Abstract: PB3203

Title: COST COMPARISON MODEL DEMONSTRATING COST-OFFSETS OF DISSOLVABLE HYDROXYUREA FILM-COATED TABLETS VERSUS HYDROXYUREA CAPSULES FOR PEDIATRIC PATIENTS WITH SICKLE CELL DISEASE IN GHANA

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Topic: Sickle cell disease

Background:

Sickle cell disease (SCD) is a major public health concern in many resource-constrained countries of sub-Saharan Africa (SSA).1 Hydroxyurea in the form of hard gelatin capsules has long been established as an effective disease-modifying treatment for SCD patients. Despite proven efficacy, challenges with medication administration and adherence persist with capsule formulation, particularly in achieving precise dosing for the pediatric population.2 To counter dosing and compounding cost issues associated with hydroxyurea capsules, a pediatric-tailored water-soluble formulation of hydroxyurea film-coated tablets was introduced. Ghana was the first country in SSA to approve hydroxyurea film-coated tablets in 2022.2

Aims:

To compare the total cost and derive cost offsets associated with the water-soluble formulation of film-coated hydroxyurea 1000 mg tablet (HU-FCT) versus hydroxyurea 500 mg capsule (HU) for pediatric patients with SCD in Ghana.

Methods:

An Excel-based de novo cost comparison model was developed. The input data for the population were sourced from the Ghana Nationwide Claims Database (January 2015–March 2021), N=909 (≥2–<6 years, 53.5%; ≥6–<12 years, 33.7%; ≥12–<16 years, 12.9%), costs (direct and indirect), and productivity-related values were estimated from different sources (data on file). The costing was done using societal perspective where the direct cost of formulation was calculated based on pack size and list price. Indirect costs included compounding costs (i.e., diluents, containers, and refrigeration in the healthcare facility), out-of-pocket (OOP) expenses, and productivity loss. A healthcare practitioner (HCP) led caregiver survey was conducted between April–June 2023 to estimate net OOP expenses of HU-FCT (i.e., incurred on traveling to site, boarding, etc.) and productivity loss (i.e., caregiver average monthly income, average time taken in hours to travel, and work loss). A reduction in OOP expenses and number of caregiver visits to healthcare facility was assumed with HU-FCT use as patients travel less frequently to pick up the reconstituted formulation compared to HU (HU: 12 visits/year; HU-FCT: 4 visits/year). Considering the 12-month model time horizon, total cost per member per month (PMPM) and cost differential PMPM were calculated in Ghanaian Cedi (GH₵; 1 USD=11.12 GH₵). A scenario analysis for public sector was conducted considering both with and without compounding costs.

Results:

The survey analysis by 10 HCPs received inputs from 64 caregivers showed a 66% reduction in average monthly OOP expenses with HU-FCT (GH₵42.50) compared to HU (GH₵127.51). Approximately 7% of the monthly caregiver income was spent traveling to procure HU. HU-FCT led to a ~80% reduction in the mean annual time spent per patient in travel and waiting time compared to HU i.e., ~6 vs. ~37 hours, respectively. The overall mean PMPM cost-savings for HU-FCT where the whole burden is borne by the patients or caregivers of pediatric patients was GH₵90.96 in the public and GH₵78.28 in the private sector. In scenario analysis, the differential PMPM costs for HU-FCT in public sector with compounding costs and without compounding costs were GH₵51.42 and GH₵67.42, respectively. HU-FCT showed 33% cost savings compared to HU, for both patients and caregivers through reduced income loss, travel expenses, and pharmacy costs.

Conclusion:

HU-FCT has the potential to be a cost-saving intervention to treat pediatric patients with SCD. Moreover, considering the overall cost, it offers economic balance for caregivers seeking HU-FCT, thus alleviating their financial burden.

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References:

\1. Egesa et al. (2022). *Int J Peds*. 21(3):26

\2. Nyonator et al. (2023). *Semin Hematol*. 60(4):226-232

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