

# Cost-Effectiveness of Connected Injection Device for Pediatric Growth Hormone Deficiency in Argentina: A Scenario-Based Microsimulation Analysis using Real-World Data

RWD93

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## CONCLUSIONS

Easypod® vs Non-connected r-hGH devices in pediatric growth hormone deficiency (GHD)



Greater height gains



Lower costs per cm gained

- Easypod® is a viable option for managing pediatric GHD in Argentina, improving clinical outcomes through real-time adherence monitoring
- Real-time adherence data enables more informed clinical decision-making, reducing unnecessary dose escalation and optimizing care
- Early initiation and sustained adherence are key drivers of effectiveness
- These findings support the broader adoption of innovative digital devices to optimize care in pediatric GHD

## OBJECTIVES

To evaluate the cost-effectiveness of the connected electronic device, Easypod®, for recombinant human growth hormone, compared to Genotropin and Norditropin, non-connected devices, in the treatment of pediatric GHD in Argentina.

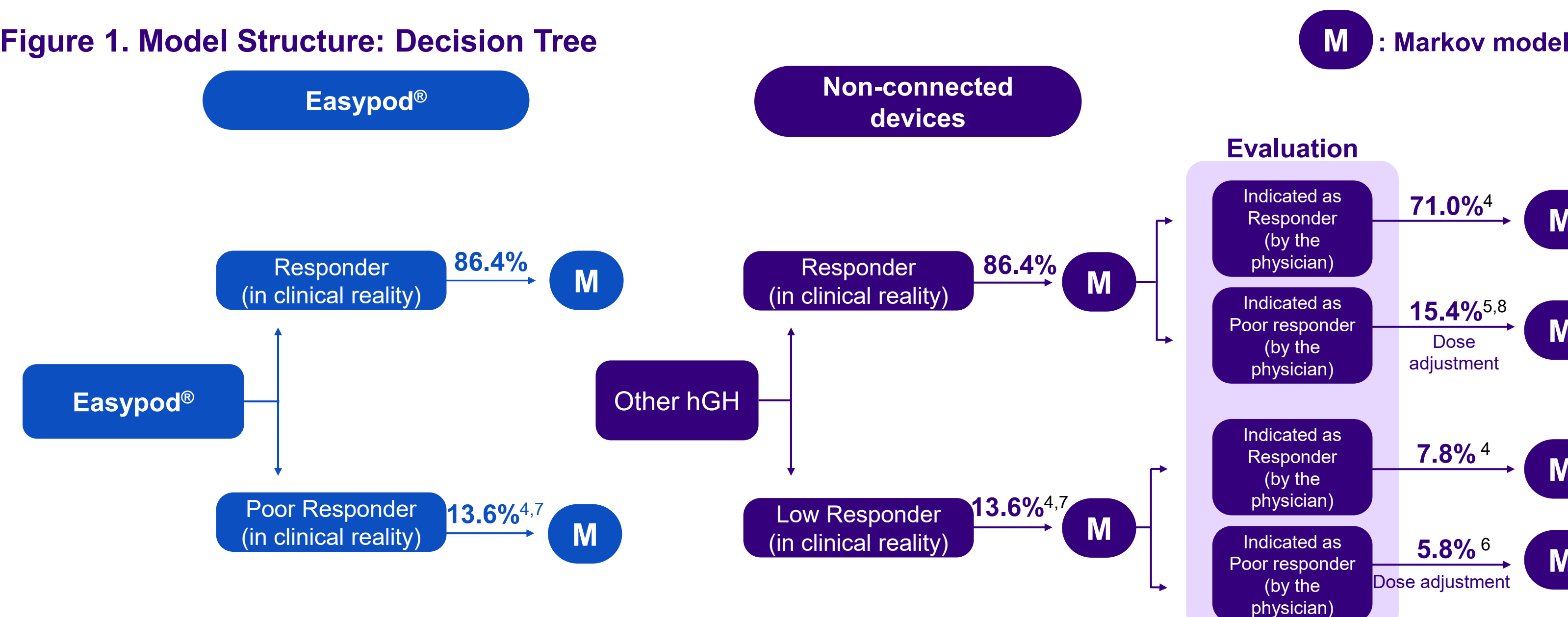


## METHODS

<b>Model type:</b>	Microsimulation of 10,000 pediatric patients (ages 2–13)
<b>Perspective:</b>	Argentinian Health System
<b>Time horizon:</b>	Until bone maturation (girls 15 y; boys 18 y)
<b>Structure:</b>	<ul style="list-style-type: none"> <li>• Decision tree (treatment response)</li> <li>• Markov model (6-month cycles) with 3 adherence states: continuous (&gt;85%), intermittent, discontinuation</li> </ul>
<b>Inputs:</b>	<ul style="list-style-type: none"> <li>• Easypod® adherence from Spanish Real-World Evidence (RWE)<sup>1</sup></li> <li>• Non-connected device adherence extrapolated from RWE<sup>1</sup> and expert opinion</li> </ul>
<b>Costs:</b>	Direct medical costs (drugs, visits, monitoring), discounted at 3% annually
<b>Outcomes:</b>	Final height gain (cm), and cost per cm gained

