AMP models that have been granted with continued funding for the respective programs (with 3 models pending decision), despite a tight funding climate. This is an encouraging outcome and is reflective of the positive outcomes achieved by the AMP Program.

Based on these findings, it can be concluded that the AMP Program is sustainable.

Feasibility

The feasibility of the AMP Program is closely tied to sustainability. It concerns whether or not the AMP Program can be implemented on a wider scale and what the associated risks might be.

As evidenced in the assessment of the sustainability of the AMP Program, there are few foreseen risks in terms of being able to implement the AMP Program on a wider scale:

- the program has proven to gain stakeholder support in all but two cases
- AMP's were satisfied with the professional development opportunities presented through the AMP program in all but one case
- there was available infrastructure in all but three cases
- the program is underpinned by a comprehensive training and competency package that can easily be tailored depending on context .

Based on these findings, it can be concluded that the AMP Program is feasible.

⁷ Note capacity wasn't applicable in the ED model – so was only captured in 12 out of the 13 models.

5.4. Limitations of evaluation

There were several limitations of the evaluation which should be considered in the context of the results and discussion:

- Findings informing the assessment of the sustainability and feasibility of the program were largely drawn from qualitative data collected through interviews with participating sites in February 2015. This presents a nine month time lag between the interviews and the completion of this report in which circumstances could have changed at the site level.
- The evaluation period included an initial set up or establishment phase where most clinics were still operating at below full capacity.
- There was limited baseline data available for collection at some sites, which resulted in a small sample of baseline data being extrapolated out over the entire period. This has an impact on the reliability of results.
- The workforce satisfaction survey was only taken once in December 2014 which was still in the 'establishment phase'. Workforce satisfaction results may have changed had the survey been taken again at the end of the evaluation at which point staff would have been expected to be more familiar with the AMP program.

In assessing the effectiveness of the AMP Program, there were some limitations in terms of:

- An assessment around whether or not specialists were able to see more complex patients as a result of the AMP program was unable to be accurately drawn due to a number of other variables affecting complexity of patients. Whilst a patient's ASA score was collected as a proxy for complexity, there was little difference shown between the average baseline ASA score and the average current ASA score.
- Whilst some sites did measure a change in the number of patients seen by the specialist compared to the baseline period, there are also expected to be a number of other factors at play. For example: specialists retiring or taking on more administrative roles, inflexible booking systems impacting the number of patients able to be seen by the specialist and monthly variability in available appointments for specialists. This was the case at the following sites for example:
 - *Regional 3*: decline in overall surgeon activity over evaluation period compared to baseline due to fewer clinic hours as the orthopaedic surgeon decided to drop regular clinics – explaining the drop in review patients seen.
 - *Regional 1*: introduction of a new surgeon and outpatient clinic which is expected to have resulted in less overbooking of clinics (and fewer review appointments) for the purposes of comparison to the PAR model.
 - *Metro 1*: inflexible outpatient orthopaedic bookings have impacted the number of patients able to be seen, in addition to factors such as leave and the number of specialists attending clinic.

5.5. How the AMP Program met its objectives

The principal objectives of the AMP Program were to improve patient access to service and reduce waiting times, to improve quality of care and the patient journey and to optimise utilisation of medical specialists' time and expertise. Each of these objectives was realised, evidenced in the following key findings:

Improved access to care: there was a reduction in wait days from referral to appointment (16% to 93% reduction) for a specialist appointment in the three PAR models that collected this data; in the EDSTIRC model, the average wait days (from referral to appointment) for an orthopaedic fracture

clinic appointment fell by 6 days (9 days compared to 15 in the baseline period). The average wait days for an orthopaedic consultant clinic appointment fell by 30 days (220 days compared to 250 in the baseline period); in the ED model there was a reduction in wait time for patients to be seen by the ED medical officer during AMP hours; the neurosurgery screening model led to an additional 200 available appointments over the evaluation period. This was due to an expansion to the pre-existing neurosurgery clinic which allowed for more patients to be seen, thereby improving access to care.

Improved quality of care and the patient journey: in all PAR models and in the EDSTIRC model, there was an increase in the proportion of patients met with best practice care; prior to the AMP program, there were no standardised review points in place with the AMP Program leading to a consistent and standardised patient pathway; over the 3,152 planned OOS over the ten month period, there was only one riskman incident and one written patient complaint across all models. Both of these were due to process errors rather than being related to patient care.

Optimised use of medical specialists' time and expertise: three PAR models saw a reduction in number of review patients seen by the specialists suggesting better matching of skillset to task; there were three PAR models that saw an increase in the number of new patients seen by the specialist (ranging from a 20% to a 44% increase).

These results reinforce the success of the AMP model in a variety of settings and emphasise the value of implementing the AMP model across other sites.

6. Key findings

The key findings against efficiency, effectiveness and sustainability and feasibility are detailed below. Further some key evaluation considerations have been included (See Appendix 6 for more detail on these considerations).

Efficiency of the AMP Program

- The AMP Program was found to be cost efficient
- The recurrent cost per OOS ranged from \$30 (EDSTIRC model) to \$82 (Neurosurgery model). The mean cost per OOS was \$58 across all services. Examining only PAR models, the mean cost per OOS was \$58.
- The mean forecast cost per OOS is expected to decrease to \$52. The mean cost per OOS in PAR models is forecast to be \$51.
- The average saving per OOS across the ten models that collected baseline data was \$36.
- Efficiency savings forecast over 12 months based on expected OOS (assuming number of clinics remains consistent) across all sites are **\$85,507**.
- Assuming a 'full time' scenario, with 10 clinics per week, the total efficiency savings over the ten sites are expected to be **\$860,945**.

