

# Allied health workforce

## Advanced practice case study

### Physiotherapy-led developmental dysplasia of the hip clinic

**Professions involved:** physiotherapy and sonography

**Organisation:** Western Health

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#### Background

Western Health is a metropolitan health service in the western region of Melbourne, Australia. Western Health introduced paediatric orthopaedic physiotherapy-led clinics in 2009 as a part of the state-wide strategy to reduce paediatric orthopaedic waiting lists.

In 2009 patients with suspected DDH (developmental dysplasia of the hip) were seen at Sunshine Hospital by an appropriately skilled grade 3 advanced practice physiotherapist in a general clinic. Patients would see a grade 3 sonographer at a separate appointment often on a different outpatient visit. From 2009–10, births at Sunshine hospital increased by more than 30 per cent, creating demand for a dedicated clinic to review infants with risk factors for DDH.

In April 2011 a new physiotherapy-led DDH clinic was introduced.

The clinic screens infants with a risk factor for DDH or clinical signs of DDH, and receives referrals internally and from providers such as general practitioners to meet the needs of the community.

The new clinic comprises a sonographer classified as grade 3 or above, who performs ultrasounds on infant hips in collaboration with an advanced practice physiotherapist.

#### Drivers for change

Before the introduction of the DDH clinic at Sunshine Hospital in 2011, infant hip screening was inconsistent. Issues such as cost implications, patient risk and varying service provision resulted in high clinical risk that needed to be addressed.

The drivers for change were:



## Patient-based implications

- There was a potential risk of adverse events such as late-detection of DDH requiring surgical intervention and possibly leading to poorer clinical outcomes.
- The timing of reviews/investigations was not in line with evidence-based practice leading to increased risk of delayed diagnosis and management for DDH.
- There were no clear guidelines for the inclusion criteria and pathway for children with risk factors for DDH. As a result, not all infants who needed a hip ultrasound were given one, and not all infants who had an ultrasound also received a clinical assessment.
- Parents had to bring their infant to the hospital twice for investigation of their hips, as the clinical assessment and ultrasound were performed on separate days.
- As ultrasound and clinical assessment were not occurring together, the advanced practice physiotherapist was not getting the full benefit of the ultrasound investigation. The viewing of real-time ultrasound can greatly enhance the physiotherapist's clinical reasoning and differential diagnosis.

## Service-based implications

- There was no formal credentialing for advanced practice physiotherapists working in the clinic and no optimal training environment for sonographers.
- Before 2011, the lack of a centralised clinic made it difficult to undertake training of new staff, leave cover and up-skilling for succession planning.
- The rapidly increasing birth rate at Sunshine Hospital necessitated a review of systems to maximise efficiency and optimise the available workforce

## Financial implications

- A higher incidence of adverse events, such as late-detected DDH requiring surgical intervention, led to increased costs to the patient and service.
- The requirement to attend multiple appointments for the same condition was not cost effective and was inconvenient for patients and families.

## Solution and implementation process

The DDH clinic was developed following a comprehensive consultation process with key stakeholders, including orthopaedic surgeons, radiologists, ultrasonographers, paediatric outpatients, paediatricians, the maternity ward and special care nursery.

The consultation was driven by the advanced practice physiotherapist and the coordinator of advanced practice physiotherapy.

The following table details the steps undertaken to establish the DDH clinic.

| Stage               | Action  | Timeframe                     |
|---------------------|---|-------------------------------|
| Service development | Strong communication links developed with similar clinics at The Royal Children's Hospital and Barwon Health. This comprised interviews with paediatric orthopaedic surgeons, paediatricians, radiology staff, outpatient staff and physiotherapists. | October 2010 to February 2011 |
| Service development | Undertook a literature review covering screening, examination and management of DDH.  | October 2010 to December 2010 |
| Service development | Collaborated with the orthopaedic surgeons and paediatricians for the development of an evidence-based clinical practice guideline tailored to the needs of the Western Health families.  | January 2011 to April 2011    |

