# Motor trajectory of extremely preterm infants born without cerebral palsy

Amy Warren Neonatal Physiotherapist
St Michael's NICU

## Introduction

Very preterm infants are shown to perform below term born peers on standardised tests of motor development through the first year of life and are slower to attain motor skills. Six times more likely to have a moderate motor impairment and nine times more likely to have a mild motor impairment than children born at term. Although these motor impairments are often considered to be mild in comparison to cerebral palsy, their impacts are far reaching and can influence learning, attention, and self-esteem. The Alberta Infant Motor Score has high predictive validity to detect motor deficits, being indicative in the follow up of preterm children's motor development in the first 18 months of life (Spittle et al 2015).

Aim

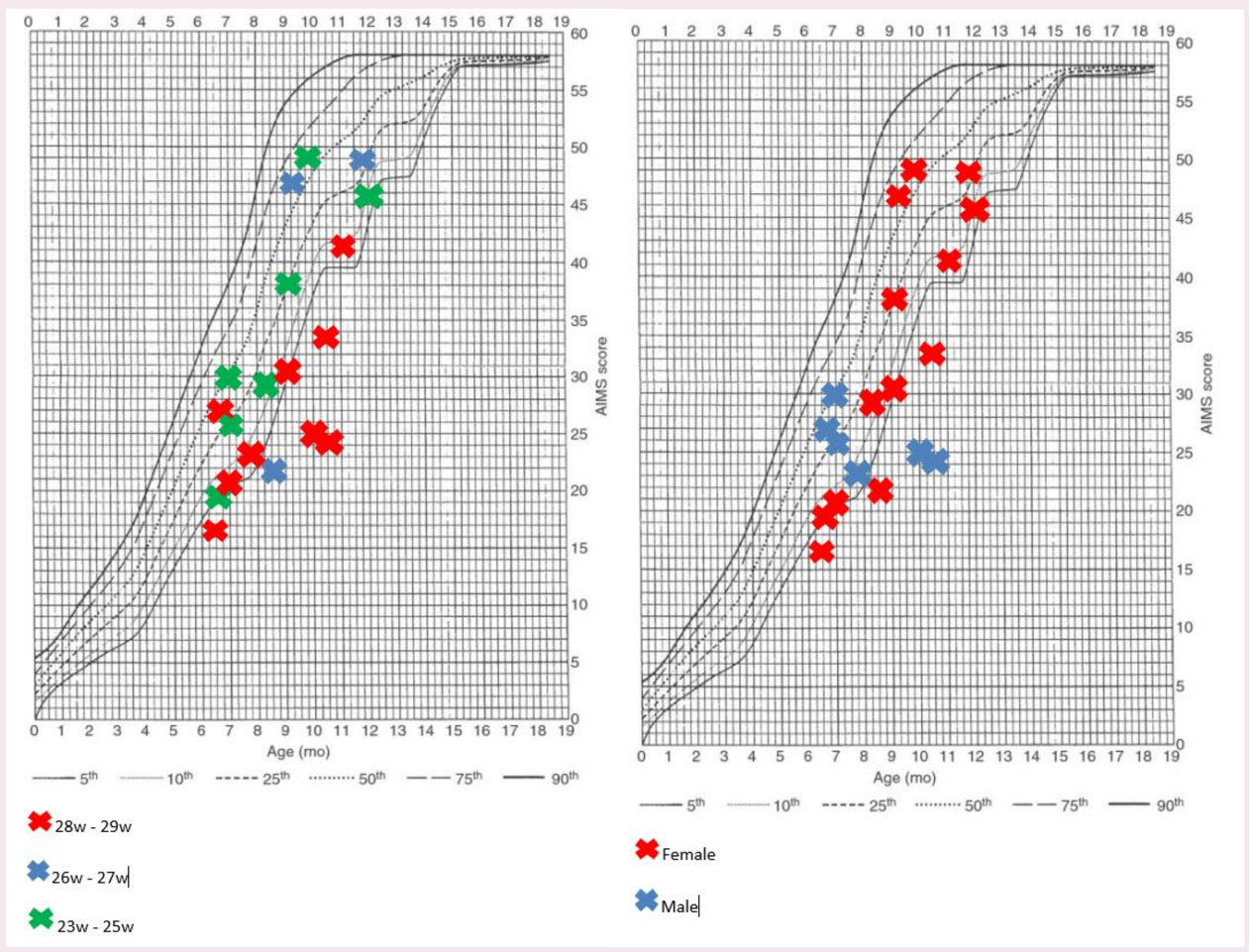
To investigate gross motor development in babies born under 30 weeks gestation, without cerebral palsy, over the first year of life using the Alberta Infant Motor Scale (normative values Johanna Darrah et al 1998 and 2014).

