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Costs and economic impacts of type-1 diabetes from the dominican patient perspective

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APPENDICES

A. Micro costing analysis

TABLE 1. FIXED DOSE TREATMENT: COST OF MEDICATIONS AND SUPPLIES

Product	Abbr.	Amount/day	Amount/month	Cost/unit.	Cost/month
NPH[a]	Nph	17.5 U	525 U*	110 DOP /10ml	110 DOP
Regular insulin[a]	Ri	17.5 U	525 U*	110 DOP /10ml	110 DOP
Syringes 1ml/6mm[a, b]	S1	2 units	60 units	12 DOP	720 DOP
Syringes 1ml/8mm[a, b]	S2	2 units	60 units	8 DOP	480 DOP
NPH[b]	Nph	17.5 U	525 U*	440 DOP/10ml	440 DOP
Regular [b]	Ri	17.5 U	525 U*	440 DOP/10ml	440 DOP
Test strips 1[a]	Ts1	4 units	120 units	24.70 DOP	2,694 DOP
Test strips 2[a]	Ts2	4 units	120 units	52.30 DOP	6,276 DOP
Test strips 3[a]	Ts3	4 units	120 units	26.64 DOP	3,196 DOP
Test strips 4[a]	Ts4	4 units	120 units	26.20 DOP	2,144 DOP
Generic lancets[a]	L	4 units	120 units	4.65 DOP	558 DOP

[a] Cost from public perspective
[b] Cost from private perspective
*This quantity is contained in a single 10 ml package

BOX 1. FIXED DOSE TREATMENT: MICROCOSTING ANALYSIS

Total Monthly Cost (TMC) = ∑ $[\boldsymbol{Monthly\ product\ amount(m)\ x\ Unitary\ cost(u)}]$

TMC = [(NPHm x NPHu) + (Rim x Riu) + (S2m x S2u) + (Ts1m x Ts1u) + (Lm x Lu)]

TMC - Public Perspective

TMC = [(1 x 110 DOP) + (1 x 110 DOP) + (60 x 8 DOP) + (120 x 24.70 DOP) + (120 x 4.65 DOP)})]

TMC = [110 DOP + 110 DOP + $480 + 2,964 DOP + 558 DOP]

TMC = 4,222.00 DOP / USD 72.74

TMC - Private Perspective

TMC = [(1 x 440 DOP) + (1 x 440 DOP) + (60 x 8 DOP) + (120 x 24.70 DOP) + (120 x 4.65 DOP

TMC = [440 DOP + 440 DOP + 480 DOP + 2,964 DOP + 558 DOP]

TMC = 4,882.00 DOP / USD 84.11

Ri: Regular; S2: Syringes 2; Ts1: Test strips1; L: Generic lancets

TABLE 2. MULTIPLE DAILY INJECTIONS TREATMENT: COST OF MEDICATIONS AND SUPPLIES

Product	Abbr.	Amount/day	Amount/Month	Cost/unit.	Cost/Month
Glargine (3ml/pen) [a]	IGlar	18 U	540 U (2 pen)	1,447 DOP/pen	2,894 DOP
Degludec (3ml/pen) [a]	IDeg	18 U	540 U (2 pen)	2,206 DOP/pen	4,412 DOP
Glulisine (3ml/pen) [a]	IGlu	15 U	450 U (2 pen)	1,559 DOP/pen	3,118 DOP
Aspart (3ml/pen) [a]	IAsp	15 U	450 U (2 pen)	1,315 DOP/pen	2,630 DOP
Detemir (3ml/pen)[a]	IDet	18 U	540 U (2 pen)	1,460 DOP/pen	2,920 DOP
Syringes 1[a]	S1	6 units	180 units	20.30 DOP	3,654 DOP
Syringes 2[a]	S2	6 units	180 units	21.09 DOP	3,780 DOP
Test strips 1[a]	Ts1	7 units	210 units	24.70 DOP	5,187 DOP