Effectiveness of the AMP Program

- The AMP Program was found to be cost effective
- There was an increase in the proportion of patients met with evidence based care in the PAR model compared to the baseline (close to 100% met with condition specific/functional and quality of life measures compared to 0% in baseline).
- In the EDSTIRC model, there were a total of 35 (73%) of shoulder dislocations met with evidence based practice and 62 (57%) knee injuries met with evidence based practice. This compares to an average of 37% (shoulder dislocations) and 33% (knee injuries) in the baseline period.
- In the ED model, there was a reduction in unplanned ED representations within 28 days (85 compared to 107 in the baseline period).
- In the neurosurgery screening model, 44% of formal referrals were deemed appropriate for surgery – demonstrating safety and quality of care provided by the AMP
- Of the ten PAR models, eight met the Australian Orthopaedic Association guidelines with an initial review between 2 and 6 months post-surgery with another review between one and two years post-surgery.
- There was a reduction in wait days for an orthopaedic specialist appointment found at three PAR sites – the reduction ranging from 16% to 93%.
- Over the 3,152 planned OOS over the ten month period, there was only one riskman incident and one written patient complaint across all models (due to an administration booking error).
- In the EDSTIRC model, average wait days (from referral to appointment) for an orthopaedic fracture clinic appointment fell by 6 days (9 days compared to 15 in the baseline period). The average wait days for an orthopaedic consultant clinic appointment fell by 30 days (220 days compared to 250 in the baseline period).
- Three PAR models saw a reduction in number of review patients seen by the specialists suggesting better matching of skillset to task

- There were three PAR models that saw an increase in the number of new patients seen by the specialist. This ranged from a 20% (433 patients in current period compared to 361 in baseline period) to a 44% increase (546 patients in current period compared to 379 patients in baseline period).
- There was high patient satisfaction across the AMP Program, with 96% of respondents across all sites responding that were satisfied being cared for by the physiotherapist.
- 78% of workforce respondents across all the AMP Program felt that they had a good understanding of the role of the AMP.

Sustainability and feasibility of the AMP Program

- The AMP Program was found to be both sustainable and feasible moving forward
- The AMP Program has strong support from other departments, evidenced in the fact that only 2 out of the 13 AMP models were found to have experienced challenges gaining stakeholder support. Both these cases were due to specialists being required to consult informally on every patient, taking up a larger amount of their time. This model is not expected to continue moving forward.
- In terms of the training and competency package, it needs to be more clearly communicated that the training package is designed to be tailored and modified by each individual site depending on level of experience and the model of care.
- There were three sites that did not reach over 80% capacity (measured by planned OOS over available appointment slots) in the implementation period (March – June 2015) or over the whole period. The reasons behind this however are not expected to prevail moving forward e.g. around surgeon leave, hiring delays, poor initial orthopaedic specialist engagement. Therefore capacity is not expected to impact the sustainability of the AMP Program.
- To date, 10 out of the 13 AMP models have been granted with ongoing funding – with three pending decisions. This is despite a tight funding climate which is an encouraging outcome and is reflective of the positive outcomes achieved by the AMP Program.
- There are few foreseen risks associated to implementing the AMP Program on a wider scale and thus it can be concluded that the AMP Program is both sustainable and feasible.

7. *Conclusions*

The evaluation of the AMP Program has shown that the objectives of the program have been met:

- Ten post arthroplasty review AMP models, one ED AMP model, one soft tissue injury review model and one neurosurgery model were implemented across twelve different Victorian health services in 2014-15.
- These models have assisted in meeting growing patient demand for services, with a total of 3,152 additional occasions of service in 10 months.
- Quality of care is evidenced in a higher proportion of post arthroplasty patients meeting their review points on time and a high proportion of patients met with evidence based practice compared to the baseline period.
- The AMP Program has resulted in a more standardised patient pathway post arthroplasty, with consistent review points built into the model of care. Further more consistent management of acute muscle and joint injuries has been established in the EDSTIRC model of care and more timely review has occurred for patients in the neurosurgery screening clinic.
- Medical specialist's time has been optimised in terms of their ability to see a higher number of new patients.⁸

These results reinforce the success of the AMP model in a variety of settings and emphasise the value of implementing and expanding the use of the AMP model across Victorian health services.

⁸ Note – while this was a finding of the evaluation, it is difficult to discern the direct impact the AMP program had on this increase (as per limitations cited in Section 4).

Appendix 1 Excel Data Collection Tool

The majority of the data to inform the evaluation of the AMP Program was collected from all twelve participating sites through a tailored data collection tool developed in Excel. Each tool included the following:

- a dashboard which tracked key indicators
- patient mapping 'clinic sheets' which captured details on each patient appointment
- a worksheet to collect patient survey responses
- a worksheet to collect salary and other input expense information
- a worksheet to collect training time and other training expenses
- a worksheet to collect hours worked (including individual patient attributable time, non-individual patient attributable time and research time)
- a worksheet to collect current outcome indicators
- a worksheet to collect baseline indicators

See Figure 17, Figure 18 and Figure 19 below for screen shots from the Excel Data Collection Tool.

