AUSTRALIAN SPORTS COMMISSION

A Contemporary Model for Athlete Care

Focus on Athlete Availability

8/31/2017

This document outlines the strategy and assessment of current and future practice in Australian National Sporting Organisations supported by the National Institute Network.

Contents

1. Background and introduction

1.1. Ambition

More Australian athletes training uninterrupted by health problems; more Australians succeeding

1.2. Purpose

This document provides a reference for discussion and implementation of evidence-based, proactive clinical delivery models (CDM) for Australia's elite athletes in the Tokyo Olympiad. The document outlines an optimal operating model and key principles of successful implementation with implications for resource allocation. The CDM should also be viewed as a basis on which important collaboration can be built across all key stakeholders within the NIN and NSO sector. The model starts with a focus on physiotherapy and medicine. However, it is acknowledged that all disciplines have an important role to play in injury and illness prevention. It is anticipated that other disciplines will also align with this model.

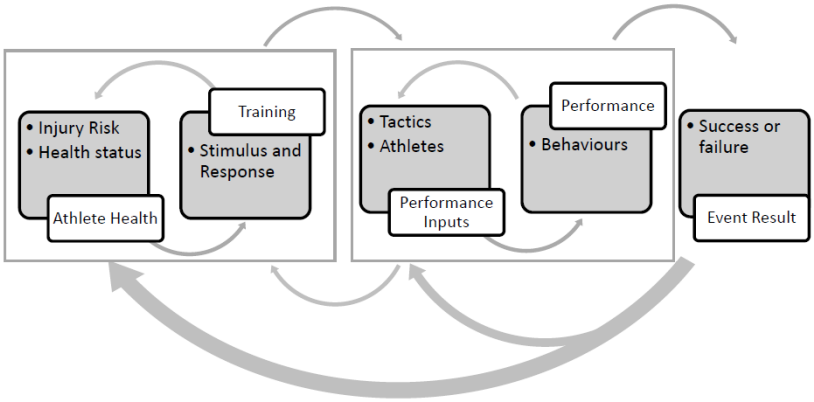
1.3. Proposed Sector Targets

1. Reduce the prevalence of modified training due to injury or illness to less than 15% per year by Tokyo 2020 (compared to current level of more than 20%)
2. Establish consultancy units (such as the AIS Athlete Rehabilitation Centre and the Prevention Centre) to model the skills and behaviours required for uptake of this operation model
3. Each foundation NSO to have accurate injury and illness surveillance data prior to 2018
4. Each foundation NSO to have a multilevel engagement and implementation strategy for the prevention of injuries and illnesses by 2018
5. Establish a training program for managers in athlete health to develop strategic capabilities by 2018

1.4. Evidence

There is consistent evidence to support that injury and illness can affect both team and individual athletes' success.[1] The evidence also suggests that injuries and illnesses should be considered preventable.

Adopting a prevention focus in Australia has the strong potential to optimise athlete performance and reduce the cost of injury and illness. It is acknowledged however that this is not the only factor impacting performance and must be considered within a systems framework.[2]



1.5. Existing approach

Current whole of sector data, collected over 3 years through the AMS, indicates that over 20% of training time is lost to injury or illness. If clinical support continues to be based on a traditional reactive model (where the majority of resources fund treatments), injury, illness and performance outcomes will remain unchanged. A number of studies indicate that improved levels of athlete availability can be achieved by augmenting the current excellent standard of injury / illness treatment with a proactive approach to prevention.

[1] Drew MK, Raysmith BP, Charlton PC. Injuries impair the chance of success in athletes: a systematic review *British Journal of Sports Medicine* 2017

[2] Mooney M, Charlton PC, Soltanzadeh S, et al. Who 'owns' the injury or illness? Who 'owns' performance? Implications of applying systems thinking to integrate health and performance in elite sport. *British Journal of Sports Medicine* 2017

1.6. What is a proactive model?

Servicing approaches vary across NSOs and sporting institutes. However current models typically focus on treatment and sit towards the reactive side of the spectrum. This model proposes a redistribution of resources and new ways of operating to shift towards a proactive way of operating.

