Economic Evaluation of Prasugrel (Efient®) for the prevention of atherothrombotic events in patients with acute coronary syndrome undergoing primary or delayed percutaneous coronary intervention.

National Centre for Pharmacoeconomics **January 2010**

Summary

1. In July 2009, Eli Lilly & Company Ltd. submitted an economic evaluation report on the cost-effectiveness of prasugrel (Efient®) to the National Centre for Pharmacoeconomics (NCPE). Prasugrel is licensed for the prevention of atherothrombotic events in patients with acute coronary syndrome (ACS) undergoing primary or delayed percutaneous coronary intervention (PCI). An amendment to report was submitted on the 10th November 2009 and further data was made available by the 8th January 2010. The economic evaluation was conducted from the perspective of the Irish Health Services Executive.

2. The cost-effectiveness of prasugrel was demonstrated using a patient level simulation model, which used individual baseline patient characteristics derived from the TRITON-TIMI 38 trial. The NCPE requested the use of demographic data reflective of patients undergoing PCI for ACS in the Republic of Ireland (ROI). The time horizon was 40 years. Costs and consequences were discounted at an annual rate of 4%.

3. The review group had a number of concerns, including:
    a. TRITON-TIMI 38 uses composite endpoints (CEs) which do not conform to set criteria. Not all the endpoints are of a similar consequence to patients and there are differences in the frequency in which they occur within the trial.
    b. The statistical significance in the occurrence rate of the primary CE is driven only by nonfatal MI which encompasses both clinical and non-clinical MI.
    c. The clopidogrel loading dose in TRITON-TIMI 38 may not reflect current practise in the ROI.
    d. The majority of survival gain for prasugrel is generated by the extrapolation module of the model and the use of the some of the studies to determine mortality relative risk is of concern.
    e. There is an assumption that the mortality rate differences established between the prasugrel and clopidogrel arms of TRITON-TIMI 38 will be preserved indefinitely.

4. The incremental cost-effectiveness ratio (ICER) for prasugrel versus clopidogrel was provided for the GMS (medical card) and DPS schemes.

<u>GMS prasugrel vs. clopidogrel</u>

Licensed population (in whom the drug is indicated according to the marketing authorisation): Prasugrel was dominant at a time horizon of 1 year in both male and female cohorts and the ICERs for prasugrel relative to clopidogrel were €424/QALY and €358/QALY for the male and female cohorts respectively at 40 years.

Target population (in whom the full 10mg maintenance dose is intended): The ICERs were €476/QALY and €470/QALY for the male and female populations respectively.

UA/NSTEMI subgroup within the Licensed Population: Prasugrel dominated in both cohorts

STEMI subgroup within the Licensed Population: The ICERs were €993/QALY and €948/QALY for the male and female populations respectively.

DPS prasugrel vs. clopidogrel
Licensed population: The ICERs were €38,709/QALY and €41,989/QALY at 1 year and €1,152/QALY and €1,114/QALY at 40 years for the male and female cohorts respectively.
Target population: The ICERs were €1,263/QALY and €1,261/QALY for the male and female populations respectively.
UA/NSTEMI subgroup: The ICERs were €927/QALY and €875/QALY for the male and female populations respectively.
STEMI subgroup: The ICERs were €1,389/QALY and €1,320/QALY for the male and female populations respectively.

5. Probabilistic and one-way sensitivity analyses were conducted at the 40 year time horizon. The male cohort results are presented:

   GMS prasugrel vs. clopidogrel
   At cost-effectiveness thresholds of €20,000/QALY and €45,000/QALY, the probabilities of cost-effectiveness of prasugrel in the licensed population were 81.1% and 82.4% respectively. In the target population the probabilities were 66.6% and 68.4% respectively. The probabilities for the UA/NSTEMI subgroup were 72.3% and 73.6% and for the STEMI subgroup were 90.4% and 91.1% respectively.

   DPS prasugrel vs. clopidogrel
   At cost-effectiveness thresholds of €20,000/QALY and €45,000/QALY, the probabilities of cost-effectiveness of prasugrel in the licensed population were 81.8% and 83.7% respectively. In the target population the probabilities were 67% and 67.1% respectively. The probabilities for the UA/NSTEMI subgroup were 71.8% and 73.2% and for the STEMI subgroup were 91.7% and 92.2% respectively.

6. The annual drug acquisition cost of prasugrel (60mg loading dose, then 5mg or 10 mg daily) is €738.28 and of clopidogrel (300mg loading dose, then 75mg daily) is €600.07.
   The budget impact analysis considered two scenarios:
   a) Where there is a combination of clopidogrel and prasugrel prescribing (based on an estimated market share), the estimated budget impact after 5 years is €324,479 per annum.
   b) Where 100% of patients are prescribed prasugrel, the estimated budget impact after 5 years is €927,084 per annum.

7. The review group consider that prasugrel, co-administered with aspirin, is cost-effective in patients with acute coronary syndrome undergoing primary or delayed percutaneous coronary intervention in the Irish healthcare setting.