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A Test of the Safety, Effectiveness, and Acceptability of an Improved Dressing for Sickle Cell Leg Ulcers in a Tropical Climate (awarded 2015)

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What do you hope to learn through this research? This study aims to determine if improvised dressings similar to those used in Japan on pressure ulcers are safe and effective for wound patients in a tropical developing country setting. A piece of a clean plastic bag with a slit in it, sealed to the periwound with zinc oxide paste or another emollient, covered with a clean absorbent material, is a readily available solution which could be used in any village. We know that autolytic debridement is a very powerful natural wound cleaning mechanism, but we do not know for certain if it can prevent infection in this challenging environment.

What can you tell us about the progress made in this area since you first began your research? My first case studies (1999 – 2004) taught me that keeping wounds infection-free is especially challenging in the tropics; this is supported by the literature. Advanced dressing materials cannot be obtained in remote and conflict areas; solutions using inexpensive products readily available in tropical villages are needed. Very little detailed information has been published in this field. Only a few published research studies address sustainable dressing solutions, and even fewer have taken into account the additional challenges of the rural tropical setting. In 2013, I published two literature reviews pulling all of the published research on this topic – spanning over 50 years – into one fairly brief article. Within the past six years, researchers in Japan have obtained promising healing results using plastic food wrap to manage pressure ulcers in a temperate climate in a developed country, and plastic food wrap is now used for burns first aid in other countries, including Australia. In India they have had excellent success using plastic surgical drape material as wound dressings. I have been obtaining baseline on wound management in villages in the tropics since 2012. We now have what is needed to conduct clinical trials.

How can this research help patients, clinicians and/or scientists? Currently, in rural areas of tropical developing countries traditional health practitioners, village health workers, and villagers performing self-care all express that their ability to manage wounds is inadequate. As many as one in five villagers are incapacitated by a wound, and the most common cause of a chronic wound is a poorly managed acute wound. If this technique proves to be a safe and effective method of dressing wounds in tropical developing countries, it can easily be taught to lay health workers. Villages will experience dramatic positive improvements in the health of their working-age members if chronic wounds become a rarity.

Has your work thus far yielded any surprises? When I conducted the first descriptive study to learn what usual practice for wound management in villages is now, I was surprised to learn that although many villagers (like many people in the developed world) want to dry out wounds, the majority of those who were identified as wound experts have moist wound management as their goal. These experts often expressed frustration or resignation because they recognized that their methods of dressing wounds could not keep them moist in the dry seasons.

How did this award help your career? The support of the prestigious Wound Healing Society Foundation helped demonstrate to the University of the West Indies Research Ethics Committee that this study is worthwhile. Also, while my colleagues, Dr. Venugopal and his team at the University

Hospital of the West Indies, and I are dedicated to working without additional pay on this project, we cannot conduct this research without funding for dressing supplies, shipping, customs fees, printing data collection tools, advertising to participants, and laboratory tests to determine participant eligibility.

How did you get interested in wound healing and this area in particular? I was surprised at the extent of the chronic wound problems I encountered on short-term medical mission trips, beginning twenty-seven years ago. These experiences led me to take a 30 CEU course on wound management prior to moving to a remote area of Ghana, West Africa for five years. This preparation proved providential, because my Ghanaian colleague, Peter Bombande, was passionate about wound care as well. Together, we refined wound management techniques for the challenging environment in which we worked. The Yendi clinic remains renowned for facilitating wound healing, even in patients who had lost all hope.

What are your future plans for your work in wound healing? My passion is teaching. I have data showing that plastic bags found in villages worldwide and plastic food wrap such as that used in Japan have virtually identical essential properties. If this study shows that a piece of plastic bag is a reasonably safe and effective wound dressing in a tropical developing country, we can safely recommend it for use by the nonprofessional health care providers who care for most villagers. The real goal is to provide evidence-based wound management protocols for village health worker training programs.

Who do you consider your mentors and your close associates in this project? How did you start working with them? My husband of 43 years, Richard, is my Research Associate and Technical Specialist. He literally keeps the wheels on (and the laptop connected) when we are working in remote areas. We first met Dr. Laura Bolton and her husband Russ in the poster room of a conference. They have been our cheerleaders and advisors for over fifteen years. John Newton and Dr. Roger Sessions of Ferris Mfg. Corp. have also been tremendously supportive of our work. I approached them for donations of their continuously-cleansing wound dressings, which were phenomenally effective for our clinic patients, in 2003, and ever since then, Ferris has provided very generous donations of PolyMem. Dr. Sheryl Bishop, biostatistician for all four colleges at UTMB as well as for NASA, was my dissertation chairman. She takes time out of her busy schedule to double-check my study designs and analyses.

Tell us about your life away from the lab and/or clinic? My husband and I walk in the local park each morning and enjoy visiting with our neighbors, and in the evening we are sometimes joined in the park by our grandson and his parents. I am the informal faith community nurse for our church family. My favorite recreational activities are canoeing and snorkeling. While we prefer long independent wilderness canoe/camping treks, my husband and I have also kayaked the 17 mile Na Pali Coast in Kauai. In spare moments, I post articles on controversial topics (health, religion, and politics), along with my comments on the strength of the evidence, on social media.

Photos are of the research study to obtain baseline data on wound management in Ghana in 2012