Reactive	**Proactive**
Prevention ☐ No prevention programs are implemented ☐ A "once a year" screening is undertaken ☐ Screening data is not shared	Prevention ☐ Each athlete has a multidisciplinary prevention program ☐ Tailored to their previous injuries ☐ Controls both pathology and risk factors ☐ Updated regularly to current state of athlete
Management ☐ Staff do not meet employment standards e.g. must be an APA Sports Physiotherapist ☐ Sports medicine manager does not have appropriate qualifications e.g. administrator not health professional	Management ☐ Appropriately qualified staff ☐ Sports medicine manager has appropriate qualifications – including management
Access to medicine ☐ Doctors are engaged once the athlete has been ill or injured	Access to medicine ☐ Doctors are provided non-clinical time to engage with athlete and staff to assist in planning for prevention and performance
Access to physiotherapy ☐ Physio only engaged when athlete is injured ☐ "Maintenance" treatments supported over management/prevention programs ☐ Only clinic time is reimbursed ☐ Meetings not attended ☐ No involvement in planning	Access to physiotherapy ☐ Physiotherapist involved in planning of training ☐ Non-treatment time allocated to planning of rehabilitation programs ☐ Attending meetings ☐ Time allocated to the implementation of prevention programs
Research ☐ No involvement in research	Research ☐ Facilitates or undertakes sport driven research related to prevention and/or treatment of injuries/illnesses
Data management ☐ Data is kept in local storage ☐ Practitioners do not use AMS ☐ Paper based systems ☐ Unstructured data storage ☐ Data is not analysed regularly or at all	Data management ☐ Health data is centrally stored (in AMS) ☐ All practitioners update information regularly ☐ Structured data storage ☐ Data regularly interrogated with appropriate methodology
Staff management ☐ No succession planning ☐ No mentoring of junior staff ☐ No professional development	Staff management ☐ Active succession planning ☐ Mentoring of junior staff ☐ Time allocation to continued education including staying up-to-date with the evidence

What are the requirements of undertaking a preventative health program?

Activity or task	As evidenced by:
Accurate surveillance data	☐ All clinicians entering data into the AMS ☐ Training status updated and confirmed weekly ☐ A yearly illness report ☐ A yearly injury report ☐ Long term surveillance report across greater than 2 years
Understanding the common injuries and illnesses	☐ Mechanisms of injury/illness known ☐ Aetiologies (causes) known
Prevention programs designed for each common pathology (injury or illness) in the sport[3]	☐ Primary prevention measures outlined and implemented ☐ Secondary prevention measures outlined and implemented ☐ Tertiary prevention measures outlined and implemented
Prevention programs designed to mitigate known risk factors pertaining to the sport[4]	☐ Universal prevention measures outlined and implemented ☐ Selective prevention measures outlined and implemented ☐ Indicated prevention measures outlined and implemented
Multidisciplinary and inclusive planning	☐ The service team members are involved in the planning process for the athlete
Access to all disciplines	Access given to the following services: ☐ Medicine ☐ Physiotherapy ☐ Nutrition ☐ Strength and Conditioning ☐ Physiology ☐ Psychology ☐ Movement Science ☐ Other
Clinical services available in non-fee-for-service ways of working	Medicine ☐ Full embedded ☐ Partially-embedded Physiotherapy ☐ Full embedded ☐ Partially-embedded Nutrition ☐ Full embedded ☐ Partially-embedded Psychology ☐ Full embedded ☐ Partially-embedded

