

THE 1-YEAR PRODUCTIVITY LOSS AND INDIRECT COSTS AFTER ACUTE CARDIOVASCULAR EVENTS IN POLAND

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INTRODUCTION

- Cardiovascular (CV) disease is a major cause of morbidity and premature death worldwide.
- The burden of cardiovascular events (CVE) on patients' work productivity can be substantial, yet productivity loss in Europe and certainly in Poland remains an under-researched area especially with regards to presenteeism and caregiver burden (only 1 study on heart failure was identified¹).

OBJECTIVES

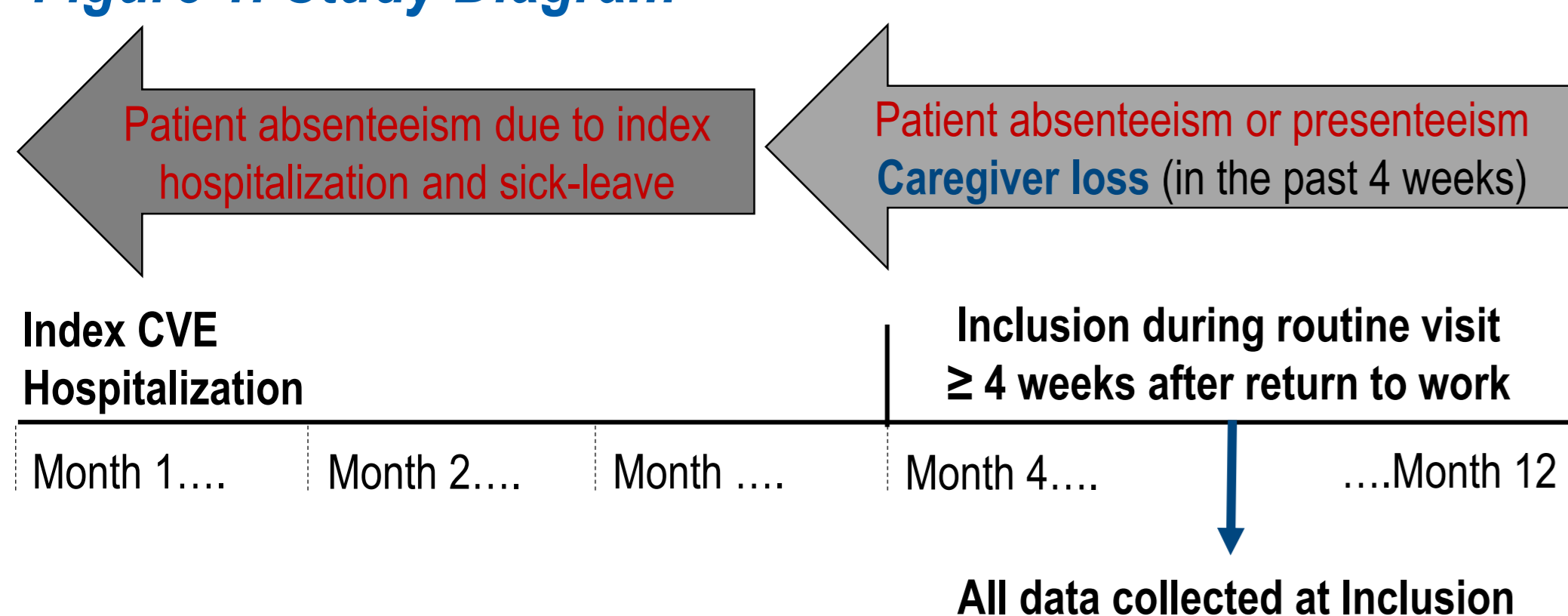
- To estimate productivity loss and indirect cost associated with patient absenteeism (absence from work), presenteeism (impaired productivity at work), and caregiver loss (e.g. family, friend) in the first year after an acute coronary syndrome (ACS) or stroke in a Polish population included in a European cross-sectional productivity loss study.

METHODS

Study design and data collection

- Cross-sectional study conducted in Poland.
- Inclusion criteria: Patients were enrolled at a routine cardiologist or neurologist visit 3-12 months after index hospitalization for ACS or stroke, discharged with lipid modifying therapy, and returned to work for ≥ 4 weeks (Figure 1).
- Productivity loss of the patient and the caregiver in the last 4 weeks collected via the validated patient Productivity Cost Questionnaire iPCQ².
- Demographic and clinical characteristics retrieved from available medical records and recorded in an electronic case report form (eCRF).

