BUDGET IMPACT ANALYSIS (BIA) OF MECHANICAL THROMBECTOMY IN ACUTE PHASE OF ISCHEMIC STROKE (AIS)  

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Background  
Treatment of stroke episodes in acute phase (AIS) in Poland is financed under hospital stay. Patient hospitalization due to stroke is reimbursed within specific, Diagnostically Related Group (DRG): AIS to AS1, depending on detailed diagnosis and treatment. At the time of this analysis, treatment of AIS with mechanical thrombectomy (MT) was not reimbursed in Poland. However, according to expert opinion, there are few stroke centers in Poland where some patients are treated with MT.  

Objective  
To estimate the impact of MT, using a stent retriever, on budget of public payer in Poland. Additionally, as treatment of long-term stroke consequences require patient’s co-payment, a perspective of public payerpatient was considered.  

Methodology  
General Assumptions  
Analysis was performed from two perspectives in a 2-year time horizon (2017–2018). It was assumed that MT, using a stent retriever, will be added to best standard care (BSC) and patients treated with BSC can be divided into 2 subgroups:  
• treated with IV rt-PA (and MT is added to BSC defined as IV rt-PA + MT)  
• unsuitable to IV rt-PA (and MT is added to BSC defined as other than IV rt-PA).  

For key parameters and assumptions (target population size, prevalence of AIS etc.,) we used data received from one stroke center in Poland [2]. Based on these data also number of patients in a subgroup unsuitable to IV rt-PA who can be treated with MT was estimated.  

Prevalence of MT  
According to clinical expert opinion there are some limitations that have negative impact on total number of patients who can be treated with MT:  
• insufficient number of clinical specialists with experience in treatment of stroke with MT  
• insufficient number of clinical centers providing a non-stop specialist care.  

Due to that it was arbitrary assumed that in 1st year of MT reimbursement only 50% of available patients will receive such treatment. In 2nd year all available patients will be treated with MT+BSC.  

Cost data  
Following cost categories were included: cost of MT+BSC or BSC alone, cost of adverse events management and cost of health state.  

Detailed cost data were obtained directly from economic analysis or estimated based on data received from one stroke center in Poland [2]. Based on these data also number of patients in a subgroup unsuitable to IV rt-PA who can be treated with MT was estimated.  

Results  
Population  
Estimated size of target population is 8,748 in 2017 and 9,792 in 2018. This include all patients who will be treated with IV rt-PA (regardless of MT availability) and all patients who will be treated with BSC other than IV rt-PA (all available for MT). In current scenario none of patients is treated with MT+BSC. In predicted scenario MT will be added to BSC in 514 patients in 1st and 1,150 in 2nd year of reimbursement.  

Cost Expenditure  
In current scenario estimated NHF expenditures in target population will be ca 174.7 mPLN in 2017 and 242.4 mPLN in 2018. When perspective of public payer-patient is taken then total expenditures will be 174.7 mPLN in 2017 and 245.7 mPLN in 2018. It implies that positive decision on reimbursement of MT will result in increase of total expenditures within 2-year time horizon (22.5 mPLN in 1st and 50.3 mPLN in 2nd year, regardless of perspective).  

It can be seen that despite of increase in total expenditures there are savings in categories related to health states. This is due to fact that adding MT to BSC is more effective than BSC alone and cost related to treatment of long-term consequences of stroke are lower.  

Conclusions  
Our findings suggest that positive decision on reimbursement of mechanical thrombectomy, using a stent retriever, will cause increase in public payer (or public payerpatient) expenditures for treatment of AIS. However, there is possibility for some savings in long-term time horizon.  

References  
2. Stroke Center in Cracow [2]  
3. ECONOMICA. Stroke