Background: Recombinant granulocyte-colony stimulating factors (G-CSFs) reduce the risk of chemotherapy-induced neutropenia. Lipegfilgrastim is a pegylated G-CSF not currently reimbursed in Mexico, while the short-acting G-CSF filgrastim is the reimbursed standard of care. A budget impact model was developed from the perspective of the Mexican healthcare system to estimate the 5-year net cost associated with the introduction of lipegfilgrastim versus filgrastim and pegfilgrastim.

Material and Methods: A decision analytic model used inputs based on national data, clinical trial evidence including meta-analysis, and expert opinion to estimate the changes in drug and medical costs resulting from the introduction of lipegfilgrastim relative to filgrastim and pegfilgrastim. Health outcomes and costs for the pre- and post-lipegfilgrastim scenarios were combined with population and market share information to calculate the expenditure and budget impact associated with the introduction of lipegfilgrastim and changing treatment patterns over 5 years. Costs and outcomes were discounted annually at a rate of 5%; all costs expressed are in 2015 Mexican pesos (P$). One-way and multi-way probabilistic sensitivity analyses were conducted.

Results: The base-case market uptake of lipegfilgrastim led to savings of P$3,259,536 in overall medical costs over 5 years. G-CSF treatment was the greatest contributor to overall costs, making up 91%, 89%, and 17% of costs for lipegfilgrastim, pegfilgrastim, and filgrastim, respectively. Administration costs resulted in the greatest budget impact savings associated with the introduction of lipegfilgrastim. The total annual expenditure increased in years 1 and 2 (by P$1,058,072 and P$377,434, respectively) mainly due to assumptions on the increase in pegfilgrastim relative market share, and then decreased each remaining year due to savings related to lipegfilgrastim uptake, leading to budget impact savings of P$303,205, P$2,004,801, and P$4,387,036 in years 3 through 5, respectively. Overall health outcomes were estimated to improve following the introduction of lipegfilgrastim such as a decrease in projected number of deaths linked to febrile neutropenia from 152 in the first year to 17 deaths in year 5. With respect to the sensitivity analysis, relative risk to febrile neutropenia, incidence of neutropenia, the filgrastim drug cost, and the lipegfilgrastim drug cost had the greatest impact on the results.

Conclusions: The case-case budget impact model estimated a reduced a budget impact savings in overall medical costs along with improved health outcomes over 5 years following the introduction of lipegfilgrastim in the Mexican healthcare system.

Conflict of interest: Corporate-sponsored Research: Agota Szende and Brendon Bussey declare corporate-sponsored research funding from Teva Pharmaceuticals. Other Substantive Relationships: Erika Szabo, Omar Tomy, Udo W. Mueller, Susan Gabriel, and BoXiong Tang, declare employment by Teva Pharmaceuticals; Udo W. Mueller declares stock options from Teva Pharmaceuticals.