Research Priority Setting in Plastic and Reconstructive Surgery: A Systematic Review

Alice Lee\textsuperscript{1,2}, George Higginbotham\textsuperscript{3}, Philippa Davies\textsuperscript{4}, Amber Young\textsuperscript{4}

Affiliations

1. Department of Surgery and Cancer, Imperial College London, London, SW7 2AZ
2. Department of Plastic Surgery, Stoke Mandeville Hospital, Aylesbury, HP21 8AL
3. School of Physiology, Pharmacology and Neuroscience, Biomedical Sciences Building, University Walk, University of Bristol, Bristol, BS8 1TD
4. Population Heath Sciences, Bristol Medical School and Bristol Biomedical Research Centre and Centre for Surgical Research, University of Bristol, BS8 2BN

Corresponding Author:

Miss Alice Lee
Department of Surgery and Cancer, Imperial College London, London, SW7 2AZ
Department of Plastic Surgery, Stoke Mandeville Hospital, Aylesbury, HP21 8AL
Email: alice.lee13@imperial.ac.uk

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Summary

Background
The health research agenda has historically been led by researchers; however, their priorities may not necessarily align with those of patients, caregivers, and clinicians. Research priority setting initiatives identify and prioritise topics which lack evidence. This is particularly important in plastic surgery, a specialty lacking high-quality evidence to definitively answer many common clinical questions. Research priorities direct research activity and funding, so their selection process must be representative and transparent. This review appraised all priority setting initiatives in plastic surgery using the reporting guideline for priority setting of health research (REPRISE).

Methods
OVID Medline, EMBASE, CINAHL and the James Lind Alliance (JLA) repository were searched (inception - 11/06/21) using search terms for ‘research priority setting’ and ‘plastic and reconstructive surgery’. Dual-author screening and data extraction was conducted, according to PRISMA.

Results
Of 3899 de-duplicated citations, 17 were included. Most studies were conducted in national (14/17), high-income (16/17) settings. More priority setting initiatives focussed on burns (6/17) and hand surgery (4/17), than other subspecialties. The JLA (5/17) and qualitative (5/17) approaches were most used for prioritisation, followed by Delphi techniques (3/17), other surveys (3/17) and mixed methods (1/17). A minority included patient (8/17) or multi-disciplinary (8/17) stakeholders. Few reported strategies for implementing research priorities (6/17) or measuring their impact (2/17).

Conclusions
Stakeholders from lower-income countries are underrepresented in priority setting initiatives for plastic surgery, despite the global burden of disease. Future studies should recruit more patient and multidisciplinary stakeholders, to achieve meaningful consensus. Clear implementation strategies are needed to maximise impact.

**Word count:** 251

**Keywords:** research priorities; patient involvement; priority setting partnership; Delphi survey; James Lind Alliance
Introduction

The health research agenda has historically been led by researchers; however, their research priorities may not necessarily align with those of patients, caregivers and clinicians delivering patient care\textsuperscript{1-3}. This mismatch may result in funding for research questions which do not address the shared interests of all relevant stakeholders. This is a frequent cause of avoidable research waste, alongside duplication of research\textsuperscript{4-6}. Research waste can be defined as research which is not prioritised or warranted, and does not lead to worthwhile achievements\textsuperscript{5,6}. Research priority setting initiatives are designed to identify and prioritise research questions without existing evidence which are important to stakeholders in discrete areas of healthcare. Numerous prioritisation approaches are available to gather and rank evidence uncertainties, using primary and/or secondary research methods\textsuperscript{4,7}.