Figure 1. Study Diagram



Analysis

- Reported hours lost were averaged across patients, extrapolated to 1 year, combined with initial hospitalization and sick leave, and valued according to the Polish labour cost (€8.97 – PLN 40.04/hour; 2017³) (Figure 1) using the Human Capital method⁴.

RESULTS

Population characteristics

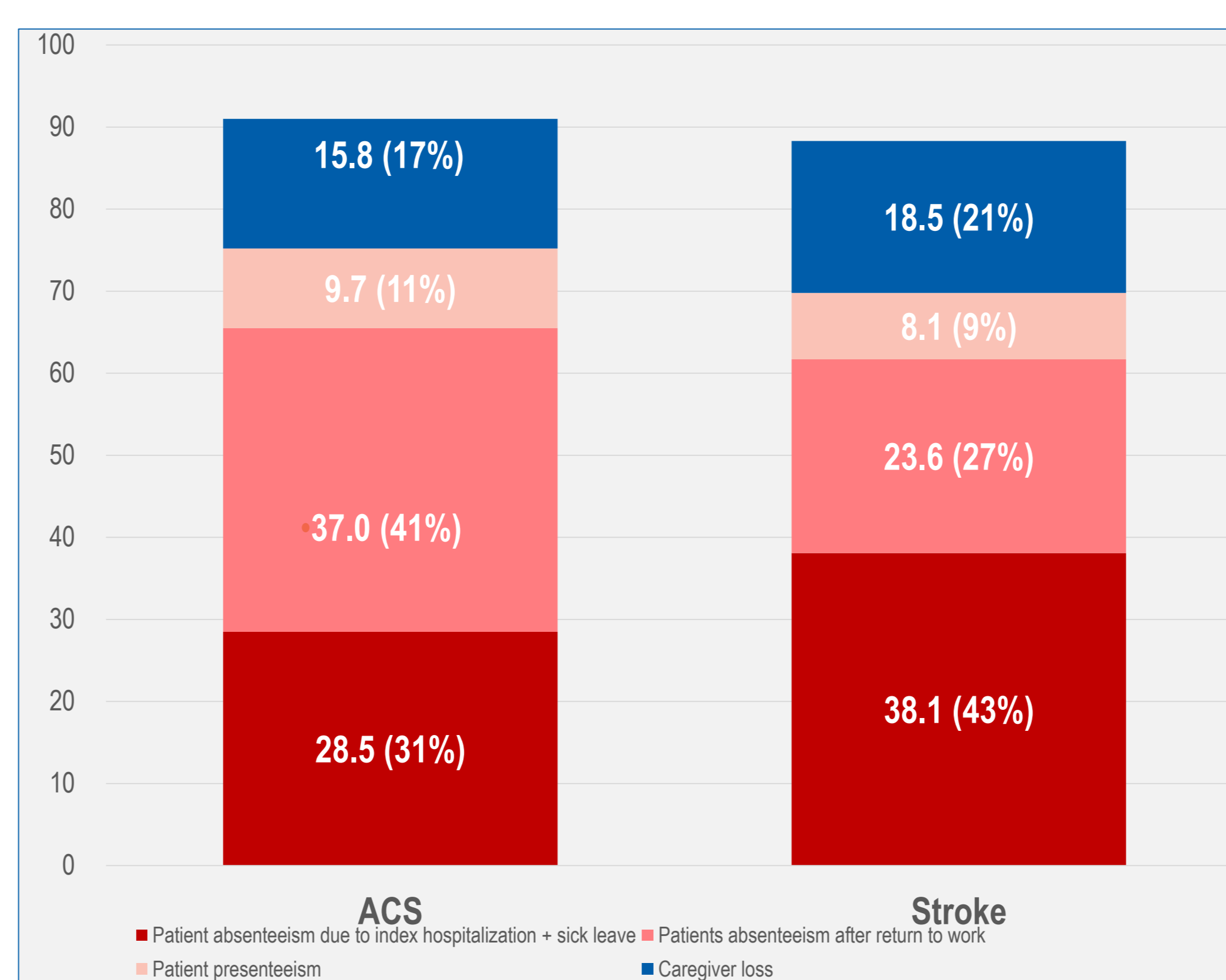
- The analysis included 38 ACS (mean left ventricular ejection fraction [LVEF]: 51%) and 30 mainly mild stroke (modified Rankin Scale [mRS] 0-1: 80%) patients (Table 1).
- 87% of the ACS patient were men and had a mean age of 53 years, 82% being urban.
- Mild stroke patients showed a mean age of 51,6 years and 81% were men, 93% being urban.
- More than 1 out of 3 patients had a recurrent CVE post-index hospitalization

Abbreviations: ACS: acute coronary syndrome; BMI: body mass index; CCI: Charlson comorbidity index; CRF, case report form; CV: cardiovascular disease; CVE: cardiovascular event; iPCQ: Institute for Medical Technology Assessment (iMTA) Productivity Cost Questionnaire; MRS, modified ranking scale; LDL: low-density lipoprotein; LVEF: left ventricular ejection fraction; SBP: systolic blood pressure; SD: standard deviation.

