

BUDGET IMPACT ANALYSIS FOR POINT OF CARE TESTING (PoCT) IN DIABETIC PATIENT MONITORING: THE EXPERIENCE OF AN ITALIAN LOCAL HEALTH UNIT (ASL3 GENOA, ITALY)

TORRE E,¹ SPITALERI A,² DI MATTEO S,³ BRUNO GM,⁴ MARTINOTTI C,³ MONTI E,¹ BOTTORO LC,⁵ COLOMBO GL,⁴

1. DIABETOLOGY AND METABOLIC DISEASES UNIT, ASL3 GENOA, ITALY
2. S.C. ANALYSIS LABORATORY, ASL3 GENOA, ITALY
3. S.A.V.E. STUDI ANALISI VALUTAZIONI ECONOMICHE S.R.L., MILAN, ITALY
4. DEPARTMENT OF DRUG SCIENCES, UNIVERSITY OF PAVIA, PAVIA, ITALY
5. GENERAL DIRECTION, ASL3 GENOA, ITALY



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PURPOSE

- Appropriate monitoring of blood chemistry parameters is essential to optimize the management of diabetic patients.
- Today, the Point of Care Testing (PoCT) strategy represents a valid alternative to the standard analysis laboratory pathway. PoCT allows to perform the test at the same time as the medical examination.¹
- To estimate the financial consequences associated with the PoCT use compared to the standard pathway a Budget Impact Analysis (BIA) was conducted.

METHODS

- The analysis was developed considering the Regional Healthcare System (RHS) perspective and one year time horizon.
- The target population was identified in diabetic patients assisted by ASL3 of Genoa undergoing regular monitoring.
- To compare the two strategies, 2 scenarios were created: without PoCT and with PoCT.
- To describe the realistic sample of patients belonging to ASL3 for follow-up visits, for the scenario without PoCT, in addition to the standard pathway (80% of patients), differentiated pathways were identified evaluating patients without the prescribed tests at the follow-up visit (16%) and in a condition of metabolic emergency (4%), Figure 1.
- The impact of PoCT was also calculated compared to the two critical pathways above (20%) and to the total population (100% sample).
- The valorization took place according to the microcosting approach. The costs and healthcare consumption provided by Genoa ASL3 were used, integrated with data from published referenced sources.^{2,3}
- To test the robustness of the results, a deterministic sensitivity analysis was developed, adopting a $\pm 20\%$ variation of the main input data and of the assumptions adopted for the definition of the base case.

Figure 1. Comparative pathways and direct unit costs

Without PoCT			Cost	
A 80%	Standard			
		➡	Test execution	€ 4.90
		➡	Follow-up visit	€ 12.91
		Total		€ 17.81
B 16%	Without tests at follow-up			
		➡	Visit/test prescription	€ 12.91
		➡	Test execution	€ 4.90
		➡	Follow-up visit	€ 12.91
Total		€ 30.72		
C 4%	Metabolic emergency			
		➡	Televisit	€ 1.29
		➡	Visit/test prescription	€ 12.91
		➡	Test execution	€ 4.90
	➡	Follow-up visit	€ 12.91	
Total		€ 32.01		
With PoCT			Cost	
PoCT	➡	Test execution/Tests withdrawal/Follow-up visit	€ 22.27	
Total		€ 22.27		

RESULTS

- The total sample resulted in 21,989 diabetic patients with regular monitoring belonging to ASL3 Genoa.
- The costs per patient were calculated for each population subgroups identified [standard pathway (A), without tests (B), with metabolic emergency (C), without tests plus metabolic emergency (D)] and for the total sample (E), Table 1.
- The Budget Impact Analysis reported the cost per patient for the analysis scenario without and with PoCT, allowing the determination of the differential cost between the two monitoring strategies.
- The use of PoCT was economically advantageous for patients without tests and with metabolic emergency, resulting in savings of 35% and 29% respectively, corresponding to 37% if these categories are considered together, Table 2.
- The robustness of the results was confirmed by the sensitivity analysis.

Table 1. Budget Impact Analysis results: cost per patient

Pathway	A	B	C	D	E
Microcosting analysis laboratory	€ 17.81	€ 30.72	€ 32.01	€ 30.97	€ 20.44
Microcosting PoCT	€ 22.30	€ 22.81	€ 24.73	€ 22.68	€ 22.27
Δ PoCT vs analysis laboratory	€ 4.49	-€ 7.91	-€ 7.28	-€ 8.29	€ 1.83

A, standard pathway; B without prescribed tests at the follow-up visit; C metabolic emergency; D without prescribed tests at the follow-up visit + metabolic emergency; E, total sample.

Table 2. Budget Impact Analysis results: cost per target population

Pathway	A	B	C	D	E
Sample (N)	17,591	3,158	880	4,398	21,989
Scenario without PoCT	€ 626,454	€ 216,133	€ 56,304	€ 272,438	€ 898,892
Scenario with PoCT	€ 784,521	€ 160,504	€ 43,501	€ 199,505	€ 979,526
Δ cost	€ 158,067	-€ 55,629	-€ 12,803	-€ 72,933	€ 80,634
Δ %	20%	-35%	-29%	-37%	8%

CONCLUSIONS

- PoCT monitoring strategy, applied to the diabetic population with a regular monitoring, reported a positive impact on the budget, when applied in selected settings, resulting a sustainable alternative to the traditional pathway based on laboratory analysis.
- The results highlighted the sustainability of the PoCT monitoring strategy in subgroups of patients.
- The potential savings reported could free up healthcare resources and improve patient management.

DECLARATION OF INTEREST

Abbott Rapid Diagnostic S.r.l provided funding for this study

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