Research prioritisation is particularly important in surgical research, given the disproportionately lower funding received compared with non-surgical research\textsuperscript{8,9}. For example, in the United Kingdom (UK), surgical research receives less than 5% of Government health research funding despite one third of admissions requiring surgical care\textsuperscript{9,10}. Compared with other surgical specialties, plastic and reconstructive surgery particularly lacks high-quality evidence to definitively answer many common clinical questions\textsuperscript{11,12}. This may be due to the specialty’s small size\textsuperscript{11} and difficulty measuring subjective and aesthetic outcomes\textsuperscript{13}. This has generated many clinical uncertainties for research prioritisation and to date, various priority setting initiatives have been delivered in areas such as hand and upper limb surgery\textsuperscript{14-17}, burns\textsuperscript{18-24}, congenital defects\textsuperscript{25}, skin surgery\textsuperscript{26,27}, breast surgery\textsuperscript{28} and aesthetic surgery\textsuperscript{29}.

Research priorities have a significant impact on research activity and funding\textsuperscript{14,30}, so it is important that their selection process is transparent, representative and adequately reported\textsuperscript{7,31,32}. Previous systematic reviews of priority setting initiatives in various fields have demonstrated suboptimal
The aim of this systematic review is to describe the scope, methodology and reporting quality of priority setting initiatives in plastic and reconstructive surgery, using the reporting guideline for priority setting of health research (REPRISE) checklist. The results will inform future researchers conducting research prioritisation in plastic surgery by summarising previous work, identifying areas still in need of prioritisation and highlighting both common deficiencies and examples of best practice in the methodology of previous initiatives.

Methods

This systematic review adheres to a pre-specified protocol (see supplemental digital content 1) and is reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses statement. It was ineligible for PROSPERO registration as there are no direct health outcomes.

Identification of studies

Study eligibility

Inclusion and exclusion criteria are shown in Table 1. Included studies were full-length peer-reviewed research articles describing research priority setting initiatives in plastic and reconstructive surgery, from database inception to 11th June 2021. Protocol studies were excluded because they lacked information on outcomes. If a research publication describing the priority setting initiative was not available, formal reports from the James Lind Alliance (JLA) website (or equivalent organisation) were used. Multiple publications describing the same research priority setting initiative were merged as one study.

Types of participants
All eligible research priority setting initiatives were included, regardless of type of participant. Stakeholders were defined as patients, carers, healthcare providers, researchers, policy makers and industry representatives\(^{31}\).

*Types of interventions*

Included studies elicited research priorities from stakeholders in areas related to plastic and reconstructive surgery, as defined by the Royal College of Surgeons\(^{41}\).

*Types of outcome*

For all included studies, the primary outcome was a final prioritised list of research topics or questions related to plastic and reconstructive surgery.

*Search strategy*

The following electronic databases were searched from inception to 11\(^{th}\) June 2021: OVID Medline, OVID EMBASE and CINAHL. The JLA website was also searched for reports of relevant priority setting partnerships. A search string was developed to identify relevant papers, which included key search terms and medical subject headings for ‘research priority setting’ and ‘plastic and reconstructive surgery’\(^{36,42}\). The database search strings can be found in the supplemental digital content.

*Study selection process*

Search results were combined and de-duplicated using Covidence (Veritas Health Innovation Ltd, Melbourne, Australia). Articles were screened independently by two authors (AL, GH) in two stages (by title and abstract, and full text), according to prespecified inclusion criteria (Figure 1). A third author (AY) was consulted if discrepancies in article screening could not be resolved.

*Quality assessment*
There is currently no risk of bias assessment tool for studies of research priority setting and tools designed for trials and observational studies are not applicable. The REPRISE reporting guideline was used for data extraction and to assesses reporting quality\textsuperscript{31}. This checklist included items covering the context and scope of the priority setting initiative, governance and team members, stakeholder recruitment and characteristics, identification and prioritisation of research topics, dissemination of results, implementation and evaluation, and disclosures of funding and conflicts of interest.