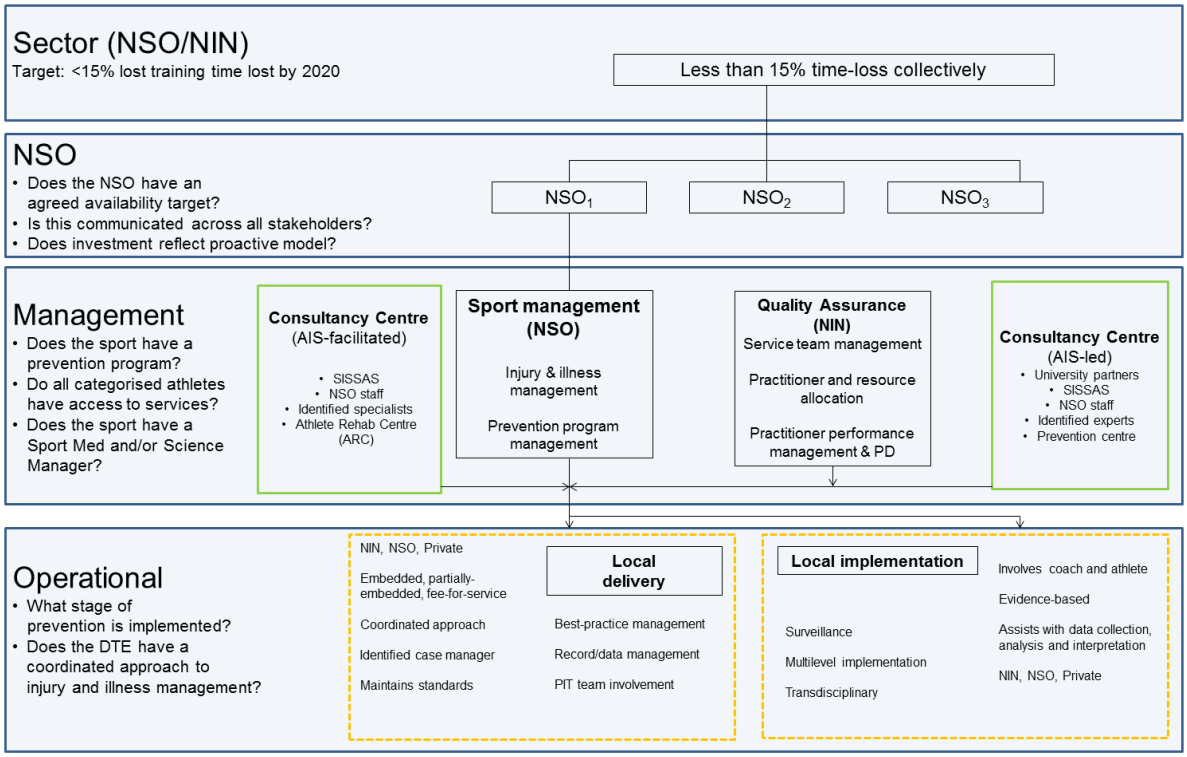
[3] Primary prevention involves removing the risk factors for the pathology; Secondary prevention involves early detection and management of pathology; Tertiary prevention involves controlling and reducing the complications of the pathology once the patient has developed the condition.

[4] Universal risk factors relate to the entire population; Selective risk factors only apply to a subgroup of the population; Indicated risk factors are individual level risks. The prevention program would therefore address population, sub-group or individual risk factors.

2. Optimal Operating model

An optimal operating model embraces equally evidence-based prevention and holistic management of injuries and illnesses. A clear delineation from reactive models is the deliberate prioritisation of prevention across strategy, management, delivery and resource allocation. A suggested delivery model with key principles is presented below.

Figure 1 – Suggested multilevel delivery model



2.1. Sector principles

- Alignment of NIN and NSOs prioritising a proactive model
- Agreed details of optimal operational model
- Agreed target and commitment to appropriate resourcing
- Ongoing monitoring of implementation and impact

2.2. NSO principles

- Foundation sports develop specific targets of availability to train and compete – achievable and best case scenario, based on evidence
    - Emerging and developing sports are educated in the principles and expected to grow capability over the Tokyo 2020 cycle
- Clearly communicated targets to all stakeholders both internal and external
- Alignment between Executive, HPM, coaches, sports science/medicine managers, athletes, and support staff
- Investment should support the requirements of a proactive approach

