CONSIDERATIONS OF ECONOMIC VALUE

There are three components of economic costs and value that should be considered when assessing the potential economic value of Learn To Walk: the economic costs to the family and society of having a non-ambulatory child, the costs of related products/devices and potential cost-effectiveness from a societal perspective.

Although there are no studies, reviews or syntheses that calculate the annual or lifetime societal cost difference between disabled children who can and can not walk, there are several studies that identify the costs to families and society of children with disabilities. A 2012 review of the literature by Stabile and Allin considered direct costs to families of having a disabled child, the costs of reduced family labor due to caregiving responsibilities, the costs to the disabled child as they aged into the labor force and the costs of societal programs for children with disabilities. Their estimate of these total costs was $30,500 in 2012 which is roughly $41,416 in 2023 US dollars, annually. With an average life expectancy in Sweden of 82 years, the total life costs of disability easily surpass $3 million. Even if the impact of being able to walk was to lower the life time costs of disability by just 10%, the cost savings would be at least $300,000.

In addition to the costs identified by Stabile and Allin, Bray et. al. (2020) identified the costs associated with powered mobility interventions for non-ambulatory children. Beyond the costs of assistive devices (see table 1 below), they also reviewed the literature on the benefits of such devices. While they were unable to draw any conclusions about the cost-effectiveness of powered mobility in either the under 5 or greater than 5 year old groups, they did find evidence to support a moderate impact on children's ability to play, participate in activities and in social interactions. Thus if assisted mobility can improve quality of life, the impact of learning to walk must have an even greater impact on quality of life.

Table 1: Cost of Other Assistive Devices

Device	Cost	Potential Outcomes	Reference
Trexo Robotics – Walking Trainer	$34,900-$39,900 (US dollars)	May improve gait and strength	https://www.trexorobotics.com/trexo-home-pricing/
WizzyBug	4,850 british pounds	No physical improvement, just provides mobility for children under age 5	Bray 2020
Powered Wheel Chair	8,500 british pounds	No physical improvement, just provides mobility	Bray 2020

Given the lack of data on the economic differences among disabled children who can and can not walk, it is not possible to estimate the cost-effectiveness of Learn To Walk at this time. However, a 2022 report from the UK Institute for Clinical and Economic Review (ICER) on exon-skipping therapies for

Duchenne's Muscular Dystrophy (DMD) provides some insight as to the bench mark costs that might be considered cost-effective at a societal level. DMD is a progressive disease that often leads to death in young adulthood. Exon-skipping therapies are a new class of drug that have been shown to alter dystrophin levels, although improvement in functional outcomes or delay in time to progression has not been clearly demonstrated. One of the exon-skipping therapies, deflazacort, costs approximately $117,400 (US dollars) per year. At that wholesale acquisition cost the calculated cost per additional life year well exceeded current UK thresholds for cost-effectiveness. Therefore, the ICER study team used the most favorable clinical assumptions they had for deflazacort and estimated the price at which the drug would be considered cost-effective at two different thresholds (See Table 2).

Table 2: Estimate price at which deflazacort would be considered cost-effective (adapted from Table ES9 from ICER report)

	Annual Estimated Price at a Cost-effectiveness threshold of $100,000	Annual Estimated Price at a Cost-effectiveness threshold of $150,000
Per Quality Adjusted Life Year Gained	$10,880	$17,140
Per Life Year Gained	$11,510	$18,080

Thus, a product that costs less than $10,000 and has a good probability of improving life- long quality of life would very likely meet current thresholds for cost-effectiveness.

In addition to having a good probability of meeting cost-effectiveness thresholds, it is also possible that Learn to Walk could be cost-saving given reduction in the use of other devices and services and increased probability of being able to work. Estimation of an approximate price savings calculation where statistic is available:

- Savings on assistive devices and power mobility
- Savings due to less need of surgeries and medical visits
- Savings due to less need for personal assistance $ 63 900 per year.
- Savings due to being able to work as adult $ 32 760 per year.
- Savings due to not being excluded from society: $ 48 888 per year.
  (Economic figures from: forsarkingskassan.se, ekonomifakta.se & economist Ingvar Nilsson)

Summary

These bench marks for potential cost-savings for disabled children who can walk relative to those who can not, the costs of life-long assistive mobility devices and the "cost-effective" price of therapy with minimal functional improvements suggest that the recommended reimbursement price of $6000 for Learn To Walk is well within the acceptable range of assistive devices for this patient population. In addition, at this price, Learn To Walk has a high potential to generate cost savings for both families and society.

Kathleen A. Foley, PhD
Thomas Jefferson University
Adjunct Professor of Pharmacoepidemiology and Economic Evaluation of Healthcare Interventions

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