Adherence	Year 1 Semester		Year 2 Semester		Year 3 Semester		Year 4 Semester		Source / Notes
	1	2	1	2	1	2	1	2	
Easypod®	96%	90%	88%	84%	90%	84%	74%	80%	Estimated de Arriba et al. <sup>1</sup>
r-hGH Basecase	75%	65%	60%	55%	65%	60%	60%	50%	
r-hGH Scenario 1	79%	74%	72%	69%	69%	69%	61%	61%	De Pedro, et al. <sup>4</sup> , & de Arriba et al. <sup>1</sup>
r-hGH Scenario 2	84%	74%	70%	68%	65%	63%	61%	58%	Based on expert opinion

Figure 1. Model Structure: Decision Tree



## INTRODUCTION

- Pediatric growth hormone deficiency (GHD) is associated with impaired growth, reduced adult height, and diminished quality of life.<sup>1</sup>
- Recombinant human growth hormone (r-hGH) is effective when adherence is maintained
- Barriers to adherence include injection-related discomfort, treatment fatigue, and practical challenges associated with daily administration<sup>2,3</sup>
- Easypod®, a connected injection device, records dosing data and enables real-time monitoring of adherence by patients, caregivers, and physicians.<sup>4</sup>
- By distinguishing suboptimal adherence from low biological response, Easypod® helps avoid inappropriate dose escalations and optimizes treatment.<sup>4</sup>



## RESULTS

### Base Case

- Easypod®, by enabling improved adherence, achieved a superior height gain of 4.05 cm, corresponding to a higher final height of 165.7 cm vs 161.6 cm with non-connected devices.
- Better adherence implied higher treatment costs compared with Norditropin (\$29,195 over the full length of treatment), only partly compensated by lower costs related to unnecessary dose increases and fewer clinical visits (-\$655). When compared with Genotropin, Easypod® was overall cheaper over the full length of treatment (-\$2,800).
- The cost-effectiveness results showed that Easypod® was cost-saving versus Genotropin and cost-effective versus Norditropin (ICER of \$7,042 per cm gained)
- The cost per cm gained was lower for Easypod® compared with both Norditropin and Genotropin, corresponding to a saving of **\$1,141 and \$3,311 per cm gained** respectively.

### Sensitivity Analyses

- The cost per cm gained remained consistently lower with Easypod®, with savings ranging from \$770 to \$2,138 per cm gained across sensitivity analyses (see Table 2), demonstrating improved efficiency.
- Results were most sensitive to the reduction in height gain associated with intermittent treatment, the proportion of treatment costs attributable to intermittent adherence, and the age of treatment initiation.