2.3. Management-level principles

- Appointment of NSO SSSM managers with clear delegated responsibilities and accountability

- Clear structure, responsibilities, systems and communication between NSO management (HPM, head coach, CMO, SSSM Manager) with regards to performance outcomes
    - Oversight of implementation of best practice/optimal prevention and management of injuries and illnesses
- Clearly articulated risk mitigation strategies implemented
- Up-to-date information systems, professional development, capabilities to deliver strategic objectives
- Leverage and integrate with consultancy centres (e.g. Athlete Rehabilitation Centre, Injury Prevention), facilitated by NSO/NIN managers
- Identify DTE network of suitably qualified providers – NIN, NSO and private
- Define and support provider role descriptions

2.4. Operational unit principles

- **The coach must be an integral part of local system delivery.** This would involve a transition of the way of working which is more inclusive of the clinical staff in decision making.
- Tailor service provision (both injury prevention systems and injury/illness management) to the sport, considering fully or partially-embedded as the preferred employment arrangements for practitioners as compared to fee-for-service models
- Integrate with NIN staff and structure as appropriate to support athlete requirements as determined by the NSO
- Implement supporting structure and roles in DTE – lines of communication/case management and decision making frameworks
- Provide data and feedback to coaches, NSO SSSM managers and NIN management
- Explore a national schedule outlining key roles and responsibilities of clinical staff

3. Critical capabilities for the best-practice prevention of injury and illness

A capability framework must be developed to provide training to key personnel to advance and implement preventative measures tailored to each sport. The critical sector capabilities are:

1. The ability to structure systems, accurately collect, analyse and report epidemiological data on current injury and illness rates.
2. Engage in sport and sector level collaboration to develop interventions informed by evidence and sports experience
3. Implement and monitor prevention programs based on accepted models
4. Contribute to prevention knowledge growth and its translation at both sport and system levels

4. Critical capabilities for best-practice management of injury and illness

Increase leverage of specific expertise within the network to optimise outcomes for priority athletes or difficult cases.

The critical capabilities required are:

1. Leveraging existing expertise and specialised knowledge of treatments/pathology
2. Employment standards and criteria
3. Facilitated mentoring of talented staff
4. AMS input, analysis and implementation across high performance sector
5. Training programs focussed on strategic imperatives[5]
6. Stretch roles and secondment opportunities
7. Improved retention and succession planning of key roles

4.1. Key differences

> An increase in embedded and partially embedded clinical staff[6]

> Prioritisation of resources (staffing, budgets, policy) towards prevention of injuries and illnesses

> Alteration of job descriptions to reflect the team approach to performance optimisation concurrently with injury/illness mitigation

> Creation of a 'Prevention Centre of Excellence' to support NSOs

> Creation of an 'Athlete Rehabilitation Centre' of excellence to support NSOs

> Ability to second nationally appointed staff into capability areas

4.2. Key similarities

> Retention of high level of clinical care given to athletes who require this service

> Management of athlete remains locally managed – with national support

> Focus on performance

> Athlete Management Systems remains central to record keeping

> Sport Science/Medicine Co-ordination

[5] such as leadership, communications, management and continuous growth of skills