**Data extraction**

Data were extracted using a piloted data extraction form (Microsoft Excel) developed for the purposes of this review. Data were extracted independently by two authors (AL, GH). A third author (AY) was consulted if discrepancies in data extraction could not be resolved. Studies were categorised into eight subspecialty areas, adapted from the Royal College of Surgeons classification\textsuperscript{41}, including congenital conditions, breast surgery, skin surgery, trauma, burns, hand and upper limb surgery, aesthetic surgery, and other cancer-related reconstruction (e.g., head and neck cancer, sarcoma or perineal malignancy). Studies were defined as international if their stakeholder groups were multinational. Income status of the research setting (as stated in the text or affiliated with the corresponding author) was described according to the World Bank\textsuperscript{43}. The World Bank categorises income status into high, upper-middle, lower-middle and low income countries, based on Gross National Income per capita\textsuperscript{43}. Studies were aggregated by year of publication, pre- or post-2004, when the JLA was established\textsuperscript{44}. Stakeholders were regarded multidisciplinary if more than one health profession (e.g., surgeon, nursing, therapy, etc) was included.

**Data synthesis**

Information relating to priority setting context and scope, stakeholder characteristics and study methodology was tabulated (Tables 2-3). Reporting quality (compliance with the REPRISE checklist) is summarised in Table 4 and Figure 2. Table S1 shows a detailed breakdown of reporting
compliance with REPRISE per study. A list of included studies can be found in supplemental digital content 2. Based on compliance with the REPRISE checklist and author consensus, a summary of recommendations for future priority setting exercises in plastic surgery is shown in Table 5.

**Results**

**Identification of studies**

The database search returned 3899 de-duplicated citations, of which 17 were included in the final analysis (Figure 1). Five publications were merged as they represented one priority setting exercise45–49. Two studies identified from the JLA website were not published in peer-reviewed journals; data were therefore extracted from available JLA reports25,50.

**Context and scope**

Most priority setting initiatives were conducted in single country (14/17)11,14,25–28,15,18–20,22–24 and high-income (16/17)11,14,25–29,51,15,18,19,21–24 settings (Table 2). The three international studies included only high-income countries (United States, Canada, UK, Australia and Norway)17,21,29. Only one study was conducted in a lower-middle income setting (India)20, and none in low-income settings. More priority setting initiatives focussed on burns (6/17)20,21,23,18,19,22 and hand and upper limb surgery (4/17)14–16,51, than other subspecialty groups. Some burns priority setting initiatives had a specific focus, e.g., paediatric burn care23, burn nursing22, burn recovery20 and rehabilitation21, which may account for some repetition of the topic. Similarly, the British Association of Hand Therapists regularly repeat their priority setting exercise15,16, hence the duplication of UK hand therapy priority setting. No priority setting initiatives were identified in (non-breast) cancer surgery and trauma subspecialty groups. Most priority setting initiatives (13/17) were published after 200411,14,27–29,15,16,18–21,25,26. All studies included priorities relevant to clinical practice; some additionally looked at delivery of health services17,18,21,22 and basic science11,19. For example, in their
priority setting process for general plastic surgery, Henderson et al\textsuperscript{11} included both clinical topics (clinical trials, lymphoedema surgery) and basic science topics (tissue engineering, gene therapy) in the final priorities.

**Stakeholder characteristics**

Less than half of studies included patients (8/17)\textsuperscript{14,18,20,25,28} or multi-disciplinary professionals (8/17)\textsuperscript{14,19,21,23,25,26,28} as stakeholders (Table 2). Two studies included nurse only stakeholders\textsuperscript{22,24}, three included therapist only stakeholders\textsuperscript{15–17}, two surgeon only stakeholders\textsuperscript{11,29} and one patient/caregiver only stakeholders\textsuperscript{18}. This included priority setting initiatives focussed on surgical nursing\textsuperscript{22,24} and physical therapy\textsuperscript{15–17}. Five studies reported a gender breakdown of stakeholders\textsuperscript{14,22–24,28}. The number of involved stakeholders varied, particularly at the uncertainty gathering and interim prioritisation stages (Table 3). This may reflect how specialised the topic being prioritised is; for example, in their priority setting exercise for ‘Brazilian Butt Lift’ (BBL) Sadideen et al\textsuperscript{29} only invited surgeons who performed a large volume of fat grafting and BBL surgery (n=10). Few studies included in their steering groups multidisciplinary professionals (3/17)\textsuperscript{14,26,28}, patients and caregivers (3/17)\textsuperscript{14,26,28} or advisors with training in priority setting (4/17); Table 2.