Table 1. Patients baseline characteristics

Characteristics at hospital discharge	ACS (N=38)	Stroke (N=30)
Sex, n (%) male	33 (86.8%)	19 (63.3%)
Age, mean (SD) years	53.0 (8.8)	55.8 (9.8)
BMI, mean (SD) kg/m ²	28.3 (4.3)	25.6 (3.6)
ACS, n (%) myocardial infarction unstable angina	27 (71%) 11 (29%)	NA
Left ventricular ejection fraction, mean (SD)	50.8 (10.2)	NA
Ischemic stroke, n (%)	NA	30 (100%)
MRS 0 or 1, n (%)	NA	24 (80%)
Current smoker, n (%)	13 (34.2%)	11 (36.7%)
Type 2 diabetes, n (%)	7 (18.4%)	1 (3.3%)
Hypercholesterolemia, n (%)		
with LDL ≥ 1.8 mmol/L (70 mg/dl)	17 (44.7%)	24 (80.0%)
with LDL ≥ 2.5 mmol/L (100 mg/dl)	11 (29.0%)	18 (60.0%)
Hypertension, n (%) with SBP ≥ 140 mmHg	12 (31.6%)	8 (26.7%)
Multiple CV events, n (%)	13 (34.2%)	11 (36.7%)
CCI score, mean (SD)	1.3 (0.7)	1.6 (1.3)
Time since index CVE, mean (SD) months	6.6 (2.9)	6.2 (3.1)
CVE post index hospitalization	15 (39.3%)	10 (33.3%)

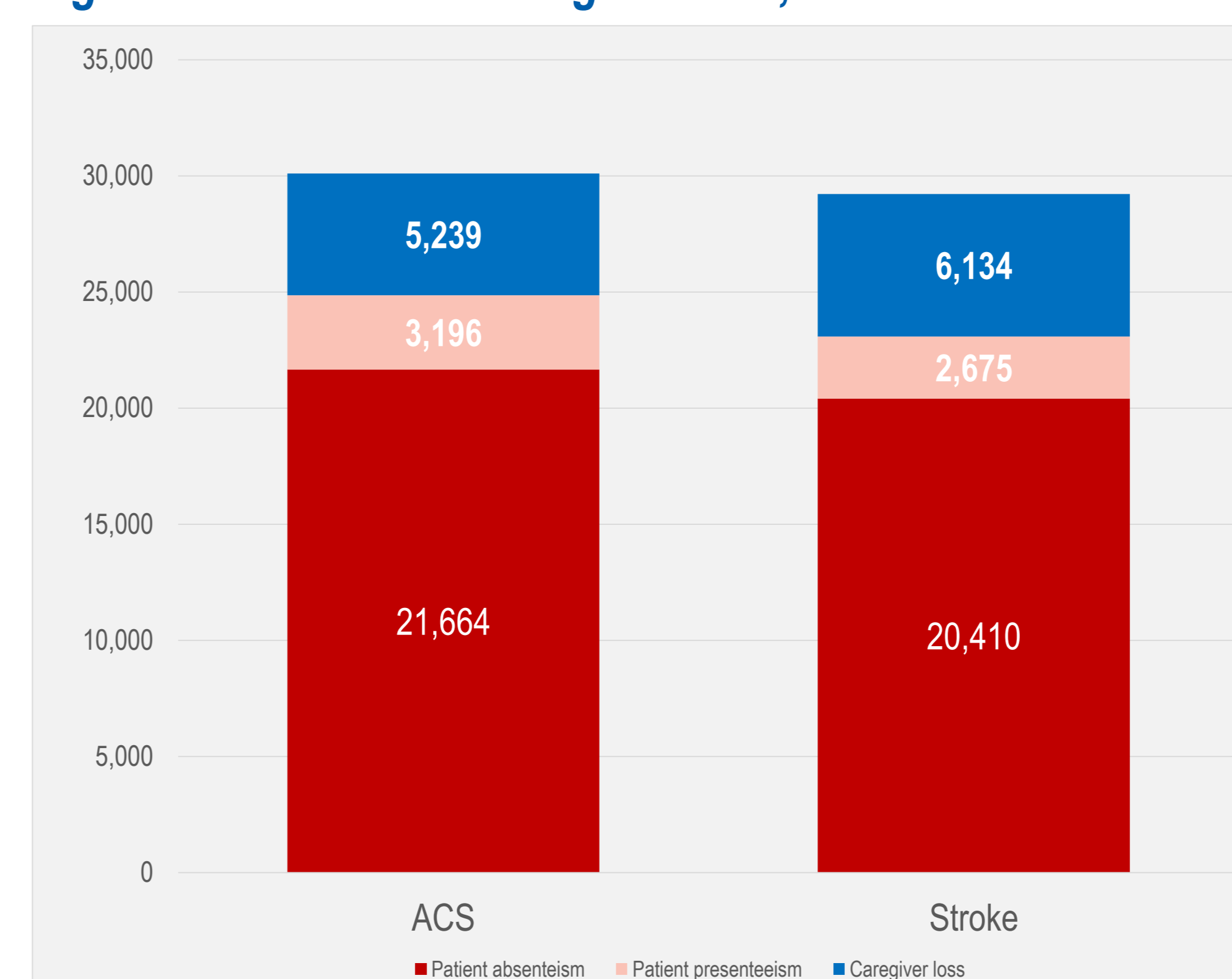
Figure 2. Average Patient and Caregiver productivity loss drivers for ACS and Stroke (days)