[6] For further detail on the 'ways of working' please see the appendix

5. Appendix

5.1. Current strengths and weaknesses

Figure 1 – SWOT analysis of the current clinical model of care

STRENGTHS	**WEAKNESSES**
• Highly qualified clinicians • Mature health system • Specialist sport knowledge • Centralised database • Established network • Leveraged innovations • Minimum education standards (APA, FACSEP)	• Career structure/ lack of mentoring programs • Fee for service • Price-driven delivery • Reliant on private practice/good will • Minimal full time positions in clinical roles • Duplication of services • Inconsistent levels of integrated care • Low accountability • Reliant on athlete-coach adhering to advice • Keeping electronic records up-to-date • Inequality of services across NSOs and NIN • Management of embedded staff
OPPORTUNITIES	**THREATS**
• Potential for preventative medicine to reduce incidence • Coach education regarding preventative strategies such as load management • Greater integration/embedding staff • Cost saving • Increasing capability through formal programs • Potential to engage highly experienced practitioners in mentoring/second opinion roles • Injury / illness data collection systems (AMS) informing preventative strategies • Clinical research/epidemiology programs • AIS Athlete Rehabilitation Centre to complement NSO servicing	• Funding • Athletes “opinion shopping” • Non-evidence based practices • Historical positions/descriptions • Lack of buy-in from sector / practitioners • Prioritisation of “one-percenters” and other resources • Location of staff and athletes • Poor executive support • Poor change management • Financial and time constraints inhibiting knowledge / expertise growth • Lack of appreciation of the influence of injury/illness on performance • Lack of time for planning and reflection on current practices

5.2. Operational considerations for the prevention component

5.2.1. Shared injury/illness consulting centre

Recommendation 11: National Performance Support Consultancy Model highlights the desire and need to establish a performance support consultancy model that NSOs and the NIN can utilise for targeted priority projects. As an extension of this, under this operational model, it is envisaged that all sports will require an evidence-based, prevention program targeting their key health constraints on performance – namely injuries and illnesses. These key themes should be directed by the long-term surveillance data obtained through the AMS. A shared consultancy centre can provide the framework to deliver this target while simultaneously leveraging experiences from other sports.

Key functions:

> AIS-led consultancy centre

> Multi-disciplinary team of permanent and contracted staff

> Links to university partners to fulfil identified gaps

5.2.2. Locally managed implementation

Adopters and implementers must be engaged for effective prevention measures to be successfully instigated. Within the high performance arena the adopters are the athletes, coaching and support staff and administrators. The implementers may be from a variety of backgrounds depending on the measures to be implemented. Across most NSOs and SIS/SAS accountability is best assigned to the High Performance Manager with action responsibilities assigned to the Sports Medicine Manager. This should be included in future job descriptions and performance evaluations given its strong link to performance outcomes. The outcomes of this program must be reported to the Board of Directors such that informed and transparent decision making can be made.

Key functions:

> Locally managed implementation of a sport-wide prevention program

> Multi-disciplinary team implementation of recommendations

> Multi-level stakeholder management and accountability

> Athlete and coach education of evidence-based programs aimed to assist performance maximisation

5.2.3. Research training scheme

A target of the *Recommendation 6: National Capability Development Framework* is *"A national PhD program that develops expertise and future performance support staff".* A gap is identified in the current clinical workforce whereby the number of PhD qualified clinicians is insufficient for the expected growth of this area. Furthermore, the current post-graduate training programs do not

adequately address the growing need for clinicians to also fulfil prevention roles within their job descriptions. A PhD scheme will be required under the shared consultancy model to fulfil the capability need and skill shortfall currently identified. A consideration would be partially embedded staff members who have dual roles within NSOs and NIN with adequate time allocated to both servicing and research under the supervision of the consultancy centre. Scholarship top-ups should be a focus to recruit medical practitioners and physiotherapists into research training programs. Currently the financial constraints limit recruitment of talented personnel.

Key functions:

> Assist in the implementation of prevention programs

> Work with end-users to ensure comprehensive understanding of the issues at the coal face

> Data collection, analysis and reporting

> Liaising between consultancy leadership team and NSOs

5.3. Operation considerations of injury and illness management

5.3.1. Shared consulting centre

Recommendation 11: National Performance Support Consultancy Model highlights the desire and need to establish a performance support consultancy model that NSOs and the NIN can utilise for targeted priority projects. As an extension of this, under this operational model, it is envisaged that all sports will require evidence-based, treatment and rehabilitation programs for the athletes requiring specialised care beyond the capacity of the NSO to provide. This service will be required to work in collaboration with the NSO staff. This model is not designed to replace the high quality care already offered but to value add where indicated.