**Study methodology**

The JLA\textsuperscript{14,25–28} and qualitative approaches\textsuperscript{16,18,20,21,23} were the most common methods of prioritisation (both 5/17), followed by Delphi techniques\textsuperscript{11,22,29}, other surveys\textsuperscript{15,24,51} (both 3/17) or mixed methods (1/17)\textsuperscript{19}. The number of priorities varied at different stages of prioritisation, particularly at the uncertainty gathering stage (Table 3). The median number of final priorities was 10 (interquartile range 9-12), but one study had as many as 101\textsuperscript{22}.

**Quality of reporting**
The quality of reporting varied across studies. Out of a possible 32 items included in the modified REPRISE checklist (Table 4), the number of items met ranged from 9 (28%) to 27 (84%). The overall completeness of reporting, as defined by the number of checklist items met, did not correlate significantly with year of publication ($r = 0.43$, $p = 0.084$). All 17 studies defined the geographical scope, health area or focus, and research focus of the priority setting exercise. Basic characteristics of stakeholders were described in most studies (16/17)

11,14,24–26,28,29,51,15,16,18–23, but these were often limited to occupation and did not specify age, gender, or income status. Few studies identified the project leaders or steering group members (6/17)

14–16,19,26,28, described their characteristics (a minimum of total number, stakeholder type, and occupation; 4/17), or described how the individuals within these groups were selected (7/17)

11,14,15,26–29. Very few studies reported how the final priorities were made available for review by stakeholders (1/17)

14, or how the completed exercise was evaluated (2/17)

14,19. Few reported a strategy for implementing the research priorities (6/17)

11,15,16,19,26,27 or measuring their impact (2/17)

14,16. Most strategies for implementation described liaison with funding bodies (professional organisations e.g., BAPRAS and national funding bodies e.g., NIHR) to inform a programme of research. Two studies explicitly stated the amount of funding achieved for proposals incorporating their research priorities. Karantana et al conducted an ‘impact’ survey of hand clinicians, demonstrating £3 million of competitively awarded funding achieved by researchers who used the research priorities for hand and wrist conditions to strengthen their applications. Steward et al were able to provide funding for a 60-credit MSc research module and provide a research grant (£5000 per annum for 3 years) for proposals responding to their research priorities for hand therapy, via the British Association of Hand Therapy.

No studies reported if reimbursement was provided for patient participation, and no studies outlined the budget for the project.

Discussion
This systematic review has comprehensively summarised and appraised global research priority setting initiatives in plastic surgery. Overall, the findings demonstrate underrepresentation of stakeholders (particularly patients) from lower-income countries, as well as lack of multidisciplinary initiatives. Compliance with reporting standards for research priority setting was variable and especially deficient in the areas of governance and team members, evaluation and feedback, translation and implementation and funding and conflicts of interest.

The scope of the priority setting initiatives varied widely; some focussed on individual conditions or procedures\(^ {25-29}\), whilst others focussed on the subspecialties\(^ {14-16,18-20,51}\) or plastic surgery overall\(^ {11,24}\). There were several priority setting initiatives for burns\(^ {20,21,23,18,19,22}\) and hand conditions\(^ {14-16,51}\); these tended to have more non-multidisciplinary steering groups and focussed on the care delivered by specific professions (e.g., nursing\(^ {22}\) or therapy\(^ {15,16,21,51}\)). Arguably, a better approach would be to work cohesively with multidisciplinary input to maximise clinical relevance of the final priorities and reduce repetition, particularly with respect to subsequent funding applications. No priority setting initiatives were identified in the trauma and non-breast cancer categories, although major trauma and skin cancer JLA priority setting partnerships are in progress. Some studies e.g., Henderson et al\(^ {11}\) had a broad scope traversing clinical practice and basic science, however the distinct funding streams for clinical and translational research would favour a more clearly defined scope.