Figure 17: Excerpt from dashboard

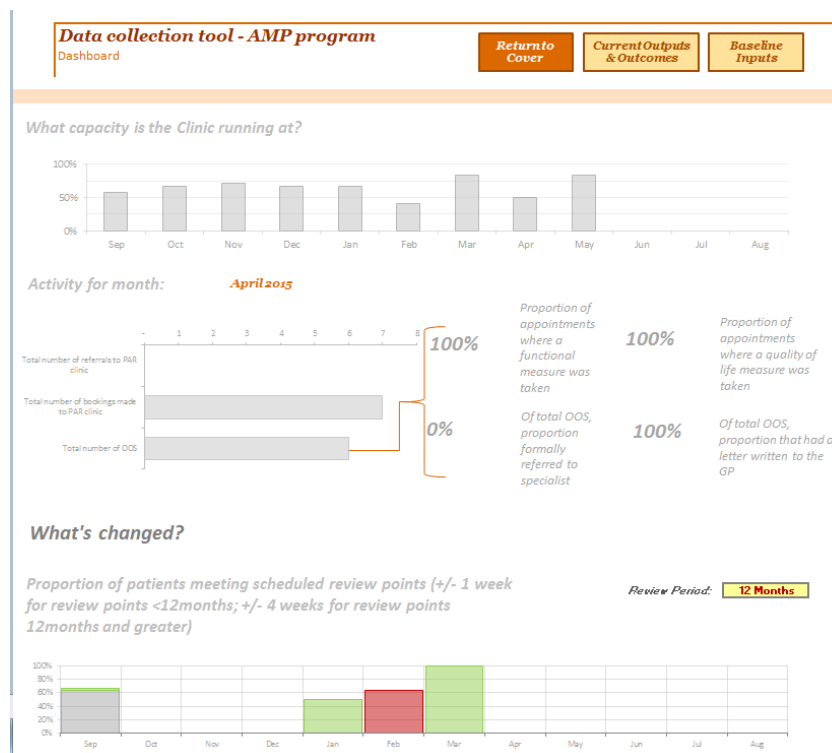


Figure 18: Excerpt from patient mapping clinic sheet

Return to Instructions	Error Count	Site:					Date of Consultation:				
Patient journey: AMP Model	2										
Administrative Information	Patient 1	Error Check	Patient 2	Error Check	Patient 3	Error Check	Patient 4	Error Check	Patient 5	Error	
Scheduled appointment time											
Type of surgery (e.g. knee/hip) Choose the joint that takes up the majority of time in the consultation. <i>Fill in even if the consult does not proceed (to calculate booking metrics)</i>		✓		✓		✓		✓			
Time when called to be seen by AMP <i>Complete when the patient attends, even if the patient does not wait or leaves prior to the consult.</i>											
--Wait Time	-		-		-		-		-		
ASA Score											
First appointment in PAR?											
Patient's date of surgery:											
Consult Information. All time is recorded in minutes eg. 15minutes =15											
Physio consult time (recorded in minutes, 15mins=15)											
AMP wait time for surgeon's review of patient (in minutes). Was wait time due to; (<i>enter '0' if no wait time</i>)		✓		✓		✓		✓			
patient initiated (informal)review/consult?											

Figure 19: Excerpt from baseline input worksheet

8 Data collection tool - AMP program		Return to Dashboard				
Baseline Assumptions Error Check: 0		This page asks you to enter baseline data. You may retrospective 12 months, or for distinct retrospectiv to note when entering data on this page, is how the compare against current data collection months (i.e				
8.01 Flags						
8.01.01 Baseline						
Baseline Monthly Data Comparable to current month: Baseline Period Enter the Month&Year (mm/yyyy) from which baseline data was obtained:		Sep 14	Oct 14	Nov 14	Dec 14	Jan 15
		BLine Period 1	BLine Period 2	BLine Period 3	BLine Period 4	BLine Period 5
		Sep 13	Oct 13	Nov 13	Dec 13	Jan 14
8.02 Baseline Assumptions						
8.02.01 Related to orthopaedic specialist						
Number of referrals to orthopaedic outpatient clinic - specific to arthroplasty						
Total number of new patients seen by orthopaedic specialist		99	109	132	39	76
Total number of review patients seen by orthopaedic specialist		107	165	257	236	208
Overall orthopaedic specialist Did Not Attends (DNAs) rate (%);		18%	17%	15%	15%	16%
Total number of arthroplasties		37	47	40	30	35
Average wait days for new consultation with orthopaedic specialist (from referral to when it takes place)		174	191	193	225	182
Average wait time (minutes) on day of appointment for orthopaedic specialist (minutes)						
8.02.02 Related to safety and quality of care						
Proportion of riskman incidents associated to arthroplasty		0%	0%	0%	0%	0%
8.02.03 Proportion of patients meeting scheduled review points (+/- 1 week for review points <12months; +/- 4 weeks for review points 12months and greater)						
6 Weeks		33%				
6 Months		71%				
12 Months		63%				
8.02.04 Related to surgeon time spent through an OOS						
Average time (mins) spent with surgeon through an OOS						
8.02.05 Average Nurse time spent through an OOS						
Average time (mins) spent with a physio through an OOS		4	4	4	4	4
8.02.06 Average admin time spent through an OOS						
Average admin time spent through an OOS		4	4	4	4	4
8.02.07 Patient wait time through an OOS						
Average patient wait time over course of OOS						
8.02.08 Complexity of patients - measured through ASA score						
Average ASA score		2				

Appendix 2 Cost efficiency and effectiveness methodology

Cost efficiency

This section details the specific calculations and approach taken to determine the cost efficiency of the AMP program. Cost efficiency at each site was assessed through determining the recurring cost per occasion of service and then the change in the cost through the patient pathway. The AMP Model was determined cost efficient if the current AMP patient pathway (cost per OOS) was less than the cost per OOS through the baseline pathway.