Key functions:

> AIS-led athlete rehabilitation centre

> Multi-disciplinary team of permanent and secondment staff

> Linkage to university partners to fulfil identified gaps

> Value-add to NSO staff members where specialty consultation is required

5.3.2. Locally managed routine care

Recommendation 12: Direct Service Model outlines the requirement for improved alignment and strategic allocation of resources to deliver sport-centre direct servicing. It is envisaged that within each NSO identified personnel – who meet the employment standards – are engaged in the daily training environment. In the DTE, an increase in the time funded for clinical staff is required as this is currently insufficient to reach the goals of this policy. Clear measures of accountability and

responsibilities should be developed to ensure streamlining of reporting while maximising the alignment of the services to the NSO High Performance Plan.

Key functions:

> Locally managed treatment of athletes within a daily training environment or competition

> Multi-disciplinary team approach to the management of the health concern

> Multi-level stakeholder management and accountability

> Coordinated communication system to ensure appropriate reporting of all injury/illness concerns

> Athlete and coach education of health status, limitations and ways to promote recovery from the health concern while reducing complications such as subsequent injury, poor performance or retirement from the sport

5.3.3. Specialisation training scheme

Recommendation 7: Performance Support Staff Development Program reiterates the sectors desire for continual improvement to the performance support network. An objective of this recommendation is a training program for talented personnel covering various themes. There are currently training programs already offered through professional associations which align to the standards of employment. For example, physiotherapists have a three tiered system from graduate to Titled Sports Physiotherapist to Specialist Sports Physiotherapist. Similarly an established program exists for Sports and Exercise Medicine Physicians. These offer opportunities to the sector to leverage off these capability processes with minimal investment. For established senior staff already possessing these qualifications, opportunities should be explored to establish an AIS-led training program similar to that offered to the Coaching and Leadership cohorts that aligns to the strategic objectives outlined in this operational model.

Key functions:

> Assist in the treatment of complicated cases

> Succession planning

> Developing capability to provide specialist care

> Liaising between consultancy leadership team and NSOs

5.4. Governance

Good governance informing matters of sport science and sports medicine practice is essential for organisational stability and efficient use of resources. Integrity threats must constantly be anticipated and mitigated. While stakeholders operating in the DTE should be encouraged to be as autonomous as possible, there must be central support and leadership from the AIS on issues of integrity and

athlete safety. The AIS SSSM Best Practice Principles must be accepted as part of the operating model in all high-performance DTEs. Significant developments on matters of integrity and athlete safety should be addressed, articulated and guidance provided in an efficient and timely manner. Integrity and safety policy settings should be assessed as part of scheduled sports performance reviews. The proactive contemporary model of care has four pillars:

1. Prevention first
2. Timely and evidence-based, best-practice care
3. Governance and management
4. Research

Figure 2 - Service-oriented pillars and their role-responsibilities

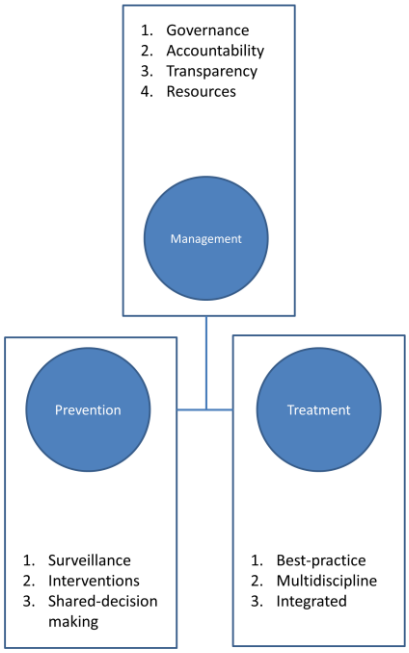
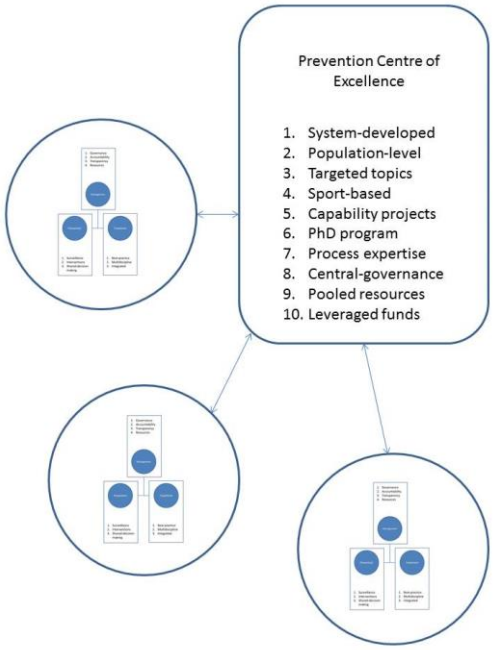


