

# Barriers to evidence-based treatment of serious burns

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DOI:

[10.1093/jbcr/iraa114](https://doi.org/10.1093/jbcr/iraa114)

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*Document Version*

Peer reviewed version

*Citation for published version (Harvard):*

Litchfield, I, Moiemmen, N & Greenfield, S 2020, 'Barriers to evidence-based treatment of serious burns: the impact of implicit bias on clinician perceptions of patient adherence', *Journal of Burn Care and Research*, vol. 41, no. 6, pp. 1297-1300. <https://doi.org/10.1093/jbcr/iraa114>

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1 **Barriers to evidence-based treatment of serious burns: The impact of implicit bias on**  
2 **clinician perceptions of patient adherence**

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20 **Conflicts of Interest**

21 All named authors declare that there are no known conflicts of interest relating to this manuscript.

22  
23

24 **Funding**

25 This article came of work funded by the National Institute for Health Research (NIHR) Health  
26 Technology Assessment (HTA) Programme (project number 12/145/04). The views and opinions  
27 expressed by authors in this publication are those of the authors and do not necessarily reflect those  
28 of the National Health Service or the NIHR, or the HTA.

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33 **Abstract**

34 The underlying assumption of modern evidence-based practice is that treatment decisions  
35 made by health care providers are based solely on the best available scientific data.

36 However, the connection between evidence informed care guidelines, and the provision of  
37 care remains ambiguous. In reality a number of contextual and non-clinical factors can also  
38 play a role, amongst which is the implicit bias that affects the way in which we approach or  
39 treat others based on irrelevant, individual characteristics despite conscious efforts to treat  
40 everyone equally. Influenced by the social and demographic characteristics of patients, this  
41 bias and its associated perceptions have been shown to affect clinical decision making and  
42 access to care across multiple conditions and settings.

43

44 This summary article offers an introduction to how the phenomenon of implicit bias can  
45 impact on treatment compliance in multiple care contexts, its potential presence and  
46 impact in burns care and describes some of the strategies which offer possible solutions to  
47 reducing the disconnect between the conscious attempts to deliver equitable care and the  
48 discrepancies in care delivery that remain.

49

50 **Keywords:**

51 **Chronic burns; patient adherence; self-management**

52

53 Introduction

54

55 It is a common assumption that medical practice is led solely by the objective application of  
56 clinical and biomedical knowledge, weighing the probabilities of various outcomes and  
57 informing recommendations for optimum care [1]. The evidence underpinning this  
58 approach is typically informed by randomised controlled trials before being formalised as  
59 care guidelines or recommendations designed to improve the consistency of care [2, 3].

60 Despite these attempts at consistency variations in the content and quality of care remain  
61 which when reflecting the needs of individual patients can be appropriate and beneficial [4,  
62 5] but it is not always warranted and in the worst cases can actually lead to suboptimal care  
63 [4, 6-8].

64

65 Such variations are perhaps unsurprising when considering the dynamic nature of a  
66 healthcare environment that accommodates a range of contextual influences on clinical  
67 decision making that include organisational culture [9, 10], geographical location, patient  
68 needs, preferences and expectations [11]. Amongst these influences are the clinical  
69 judgement of individual care providers, impacted by their varying experiences and  
70 subjective preferences [9, 12, 13] and including their implicit bias [14]. This widely  
71 acknowledged psycho-social phenomenon is a result of an individual's subconscious  
72 interpretation of irrelevant, individual characteristics which may include gender, race or  
73 socio-economic background [15][16]. In healthcare provision it can be particularly  
74 problematic as it appears to be resistant to the conscious efforts of providers to treat  
75 everyone equally [16]. That it can persist despite assumptions that unwarranted  
76 preconceptions are avoided means its influence has impacted on numerous aspects of care

77 and has been widely cited as one of the underlying causes of care inequality [17][18, 19].  
78 Though reported across numerous care settings for a number of years [17] it has only  
79 recently been observed in the treatment of burns [20] where it emerged during a multi-  
80 centre feasibility trial exploring the measurable benefits of using pressure garment therapy  
81 in treating chronic burns and their scars [20].