Determining the recurring cost per occasion of service

Step 1: Determining total time invested in the AMP program over a given period

Total time invested in AMP program = Surgeon time + AMP time + Administration time + Nurse time + all other staff time directed towards the AMP program

Time was not limited to clinical time with a patient. Time could fall under one of the following four categories:

1. *Individual patient attributable time*: included activities such as clinical consultation/examination, ordering of radiology, writing letters to the patient's GP and other patient related tasks specific to the occasion of service.
2. *Non individual patient attributable time*: included project activities such as time management of bookings, team meeting time and other project or administrative activities that enabled the clinic to run.
3. *Research time*: included time spent applying for ethics, evaluation and other initial set up and implementation time related to the AMP model.
4. *Training time*: included time spent undertaking the AMP competency package and other training directly related to the AMP role.

Step 2: Determining what proportion of this time is expected to be recurring

That is, the estimated proportion of time attributable to the establishment or initial set up of the AMP program. For example if total surgeon time invested in the program was 20 hours, but 50% of this time (10 hours) was spent up front to ensure the AMP model was operating effectively (e.g. extra supervision time that isn't expected to be ongoing), then only 10 hours was counted as recurring time. This exercise was completed for all staff types involved in the program, with it totalled to obtain the total recurring time.

Step 3: Determining value of recurring time

To value time, average hourly wage rates for specified staff types involved were used. These rates varied depending on the staff type. For example, if the AMP hourly rate was \$50 an hour, and they invested 100 recurring hours over the given period, the total value of this time was calculated to be: $\$50 \times 100 = \$5,000$. The value of recurring time was calculated for each specified staff type, with this totalled to obtain the total value of recurring time.

Total value of recurring time = (staff type₁ recurring hours x staff type₁ average hourly wage) + (staff type₂ recurring hours x staff type₂ average hourly wage) + (staff type₃ recurring hours x staff type₃ average hourly wage)....(staff type_n recurring hours x staff type_n average hourly wage)

Step 4: Determining total planned occasions of service over the same given period

Total planned occasions of service included all appointments where a patient was seen as well as all Did Not Attends (where a patient was booked in but did not show for their appointment) and Did Not Waits (where a patient turned up for their appointment but did not wait until they were called in).

$$\text{Total planned OOS} = \text{OOS} + \text{DNAs} + \text{DNWs}$$

Step 5: Determining the recurring cost per planned OOS

The recurring cost per planned OOS is then determined by dividing total value of recurring time by the total number of planned OOS over the same given period.

$$\text{Recurring cost per planned OOS} = \text{Total value of recurring time} / \text{Total planned OOS}$$

Determining the change in the cost through the patient pathway

This involved first determining the average amount of time (minutes) spent by each staff type involved in the baseline patient pathway and the average patient wait time. For example prior to the establishment of the AMP model, the typical patient pathway may have involved a patient waiting on average for 30 minutes, the surgeon spending 15 minutes with the patient, and administration spending 10 minutes with the patient.

After the patient pathway was mapped out in terms of time per staff type, this time was converted into hours and multiplied by the respective staff type's average annual wage. To value patient wait time, the average Australian hourly wage was used (\$29.71 per hour⁹).

$$\text{Value of baseline pathway} = (\text{Average patient wait time (hrs)} * \$29.71) + (\text{Average hours spent with staff type}_1 * \text{Hourly wage rate staff}_1) + (\text{Average hours spent with staff type}_2 * \text{Hourly wage rate staff type}_2) \dots (\text{Average hours spent with staff type}_n * \text{Hourly wage rate staff type}_n)$$

The same process was undertaken in the current AMP pathway to determine the cost per OOS.

$$\text{Value of current pathway} = (\text{Average patient wait time (hrs)} * \$29.71) + (\text{Average hours spent with staff type}_1 * \text{Hourly wage rate staff}_1) + (\text{Average hours spent with staff type}_2 * \text{Hourly wage rate staff type}_2) \dots (\text{Average hours spent with staff type}_n * \text{Hourly wage rate staff type}_n)$$

Determining cost efficiency

This involved calculating the difference between the baseline cost per OOS and the current cost per OOS.

$$\text{Cost savings per OOS} = \text{Value of baseline pathway} - \text{value of current AMP pathway}$$

⁹ ABS November 2014

Cost effectiveness

For applicable sites, the following outcomes were valued: a reduction in the number of ED representations within 28 days, a reduction in occupancy time for ED presentations, and an increase in surgeon capacity. The approach followed to determine the value attached to these outcomes is detailed in this section.

Valuing a reduction in the number of ED representations within 28 days

This is valued using both the number of ED representations saved in the current AMP period compared to the baseline period and the average cost of an ED representation. The average cost for an ED presentation was assumed to be \$895¹⁰.

Value of reduced ED representations = (Total number of ED representations in baseline period – total number of ED presentations in current period) x value of an ED representation

Valuing a reduction in average occupancy time per ED presentation

This was valued using the difference in the average occupancy time per ED presentation between the baseline period and the current period (minutes) and the average cost of a bedday specific to musculoskeletal conditions (sourced directly from the site). For example, in the one instance that this outcome was valued, the average cost of a bedday was assumed to be \$1,179. This equates to \$0.82 a minute (1440 minutes in a day). If the average reduction in occupancy time was 20 minutes, this equates to savings of 20 x \$0.82 = \$16 per ED presentation.

*Value of reduced occupancy time per presentation = (Average occupancy minutes baseline period – average occupancy minutes current period) * (Average cost of a bedday /1440)*

Valuing an increase in surgeon capacity

This is measured by the average amount of time a surgeon saves over all planned occasions of service, using the average wage rate of the surgeon to value this time. For example, if the surgeon spent an average of 15 minutes with the patient in the baseline pathway, but only spent an average of 3 minutes consulting with the AMP about the patient in the current AMP pathway, total time saved per OOS is 12 minutes. If there were a total of 50 OOS during the evaluation period, then this equates to total time savings of 50 x 12 = 600 minutes (or 10 hours). If the average wage rate of the surgeon is \$120 per hour, then this equates to time savings valued at \$1,200.