With regards to stakeholder characteristics, there was only one priority setting exercise from a lower middle-income country\(^ {20}\), and none from low-income countries, despite the burden of disease (especially burns and trauma) in lower income nations\(^ {52,53}\). Increasing the participation of stakeholders from lower-income countries will increase generalisability of the final priorities but raises questions for study design. For example, how to define adequate international representation and how to manage international data, particularly when local factors (e.g., health infrastructure and sociocultural beliefs) may significantly affect prioritisation behaviours\(^ {20,54}\). Patients were
underrepresented as both steering group members and stakeholders, despite clear differences in their prioritisation behaviours compared with healthcare professionals\(^6\). Research has shown that patients are less likely to prioritise pharmacological and surgical interventions (the focus of most registered trials), favouring education and training, service delivery, and physical and psychological interventions\(^6\). Neglecting patients’ needs is a common cause of research waste and should be avoided through adequate representation at steering group and stakeholder levels. Although basic stakeholder characteristics were described in most studies, the level of detail varied, and often did not include age, gender, or ethnicity, as recommended by the World Health Organisation\(^55\). Sufficient demographic information is essential for fully informed interpretation of the final priorities. For example, Karantana et al in their priority setting exercise were aiming to identify unanswered questions about the management of common conditions affecting adult hands and wrists. The patient and carer stakeholders who participated in the prioritisation exercise were mainly older females, which probably biased the final priorities away from traumatic hand injuries\(^14\).

There is no consensus on appropriate methods of prioritisation, stakeholder sample sizes, or the numbers of final priorities, which is reflected in the variability of published studies. Although published guidance exists (e.g., REPRISE)\(^56\), there are no universally recommended quality assessment tools for studies of research prioritisation, resulting in poor quality reporting across various domains. Few studies described the recruitment and characteristics of steering group members, their conflicts of interest or funding sources, despite the potential for bias. Furthermore, only JLA-associated initiatives included an advisor experienced in priority setting methodology. A minority of studies explicitly described reasons for exclusion of research topics. A flow chart of uncertainties, clearly depicting the addition and removal of topics, such as that used by Karantana et al\(^14\), provides clarity and reproducibility. Many studies did not report cross-checking uncertainties with published systematic reviews, risking unjustified (and sometimes harmful) duplication of
research\textsuperscript{6}, another cause of research waste. No studies reported patient reimbursement, although this is considered best practice\textsuperscript{57}.

The main aim of research priority setting is to streamline funding for research questions deemed most important by key stakeholders\textsuperscript{58}. Despite this, few studies described a strategy for implementation of priorities or measuring their impact. Early planning and resourcing for dissemination of the final priorities should be encouraged\textsuperscript{58}. For example, the Dutch Burns Foundation compared top-ranked priorities with their organisation's current research funding and a pilot programme was developed to address under-funded areas. Greater awareness and training regarding research priority setting amongst funders and academic journals is also required\textsuperscript{58}. For example, the National Institute for Health Research in the UK now fund an annual call for studies addressing JLA research priorities\textsuperscript{30}. The British Association of Hand Therapy repeat their priority setting exercise regularly, allowing them to identify persistently highly ranked research topics which require ongoing investment (e.g., complex regional pain syndrome), as well as emerging topics (e.g., treatment modalities)\textsuperscript{15,16}. Regularly repeating priority setting exercises could be a useful method for assessing the implementation and impact of priorities, but further consideration is needed to determine appropriate time intervals on a case-by-case basis. Future researchers could also consider conducting an 'impact survey' to determine how much competitive funding was awarded to proposals referencing the research priority exercise\textsuperscript{14}.

Strengths of this review include the comprehensive search of three electronic databases and hand-searching the JLA repository, with dual-author screening and data extraction. Limitations include lack of non-English language articles and formal risk of bias assessment, although no specific tool exists for research priority setting exercises, and reporting quality was assessed with the REPRISE checklist. Study compliance with some of the REPRISE checklist items was subjective. For example, most studies described stakeholder characteristics, but the level of detail (not specified in REPRISE)
varied substantially, from only reporting stakeholder type (i.e., patient versus healthcare professional) to detailed demographics (age, gender, and ethnicity).

