

Introduction

Palifermin, a keratinocyte growth factor, has been shown to reduce the duration and severity of oral mucositis (OM) after fractionated total body irradiation (FTBI) conditioning-based regimens in patients with hematologic malignancies requiring hematopoietic stem cell transplantation.

The purpose of our study was:

- To evaluate the cost-effectiveness of palifermin for preventing severe OM in allogeneic hematopoietic stem cell transplant (alloHCT) patients conditioned with FTBI and etoposide.

Materials and Methods

- A decision analysis model was implemented to estimate the cost-effectiveness of palifermin in preventing severe OM after alloHCT
- Clinical outcomes were based on an extended retrospective medical review of patients who underwent FTBI and etoposide conditioning followed by alloHCT with or without palifermin prophylaxis between January 2005 to December 2009
- Direct medical costs included treatment costs and costs of bacteremia, fungemia, viremia, and OM derived from previously published studies
- All costs were adjusted to 2016 U.S. dollars

Results

- 184 patients were included (83 controls, 101 palifermin)

Cost-Effectiveness Analysis

	Avg. Costs (range)	Palifermin (incidence/cost)	Control (incidence/cost)
Bacteremia	\$14,886 (\$13,254-\$16,517)	48% \$7,145	40% \$5,954
Other infections (viral, fungal)	\$12,222 (\$11,923-\$16,517)	24% \$2,933	18.6% \$2,273
Grade 1-2 OM	\$4,913 (\$3,275-\$5,471)	70% \$3,493	16% \$786
Grade 3-4 OM	\$12,491 (\$9,642-\$15,340)	25% \$3,122	84% \$10,492
Total cost of infxn and OM		\$16,639	\$19,505
Palifermin	\$12,764	100% \$12,764	0% \$0
Total Costs		\$29,403	\$19,505

Incremental Cost-Effectiveness Ratio (ICER)

$$\frac{[\text{costs in palifermin group} - \text{costs in control group}]}{[\text{LOS in palifermin group} - \text{LOS in control group}]}$$

$$= \frac{[\$29,403 - \$19,505]}{[49.8 \text{ days} - 42.6 \text{ days}]}$$

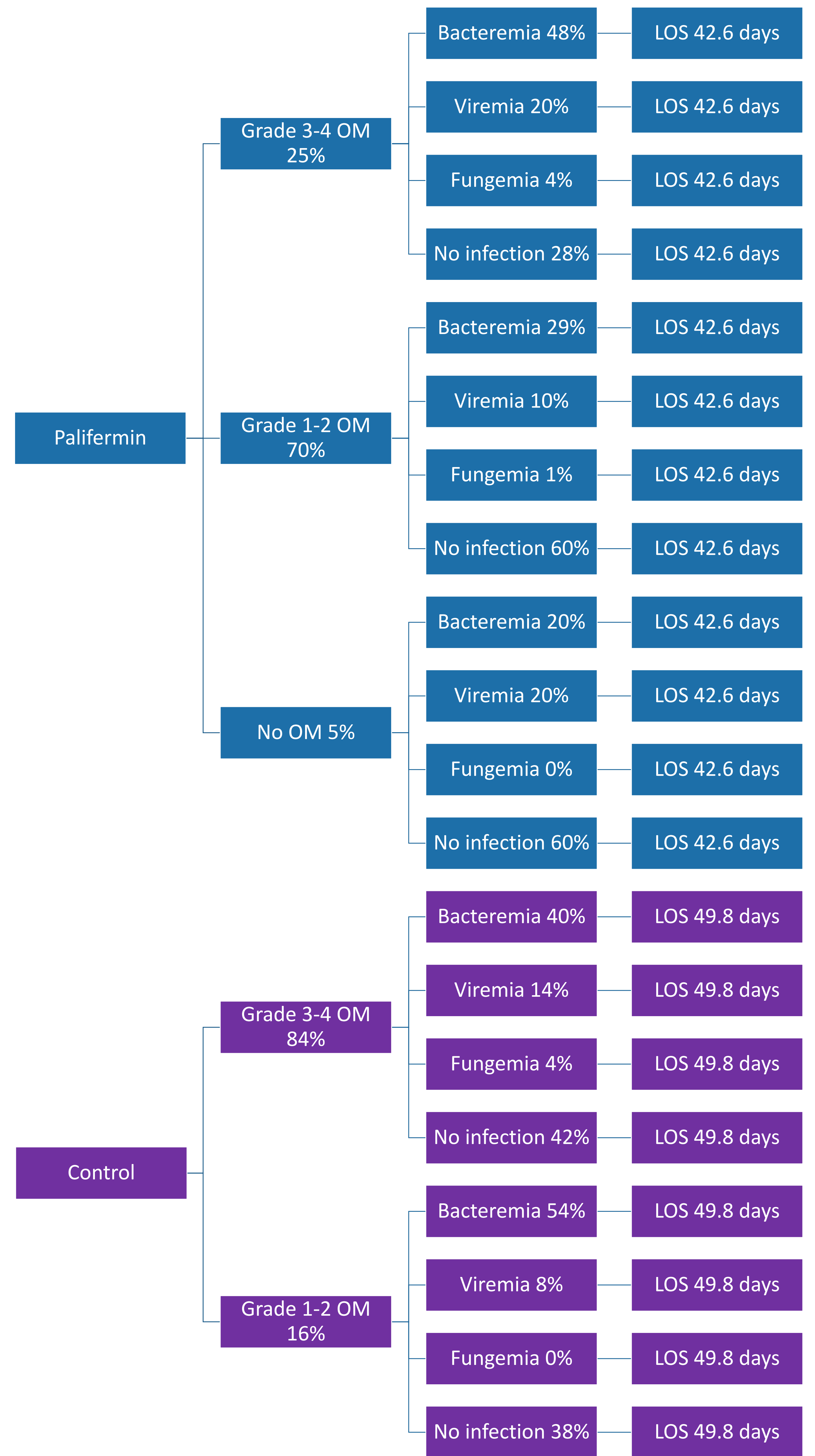
$$= \$1,374 \text{ per hospitalized day avoided}$$