Value of increased surgeon capacity = (Average surgeon time saved per OOS x total number of planned OOS) x Average surgeon wage

¹⁰ ¹⁰ <http://www.ihsa.gov.au/internet/ihsa/publishing.nsf/Content/nhcdc-cost-report-2011-2012-round16-html~emergency-department-results-4-1-average-cost-admitted-ed>

Appendix 3 Patient Survey

Patient experience and satisfaction survey¹¹

Dear patient,

You are invited to take part in a survey about the care you received in <HOSPITAL NAME> where you recently attended the <ED, PAR, NEUROSURGERY CLINIC, ED SOFT TISSUE CLINIC> and were seen by the physiotherapist.

Your feedback is very important in helping us gain a picture of the care you received.

Taking part in this survey is voluntary. It is expected to take about 10 minutes to complete. None of the staff who treated you will know if you respond, and all answers provided are **anonymous and confidential**.

Your responses will only be used to provide information about the quality of the hospital services. If you do not want to take part, you can return a blank survey.

Completing the survey

- For each question please circle one number that best reflects the care you received and how you felt about it. If you make a mistake, simply cross out the mistake and circle another number.
- If you can't answer a question just leave it blank and move to the next.
- This survey may be completed by a friend or relative, however questions should be answered from the point of view of the patient.
- If you have any questions about the purpose of the survey or the use of this information, please speak with the Physiotherapist.

Which visit should I refer to?

This survey is about your most recent <INSERT NUMBER> visits where you attended the <ED/CLINIC> and saw the physiotherapist

¹¹ This survey tool has been adapted from the University of Wollongong Centre for Health Service Development Patient Experience and Satisfaction Survey.

About you

For the following questions, please tick the most appropriate box.

Your gender

- 1 Male
- 2 Female

Your age (in years) _____

Were you made aware that you were being treated by the physiotherapist and the role that they were to play in providing care to you?

- 1 Yes, before the consultation
- 2 Yes, during the consultation
- 3 Yes, after the consultation
- 4 No

Your experience of care

There are five possible responses for the following questions, ranging from **1 (strongly agree)** to **5 (strongly disagree)**.

Please circle the number that best reflects your experience of care from the physiotherapist.

	Strongly agree				Strongly disagree
1. I understood why the physiotherapist was undertaking my assessment.	1	2	3	4	5
2. The physiotherapist provided me with clear explanations throughout my assessment.	1	2	3	4	5
3. The physiotherapist understood the concerns I had about my problem.	1	2	3	4	5
4. At the end of my assessment, the physiotherapist made it clear to me about what would happen next.	1	2	3	4	5
5. My expectations of my appointment or assessment by the physiotherapist were met.	1	2	3	4	5

For the following questions, please tick the box that best reflects your satisfaction with care received from the Physiotherapist.

6. Thinking about the time you were required to wait on the day of appointment to see the physiotherapist, how satisfied were you?

- 1 Very satisfied
- 2 Satisfied
- 3 Neither satisfied nor dissatisfied
- 4 Dissatisfied
- 5 Very dissatisfied
- 6 Don't know / Can't say

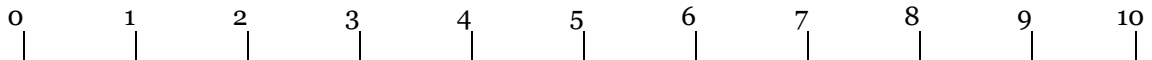
7. How satisfied were you with your experience being cared for by the physiotherapist?

- 1 Very satisfied
- 2 Satisfied
- 3 Neither satisfied nor dissatisfied
- 4 Dissatisfied
- 5 Very dissatisfied
- 6 Don't know / Can't say

8. Please circle the number that reflects your overall experience of the <ED/CLINIC>.

I had a very poor
experience

I had a very good
experience



Thank you for completing this survey. Your help is appreciated.

Please return the survey to <INSERT INSTRUCTIONS FOR RETURN>

Appendix 4 Workforce Survey

Staff experience and satisfaction survey on the role of the Advanced Musculoskeletal Physiotherapist in the <PAR clinic/Neurosurgery clinic/ED soft tissue clinic/ED>¹²

Purpose

This data collection tool is designed to examine the knowledge and attitudes of other members of the health care team that work with the Advanced Musculoskeletal Physiotherapist (AMP) or refer to the AMP Clinic. It aims to explore the level of staff satisfaction and acceptance of the AMP role.

Who should respond to the survey?

This tool should be completed by relevant executive, medical, nursing, allied health and administration staff who have been impacted or involved in the AMP program, as well as GPs or referrers to the AMP program.

Instructions for use

We thank you for taking the time to complete this survey and should you have any questions please do not hesitate to contact your site representative.

The survey is hosted by the Department of Health through Survey Monkey. The Department of Health will send the link to the online survey to each site project representative/ officer. It will then be the responsibility of the project representative/officer or delegate to collate a list of email addresses for all relevant staff at the hospital, and then distribute the survey link via email.

The survey should take approximately 10 minutes to complete. Responses to the survey will be anonymous and confidential. **If a question is not relevant to a particular staff type, respond with 'Non applicable'.**

When should the survey be completed?

This survey should be completed by staff **before the 15th of December 2014.**

¹² This survey has been developed based on the University of Wollongong Centre for Health Services Development ED staff experience and satisfaction survey on the role of the expanded scope of practice physiotherapist.