Test strips 2[a]	Ts2	7 units	210 units	52.30 DOP	10,983 DOP
Test strips 3[a]	Ts3	7 units	210 units	26.64 DOP	3,196 DOP
Test strips 4[a]	Ts4	7 units	210 units	26.20 DOP	5,594 DOP
Generic lancets[a]	L	7 units	210 units	4.65 DOP	976 DOP

[a] Cost from private perspective

BOX 2. MULTIPLE DAILY INJECTIONS TREATMENT: MICROCOSTING ANALYSIS

Total Monthly Cost (TMC) = $\sum$ $[(\boldsymbol{Monthly\ Product\ Amount(m)\ x\ Unitary\ cost(u)})]$

TMC Option #1 = [(IAspm) x IAspu) + (IDegm x IDegu) + (S1m x S1u) + (Ts1m x Ts1u) + (Lm x Lu)]

TMC #1 = [(2 x 1,315 DOP) + (2 x 2,206 DOP) + (180 x 20.30 DOP) + (210 x 24.70 DOP) + (210 x 4.65 DOP)]

TMC #1 = [(2,630 DOP) + (4,412 DOP) + (3,654 DOP) + (5,187 DOP) + (976.50 DOP)]

TMC #1 = 16,859.50 DOP / USD 290.47

TMC Option #2 = [(IGlum x IGluu) + (IGlarm x IGlaru) + (S1m x S1u) + (Ts1m x Ts1u) + (Lm x Lu)]

TMC #2 = [(2 x 1,559 DOP) + (2 x 1,447 DOP) + (180 x 20.30 DOP) + (210 x 24.70 DOP) + (210 x 4.65 DOP)]

TMC #2 = [(3,118 DOP) + (2,894 DOP) + (3,654 DOP) + (5,187 DOP) + (976.50 DOP)]

TMC #2 = 15,829.50 DOP / USD 272.73

TMC Option # 3 = [(IGlum x IGluu) + (IDetm + IDetu) + (S1m x S1u) + (Ts1m x Ts1u) + (Lm x Lu)]

TMC #3 = [(2 x 1,559 DOP) + (2 x 1,460 DOP) + (180 x 20.30 DOP) + (210 x 24.70 DOP) + (210 x 4.65 DOP)]

TMC #3 = [(3,118 DOP) + (2,920 DOP) + (3,654 DOP) + (5,187 DOP) + (976.50 DOP)]

TMC #3 = 15,855.50 DOP / USD 273.18

IAsp: Aspart; IDeg: Degludec; IDet: Detemir; S1: Syringes 1; Ts1: Test strips 1; L: Generic Lancets; IGlu: Insuli
IGlar: Insulin Glargine

TABLE 3. CONTINUOUS SUBCUTANEOUS INSULIN INFUSION: COST OF MEDICATION AND SUPPLIES

Product	Abbr.	Amount/day	Amount/month	Cost/unit.	Cost/month
Insulin pump[a]	Pump	-	-	337,480 DOP	-
Sensor transmitter[a]	Tran	-	-	45,430 DOP	-
Sensors (disposable)[a]	Sen	-	1 package	41,890 DOP	41,890 DOP
Reservoir (disposable)[a]	Res	-	1 package	10,841 DOP	10,841 DOP
Insulin[a]	IGlu	-	1 vial - IGlu	1,559 DOP	1,559 DOP
Test strips 1[a]	Ts1	4 units	120 units	24.70 DOP	2,694 DOP
Test strips 2[a]	Ts2	4 units	120 units	52.30 DOP	6,276 DOP
Test strips 3[a]	Ts3	4 units	120 units	26.64 DOP	3,196 DOP
Test strips 4[a]	Ts4	4 units	120 units	26.20 DOP	3,144 DOP
Generic lancets[a]	L	4 units	120 units	4.65 DOP	558 DOP

[a] Cost from private perspective

BOX 3. CONTINUOUS SUBCUTANEOUS INSULIN INFUSION: MICROCOSTING ANALYSIS

Total Fixed cost (TFC)= $\sum$ $[(\boldsymbol{Device(u)\ x\ Cost\ of\ device})]$

TFC = [(Pumpu x Pump$) + (Tranu x Tran$)]

