A10: Paediatric 24-hr Postural Management Service Development - The Waitemata District Health Board Journey

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Learning objectives:
Upon completion of the session, participants will be able to:

1. Describe the quality improvement programme for paediatric 24-hr postural management within Waitemata DHB
2. Use the information to consider similar Guidelines within their area of practice
3. Identify key practice points for training of clinicians

Session description:
An international consensus statement recommends 24-hr postural management programmes (24-hr PMP) for children with complex disabilities to prevent or minimise postural deformities (1).

Whilst therapists receive mandatory training, and must be credentialed (WMPM1 and Lying) to prescribe this specialist equipment, there is variance within our practice (WDHB), primarily due to unclear protocols; range of clinical experience and confidence amongst therapists.

Our key goals have been to achieve a consistent and quality service in the provision of postural management to all clients, and that consideration of sleep function is integral to the assessment of every child within our service. We have taken a focused approach to on-going training emphasising the importance of positioning for function across all areas of life and considering all affected body systems (cardiorespiratory, gastrointestinal, musculoskeletal etc.). A clinical guideline and pathway development was commenced, with support from the CWF Leadership Team.

This session will describe findings from staff surveys, an overview of initial WDHB Training, Literature Reviews, the influence of SUDI guidelines, and development of the WDHB Paediatric 24-hr Postural Management Pathway – an interactive tool designed to assist the MDT in providing consistent care for these children. It will also demonstrate our wide collaborative approach with family, medical, nursing and therapy teams.

Key Practice Points: Development of a clinical guideline/ pathway tool for paediatric 24-hr Postural Management service assists MDT collaboration, and clinician skill and confidence when providing care to children with complex neurodevelopmental disabilities within WDHB.
Regular and on-going training and collaborative work practices aim to ensure consistency and quality of care for these children and families.
Further work is needed in collaborative development of protocols for safe management of alternative sleep positions. Further research is needed - to determine those children for whom this approach is not successful; what strategies may improve adherence.

Content references:

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2. Blake, S., Logan, S., Humphreys, G., Mathews, J., Rogers, M., Thompson-Coon, J., . . . Morris, C. (2015). Sleep positioning systems for children with cerebral palsy (Review). Cochrane Database of Systematic Reviews, 11.
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4. Humphreys, G., & Poutney, T. (2006). The development and implementation of an integrated care pathway for 24-hour postural management: a study of the views of staff and carers. Physiotherapy, 92(4), 233-239.

A11: An innovative method to assess the risk of body shape distortion

Bas Jansen, PT

Learning objectives:
Upon completion of the session, participants will be able to:

1. Identify who is most at risk of body shape distortions
2. Understand the importance of the equilibrium of the Sterno-Spinal Line (SSL)
3. Identify the clockwise or anti clockwise direction/ rotation of the SSL in various asymmetrical lying positions
4. Accurately predict chest distortions in relation to asymmetrical prone, supine and side lying positions
5. Objectively assess an individual's lying position and correctly categorise them using the 'Jansen/Baptist positioning chart'
6. Learn about a new, objective innovative method to assess lying positions during the night and how this could be a valuable addition to their practice

Session description:
A person's lying posture can have a distorting impact on their body shape and structure. This is particularly relevant to people with mobility impairment. Their reduced ability to effectively change position when lying in bed appears to be directly related to the development of destructive changes in body shape and the impact on health, function and quality of life. It appears that the interrelationship between position/posture mobility and gravity determine body shape. More research is needed to get a better understanding of how the body distorts and how this can be prevented (1,2,3,4,5).

Our goal is to better understand the relationship between mobility impairment, positions adopted in lying, body shape distortion and the influence of gravity. At this stage we focus on the distortion of the chest as it is most vulnerable body structure to distortion.

- I will give an overview of the biomechanics of body shape distortion in relation the Sterno-Spinal Line (SSL) as explained in the article 'Biomechanics and prevention of body shape distortion (1,6,7).
- I will explain the components and demonstrate the practical use of an innovative, low cost, in home and user-friendly overnight monitoring system. It can identify risk of body shape distortions in relation to night time positioning and movement patterns, and the effectiveness of the management strategies applied. Its application within research will also be explored.

Recent studies found that rigorous research should be directed towards the effectiveness of postural care interventions in preventing body shape distortions and improving the health and quality of life of people with mobility impairments (2,5).

It is our hope that in the near future this system will be available widely and can be used as both an assessment and research tool. We are currently assessing the reliability and validity of the system in collaboration with ECU. Early trials are providing some exciting and promising results.

Content references:

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2. Robertson, Janet, Susannah Baines, Eric Emerson, and Chris Hatton. 2016. "Postural Care for People with Intellectual Disabilities and Severely Impaired Motor Function: A Scoping Review." *Journal of Applied Research in Intellectual Disabilities: JARID*, December. doi:10.1111/jar.12325.
3. Sato, Haruhiko, Toshiyuki Iwasaki, Misako Yokoyama, and Takenobu Inoue. 2014. "Monitoring of Body Position and Motion in Children with Severe Cerebral Palsy for 24 Hours." *Disability and Rehabilitation* 36 (14): 1156–60.
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6. Horimoto, Yoshitaka, Yusuke Osuda, Chiharu Saito, Atsushi Suzuki, Takeru Kondo, and Satoshi Tsugawa. 2014. “Relationship between the Degree of Thoracic Deformity and the Angle Formed by a Line Connecting the Sternum and the Spinous Process of the Vertebrae in Individuals with Severe Motor and Intellectual Disorders.” Journal of Physical Therapy Science 26 (1): 21–23.
7. Horimoto, Yoshitaka, Yusuke Osuda, Chiharu Takada, Satoshi Tsugawa, Naoki Kozuka, Susumu Yoshida, Takuya Otani, and Makoto Miwa. 2012. “Thoracic Deformity in the Transverse Plane among Adults with Severe Cerebral Palsy.” *Journal of Physical Therapy Science* 24 (8): 763–66.