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## **Current Clinician Opinions on the Management of Hypertrophic and Keloid Scars with Pressure Modulation**

Debra Wright, OTR/L, Clinical & Product Development Manager  
and Jonathan Niszcza, MS, OTR/L, Clinical Specialist

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*Debra Wright, OTR/L & Jonathan Niszcza, MS, OTR/L*

JOBKIN LTD, NOTTINGHAM, ENGLAND &  
BIO MED SCIENCES, INC. ALLENTOWN, PENNSYLVANIA USA

Burn Clinicians (specifically Occupational Therapists, Physiotherapists and Specialist Nurses) have long been involved in the determining the most appropriate intervention to manage hypertrophic and keloid scars. Pressure Garments have been the mainstay in the therapist's choice in treatment options since the early 1970's and continues to be the standard therapy and first line treatment for almost all aspects of problem hypertrophic scarring and burn injury. Silicones have also been used since the early 1990's and continue to be a useful mechanism in the effective management of problem scars and a prominent choice among all clinical disciplines to manage scars. Advancements in both the manufacturing and technology industries have been able to provide clinicians with unique combinations of garment materials with a silicone bonded textile as well as specific gradient pressure garments that accommodate the unique needs of the patient in order to achieve an optimum aesthetic and functional outcome. These advancements have also provided more durable and long lasting treatment options to manage patients' scars. However, a review of the most common treatment interventions and consensus among clinicians preference was lacking in the literature.

A brief questionnaire was piloted in 2007 among two Occupational Therapists within UK Plastics / Burns units to determine the most current trends in the choices of hypertrophic and keloid scar management for burns and a subsequent mail survey was conducted among 69 identified Regional Plastics / Burns Units in the UK and a response rate of 65% was attained. Of that group of designated scar management professionals, 96% reported that they used some type of silicone sheeting and 93% reported using pressure garments to treat hypertrophic burn scars.

The data finding supports the hypothesis that the most common option in the management of hypertrophic and keloid scars used by today's clinicians employs combination therapy (98%) involving an adjunct in the form of silicone sheeting and pressure. This group also reported that almost half (44%) observed that patient compliance increased substantially with the use of pressure garments incorporating silicone textile. This use of combination therapy (Silon-TEX<sup>®</sup>) directly incorporated into the garment essentially eliminates many of the current difficulties associated with topical silicone gel sheets used under garments alone such as material loss, material not staying put on articulating joints and digits, and the material requiring multiple replacements prior to the replacement of the garment during a specified treatment cycle (averaging 4-6 sheets or upwards of 9-12 tubes of material per 3 month garment wear). Overall, these results demonstrate that combination therapy with a silicone textile (Silon-TEX<sup>®</sup>) incorporated into a garment is both economically advantageous and clinically effective.

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<sup>1</sup> [abstract] In: Proceedings of the 41<sup>st</sup> British Burns Association 2008; April. 23-25, Bristol, United Kingdom, p. 9

# Current Clinician Opinions on the Management of Hypertrophic and Keloid Scars with Pressure Modulation

Debra Wright, Clinical & Product Development Manager<sup>1</sup> and Jonathan Niszcak, MS, OTR/L, Clinical Specialist<sup>2</sup>

<sup>1</sup>Jobskin Ltd, Nottingham, England UK, <sup>2</sup>Bio Med Sciences, Inc., Allentown, PA, USA

## Introduction

Specialist Clinicians (specifically Occupational Therapists, Physiotherapists and Specialist Nurses) have long been involved in the determining the most appropriate and current interventions to manage hypertrophic and keloid scars. Pressure Garments have been the mainstay in the therapist's choice in treatment options since the early 1970's and continues to be the standard therapy and first line treatment for almost all aspects of problem hypertrophic scarring and burn injury. Silicones have also been used since the early 1990's and continue to be a useful mechanism in the effective management of problem scars and a prominent choice among all clinical disciplines to manage scars.

Advancements in both the manufacturing and technology industries have been able to provide clinicians with unique combinations of garment materials with a silicone bonded textile as well as specific made to measure and gradient pressure garments that accommodate the unique needs of the patient in order to achieve an optimum aesthetic and functional outcome. These advancements have also provided more durable and long lasting treatment options to manage patients' scars. However, a review of the most common treatment interventions and consensus among clinicians preference was lacking in the literature.

A brief questionnaire was piloted in 2007 with two Occupational Therapists within Plastics / Burns units to determine the most current trends in the choices of hypertrophic and keloid scar management including burns and a subsequent mail survey was conducted among 69 identified Plastics / Burns Units in the UK. A response rate of 85% was attained and related data is presented graphically (Fig 1).

### Demographics

Population Survey	69
Survey Size	45
Response Rate	85%
Surveys Not Included (4 x received out of time scale, 2 x insufficient data)	6

Burns & Plastics Departments	36
Out Patient Clinic	9
Burns Unit	25

National Centres	12
Regional Centres	13
Satellite Units	18
Private Hospitals	2

Figure 1: Geographical representation of survey respondents

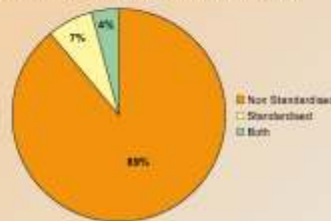


Figure 2: Disciplines responsible for providing scar management



Not surprisingly, 100% of all the clinicians polled reported using some form of scar management to treat their patients scars and of this group, more than 75% reported assessing their patients scars utilising a non-standard measure of scar assessment to document progress and efficacy of intervention - most commonly a clinical narrative report and / or photographs (Fig 3).

