BACKGROUND/OBJECTIVE  

- Prognosis is poor for patients with relapsed or refractory (R/R) mantle cell lymphoma (MCL), with a median survival of one to two years.  
- No standard of care exists and treatment options are limited.

- In a recent Phase II trial (PCYC-1104, NCT01236391), Ibrutinib (Imbruvica®), a first-in-class, oral, 
  BTK inhibitor, was associated with a median progression-free survival (PFS) of 19.4 months. 
  Median overall survival was 58% at 18 months (Figure 1). 
  The aim of the current study was to evaluate the projected 5-year LYs and quality-adjusted life years (QALYs) 
  associated with the use of new products, associated with Ibrutinib and other treatments for R/R MCL.

METHODS  

- A health state model was developed to simulate health outcomes in patients with R/R MCL. The model 
  consisted of three key health states, PFS, post-progression survival (PPS), and death 
  (Figure 1). Patients in the PFS phase were shifted according to response in order to capture the utility 
  associated with treatment response (upper section of the survival analysis). A separate PFS model 
  was developed to capture post-progression survival, allowing for better comparison with other studies. 
  Once a patient moved through each phase, he or she moved to the next phase and was no longer 
  considered for further treatment. Disutility due to disease progression was captured in the model; 
  the use of parametric functions for long-term PFS and OS extrapolations is subject to high uncertainty.

- The comparators of interest were Ibrutinib, bendamustine + rituximab (BR), bortezomib, 
  and other treatments for R/R MCL. 
  LYs (QALYs), key metrics used by payers to assess the value of new products, associated with 
  Ibrutinib and other treatments for R/R MCL.

- The use of parametric functions for long-term PFS and OS extrapolations is subject to high uncertainty. 
  Alternative parametric fittings were tested in the sensitivity analysis to address this uncertainty.

- Deterministic and probabilistic sensitivity analyses were conducted in order to evaluate uncertainty 
  in model predictions. Results of the deterministic sensitivity analysis (Table 2) indicate that model 
  outcomes are sensitive to the discount rate used, the utility values, and the extrapolation method 
  used for PFS and OS. The use of parametric fittings is well accepted by HTA bodies such as NICE.

RESULTS  

- The base-case simulation model (which used a Weibull projection for PFS and OS) 
  results were most sensitive to the extrapolation method used to project PFS and OS; results were 
  most reliable when compared to other models (Table 3). 
  The comparators of interest were Ibrutinib, bendamustine + rituximab (BR), bortezomib, 
  and other treatments for R/R MCL. 
  Mean incremental QALYs 0.74 (95% CI 0.37-0.90) for OS after MAIC.

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SUMMARY  

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REFERENCES  

- This study was conducted by Janssen and Evidera.

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