Staff experience and satisfaction survey on the role of the Advanced Musculoskeletal Physiotherapist (AMP) in the <PAR clinic/Neurosurgery clinic/ED soft tissue clinic/ED>

What is your site?

<Screening question to break down results by site/model type>

What is your role?

- Emergency Department Consultant
- Neurosurgeon
- Orthopaedic Consultant
- Neurosurgical Registrar
- Orthopaedic Registrar
- Emergency Department Registrar
- Nurse Practitioner
- Triage Nurse
- Clinic Nurse
- ED Department Nurse
- SHMO/JHMO/intern
- Allied Health Team
- Non clinical staff
- GP/referrer
- Other

	Strongly agree				Strongly disagree	N/A
1. I have a good understanding of the role of the AMP in the <PAR clinic/Neurosurgery clinic/ED soft tissue clinic/ED>	1	2	3	4	5	<input type="checkbox"/>
2. As a referrer I am supportive of my patients attending the AMP led PAR clinic/Neurosurgery clinic/ED soft tissue clinic	1	2	3	4	5	<input type="checkbox"/>
3. I am satisfied with the communication I received regarding my patient's review appointment and management plan	1	2	3	4	5	<input type="checkbox"/>
4. I have a good understanding of which patients are suitable for management by the AMP	1	2	3	4	5	<input type="checkbox"/>
5. I have a good understanding of the scope of practice of the AMP	1	2	3	4	5	<input type="checkbox"/>
6. I have a good understanding of the clinical competency package that needs to be completed by an AMP	1	2	3	4	5	<input type="checkbox"/>

7.	The AMP has the skills and knowledge to appropriately refer specific patient groups to medical /physiotherapy outpatient and specialty clinics	1	2	3	4	5	<input type="checkbox"/>
8.	The AMP has the skills and knowledge to understand and interpret diagnostic imaging	1	2	3	4	5	<input type="checkbox"/>
9.	The AMP has the skills and knowledge to discharge patients directly from the PAR clinic/Neurosurgery clinic/ED soft tissue clinic/ED	1	2	3	4	5	<input type="checkbox"/>
10.	The AMP has or is expected to improve patient access to care	1	2	3	4	5	<input type="checkbox"/>
11.	The AMP has or is expected to enhance patient quality of care	1	2	3	4	5	<input type="checkbox"/>
12.	I am comfortable being approached by the AMP for advice regarding patient management	1	2	3	4	5	<input type="checkbox"/>
13.	The AMP program is well integrated with related specialty departments (e.g. orthopaedics/neurosurgery)	1	2	3	4	5	<input type="checkbox"/>
14.	Through having an AMP in the <PAR clinic/Neurosurgery clinic/ED soft tissue clinic/ED>, specialists have been able to see a higher proportion of more complex/surgical patients	1	2	3	4	5	<input type="checkbox"/>

Appendix 5 Discussion Guide

1. AMP experience and overview

- *What has your overall experience been to date?*
 - *comfortable with case load – complexity/volume?*
 - *working collaboratively with specialists?*
 - *career/development opportunities?*
- *What do you think the key achievements or benefits of the model have been? E.g. consistency of care; specialists able to see more complex patients, relationships with hospitals, Clinical Education Framework.*
- *What have some of the challenges been? E.g. stakeholder support and buy in? Have these been overcome or not and what strategies are in place or planned?*
- *What has the retention rate for AMP been? What are factors that are likely to influence the retention of staff?*

2. Training and Education

- *How was the competency package implemented? E.g. was there a supervision model used? Were resources adapted to be fit for purpose? How and why?*
- *How did your site assess the competency of the AMP? E.g. was a learning assessment and credentialing framework used? Who were the assessors? Designation and years of experience relevant to AMP?*
- *Describe the types of learning and assessment activities that you used and how much (eg. Number of case presentations/theatre time/number of work based observations)*
- *Do you think the training and competency package is useful and sustainable moving forward – for example, are there enough staff members in a position to be able to assess and train others?*
- *What have been some lessons learned from implementing the competency package/did it achieve what it was intended to?*
- *How have you found the training days? What worked well/what didn't?*

3. Feasibility

- *Do you think the model is sustainable in its current form moving forward? What would need to be in place? E.g. infrastructure/staffing & ease of recruitment/stakeholder engagement/administrative support/ no. trained AMPs & ability to train others up*
- *If the AMP model is continued, do you have the right workforce to support it?*
- *How would you like to see the model develop/change in the future?*
- *Would any of the existing challenges be overcome if the pilot was extended?*

- *Do you think it could be replicated elsewhere – what would the key considerations need to be?*
- *How have risks been mitigated to date?*
- *What risks do you see going forward? What are some mitigation strategies?*
- *How has the wider physiotherapy department and other departments responded to the AMP role?*
- *Describe your understanding of the role of the lead site. In what ways did the lead site influence/assist the AMP clinic? What did you find most helpful?*
- *What is the likelihood of your organisation retaining the AMP role?*
- *Where there any unintended implications /impacts? Eg. Relationships with key stakeholders /effect on wider physio department.*

4. Clinic capacity

- *What are some of the reasons why the clinic hasn't reached full capacity (if applicable)?*
- *How do you think the capacity will change over the next few months and why/what evidence supports this?*
- *If the clinic is at full capacity, is there currently demand that is not being met?*

5. Sourcing baseline data

- *How was this sourced – that is for each metric, was this obtained through a retrospective audit, reports pulled retrospectively, or through consultation with a stakeholder group?*
- *What is the basis for the volume of baseline data that was collected and the points in time that were selected?*

6. Inputs

- *Confirm what time costs were included in the 'individual patient attributable time', 'non individual patient attributable time' and 'research time' – check aligns to guidance provided:*

