Clinical Decision Support Tools

WounDx™

In the context of high rates of wound dehiscence (15~20 percent) in the combat wounded, the Surgical Critical Care Initiative (SC2i) at the Uniformed Services University of the Health Sciences (USUHS; Bethesda, Maryland) has developed a biomarker based clinical decision support tool (CDST) to assist in the decisions on timing of wound closure (*Forsberg et al. 2015*). Additional collaborators on this project include: Walter Reed National Military Medical Center (Bethesda, Maryland), Naval Medical Research Center (Silver Spring, Maryland), Emory University (Atlanta, Georgia), Grady Memorial Hospital (Houston, Texas), Duke University (Durham, North Carolina), Henry M. Jackson Foundation for the Advancement of Military Medicine (Bethesda, Maryland), and Decision Q Corporation (Arlington, Virginia). Wound dehiscence is defined as loss of greater than 10 percent of a skin graft, dehiscence of a primary closure requiring debridement, failure of a tissue flap requiring repeat operative intervention, or need for subsequent amputation. The consequences of these complications are many: lengthy delays to definitive wound closure, increased pain, nutritional setbacks, higher costs, and further loss of function if an amputation level should be raised to save a Service member's life. Grounded in ongoing research on datasets from civilian as well as military patients, this CDSTs model is expected to reduce wound dehiscence rates from the current rate of 15 percent to only five percent (and lead to substantial cost-savings, i.e., ~$60,000 per patient). Achieving this goal will produce multiple benefits, including decreased pain, fewer complications, better outcomes, and lower net costs. It should also increase the likelihood that a severely injured Service member can eventually return to duty. Termed WounDx™, this CDST has direct applicability in both military and civilian health care systems as similar wound failure rates occur in both settings. An investigational device exemption package will be submitted to the Food and Drug Administration, ahead of SC2i launching a clinical trial meant to validate the clinical utility of this decision support tool.

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REFERENCES:

Forsberg, J. A., Potter, B. K., Wagner, M. B., Vickers, A., Dente, C. J., Kirk, A. D., and Elster, E. A. 2015. "Lessons of War: Turning Data into Decisions." EBioMedicine 2 (9):1235-42. doi: 10.1016/j.ebiom.2015.07.022.