|                                       |  |                           |
|---------------------------------------|--|---------------------------|
| Service development                   | Collaborated with orthopaedic surgeons for development of an integrated assessment and clinical pathway.   | February 2011             |
| Service development                   | Collaborated with orthopaedic surgeons for development of a clinical governance structure including competency checks and monitoring for advanced practice physiotherapists.               | February 2011             |
| Role development (including training) | Developed education for staff regarding the clinical pathway.  | March 2011                |
| Service implementation                | The clinic structure was realigned to stream patients into a single clinic allowing concurrent assessment and ultrasound.  | March 2011                |
| Service implementation                | Cabling installed to link ultrasound machines to the radiology department computers. This link enabled the radiologists to immediately view and report ultrasounds.                        | March 2011                |
| Monitoring and evaluation             | Recording and analysis of service data. This data was regularly monitored during implementation of the project, especially to ensure a trend of reducing appointment numbers for families. | April 2011 to July 2011   |
| Monitoring and evaluation             | Development of staff and family and carer service evaluation surveys to enable feedback and subsequent changes to the service.   | March 2011                |
| Monitoring and evaluation             | Patient satisfaction measured before and after implementation via distribution of service evaluation surveys to family members.  | October 2010 to June 2011 |
| Monitoring and evaluation             | Service evaluation surveys were administered to all staff involved.  | May 2011                  |

**Table 1: Clinic development, implementation and monitoring**

An existing physiotherapy staff member had already completed additional training – a postgraduate Specialist Certificate in Paediatric Orthopaedic Physiotherapy (SCiPOP) – through The University of Melbourne to qualify them for the role.

The ultrasound department had some sonographers experienced in infant hip ultrasounds who were able to begin work in the clinic and train new sonographers in infant hip ultrasounds.

In addition to external training, a comprehensive clinical governance structure was developed for the DDH clinic that included both internal and external training and competency assessment.

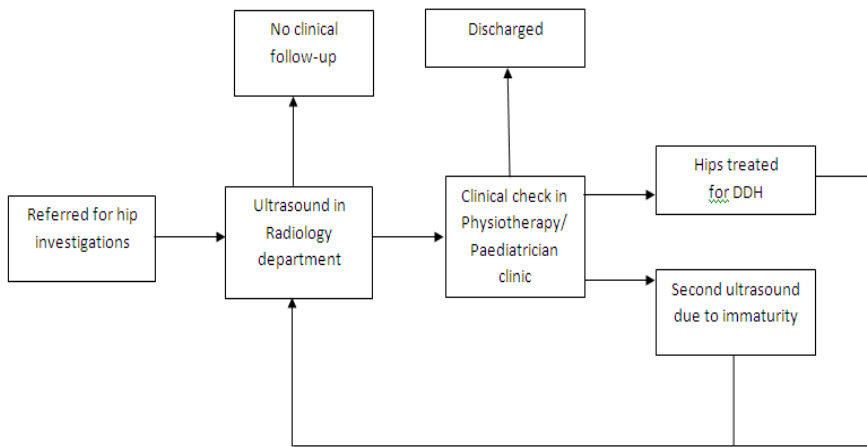
Clinical competencies for advanced practice physiotherapists undertaking the DDH clinic role were developed and approved by orthopaedic surgeons and the Western Health Allied Health Credentialing Committee.

Western Health also has regular re-credentialing requirements for all therapists working in an advanced practice role, including physiotherapists working in the DDH clinic.

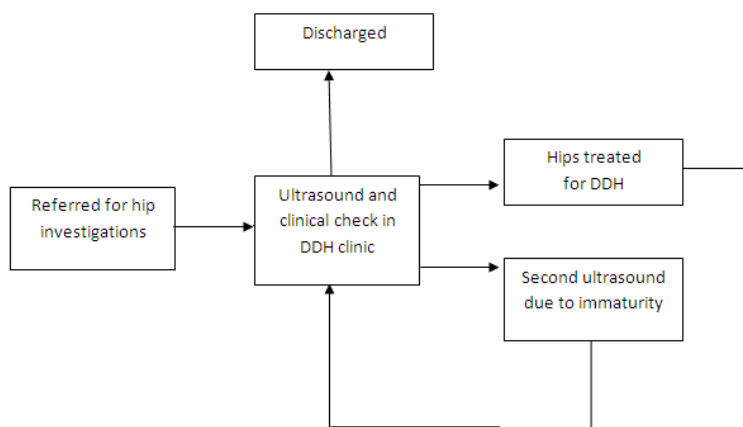
Currently there are two treating physiotherapists who have undergone the required postgraduate study and Western Health credentialing, allowing them to work in the clinic.