82

83 In the United Kingdom's (UK) National Health Service (NHS) burn care is typically provided  
84 by a series of specialist centres with access to equivalent training, resources and clinical  
85 evidence, and informed by standardised clinical guidelines [21][22]. However discrepancies  
86 in clinical decision making regarding the 'aftercare' i.e. the post-discharge, patient  
87 moderated care of chronic burn injuries and their resultant scars were discovered [20]. The  
88 underlying reasons for which are yet to be explored but now appear to include the implicit  
89 bias observed in other health care domains. Here we begin the discussion of if and how it  
90 might specifically impact on burns care and its potential influence on perceptions of patient  
91 adherence; in doing so we describe the broad influence of implicit bias across a range of  
92 healthcare settings, its potential impact on the aftercare of more serious burns, and the  
93 strategies available to mitigate its effect.

94

#### 95 The adverse effect of implicit bias on clinician perceptions of adherence

96 Modern healthcare in the UK is provided by a range of clinical and non-clinical staff working  
97 within organisations of varied scope and size amidst diverse and ageing communities [23].  
98 There is an expectation going back decades that this care is consistent across the country,  
99 supported by policy and practice based on robust clinical evidence, extensively researched  
100 and mediated by expert consensus [1, 24]. The financial pressures being experienced by the

101 NHS [25], similar to those being experienced globally across a range of health care systems  
102 [26], have helped focus attention on the importance of optimising service utilisation by  
103 converting research into the most effective and consistent evidence-based practice. To help  
104 meet this end clinicians are asked to follow numerous clinical guidelines and care  
105 recommendations containing information on the most appropriate medication, therapy or  
106 procedure in line with current clinical evidence. However, they are also expected to  
107 incorporate their assessment of a number of individual patient characteristics' both clinical  
108 and non-clinical and include their ability or likelihood to respond or adhere to the  
109 treatment they select, including follow-up appointments [27] [28].

110

111 The concept of adherence, defined as the degree to which a person's behaviour coincides  
112 with their medical or health advice [29] is a critical element of any treatment decision that  
113 requires some degree of independent patient compliance in its fulfilment [10]. However,  
114 despite the availability of tools that can measure medication adherence such as the Morisky  
115 scale [30] there is no formal guidance of how they might be integrated into routine practice  
116 [31]. Instead clinicians typically make such judgements based on their interaction with the  
117 patient where they are vulnerable to implicit bias based on subconscious assessments of the  
118 socio-economic [32] or cultural [33] backgrounds of their patients. The precise nature and  
119 impact of this bias can vary between providers as it appears to be informed by personal  
120 values, previous experience, training as a clinician, and organisational culture [4, 7, 8, 12,  
121 34]. Whatever the source of implicit bias it manifests along the lines of gender, race,  
122 ethnicity, socio-economic status [13] and mental health [11].

123

124 The impact of implicit bias specific to assumptions of adherence have not only been found in  
125 secondary care where they negatively affected decision making in a range of long-term  
126 conditions such as Human Immunodeficiency Virus [35] or Type 1 Diabetes [36] primary care  
127 where clinicians reduced the frequency of follow-up appointments for patients of low socio-  
128 economic status [37].

129

### 130 How to mitigate negative perceptions of patient adherence

131 Now widely acknowledged as a potential issue in the delivery of equitable care [17],  
132 attempts have been made to better understand the sources of implicit bias in clinicians, for  
133 example whether it existed prior to beginning a medical career or if it reflected the training  
134 process or the environment where they practice [38]. In the United States discussions  
135 around training medics in the management of implicit bias began some years ago [17]  
136 though calls to improve this aspect of their medical education continue [39]. A number of  
137 interventions that might reduce the prevalence or impact of misplaced preconceptions of  
138 patients have emerged[17] [35]. These included counter-stereotypic imaging, which involves  
139 imagining the individual as the opposite stereotype [40], or allocating time within a  
140 consultation for the clinician to place themselves in the position of that patient [41] [42].

