

Potential Cost Effectiveness of Three Different Human Skin Substitutes in Treating Diabetic Foot Ulcers

Purpose: Develop economic models that quantify and compare the cost effectiveness of treating diabetic foot ulcers (DFUs) using three human skin substitutes: Graftjacket[®] Regenerative Tissue Matrix (RTM) (KCI USA, Inc., San Antonio, TX), Dermagraft[®] (Advance Tissue Sciences, Inc., La Jolla, CA), and Apligraf[®] (Organogenesis, Inc., Canton, MA).

Methods: Using published data from three randomized controlled trials (RCTs) treating DFUs, a retrospective cost-effectiveness analysis (CEA) was performed using a 50-patient hypothetical model for each human-skin substitute. Each RCT had similar endpoints (complete wound-healing), design (RCT), duration (12-weeks), and wound type (DFUs). In these studies, Graftjacket[®] RTM showed a higher healing rate (69.6%) than either Dermagraft[®] (30.0%) or Apligraf[®] (56.3%). The economic model applied national Q3-2011 average selling prices of Graftjacket[®] RTM (\$90.71/cm²), Dermagraft[®] (\$38.93/cm²), and Apligraf[®] (\$34.47/cm²) to the average number of applications (based on total cm²/application), respectively, after 12 weeks of treatment: Graftjacket[®] RTM (1 application; 16cm²/application), Dermagraft[®] (8 applications; 38cm²/application), and Apligraf[®] (3.9 applications; 44cm²/application).

Results: Model calculations showed total product cost per DFU treatment of \$1,451 for Graftjacket[®] RTM, \$11,835 for Dermagraft[®], and \$5,915 for Apligraf[®]. These CEA results suggest potential per-DFU savings of \$10,384 for Graftjacket[®] RTM versus Dermagraft[®], and \$4,464 for Graftjacket[®] RTM versus Apligraf[®].

Conclusions: These results illustrate the potential cost effectiveness to the healthcare system of using Graftjacket[®] RTM on DFUs. Additional studies are needed that directly compare healing rates and costs of these three treatment options.

Word Count: 247 of 250 words allowed