Individual patient attributable time	Non individual patient attributable time	Research time <i>(Please enter time in separate line entries for each of these sub components)</i>
- Clinical examination/consultation	- Time managing bookings	- Initial set up & implementation time related to the AMP model
- Ordering of radiology related to patient	- Other administration time that is not patient specific as above	- Ethics
- Writing letter to GP about patient	- Team meeting time	- Evaluation
- Other patient related tasks specifically related to that occasion of service	- Other project time that needs to be spent in a recurring sense for ensuring the clinic runs as it should	- Other research

- *Are ongoing non-individual patient attributable and research costs sustainable considering staffing structure/current set up/funding etc.? If not, please estimate and describe the requirement for ongoing non-individual patient attributable and research time.*

7. External factors impacting data

- *Are there any factors or considerations we should be aware of that you think may have impacted the data? E.g. contextual things such as extended absence from staff, delays, IT issues experienced etc.*

8. Factors affecting outputs

- *How do you think efficiency will change over the next few months and what evidence supports this? Eg. AMP needing less time for a patient consultation, consulting with the surgeon at the end of the clinic, or as required, rather than after every patient.*
- *Will expenditure change over the next few months? Eg. Transferring admin tasks from AMP to admin staff.*
- *How will changes impact the cost per occasion of service?*

Appendix 6 Evaluation considerations

This appendix summarises the key considerations when undertaking an evaluation of a workforce program using the Victorian Innovation and Reform Impact Assessment Framework (VIRIAF). It summarises in order the principal steps recommended to conduct an evaluation of a similar nature.

1. Run a training session on the evaluation framework: the VIRIAF

The first step to a successful evaluation is the design of an appropriate evaluation framework that captures the key information and indicators of success that will be useful at the end of the evaluation. It is important for all stakeholders involved to understand how to apply the VIRIAF. It is recommended that a training session be conducted at the outset of the evaluation which:

- describes how to assess the appropriateness and the feasibility of a program
- what some common indicators of success are
- what some common barriers and enablers are to implementing a project of this nature

2. Design a tailored evaluation framework

After all relevant stakeholders have a solid understanding of the overarching VIRIAF, the next step is to design a tailored framework that is specific to the program being evaluated. In developing the evaluation framework and thinking about the most appropriate indicators of success, it is important to consider the end in mind – i.e. what is this evaluation going to be used for and who is the intended audience? For example, if it is an input into a broader business case to apply for ongoing funding of a program, then who are the decision makers, and what indicators of success are they going to be influenced by? This usually involves quantification of benefits and cost savings.

To avoid unnecessary data collection burden, it is recommended that the number of indicators included in the evaluation framework is limited to approximately 10-20. It is more important to select quality indicators (thinking about the intended audience of the evaluation outcomes) rather than opt for quantity.

3. Design data collection tool(s)

Based on the evaluation framework designed, the next step is to develop a single or multiple data collection tools or templates for the collection of both baseline data and current data to support the evaluation. For the collection of quantitative data, this tool may be in Microsoft Excel or another similar program that facilitates data entry and analysis.

In designing a quantitative data collection tool, it is important to consider including design features which can help ensure accuracy and consistency of data entry. Some examples are:

- Drop down menus or prepopulated fields to help with consistency of recording information
- Creation of error checks to flag where data needs to be completed
- Creation of automated calculations to avoid the user needing to calculate manually prior to entry in the data collection tool

For the collection of qualitative information, surveys, interviews and focus groups are effective methods.

4. Collection of baseline data

In any evaluation, it is important to include a baseline point of comparison to highlight what benefits or impact the current project has had. This may be through the following channels:

- Establishing a control group (i.e. concurrently to undertaking current data collection on the program or project, with this group not receiving the 'intervention' or participating in the project. – e.g. through patient mapping, observation, current reporting systems).
- A retrospective audit of patient records. In undertaking a retrospective audit, ideally data would be collected on at least 30% of the population group to be able to draw confident conclusions.
- Existing reporting systems if they were in place and if there is the option to report within a defined historical period (E.g. through filtering a date range).
- Qualitative means e.g. interviews, focus groups

Again, to avoid unnecessary data burden, baseline data should only be collected on those indicators which have been determined as carrying the most weight in terms of influencing the end audience. For example, in the case of the AMP Program, this would include:

- **Quality of care metrics:** such as the baseline proportion of patients meeting their review points on time, proportion of patients receiving a condition specific/functional measure and a quality of life measure.
- **Cost efficiency metrics:** such as the average cost of an occasion of service in the baseline period.

In determining what indicators to collect baseline data on, it is important to consider where there are other factors impacting on certain indicators. For example in the case of the AMP program, whilst the number of new and review patients seen by a specialist was collected in the baseline and the current period, reliable conclusions were unable to be drawn on the change in this indicator given the many other factors which could have impacted the result (specialist booking availability, annual leave etc.).

5. Collection of program (current) data

Data collection on the program should include the following:

- **Activity and capacity indicators:** e.g. number of OOS, referrals, bookings, clinic capacity,
- **Quality of care indicators:** e.g. the proportion of patients meeting their review points on time, proportion of patients receiving a condition specific/functional measure and a quality of life measure.
- **Access indicators:** e.g. patient wait time, occupancy time
- **Satisfaction indicators:** from a workforce and patient perspective

Collection of program data could be through patient mapping, existing reporting systems, focus groups, interviews or surveys.

6. Data analysis and reporting

Ideally, analysis should be completed on a minimum of twelve months of data (with baseline comparison). Quantitative analysis through the data collected through the data collection tool can be supplemented with qualitative analysis through information collected through other means such as interviews/focus groups.