141

142 Another way of approaching the issue more specific to perceptions of patient adherence is  
143 by increasing the confidence of clinicians that no matter their background, patients are  
144 capable of complying with their recommended treatment. One way that has previously  
145 proved effective in improving patient adherence as well as enabling more equitable  
146 patient/clinician decision making is supported self-management. This has produced  
147 demonstrable benefits in adherence in multiple chronic conditions many with complex care

148 regimes [43, 44]. This support can take many forms including decision support aids, online  
149 interventions, and patient education materials with the combined effect that they increase  
150 the engagement of patients with their health, well-being and treatment [29, 44].

151

### 152 Meeting the challenge of implicit bias in burn care

153 The care recommendations for serious burns in the UK encompass a wide range of  
154 treatments, employed either individually or in combination including massage, pressure  
155 garment therapy, silicone gels, and ultrasound [45-50]. The inconsistencies that remain in  
156 how these various options are prescribed are due in part to the lack of robust evidence of  
157 which combination of treatments work in specific circumstances [20, 51, 52]. They may also  
158 be a result of a decision-making process shared with patients and the explicit incorporation  
159 of their preferences [53]. However, the scope remains for the influence of individual  
160 clinician preferences and their implicit bias [54].

161

162 Any decision made about the post-discharge aftercare of patients with chronic burns  
163 injuries [55] involves a clinician's conscious and sub-conscious assessment of a patient's  
164 ability to adhere to the selected treatment [11]. Such judgement is based on a number of  
165 patient characteristics which include socio-economic status and mental function [32, 33].  
166 The implications of decisions informed by implicit bias might be particularly relevant in a  
167 context where patients are expected to independently maintain their treatment following  
168 discharge [20, 55]. The negative impact of implicit bias in the treatment of burns care may  
169 be considerable when considering the direct correlation between severity of burn,  
170 deprivation, and mental illness [56-59].

171



172 The implication is that if the “Implicit Bias” that exists in other healthcare settings emerges  
173 in burns care then patients with psychosocial characteristics that increase the likelihood of  
174 receiving a serious burn might not receive the resource intensive treatment their injury  
175 might warrant.

176

177 As yet there is no mandatory element in the training of burns clinicians that addresses the  
178 potential impact of implicit bias though the techniques and strategies that can be  
179 implemented and tested in other settings might be readily appropriated[17] [42]. Their  
180 successful incorporation in the training of burns clinicians particularly in relation to their  
181 prescribing behaviour might help them balance the clinical needs of the injury with the  
182 perception that costly treatments might be squandered. Another approach which would  
183 complement this is to increase provider confidence in patient adherence by systematically  
184 supporting patient self-management. In the UK a number of recognised self-management  
185 strategies have been independently adopted by patients with chronic burns [60] and though  
186 there are limited examples even modest self-management support has seen improved  
187 adherence in those with more serious burns [61, 62].

188

### 189 Conclusions

190 None of us are immune to the influences of our personal, educational, social and cultural  
191 experiences. That the implicit bias they generate can inform the actions of the general  
192 population, as well as health care providers in multiple settings means it is likely that it can  
193 also unwittingly play a role in those providing burns care. We are not implying that there is  
194 an intentional or proactive disregard for a patient’s well-being based on a care provider’s  
195 conscious ‘prejudice’ towards patients of a particular socio-economic background, ethnicity,

196 or gender. However there is growing evidence that it is a phenomenon that persists despite  
197 the best efforts of individuals to act equitably.

198

199 If we are to optimise treatment regimes in all burns patients but particularly those that  
200 require lengthy periods of post-discharge aftercare, we must acknowledge the role of  
201 implicit bias in clinical decision making. It can be mitigated and the targeted training and  
202 education of providers complemented by self-management support will allow clinicians to  
203 be more confident that the treatment they prescribe will have the desired effect.

204

#### 205 **Acknowledgements**

206 Not applicable

207

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