The role of the DDH clinic is 0.2 EFT as a part of a greater 0.95 EFT senior clinician physiotherapy role, and 0.1 EFT out of a 1.0 EFT sonographer plus 0.1 EFT training sonographer in most clinics.

The patient flow before and after implementation of the DDH clinic is outlined in Figure 1 and Figure 2.



**Figure 1: Patient flow, prior to implementation of the physiotherapy-led DDH clinic**



**Figure 2: Patient flow, after implementation of the physiotherapy-led DDH clinic**

## Challenges

### Communication

Due to the large number of stakeholders it was not always possible to meet with all stakeholders during the implementation of the clinic.

To maintain communication with the limited face-to-face meetings, frequent email communication was necessary.

Additionally, new working relationships had to be built between physiotherapy and sonography, as these professions had not worked with the same level of collaboration before.

### Clinical governance

The clinical governance structure was also challenging. Built from scratch, this was a significant task that required considerable time to establish.

Clinical practice guidelines and competencies were written and endorsed by the allied health advanced practice credentialing committee. Staff were required to complete the credentialing process before the clinic could begin.

Currently, physiotherapy staff credentialed for the DDH clinic need to be re-credentialed every three years, undertake monthly supervision, annual performance appraisals and biannual documentation audits.

## Evaluation

Evaluation of the clinical change was also problematic. It proved difficult to engage families, and encourage them to provide feedback despite the use of several methods (such as questionnaires given out in clinic and surveys sent home).

Although valuable feedback was received, the response rate was lower than expected. To get a better understanding of the service both before and after implementation, in future the service would seek consent from families to receive surveys via email.

## Credentialing

Ongoing challenges include the credentialing of practitioners (although this is now addressed through the existing clinical governance structure), physiotherapy succession planning and staff turnover (especially sonographers).

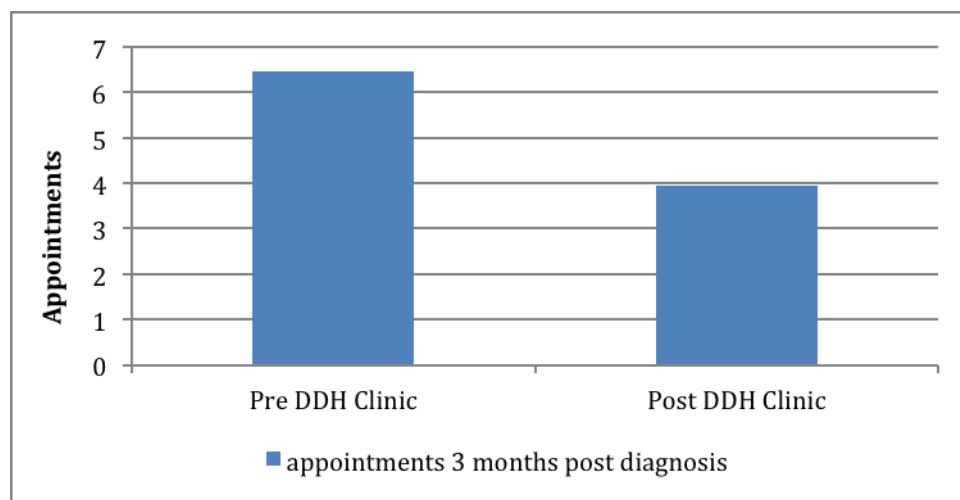
## Outcomes and impacts

The clinic has significantly reduced the number of appointments each family is required to attend.

