

Silhouette - a novel 3D wound measurement system

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We describe initial experience with a new method of digital wound assessment (the Silhouette System). In this system, a digital camera uses laser technology to carry out 3D wound measurement including volume. We studied 10 diabetic patients (6 males, 4 females; 3 with type 1 diabetes and 7 with type 2 diabetes) who presented to our Foot clinic with plantar ulcers. We assessed these ulcers using two methods. First, we used the Silhouette system which measures area, depth and volume and stores a digital record of the ulcer. Second, we traced the ulcer with acetate film to measure wound area, which was calculated using graph paper. We also probed the ulcers to assess wound depth. **Results** of the wound assessments using these two methods are presented in the table in means \pm SD.

Silhouette system)			Acetate film wound tracing	
Area (cm ²)	Depth (cm)	Volume (cm ³)	Area (cm ²)	Depth (cm)
6.7 \pm 12.9	0.4 \pm 0.2	0.3 \pm 0.3	6.5 \pm 12.8	0.6 \pm 0.5

The Silhouette system was quick and easy to use and provided immediate wound parameters of area, depth and volume. It also provided digital images, which were stored electronically and could be used as a baseline to compare subsequent progress of the ulcer. There was no direct contact of the instrument with the skin reducing the risks of cross-infection. Using the acetate film wound tracing, it was necessary to manually calculate the area which was time consuming. **In conclusion**, the Silhouette system provided an image and 3D wound planimetry including volume. The acetate film wound tracing simply gave area and depth (using a probe), but did not record a photographic image. Initial evaluation of the Silhouette system has provided a novel quantitative wound assessment which will be useful in the monitoring and reporting of the progress of diabetic foot ulcers.