References

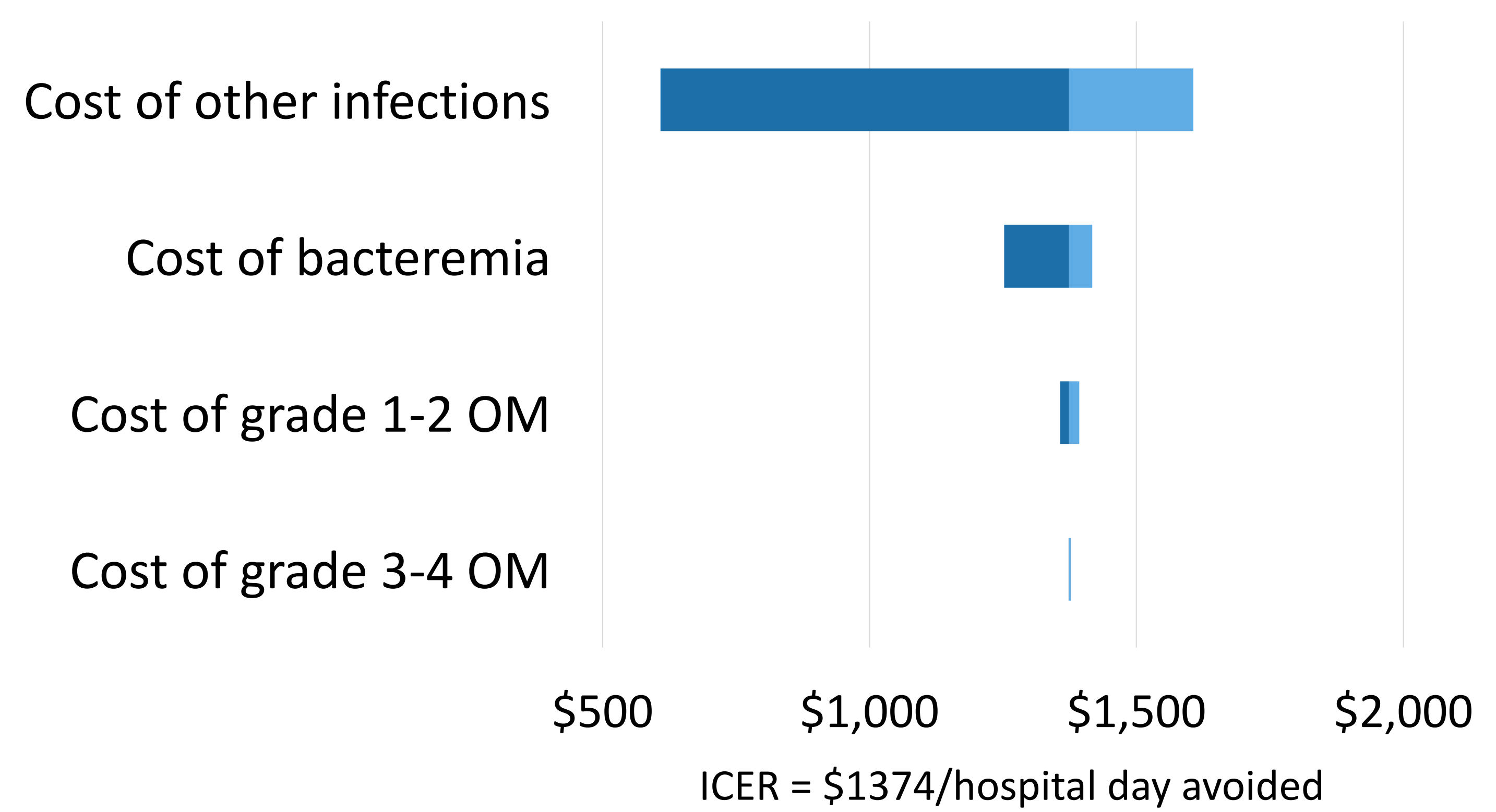
- Nguyen DT, Shayani S, Palmer J, et al. Palifermin for prevention of oral mucositis in allogeneic hematopoietic stem cell transplantation: single-institution retrospective evaluation. Support Care Cancer 2015;23:3141-7.
- Red Book. Kevivance. www.micromedexsolutions.com. Accessed September 2, 2016.
- Consumer Price Index. <http://www.bls.gov/cpi/#tables>. Accessed September 3, 2016.
- Elting L, Shih Y. The economic burden of supportive care of cancer patients. Support Care Cancer 2004;12:219-26.
- Elting LS, Shih YC, Stiff PJ, et al. Economic impact of palifermin on the costs of hospitalization for autologous hematopoietic stem-cell transplant: analysis of phase 3 trial results. Biol Blood Marrow Transplant 2007;13:806-13.
- Paterman A, Cella D, Glandon G, et al. Mucositis in head and neck cancer: economic and quality of life outcomes. J Natl Cancer Inst Monogr 2001;29: 45-51.

Results

Decision Tree Analysis



One-Way Sensitivity Analysis ICER per Hospital Day Avoided



Conclusions

- Use of palifermin for prevention of severe OM in patients undergoing alloHCT following conditioning with FTBI and etoposide appeared to be cost-effective compared to an average hospital cost per day of \$1878
- Further study of palifermin is warranted to evaluate the cost-utility and impact on quality of life in these patients