Figure 3 - The integration with a proposed research consultancy model to assist in the research pillar



5.5. Ways of working

5.5.1. Fully embedded clinical delivery model

Description

Within the NIN, no medical personnel are fully embedded in an NSO. In the full-time model, the role of a physiotherapist is to provide all services to the athletes encompassing injury prevention, treatment of minor symptoms, injury management and intensive rehabilitation of complex injuries where indicated.

Advantages

The specialist sports knowledge such practitioners bring to their sport.

Focussed 'super-specialist' for that sport

Disadvantages

Potential pitfalls of the fully embedded CDM include deskilling, professional isolation, integrity pressures and conflicted clinical drivers.

5.5.2. Partially embedded clinical delivery model

Description

The NIN provides several opportunities for both medical personnel and physiotherapists to be partially embedded in a particular sport(s). In this model, a time allocation relative to the number of athletes is apportioned. In this manner it is considered a 'capitation' method of employment.[i] Reasons for the partially embedded model are usually insufficient numbers of athletes to warrant full-time positions, insufficient funding for positions, diverse or remote athlete locations or inadequate resource allocation (prioritisation of other services). It is expected that the partially embedded staff member provides the same services as the fully embedded model. However, the ability to achieve this is dependent on many factors – most importantly is the athlete to clinician ratio. These positions most typically involve contracts for non-clinical roles (injury coordination and athlete tracking, AMS recording, synthesis and dissemination, medical coordination and compliance and performance team meetings) although not exclusively.

Advantages

Fulfil various needs, not limited to the sport

Cost-effective

Diversity of roles for personnel

Maintain professional relationships and interactions, external to the sport

Disadvantages

Inadequate resourcing to permit the provider to deliver outcomes (often through creep of the agreed cohort numbers)

Unrealistic expectation of deliverables, insufficient time for the provider to engage effectively with national systems and blurred reporting lines

5.5.3. Fee-for-service

Description

A significant proportion of the clinical delivery is sourced by privately employed clinicians who provide appointment based service provision. In this model, reactive care is provided – albeit of very high standard. Proactive care is generally incompatible with a fee-for-serve delivery model, although supplementation with contracted, non-clinical support is used to complement this model. Many SIS/SAS or NSOs provide support for athletes via a gap payment after insurance reimbursement, to minimise the impost on the athlete.

Advantages

This allows resource allocation to be maximised by flexible service arrangements

Costs are partially offset through insurance reimbursement to a defined limit

Does not require human resource management

Disadvantages

Potential pitfalls of the fee-for-service CDM include less than optimal clinical communication, lack of continuity of care, providers having less of a 'hands-on' understanding of the specific sport and intervention being reactive rather than preventative. Time is rarely allocated for non-clinical service delivery.

Inability to manage personnel, outsourcing of recruitment, retention and professional development

Low oversight of practice

Increased costs compared to salaried employment[ii]

[i] Gosden T, Forland F, Kristiansen I, et al. Capitation, salary, fee-for-service and mixed systems of payment: effects on the behaviour of primary care physicians. The Cochrane Library 2000