

THE AVERAGE COSTS OF THE TREATMENT OF ASTHMA EXACERBATIONS IN IN-PATIENT CARE AND HOSPITAL EMERGENCY ROOM IN POLAND

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OBJECTIVE

The objective of this analysis was to investigate direct cost of asthma exacerbations in Poland from the perspective of the payer and the service provider.

METHODS

To examine the current practice of asthma exacerbations treatment a survey in 4 hospitals was performed. The hospitals were chosen on the basis of different fixed cost class. In those hospitals data concerning the cost of asthma exacerbations treatment were collected. According to current practice severe asthma exacerbations were treated in-patiently and mild or moderate asthma exacerbations were treated in hospital emergency rooms (usual stay for one day).

The following costs were calculated for inpatient care (severe exacerbations):

- pharmaceuticals,
- hospital staying,
- personnel,
- diagnostic procedures.

An assumption that average hospital admission took 10 days was made. On the basis of collected data the pharmaceuticals utilization per 10 day hospital stay was assessed. For the purpose of this assessment the decision tree was formulated, the proportions expressing probabilities of patients receiving specific drug therapy, duration of drug therapy and route of the drug administration were calculated.

For asthma exacerbations treated in hospital emergency rooms similar cost groups were included. Sensitivity analysis was performed.

RESULTS

SEVERE ASTHMA EXACERBATIONS

Drug	Percentage of patients taking particular drug during treatment of exacerbation	Cost per one patient	
		PLN	Euro
Short acting beta agonists	100%	10,36	2,64
Inhaled steroids	100%	1,81	0,47
Oral corticosteroids (prednisone and dexamethasone)	100%	3,26	0,84
Long acting beta agonists	89%	20,11	5,08
Short acting muscarinic antagonists	100%	15,55	3,98
Systemic steroids	85%	40,57	10,36
Antibiotics	85%	11,46	2,92
Mucolytics	85%	1,18	0,30
Anticholinergics	85%	128,21	32,86
Diagnose Therapy	80%	182,20	46,40
Disposable equipment and materials	100%	5,32	1,36
TOTAL		435,31	109,83

MILD OR MODERATE ASTHMA EXACERBATIONS HOSPITAL EMERGENCY ROOM CARE

Drug	Percentage of patients taking particular drug during treatment of exacerbation	Cost per one patient	
		PLN	Euro
Short acting beta	18%	4,92	1,25
Anticholinergics	18%	0,01	0,002
Combined short acting beta agonist and inhaled steroids	18%	0,17	0,04
Long acting beta agonists	18%	3,68	0,94
Inhaled steroids	18%	2,68	0,68
Systemic steroids	18%	1,58	0,40
Antibiotics	9%	0,44	0,11
Anticholinergics	5%	2,91	0,73
Diagnose Therapy	3%	8,12	2,07
Disposable equipment and materials	1%	0,28	0,07
TOTAL		18,18	4,70

DRUG UTILIZATION

Hotel cost per day: respiratory ward	Length of average/hospital admission	Total cost per patient
200 PLN (50 Euro)	10	2000 PLN (500 Euro)

HOSPITAL STAY COSTS

Hotel cost per day: emergency care unit	Length of stay at emergency care unit	Total cost per patient
48,0 PLN (12,0 Euro)	1	48,0 PLN (12,0 Euro)

Personnel cost per day: respiratory ward	Length of average/hospital admission	Total cost per patient
66,30 PLN (16,50 Euro)	10	663,00 PLN (165,00 Euro)

PERSONNEL COSTS

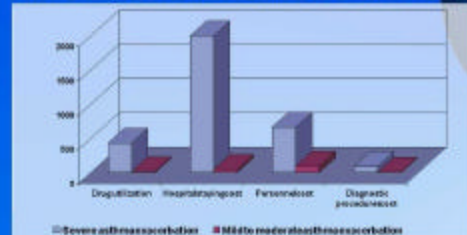
Personnel cost per day: emergency care unit	Length of stay at emergency care unit	Total cost per patient
86,7 PLN (21,6 Euro)	1	86,7 PLN (21,6 Euro)

Resource use	Total cost PLN	Total Cost Euro
Oxygen	1,7	0,43
ECG	5,8	1,46
Arterial blood pressure	10,0	2,55
Axial blood pressure	5,0	1,26
Blood count and coagulability	50,5	12,63
Urea nitrogen to baseline	5,5	1,38
Thyroid function tests	8,0	2,02
Pulse oximetry	1,8	0,45
TOTAL	91,4	22,86

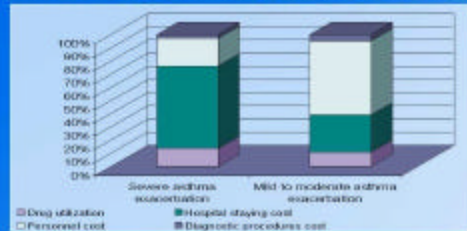
DIAGNOSTIC PROCEDURES COSTS

Resource use	Total cost	
	PLN	Euro
Diagnosis	0,09	0,02
ECG	8,1	2,02
Flow chart	2	0,50
Axial blood pressure	5,1	1,26
Blood count and coagulability	1,09	0,27
Urea nitrogen to baseline	2,24	0,56
Thyroid function tests	4	1,00
Pulse oximetry	0,45	0,11
TOTAL	16,0	4,06

COMPARISON OF ASTHMA EXACERBATIONS TREATMENT



STRUCTURE OF ASTHMA EXACERBATIONS TREATMENT COSTS



SUMMARY

Cost categories	Severe asthma exacerbations (10 days)		Mild to moderate asthma exacerbations (1 day)	
	PLN	Euro	PLN	Euro
Drug utilization	435,31	109,83	18,18	4,70
Staying at hospital	2000,00	500,00	48,00	12,00
Personnel	663,00	165,75	86,70	21,60
Diagnostic procedures	91,40	22,85	16,53	4,10
TOTAL	3190,61	797,65	172,91	43,15

The average cost of inpatient treated (10 days) severe asthma exacerbation was estimated at 3190,61 PLN (797,65 EUR) per one patient. The average cost of hospital emergency room asthma mild to moderate exacerbations treated was estimated at 172,91 PLN (43 EUR) per patient/day.

CONCLUSION

Cost of asthma exacerbations treatment are relatively high due to hospitalization cost, not due to cost of drugs utilization. Correct and systematic asthma treatment (according to GINA guidelines) can prevent asthma exacerbations (mild to severe), and lead to decrease cost of asthma care.

DISCUSSION

This cost analysis of asthma exacerbations treatment is one of the first performed in Poland. Further analysis should include more centers to allow confidence interval estimation.