**Conclusion**

Research priority setting exercises have been conducted in most subspecialty areas of plastic and reconstructive surgery, except trauma and non-breast cancer. Reporting quality was variable and generally poor when describing project team and stakeholder characteristics, reasoning for exclusion of research uncertainties, authors’ conflicts of interest and funding sources. A core aim of establishing research priorities is to influence funding allocation, yet strategies to assess their implementation were rarely described. Future initiatives should also consider recruitment of multidisciplinary steering groups, including an advisor with experience in research priority setting, and more patients and stakeholders from lower-income countries.

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**References**

1. Crowe S, Fenton M, Hall M, Cowan K, Chalmers I. Patients’, clinicians’ and the research communities’ priorities for treatment research: there is an important mismatch. *Res Involv Engagem*. 2015;1(1):2. doi:10.1186/s40900-015-0003-x
2. Tallon D, Chard J, Dieppe P. Relation between agendas of the research community and the research consumer. *Lancet*. 2000;355(9220):2037-2040. doi:10.1016/S0140-6736(00)02351-5

3. Boddy K, Cowan K, Gibson A, Britten N. Does funded research reflect the priorities of people living with type 1 diabetes? A secondary analysis of research questions. *BMJ Open*. 2017;7(9):e016540. doi:10.1136/bmjopen-2017-016540

4. Nyanchoka L, Tudur-Smith C, Thu VN, Iversen V, Tricco AC, Porcher R. A scoping review describes methods used to identify, prioritize and display gaps in health research. *J Clin Epidemiol*. 2019;109:99-110. doi:10.1016/j.jclinepi.2019.01.005

5. Chalmers I, Glasziou P. Avoidable waste in the production and reporting of research evidence. *Lancet*. 2009;374(9683):86-89. doi:10.1016/S0140-6736(09)60329-9

6. Chalmers I, Bracken MB, Djulbegovic B, et al. How to increase value and reduce waste when research priorities are set. *Lancet*. 2014;383(9912):156-165. doi:10.1016/S0140-6736(13)62229-1

7. Organization WH. *A Systematic Approach for Undertaking a Research Priority-Setting Exercise: Guidance for WHO Staff*. Geneva PP - Geneva: World Health Organization

8. Rangel SJ, Efron B, Moss RL. Recent Trends in National Institutes of Health Funding of Surgical Research. *Ann Surg*. 2002;236(3):277-287. doi:10.1097/00000658-200209000-00004

9. Chan JK, Shalhoub J, Gardiner MD, Suleman-Verjee L, Nanchahal J. Strategies to secure surgical research funding: fellowships and grants. *JRSM Open*. 2014;5(1):204253331350551. doi:10.1177/2042533313505512

10. Funding Surgical Research. Royal College of Surgeons.

11. Henderson J, Reid A, Jain A. Use of a modified BAPRAS Delphi process for research priority setting in Plastic Surgery in the UK. *J Plast Reconstr Aesthet Surg*. 2018;71(12 PG-1679-1681):1679-1681. doi:https://dx.doi.org/10.1016/j.bjps.2018.07.014

12. Sugrue CM, Joyce CW, Carroll SM. Levels of Evidence in Plastic and Reconstructive Surgery Research. *Plast Reconstr Surg - Glob Open*. 2019:1. doi:10.1097/gox.0000000000002408
13. Eaves F, Pusic AL. Why evidence-based medicine matters to aesthetic surgery. *Aesthetic Surg J.* 2012;32(1):117-119. doi:10.1177/1090820X11430215

14. Karantana A, Davis T, Kennedy D, et al. Common hand and wrist conditions: creation of UK research priorities defined by a James Lind Alliance Priority Setting Partnership. *BMJ Open.* 2021;11(3):e044207. doi:10.1136/bmjopen-2020-044207

