

# INTRODUCTION OF AN “OFF THE SHELF” TOTAL CONTACT CASTING SYSTEM IN LARGE OUTPATIENT DIABETIC FOOT ULCER CLINIC

Jorge Puerta, MD; Jennifer Garcia Ramos, MD; Horacio Moreno, MD

Caja del Seguro Social Unit: Diabetic Foot General Surgery – Complejo Hospitalario Dr. Arnulfo Arias Madrid, Panama

## BACKGROUND/PURPOSE

Foot ulcers are the leading cause of non-traumatic lower extremity amputations in diabetic patient populations.<sup>1</sup> In Panama, there is a 9.5% prevalence of Diabetes Mellitus (DM) and mortality rate of 5.5%; 5th leading cause of death.<sup>2</sup> Evidence has shown Total Contact Casts (TCC) as the gold standard of treatment for relieving pressure and healing diabetic foot ulcers.<sup>3</sup> The largest Diabetic Foot Ulcer (DFU) clinic in Panama trialed an off the shelf TCC system from October 2013 to February 2014. Plans to increase use of TCC as the gold standard in off-loading and healing DFUs will require clinical confidence with a user friendly product.

## METHODS

9 patients, ages 51-67 years; 3 females and 6 males; were included in this trial. All had multiple co-morbidities with wound chronicity of 2 months to >3 years. Education and hands-on training was provided to wound center staff regarding purpose and use of this unique Roll on TCC System<sup>®</sup>. Wounds were debrided and dressed according to advanced wound care evidence based practice using moist wound healing principles. All patients were placed in the Roll on TCC System to off-load pressure. Casts and dressings were changed 2-3 days after the initial application and weekly thereafter.

## RESULTS/CONCLUSION

All patients achieved approximately 50% reduction in surface area at 4 weeks. Average time to closure with the Roll on TCC System was 8 weeks for 6 patients. The remaining 3 patients achieved greater than 50% reduction of surface area in the 8 week time frame.

Use of this Roll on TCC System positively impacted healing rates of these 9 patients. This less complicated Roll on TCC System gave clinicians more confidence in using TCC. As a result, more patients will receive the gold standard of DFU care in Panama at this busy DFU clinic.

**References:** 1. Anselmo JM, Montenegro JG, Cruz CG, Moreno de Rivera AL and Cumbreira AO a. Gorgas Memorial Institute for Health Research, Justo Arosemena Avenue and 35th Street, Panama, Republic of Panama. b. Ministry of Health, Santo Tomas Hospital. Endocrinology Service, Balboa Avenue and 34th East Street, Panama, Republic of Panama. c. School of Statistics, Faculty of Sciences, University of Panama, Transisthmian Avenue, Panama, Republic of Panama. Corresponding author: Anselmo J Mc Donald P: moc.liamtoh@cmesna; Jose A Montenegro G: ten.amanapwc@3691gmaj; Clara E Cruz G: moc.liamg@8081zurcec; Aida L Moreno de Rivera: ap.bog.sagrog@arevira; Alberto Cumbreira O: ap.bog.sagrog@arerbmuca Prevalence, sociodemographic distribution, treatment and control of diabetes mellitus in Panama. Diabetol Metab Syndr. 2013; 5: 69. Published online Nov 13, 2013. doi: 10.1186/1758-5996-5-69 PMCID: PMC3868325. 2. Incidence of diabetic foot ulcer and lower extremity amputation among Medicare beneficiaries. 2006 to 2008. www.ahrq.gov. 3. Bryant RA, Nix DP. Acute and Chronic Wounds: Current Management Concepts, 4th edition. St. Louis, MO: Mosby Elsevier; 2012

### CASE 1

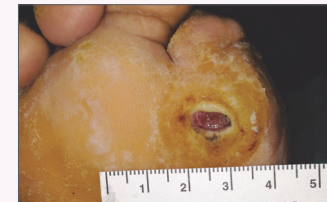
67 y/o male with right foot neuropathic ulcer Wagner grade 3/UTMB 3B for >6 months. Previous right great toe amputation site with ulceration over 1st metatarsal head with Charcot deformity. PMH: DM, HTN, PVD and Monckberg atherosclerosis. Patient was hospitalized for 2 weeks for antibiotic therapy and previous dressings included silver alginate and maltodextrin. Pt wore an off-loading shoe prior to beginning Roll on TCC System treatment. Treatment initiated 12/19/2013 and wound had >75% reduction of wound by 2/6/2014 and complete closure by 2/17/2014.



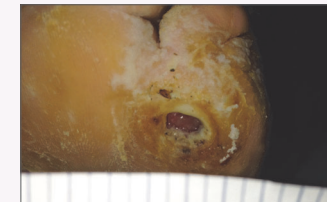
12-19-2013



01-16-2014



01-30-2014



2-6-2014

### CASE 2

50 y/o female with right foot plantar ulcer Wagner grade 3/UTMB 3B for > 2 years. PSH: Previous surgical resection of bone between 2nd and 3rd digits with partial resection of 3rd metatarsal and skin graft on right foot. PMH: Lab cultures positive for *Acinetobacter baumannii* and *Proteus mirabilis* present in ulcers on left foot, Type 2 DM, HTN, Charcot arthropathy and moderate malnutrition (albumin 2.9). Previous treatments included antibiotic therapy, silver alginate & maltodextrin dressings. Patient had complete closure within 2 months.



11-28-2013



12-19-2013



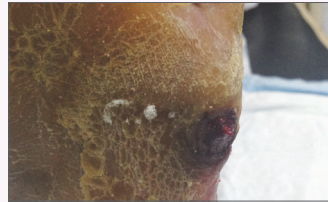
01-16-2014



01-30-2014

### CASE 3

53 y/o male with left foot lateral plantar ulcer Wagner grade 3/UTMB 3C present for 3 months. PMH: Type 2 DM and mild vascular insufficiency. Previous treatment included: Cam Walker, Maltodextrin, and silver alginate dressings. Patient wound had closure in one month; treatment initiated 1/16/2014 and healed on 2/12/2014.



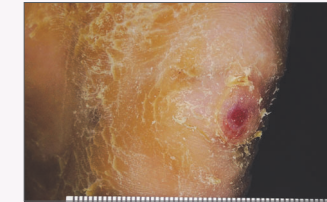
1-16-2014



1-23-2014



1-30-2014



2-6-2014

\* TCC-EZ<sup>®</sup> Derma Sciences, Inc. Princeton, NJ

Derma Sciences provided an educational grant to support this research. The information may include a use that has not been approved or cleared by the Food and Drug Administration. This information is not being presented on behalf of Derma Sciences.