## Method

Population
Data was collected from all babies born at less than 30 weeks gestation (n=21) born in a tertiary neonatal unit over a 1 year period (2022).
Any infant with cerebral palsy (classified by absent fidgety movements between 12-16 weeks) or a known separate diagnosis that was identified to affect motor development were excluded, as well as incomplete data due to non-attendance (n=2).

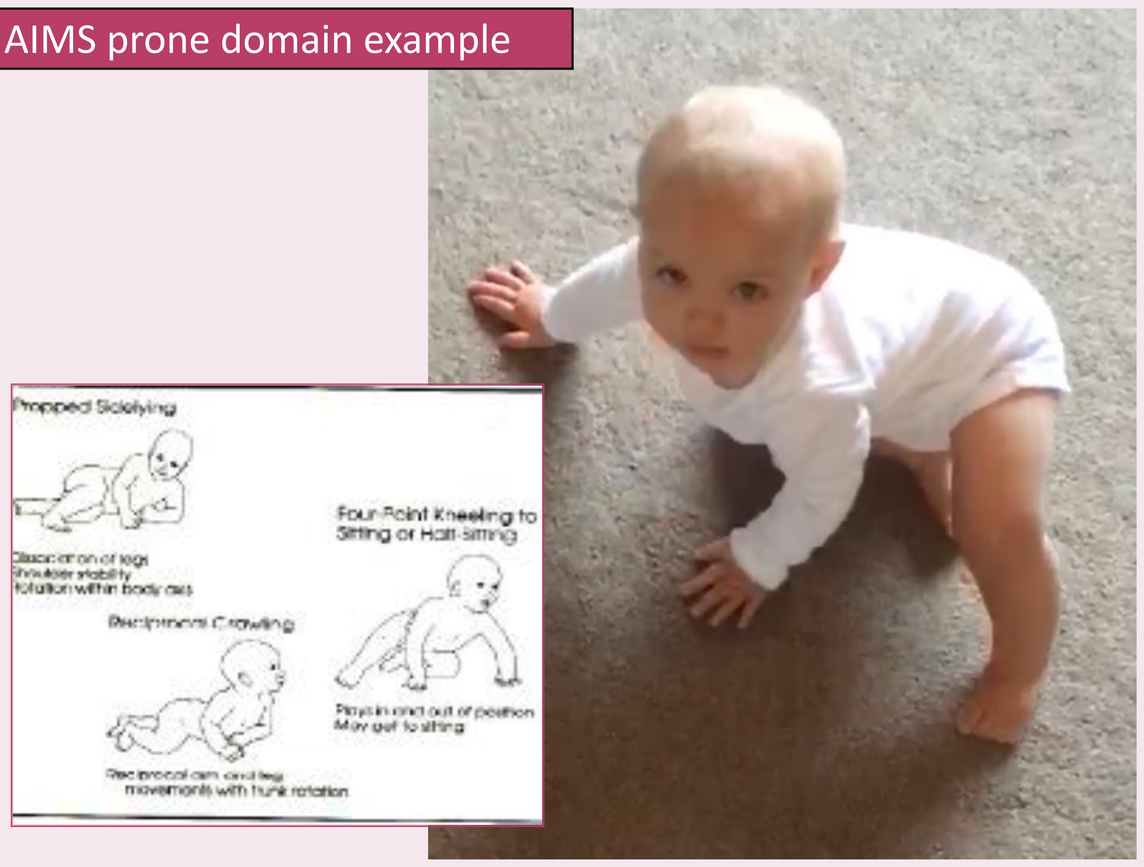
Data collection
The gross motor development of 19 babies (m=6 f=13) were scored using the Alberta Infant Motor Score (AIMS) between 6-12 months corrected age (mean 9m). Scores were calculated to establish the levels of gross motor delay. Significant delay was quantified as below the 5th centile and moderate delay below 10th centile at 6-18 months (Darrah et al 2014).