Figure 2. Costs per cm Gained

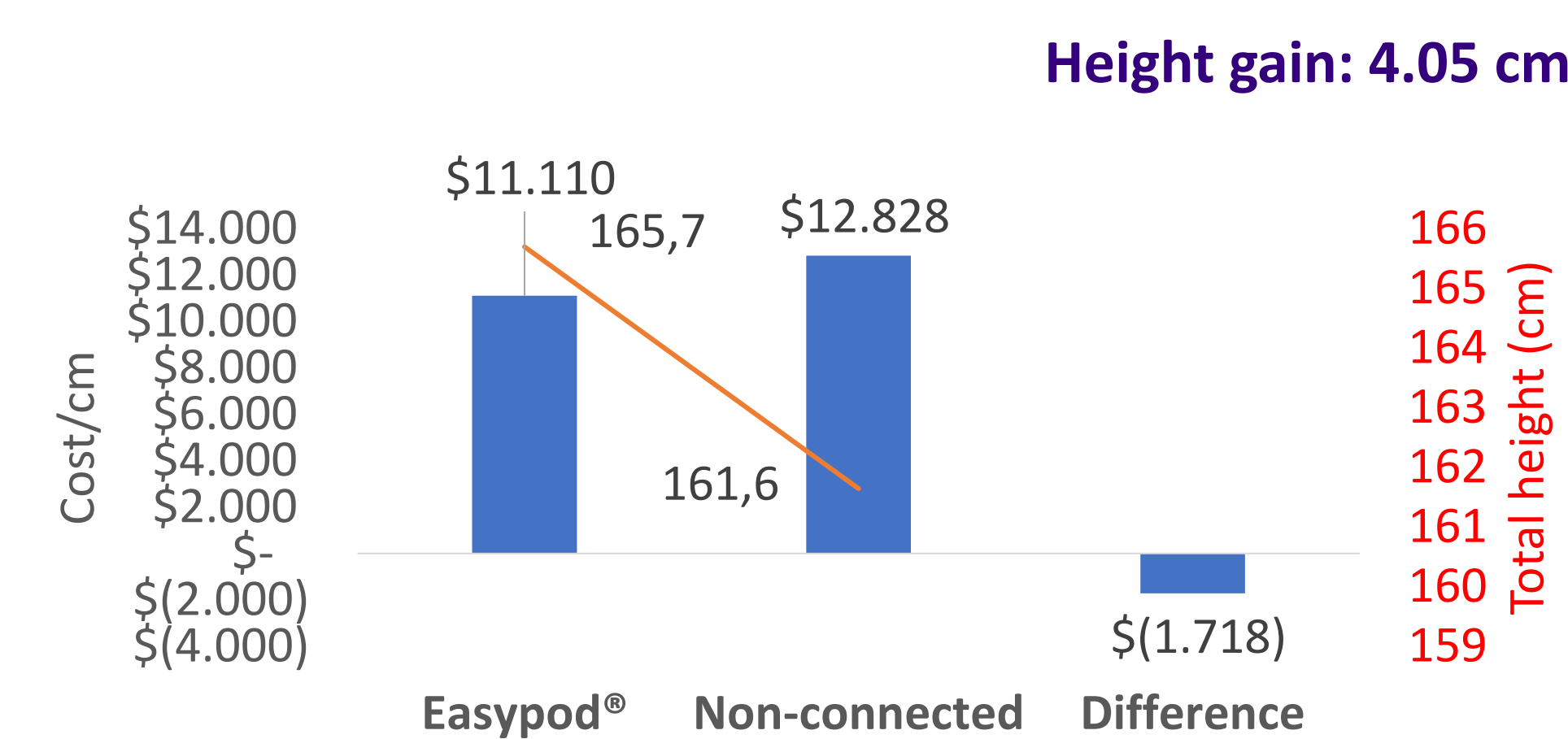


Table 2. Sensitivity and Scenario Analysis

	Difference in cm	Cost per cm Difference (USD)	ICER per cm gained (USD)
<b>Boys (55%)</b>	4.05	-\$1,718	\$4,985
<b>Time horizon: 17 girls, 19 boys</b>	3.94	-\$1,811	\$5,129
<b>Higher HSDS gain</b>	5.26	-\$2,138	\$4,489
<b>Years 2 – 4</b>	7.16	-\$1,590	\$5,048
<b>Years 5 – 7</b>	4.84	-\$1,978	\$5,059
<b>Years 8 – 11</b>	3.02	-\$1,691	\$4,435
<b>Years 12+</b>	1.69	-\$770	\$8,765
<b>Adherence Scenario 1</b>	3.41	-\$1,321	\$5,270
<b>Adherence Scenario 2</b>	3.22	-\$1,175	\$5,531

Abbreviations: cm, centimeter; \$, Argentine peso (ARS); GHD, growth hormone deficiency; HSDS, height standard deviation score; ICER, incremental cost-effectiveness ratio; QALY, quality-adjusted life year; r-hGH, recombinant human growth hormone; RWE, real-world evidence; y, year  
 References: <sup>1</sup>de Arriba A, et al. Connected device and catch-up growth. *Front Endocrinol.* 2024;15:1450573. <sup>2</sup>Grimberg A, et al. GH/IGF-I treatment guidelines in children. *Horm Res Paediatr.* 2016;86:361–97. <sup>3</sup>Ranke MB, Lindberg A. Growth responses in prepubertal disorders. *J Clin Endocrinol Metab.* 2010;95:1229–37. <sup>4</sup>De Pedro S, et al. Adherence variability in r-hGH therapy. *Growth Horm IGF Res.* 2016;26:32–5. <sup>5</sup>De Pedro S, et al. Adherence variability in r-hGH therapy. *Growth Horm IGF Res.* 2016;26:32–5. <sup>6</sup>Expert opinion <sup>7</sup>Carrascosa A, et al. Height gain at adult-height age in 184 short patients treated with growth hormone from prepubertal age to near adult-height age is not related to GH secretory status at GH therapy onset. *Horm Res Paediatr.* 2013;79:145–56. <sup>8</sup>Kaspers S, Ranke MB, Han D, et al. Implications of a data-driven approach to treatment with growth hormone in children with growth hormone deficiency and Turner syndrome. *Appl Health Econ Health Policy.* 2013;11:237–249. <sup>9</sup>Reckers-Droog V, et al. Willingness to pay for health-related quality of life gains in relation to disease severity and the age of patients. *Value Health.* 2021;24:1182–1192.  
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