Productivity time loss and indirect costs

- ACS patients missed on average 75.2 work-days during the first year post-event including the length of hospitalization/sick leave and presenteeism (Figure 2). The caregiver lost 15.8 days.
- Reported patient productivity loss was independent of month of visit to the physician
- For stroke patients, average productivity loss in the first year after stroke was 69.8 work-days. Loss for the caregiver was 18.5 days (Figure 2).
- Estimated total indirect costs were PLN29,131 (PLN39,314)/€6,526 (€8,808) and PLN28,280 (PLN32,111)/€6,335 (€7,194) for ACS and stroke patients. (Figure 3)⁵.

Figure 3. Patient and Caregiver cost, €



DISCUSSION

- Productivity loss was collected directly from patients who estimated time lost due absenteeism, presenteeism as well as time lost by their caregivers.
- Risk of human recall bias was minimized by using specific tools designed to collect productivity loss data (iPCQ).
- Rural population was possibly under-represented because data were collected from large tertiary-level hospitals only.
- Patients had to be working after the CV event to be included in the study because presenteeism was one of the parameters we wanted to measure. As such both ACS and stroke patients included had only limited impact on their functioning and had experienced relatively mild CV events. As such, estimates of indirect costs are conservative.
- Costs of stroke are relatively low compared to ACS.
- Patients with stroke have longer immediate sick leave, but less absenteeism after return to work
- Absenteeism due to hospitalization and initial sick leave are the main causes of productivity loss. Caregiver loss has an important part. This is explained by Polish legislation. Caregivers can get up to 15 days of paid leave.
- Compared to the other European countries the productivity loss for the patient is on the high end in Poland (average of EU 7 is 59 days in ACS and 56 days in stroke)⁵.
- This also counts for the caregiver time (average of EU 7 is respectively 11 days in ACS and 12 days in stroke)⁵.
- Due to lower labour costs in Poland, the costs for stroke and ACS are lower than the European average⁵.
- Indirect costs are similar to the immediate direct costs (MI: 7,100-7,700€; stroke: 8,800-11,600€) of the disease⁶.

CONCLUSIONS

- Productivity loss in Poland is substantial in the first year after an ACS or stroke amounting to approximately 32% of annual work-days lost by patients (72.8 lost days/226.0 working days).
- Absenteeism immediately following the event is the main driver for productivity loss.
- Helping the patient takes 7% of the caregiver annual work time in ACS patients and even 9% in stroke patients.
- Considering the indirect costs derived from ACS and stroke the economic burden of management increases substantially.
- Costs are lower than European average.
- Nevertheless, given that indirect costs are similar to the direct costs, it is important that health care payers take a societal perspective to evaluate the value of interventions in cardiovascular disease.

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DISCLOSURES

This study is funded by Amgen (Europe) GmbH. ES is full time employee at Amgen (Europe) GmbH and owns Amgen stock options. IQVIA, employer of DG, receives consulting fees from Amgen (Europe) GmbH. CE, MA, AE, MDMF and JMG receive research support fees from Amgen (Europe) GmbH.