Appendix 7 Workforce satisfaction results

Key: 1 = strongly agree; 2=agree; 3=neither agree nor disagree; 4=disagree; 5=strongly disagree

		Rural 1	Metro 1	Regional 1	Metro 2	Regional 2	Metro 3	Rural 2 (ED)	Metro 4	Metro 5 (PAR)	Metro 5 (Neuro)	Metro 6 (EDSTIRC)	Regional 3	Metro 7
I have a good understanding of the role of the AMP	1	44%	57%	50%	63%	64%	36%	29%	20%	80%	100%	46%	60%	60%
	2	56%	43%	50%	38%	21%	36%	71%	40%	20%	0%	46%	40%	40%
	3	0%	0%	0%	0%	0%	0%	0%	30%	0%	0%	8%	0%	0%
	4	0%	0%	0%	0%	14%	27%	0%	0%	0%	0%	0%	0%	0%
	5	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
I have a good understanding of the scope of practice of the AMP	1	44%	57%	50%	57%	21%	18%	43%	10%	80%	100%	38%	60%	60%
	2	56%	0%	17%	43%	29%	36%	57%	40%	20%	0%	54%	40%	40%
	3	0%	14%	17%	0%	36%	18%	0%	10%	0%	0%	8%	0%	0%
	4	0%	0%	0%	0%	7%	18%	0%	20%	0%	0%	0%	0%	0%
	5	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
The AMP has or is expected to improve patient access to care	1	56%	57%	50%	75%	43%	9%	57%	40%	60%	100%	69%	60%	60%
	2	11%	29%	50%	13%	43%	45%	43%	30%	40%	0%	15%	40%	40%
	3	22%	0%	0%	13%	7%	36%	0%	10%	0%	0%	15%	0%	0%
	4	0%	0%	0%	0%	7%	9%	0%	0%	0%	0%	0%	0%	0%
	5	11%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
The AMP has or is expected to enhance patient quality of care	1	67%	71%	33%	88%	46%	9%	57%	20%	60%	100%	75%	60%	60%
	2	11%	14%	67%	13%	31%	45%	43%	50%	40%	0%	17%	40%	40%
	3	11%	0%	0%	0%	15%	45%	0%	10%	0%	0%	8%	0%	0%
	4	11%	0%	0%	0%	8%	0%	0%	0%	0%	0%	0%	0%	0%
	5	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%
The AMP program is well integrated with related specialty departments (e.g. orthopaedics/neurosurgery)	1	33%	43%	17%	75%	64%	9%	29%	30%	80%	100%	54%	60%	60%
	2	33%	43%	50%	25%	21%	27%	43%	50%	0%	0%	38%	40%	20%
	3	22%	0%	33%	0%	0%	9%	29%	10%	20%	0%	8%	0%	20%
	4	0%	0%	0%	0%	7%	45%	0%	0%	0%	0%	0%	0%	0%
	5	11%	0%	0%	0%	7%	9%	0%	10%	0%	0%	0%	0%	0%
Through having an AMP in the PAR clinic, specialists have been able to see a higher proportion of more complex/surgical patients	1	22%	43%	17%	63%	43%	9%	43%	20%	80%	100%	46%	60%	60%
	2	22%	29%	33%	25%	14%	27%	29%	60%	20%	0%	46%	40%	40%
	3	22%	0%	33%	13%	14%	18%	14%	0%	0%	0%	8%	0%	0%
	4	0%	0%	0%	0%	14%	18%	0%	0%	0%	0%	0%	0%	0%
	5	11%	0%	0%	0%	0%	27%	0%	10%	0%	0%	0%	0%	0%

Appendix 8 Patient satisfaction results

Key: 1 = strongly agree; 2=agree; 3=neither agree nor disagree; 4=disagree; 5=strongly disagree

		Rural 1	Metro 1	Regional 1	Metro 2	Regional 2	Metro 3	Rural 2 (ED)	Metro 4	Metro 5 (PAR)	Metro 5 (Neuro)	Metro 6 (EDSTIRC)	Regional 3	Metro 7
The physiotherapist provided me with clear explanations throughout my assessment	1	94%	76%	82%	95%	88%	94%	90%	76%	93%	74%	88%	76%	97%
	2	6%	22%	18%	0%	0%	3%	4%	24%	3%	16%	12%	14%	3%
	3	0%	0%	0%	0%	13%	0%	3%	0%	3%	0%	0%	6%	0%
	4	0%	0%	0%	5%	0%	1%	1%	0%	0%	5%	0%	3%	0%
	5	0%	3%	0%	0%	0%	2%	3%	0%	0%	5%	0%	2%	0%
My expectations of my appointment or assessment by the physiotherapist were met	1	92%	73%	76%	91%	88%	93%	76%	82%	97%	74%	79%	69%	97%
	2	8%	22%	24%	5%	0%	2%	14%	18%	0%	16%	19%	15%	3%
	3	0%	3%	0%	5%	13%	1%	4%	0%	3%	5%	0%	6%	0%
	4	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%	0%	5%	0%
	5	0%	3%	0%	0%	0%	1%	4%	0%	0%	5%	0%	5%	0%
How satisfied were you with your experience being cared for by the physiotherapist?	1	89%	86%	82%	77%	88%	87%	70%	70%	93%	84%	74%	64%	96%
	2	11%	14%	18%	14%	0%	12%	22%	30%	7%	5%	26%	28%	4%
	3	0%	0%	0%	9%	13%	0%	3%	0%	0%	11%	0%	7%	0%
	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
	5	0%	0%	0%	0%	0%	1%	5%	0%	0%	0%	0%	0%	0%