## Results: AIMS centile ranks graph
### Gestation and Sex

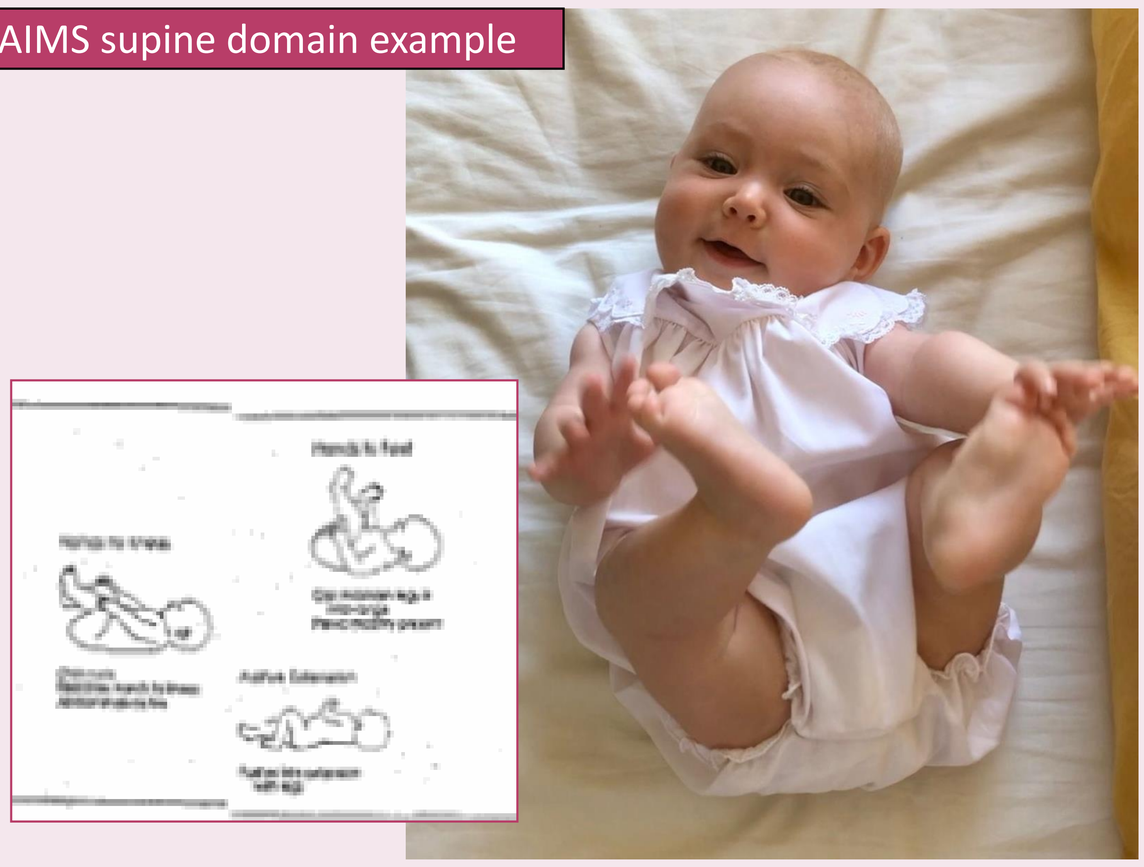



< 10th centile = 58% (11/19)
< 5th centile = 26% (6/19)
Over half of this preterm cohort had moderate gross motor delay and over a quarter had severe gross motor delay.
Within this cohort females had a more favourable motor outcome reaching normal range by 11-12 months, whereas males were more likely to have delay lasting throughout the first year.
Within this cohort we did not observe any clear relationships between level of gross motor delay and extent of prematurity. However, we observed that infants with more extreme prematurity born at 23-27 weeks were able to reach normal or near normal motor development at 11-12 months.

## AIMS prone domain example




## AIMS supine domain example



## Conclusion and Recommendations

- Babies born under 30 weeks gestation have a suboptimal gross motor trajectory when compared to their term age equivalents, with over half having moderate to severe delay when assessed using the AIMS.
- Enhanced follow up and early motor intervention for this population, especially within the first year of life, would be of benefit to maximise outcomes.
- Continued follow-up with comparison to the Bayley Scales of Infant Development gross motor domain to establish if gross motor delay is present at 2 years corrected or if there is a relative "catch up" in gross motor skills.
- Further research could explore the relationship between AIMS scores and general movement motor optimality score at 12-21 weeks, to determine the predictive validity of this measure for motor delay.

Amy.warren2@UHBW.nhs.uk