TFC = [(1 x 337,480 DOP) + (1 x 45,430 DOP)]

TFC = 382,910.00 DOP / USD 6,597.35

Total Monthly cost (TMC) = $\sum$ $[(\boldsymbol{Monthly\ Product\ Amount(m)\ x\ Unitary\ cost(u)})]$

TMC = [(Senm x Senu) + (Resm x Resu) + (IGlum x IGluu) + (Ts1m x Ts1u) + (Lm x Lu)]

TMC = [(1 x 41,890 DOP) + (1 x 10,841 DOP) + (1 x 1,559 DOP) + (120 x 24.70 DOP) + (120 x 4.65 DOP)]

TMC = 57,812.00 DOP / USD 996.07

Pump: Insulin Pump, Tran: Sensor transmitter, Sen: Sensors (disposable), Res: Reservoir (disposable), IGlu: Glulisine, Ts1: Test strips1, L: Generic lancets

B. List of abbreviations

ABBR.	MEANING	ABBR.	MEANING
$\sum$	Summation (symbol)	**NPH**	NPH insulin®
CSII	Continuous subcutaneous insulin infusion	**NPHm**	NPH Insulin - monthly product amount
DOP	Dominican pesos	**NPHu**	NPH Insulin - Unitary cost
DQoL	Diabetes Quality of life	**PUMP**	Insulin pump
DR	Dominican Republic	**QoL**	Quality of Life
FD	Fixed dose	**Res**	Reservoir (dischargeable)
GDP	Gross domestic product	**Resm**	Reservoir - monthly product amount
HbA1c	Glycated hemoglobin	**Resu**	Reservoir - Unitary cost
HEOR	Health Economics and Outcomes Research	**Ri**	Regular insulin
HMO	Health maintenance organization	**Rim**	Regular insulin - monthly product amount
HRQoL	Health-related quality of life	**Riu**	Regular insulin - Unitary cost
HTA	Health technology assessment	**S1**	Syringe option 1
IAsp	Insulin aspart	**S1m**	Syringe option 1 - monthly product amount
IAspm	Insulin aspart - monthly product amount	**S1u**	Syringe option 1 - Unitary cost
Iaspu	Insulin aspart - Unitary cost	**S2**	Syringe option 2
IDeg	Insulin degludec	**S2m**	Syringe option 2 - monthly product amount
IDegm	Insulin degludec - monthly product amount	**S2u**	Syringe option 2 - Unitary cost
IDegu	Insulin degludec - Unitary cost	**SD**	Standard deviation
IDet	Insulin detemir	**Sen**	Sensors (dischargeable)
IDetm	Insulin detemir - monthly product amount	**Senm**	Sensors - monthly product amount
IDetu	Insulin detemir - Unitary cost	**Senu**	Sensors - Unitary cost
IGlar	Insulin glargine	**T1D**	Type-1 diabetes
IGlarm	Insulin glargine - monthly product amount	**TFC**	Total Fixed costs
IGlaru	Insulin glargine - Unitary cost	**TMC**	Total Monthly cost
IGlu	Insulin glulisine	**Tran**	Sensor transmitter
IGlum	Insulin glulisine - monthly product amount	**Ts1**	Test strips option 1
IGluu	Insulin glulisine - Unitary cost	**Ts1m**	Test strips option 1 - monthly product amount
L	Generic lancets	**Ts1u**	Test strips option 1 - Unitary cost
LATAM	Latin-American	**Ts2**	Test strips option 2
Lm	Generic Lancets - monthly product amount	**Ts2u**	Test strips option 2 - Unitary cost
Lu	Generic Lancets - Unitary cost	**Ts3**	Test strips option 3
MDI	Multiple daily injections	**Ts4**	Test strips option 4
MHI	Mean household income	**USD**	United States dollar
NMW	National minimum wage	**WB**	World Bank