15. Fournier K. Research Priorities in Hand Therapy: Report of the 2008 UK Membership Survey. *Br J Hand Ther.* 2008;13(4):111-113. doi:10.1177/175899830801300402

16. Steward B. The BAHT 2004 R&D prioritisation exercise: results of a study using a nominal group technique to identify priority research topics and research training needs for hand therapists. *Br J Hand Ther.* 2004;9(4 PG-128-132):128-132. doi:10.1177/175899830400900403

17. MacDermid JC, Fess EE, Bell-Krotski J, et al. A research agenda for Hand Therapy. *J Hand Ther.* 2002;15(1):3-15. doi:10.1053/hanthe.2002.v15.0153

18. Wiechman V, Holavanahalli R. Burn survivor focus group. *J Burn Care Res.* 2017;38(3 PG-595-595):e595-e595. doi:http://dx.doi.org/10.1097/BCR.0000000000000550

19. Broerse JEW, Zweekhorst MBM, van Rensen AJML, de Haan MJM. Involving burn survivors in agenda setting on burn research: an added value?. *Burns.* 2010;36(2 PG-217-31):217-231. doi:https://dx.doi.org/10.1016/j.burns.2009.04.004

20. Jagnoor J, Bekker S, Chamania S, Potokar T, Ivers R. Identifying priority policy issues and health system research questions associated with recovery outcomes for burns survivors in India: a qualitative inquiry. *BMJ Open.* 2018;8(3 PG-e020045):e020045. doi:https://dx.doi.org/10.1136/bmjopen-2017-020045

21. Richard R, Baryza MJ, Carr JA, et al. Burn rehabilitation and research: proceedings of a consensus summit. *J Burn Care Res.* 2009;30(4 PG-543-73):543-573. doi:https://dx.doi.org/10.1097/BCR.0b013e3181adcd93

22. Marvin JA, Carrougher G, Bayley B, Weber B, Knighton J, Rutan R. Burn nursing Delphi study.
Setting research priorities. *J Burn Care Rehabil.* 1991;12(2 PG-190-7):190-197.

23. Anonymous. Outcomes measurement in pediatric burn care: An agenda for research: Executive summary and final report. *J Burn Care Rehabil.* 2003;24(5 PG-269-274):269-274. doi:http://dx.doi.org/10.1097/01.BCR.0000085843.26536.F9

24. Rankin M, Borah GL, Kosa E. Research priorities and concerns of plastic surgical nurses. *Plast Surg Nurs.* 1998;18(2 PG-86-9):86-89.

25. THE ‘TOP 12’ PRIORITIES FOR RESEARCH IN CLEFT LIP AND PALATE. James Lind Alliance Cleft Lip & Palate Priority Setting Partnership.

26. Ingram JR, Abbott R, Ghazavi M, et al. The hidradenitis suppurativa priority setting partnership. *Br J Dermatol.* 2014;171(SUPPL. 1 PG-35):35. doi:http://dx.doi.org/10.1111/bjd.12931

27. Ford S. List of 12 priorities for pressure ulcer study identified by UK researchers. *Nurs Times.net.*

28. Zhong T, Mahajan A, Cowan K, et al. Identifying the top research priorities in postmastectomy breast cancer reconstruction: a James Lind Alliance priority setting partnership. *BMJ Open.* 2021;11(8):e047589. doi:10.1136/bmjopen-2020-047589

29. Sadideen H, Akhavani M, Moshebi A, Harris PA. Consensus research priorities for “Brazilian Butt Lift” (BBL) in the UK: A BAAPS-led Delphi survey of expert clinicians and researchers. *J Plast Reconstr Aesthet Surg.* 2020;73(2 PG-391-407):391-407. doi:https://dx.doi.org/10.1016/j.bjps.2019.10.008

30. NIHR. NIHR James Lind Alliance Priority Setting Partnerships rolling call.

31. Tong A, Synnot A, Crowe S, et al. Reporting guideline for priority setting of health research (REPRISE). 2019;3:1-11. doi:10.21203/rs.2.14215/v1

