

Budget impact of introducing tisagenlecleucel (TIS) as a third line or above treatment of patients with relapsed and refractory (R/R) DLBCL in Singapore



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BACKGROUND

- Diffuse large B-cell lymphoma (DLBCL) is the most common form of aggressive non-Hodgkin's lymphoma (NHL) accounting for 33% of all NHL cases in Singapore with over 322 people diagnosed and 132 deaths per year ^{1,2}.
- 5-year survival rates with first-line treatment range from 50 to 80% and approximately 20 to 50% of DLBCL patients relapse or become refractory to first-line treatment, requiring later lines of therapy ³.
- In R/R DLBCL patients with standard of care (salvage chemotherapy) as a third line or above treatment, the median overall survival (OS) has been reported as 4.1 months; the response rate has been reported as only 26% with two year survival rate as 20% ^{3,4}.



OBJECTIVE

Budget impact analysis (BIA) aims to estimate the net financial implications to the Singapore healthcare system of introducing TIS (subsidy listing) as a third line or above treatment of R/R DLBCL.



METHODS

- A BIA was developed in which the current treatment pathway (without TIS) was compared to a future scenario (with TIS).
- Published sources and expert interviews were used to inform the R/R DLBCL treatment pathway, epidemiology (Globocan ² and NCCS ⁵), grade 3 and above adverse event (AE) rates, cost and resource utilization ³.
- Third line or above treatment of R/R DLBCL in Singapore involves salvage chemotherapy, hematopoietic stem cell transplantation (HSCT) and off-label treatments, HSCT was included as subsequent treatment (summarised in Fig. 1).
- Market shares were derived based on discussions with clinical experts (see Table 1).

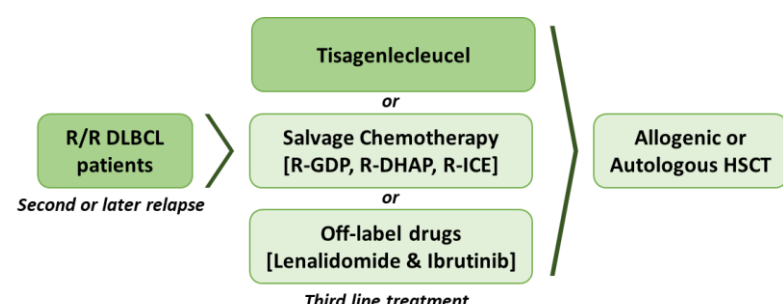


Figure 1: Treatment pathway for R/R DLBCL patients

R-GDP: rituximab, gemcitabine, dexamethasone and cisplatin; R-DHAP: rituximab, dexamethasone, cytosine and cisplatin; R-ICE: rituximab, ifosfamide, carboplatin and etoposide; HSCT: haematopoietic stem cell transplant

Table 1: Market shares of TIS and comparators (world with TIS)

	Y1	Y2	Y3	Y4	Y5	Y6
TIS	7.5%	9.6%	12.2%	15.5%	19.8%	25.3%
Salvage chemo	72.5%	72.4%	70.2%	67.6%	64.1%	59.8%
Lenalidomide	10.0%	9.0%	8.8%	8.4%	8.0%	7.5%
Ibrutinib	10.0%	9.0%	8.8%	8.4%	8.0%	7.5%



RESULTS

- 57 (year 1) increasing to 71 (year 6) patients were estimated to be eligible for TIS under its expected Health Sciences Authority (HSA) indication.
- 4 patients were estimated to be treated with TIS in year 1 increasing to 18 in year 6 with a net budget impact of S\$1.5M in year 1 increasing to S\$8.3M in year 6 (Fig. 2).

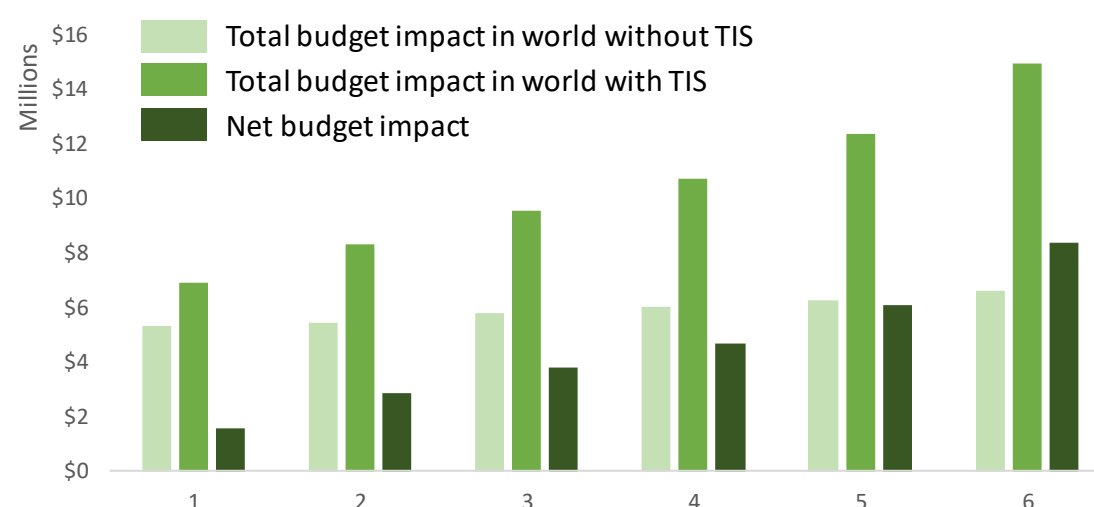


Figure 2: Total and net budget impact for world with and without TIS

Sensitivity analyses were performed on three key parameters:

- Market shares - equal market shares were assumed across all comparators
- Subsequent HSCT – impact of no subsequent HSCT

Table 2: Sensitivity analysis results (net budget impact)

Year (Y) >	Y1	Y2	Y3	Y4	Y5	Y6
Base case	\$1.5M	\$2.8M	\$3.7M	\$4.6M	\$6.1M	\$8.3M
Equal market share	\$6.3M	\$7.8M	\$8.3M	\$8.2M	\$8.8M	\$9.3M
No subsequent HSCT	\$1.7M	\$2.9M	\$3.9M	\$4.8M	\$6.3M	\$8.6M



CONCLUSION

- The BIA suggests that the introduction of TIS in R/R DLBCL would cost the Singapore healthcare system an additional S\$1.5M to S\$8.3M per year compared to current spend.
- Sensitivity analyses results are consistent with the base case except for scenario 1 where the net budget impact increases.
- TIS is expected to significantly reduce the rate of subsequent HSCT required after salvage chemotherapy and provide considerable improvements in outcomes to R/R DLBCL patients receiving third line or above treatment presenting high unmet clinical need.

References

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