Figure 3: Standardised assessment versus non standardised



From the group of designated scar management professionals, 96% reported that they used some type of silicone sheeting and 96% reported using pressure garments to treat problem scarring. This was followed by topical silicone gel, silicone elastomer, padding and silicone bonded textile (Fig 4).

Clinical effectiveness with these particular treatment modalities shows the best outcomes are achieved with silicone gel sheet and pressure garments with all clinicians reporting having used this treatment modality. The use of silicone textile insert material (Silco-TEX) in pressure garments was marginal at 85%, however more than half of the Clinicians (84%) could not comment as they had not used it their clinical treatment or were unaware of it (Fig 5).

Figure 4: The primary scar treatment modalities used by clinicians

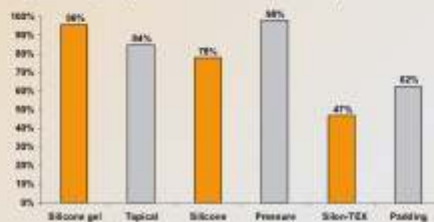
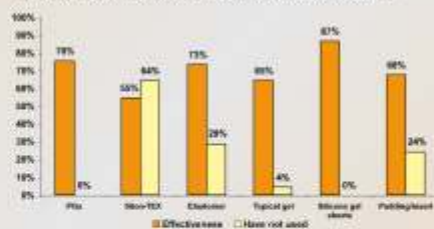


Figure 5: Clinical effectiveness with different treatment modalities



Jobskin Ltd was the most commonly used provider of custom made pressure garments at these burn/plastics units providing 84% of the garments provided, followed by 16% NHS hospital trusts handling their own in-house production (Fig 6). Clinicians reported favoring commercial manufacturers for quality of garment, service provision and durability of garment. Of the hospitals producing 'In-House' who returned a survey reported their reasons were based upon their belief in cost effectiveness and convenience. Of the other scar management modalities utilised, Tubigrp and Interim Care is the most common of the sheet treatment option. Clinician choice based on selecting a readily available product to allow immediate commencement of treatment (Fig 7).

Figure 6: Favoured manufacturer of pressure garments

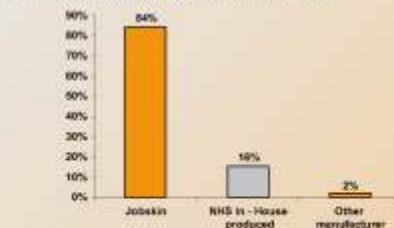


Figure 7: Other scar modalities used by clinicians

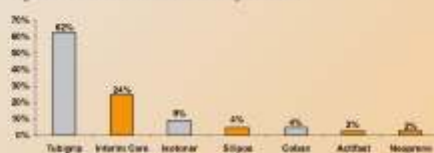


Figure 8: Overall clinical treatment opinions on combination therapy for scar management

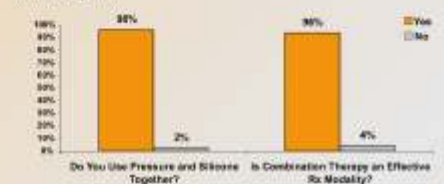
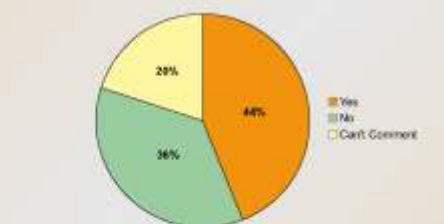


Figure 9: Do Silicone textile inserts incorporated into pressure garments improve patient compliance and treatment outcome?



## Conclusions

The data findings support the hypothesis that the most common option in the management of hypertrophic and keloid scars used by today's clinicians employs combination therapy (96%) involving an adjunct in the form of silicone sheeting and pressure garments. Interesting to note that less than half of the clinicians polled used a silicone textile insert (47%) in their pressure garments to achieve their optimal combination therapy treatment (Fig 6). However, this group also reported that almost half (44%) observed that patient compliance increased with the use of pressure garments incorporating silicone textile in comparison to other combination treatments (Fig 9).

The use of combination therapy directly incorporated into the garment essentially eliminates many of the current difficulties associated with topical silicone gel sheets used under garments such as loss of the material, material not staying put on articulating joints and digits, and the material requiring multiple replacements prior to the replacement of the garment during a specified treatment cycle (averaging 4-6 sheets or upwards of 9-12 sizes of material per 3 month garment wear).

Specific follow up will be undertaken with this preliminary data at a select sampling of 3 three centres over a 12 month period examining the impact of the technological advancements in the treatment of hypertrophic and keloid scars employing this combination therapy.

Further investigation is warranted to advance standardise treatment options for problem scarring and to examine the impact of combination therapy employing pressure garments with silicone textiles on patient compliance and scar management efficacy.

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For further information, please contact Debra Wright, dw@jobskin.co.uk