SAVING BED DAYS IN NEONATAL INTENSIVE CARE (NICU) BY SUPPORTING FEEDING PROGRESSION AND DISCHARGE: COST SAVINGS CALCULATIONS.

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Introduction

Preterm infants are often delayed in attaining oral feeding which is an important hospital discharge criteria. Recent prevalence estimates of oral feeding difficulties range from 15 to 21 %[1] . In Ireland with 300 neonatal cots nationally[2] and approx 11,000 babies admitted to neonatal beds per annum in Ireland, a prevalence of feeding difficulty inevitably exists. However Irish NICUs have sporadic SLT input and multidisciplinary approaches to managing feeding problems are lacking. Additionally SLTs in other tertiary centres see neonates referred from NICUS due to lack of services, incurring additional costs of care there. A recent cochrane review[3] identified that oral stimulation in preterm infants can reduce time to transition to oral feeding, duration of hospitalisation and duration of parenteral nutrition. Such reductions should have an impact on reducing cost of care. This study aims to identify potential cost savings in one local NICU by assessing the impact that one specialist SLT may have in reducing length of hospital stay.

Methods

Using local figures, potential cost savings in bed days was estimated for one NICU using a straightforward calculation, combining *one finding* of the cochrane review for potential hospital i.e. bed days saved, average of 5.26 (SD 3.19 -- 7.34), with known prevalence figures (15-21%), admission data for one NICU in 2015, and cost of bed day in that NICU (€813 overnight stay), and salary for 1 specialist SLT at midpoint

Factors for Cost Calculations (Saving Bed Days) based on one Dublin Maternity NICU 2015 Figures

Number of babies admitted that NICU in 2015,
Number of babies who weighed <1500 g at birth
Estimated Prevalance of 15-21%
1 daily bed = average € 407*
1 Overnight bed = average € 813 per day*
Annual Specialist SLT salary
*(*hospital finance department NICU figures)*

Fig 1 Basis for Tentative Cost calculations

Grade[4]	Midpoint on scale (range)	Number of babies SLT needs to save 5.2 bed days for @ overnight rate?
Senior SLT	54, 577 (50, 134 – 59, 208)	12 babies
Specialist SLT	60, 000 (55, 564 – 64, 638)	**14 babies**

Fig 2 Local SLT Salary Scale[4] /equivalence in number of baby's where 5.2 bed days may be saved

Results

1949 babies admitted NICU in 2015
107 weighed <1500 g at birth
Estimated Prevalance of 15-21%: possibly 292-409 babies could have had feeding issues in that particular group that year (Table 1).
1 Specialist SLT would only need to intervene with 14 babies to pay annual salary of €60,000 (€55, 564 – €64, 638) (fig 2)
Potential cost savings upwards of € 1,000,000 are indicated from the lower end of the prevalence scale (fig 3)

If we save an average of 5.26 (SD 3.19 – 7.34) bed days @ € 813 per day (overnight stay) for	Average Savings €
1 baby	4,276 (2,593 – 5,967)
10 babies	42, 760 (25, 934 – 59, 674)
50 babies	213, 819 (129, 673 - 298, 371)
Estimated prevalence lower end 292 babies	1, 248, 702 (757, 293 – 1,763, 852)
Estimated prevalence higher end 409 babies	1, 748, 884 (1, 060, 729 – 2, 440. 674)

Fig 3 Potential Cost Savings in euro

Discussion

Despite low methodological quality, early feeding interventions in NICU appear to shorten hospital stay[3]. SLT Services are significantly lacking in Irish NICUs, despite the prevalence of feeding difficulties in premature infants. In this NICU annually, potentially 292-409 babies could be seen for oral feeding intervention (fig 2). This could significantly reduce length of stay and other costs for premature babies making significant savings, potentially upwards of €1, 000,000 (fig 3). The salary of 1 Specialist SLT could be recouped by the NICU if just 14 babies were seen (fig 4). This review looked at one intervention only, there are other interventions to benefit these infants and further add to reduced cost of care, in conjunction with a full MDT.

Conclusion

NICU SLT service provision would ensure earlier intervention in feeding difficulties in premature infants, potentially having an impact on length of stay and associated costs, leading to significant cost savings for Irish NICUS as well as for other tertiary centres.

References

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