Families of children diagnosed with DDH were required to attend an average of 3.9 appoints per month for assessment and management of their child's DDH, compared with an average of 6.4 appointments before the implementation of the clinic (Figure 3).

Overall, the establishment of the clinic resulted in a reduction of 192 appointments involving 124 families over the four-month trial period (April 2011 to July 2011).

Western Health has provided 2,640 DDH clinic appointments, comprising a hip ultrasound and concurrent clinical assessment by an advanced practice physiotherapist, in the four years following implementation of the DDH clinic (April 2011 to April 2015).



**Figure 3: Appointments required in a three-month period post positive diagnosis of DDH**

Since implementation of the clinic, the time between the diagnosis of DDH and the subsequent review by the physiotherapist for treatment has been reduced from 14 to zero days. This has ensured no delay in provision of treatment.

Earlier treatment can have an effect of the length of time that an infant is required to wear a brace, with younger children requiring bracing for a shorter period of time (Weinstein et al. 2003).

Adopting evidence-based clinical guidelines has helped to ensure children are scanned at the optimal time in their hip development.

These guidelines minimise the risk of adverse outcomes. Aligning the timing of the initial ultrasound examination has also reduced the occurrence of unnecessary scanning by 30 per cent, a significant cost saving for the organisation.

Five sonographers and two physiotherapists have been trained in the assessment and management of DDH. The development of competencies for physiotherapists working in the clinic has assisted to maintain the high standard of assessment and treatment skills of new staff working in the area.

The most recent family/carer satisfaction surveys post implementation of the clinic (n = 38) demonstrated 100 per cent satisfaction with the number of appointments required to attend and 93 per cent satisfaction with the wait time for an appointment.

All families and carers surveyed were satisfied that the number of appointments they were required to attend was manageable. This was a significant improvement compared to pre-implementation satisfaction levels of 80 per cent, 60 per cent and 90 per cent respectively.

## Conclusions and lessons learned

At Western Health the collaboration between highly skilled physiotherapists and sonographers has enabled the clinic to:

- reduce the number of appointments that families need to attend for assessment and treatment of children who have risk factors and are diagnosed with DDH
- reduce the number of appointments that the hospital needs to provide and potentially reduce the late diagnosis of DDH, both of which provide potential cost savings and improve patient care.

This is a good outcome for both the hospital and families as an early diagnosis often means a child is only required to wear a brace rather than have surgery and then be fit with a bulky, heavy plaster cast (Weinstein et al. 2003, p. 1827).

On reflection, greater pre-implementation data would help to more closely and effectively evaluate the success of the clinic, and would inform other health services looking to implement a similar service.

Careful consideration should also be given to implementing rigorous clinical governance structures to ensure ongoing success of the clinic and for succession planning.

Communication with key stakeholders is also imperative to ensure that all parties are working cohesively during the planning and implementation of the project.

A clinic such as this would be useful for health services wishing to streamline their DDH assessment and management, or for services in which collaboration with radiology services is necessary.

## Future directions and sustainability

The trial period was extremely successful and the clinic is now a permanent part of the outpatient services provided at Sunshine Hospital.

In the future, consideration may be given to adding an orthotist to enhance the patient experience and reduce the need for another appointment for infants diagnosed with DDH.

Expansion of the clinic may be required in the near future due to the growing births at Western Health.

The clinic provides specific research opportunities with a large cohort of infants diagnosed with DDH and treated at the centre, as well as other similar clinics being run in other parts of the state.

Further evaluation of the clinic's impact on clinical outcomes, cost effectiveness and adverse events is also of interest.

The development of clinical guidelines and competencies, which may be transferrable across services, has ensured that staff turnover can occur with minimal risk of information loss and that succession planning can be undertaken for advanced practice physiotherapy roles.

Regular re-credentialing ensures that involved clinicians continue to keep up with current practice.

## References

Weinstein SL, Mubarak SJ and Wenger DR 2003, 'Developmental hip dysplasia and dislocation: Part I', *Journal of Bone and Joint Surgery*, vol. 85, no. 9, 1824–32.

## Key words

DDH, hip dysplasia, ultrasound, physiotherapy

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