

## PD13 Cost Effectiveness Of Imipenem-Cilastatin-Relebactam Compared With Colistina-Imipenem For Treating Confirmed Carbapenem Non-Susceptible Gram-Negative Bacterial Infections

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**Introduction:** Antimicrobial resistance is an important public health problem with a strong epidemiological, economic, and social impact. The objective of this analysis was to compare the cost effectiveness of imipenem-cilastatin-relebactam (IMI/CIL/REL) therapy with colistin-imipenem for the treatment of hospitalized patients with Gram-negative bacterial infection caused by imipenem-resistant pathogens.

**Methods:** The population comprised patients with hospital-acquired bacterial pneumonia or ventilator-associated bacterial pneumonia that was complicated with an intra-abdominal or urinary tract infection caused by carbapenem-resistant Gram-negative pathogens. The model started with a short-term decision tree describing possible treatment routes and outcomes for patients during hospitalization. After treatment, patients were classified as cured, not cured, or dead. Patients who had not responded to the initial treatment received another line of therapy. Successfully treated patients were entered into the long-term Markov model, which captured follow-up costs and health-related quality of life over their lifetimes.

**Results:** The analysis was conducted on a hypothetical cohort of 1,000 patients and demonstrated that IMI/CIL/REL therapy was advantageous in terms of diagnosis and treatment in the short term as well as cost effectiveness. In fact, IMI/CIL/REL therapy was dominant, compared with colistin-imipenem, from the National Health System and the societal perspective, providing an average saving of EUR2,800.15 and EUR3,174.63, respectively, and gains of 4.76 years of life and 4.12 quality-adjusted life-years per patient.

**Conclusions:** Thanks to its economic and societal value, IMI/CIL/REL therapy represents an investment in health that is lifesaving in critically ill patients and is a valuable public health tool in the fight against antimicrobial resistance.

## PD14 The Cost Effectiveness Of Robot-Assisted Gait Training For Patients In Japan With Subacute Hemiplegic Stroke

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**Introduction:** Although it is reported that robot-assisted gait training (RAGT) with conventional physiotherapy for stroke patients increases the odds of walking independence at the end of the intervention, compared with conventional physiotherapy alone, it is not clear how long the benefit lasts or whether it is cost effective. This research aimed to clarify the duration of benefit of RAGT and its cost effectiveness.

**Methods:** A cost-utility analysis was conducted that compared RAGT plus conventional physiotherapy with conventional physiotherapy alone from a public healthcare payer's perspective. The population comprised patients with subacute hemiplegic stroke who had a modified Rankin Scale of three to five (severe) and were treated in Japanese hospitals. The time horizon was half a year after admission to a convalescent hospital, since no additional benefit has been proved beyond that point. A decision tree model was used for the analysis. The effect of RAGT on walking independence and the durability of the benefit were estimated based on a literature review of randomized controlled trials (RCTs) and a meta-analysis. Costs and utility values were estimated from the literature.

**Results:** The literature review identified 14 RCTs. A meta-analysis of RCTs with more than two months' follow-up after the intervention showed a significantly higher rate of independence in walking for the RAGT group at the end of follow-up (risk ratio 1.52, 95% confidence interval: 1.20, 1.93), whereas there was no significant difference between the groups more than three months after treatment. The incremental quality-adjusted life-years (QALYs) was 0.004 and the incremental cost was -USD287, indicating that RAGT with conventional physiotherapy was dominant. The incremental cost-effectiveness ratio was USD5,509 per QALY when it was assumed that the length of stay was not reduced by achieving early independence in walking.

**Conclusions:** The results showed excellent cost effectiveness for RAGT plus conventional physiotherapy in patients with subacute severe hemiplegic stroke in the Japanese setting when considering a reference value of USD34,000 (JPY5,000,000) per QALY in the cost-effectiveness evaluation. Although the incremental QALY gains were relatively small, cost savings could be expected from achieving early independence in walking.