32. Terry RF, Charles E, Purdy B, Sanford A. An analysis of research priority-setting at the World Health Organization – how mapping to a standard template allows for comparison between research priority-setting approaches. *Heal Res Policy Syst.* 2018;16(1):116.
33. Tomlinson M, Chopra M, Hoosain N, Rudan I. A review of selected research priority setting processes at national level in low and middle income countries: towards fair and legitimate priority setting. *Heal Res Policy Syst*. 2011;9(1):19. doi:10.1186/1478-4505-9-19

34. Badakhshan A, Arab M, Rashidian A, Gholipour M, Mohebbi E, Zendehdel K. Systematic review of priority setting studies in health research in the Islamic Republic of Iran. *East Mediterr Heal J*. 2018;24(08):753-769. doi:10.26719/2018.24.8.753

35. Chanda-Kapata P, Ngosa W, Hamainza B, Kapiriri L. Health research priority setting in Zambia: a stock taking of approaches conducted from 1998 to 2015. *Heal Res Policy Syst*. 2016;14(1):72. doi:10.1186/s12961-016-0142-z

36. Odgers HL, Tong A, Lopez-Vargas P, et al. Research priority setting in childhood chronic disease: A systematic review. *Arch Dis Child*. 2018;103(10):942-951. doi:10.1136/archdischild-2017-314631

37. Rylance J, Pai M, Lienhardt C, Garner P. Priorities for tuberculosis research: a systematic review. *Lancet Infect Dis*. 2010;10(12):886-892. doi:10.1016/S1473-3099(10)70201-2

38. Tong A, Chando S, Crowe S, et al. Research Priority Setting in Kidney Disease: A Systematic Review. *Am J Kidney Dis*. 2015;65(5):674-683. doi:10.1053/j.ajkd.2014.11.01

39. Tong A, Sautenet B, Chapman JR, et al. Research priority setting in organ transplantation: a systematic review. *Transpl Int*. 2017;30(4):327-343. doi:10.1111/tri.12924

40. Moher D, Liberati A, Tetzlaff J, Altman DG. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med*. 2009;6(7):e1000097. doi:10.1371/journal.pmed.1000097

41. Plastic and Reconstructive. News & Events. Media Background Briefings and Statistics. Royal College of Surgeons.

42. Graham L, Illingworth BJG, Showell M, et al. Research priority setting in women’s health: a systematic review. *BJOG An Int J Obstet Gynaecol*. 2020;127(6):694-700. doi:10.1111/1471-
0528.16150

43. World Bank Country and Lending Groups. The World Bank.

44. Partridge N, Scadding J. The James Lind Alliance: patients and clinicians should jointly identify their priorities for clinical trials. *Lancet*. 2004;364(9449):1923-1924. doi:10.1016/S0140-6736(04)17494-1

45. Weber BF, Carrougher GJ, Marvin JA, Bayley EW, Knighton J, Rutan RL. Research priorities for burn nursing: nursing recruitment, retention, and other administrative issues. *J Burn Care Rehabil*. 1992;13(2 Pt 1 PG-249-53):249-253.

46. Marvin J, Carrougher G, Bayley E, Knighton J, Rutan R, Weber B. Burn nursing Delphi study: pain management. *J Burn Care Rehabil*. 1992;13(6):685-694.

47. Knighton J, Carrougher GJ, Marvin JA, Bayley EW, Rutan RL, Weber B. Research priorities for burn nursing: report of the psychosocial issues group. *J Burn Care Rehabil*. 1992;13(1 PG-97-104):97-104.

48. Carrougher GJ, Marvin JA, Bayley EW, Knighton J, Rutan RL, Weber B. Research priorities for burn nursing: report of the wound care and infection control group. *J Burn Care Rehabil*. 1991;12(3):272-277.

49. Bayley EW, Carrougher GJ, Marvin JA, Knighton J, Rutan RL, Weber B. Research priorities for burn nursing: patient, nurse, and burn prevention education. *J Burn Care Rehabil*. 1991;12(4 PG-377-83):377-383.

50. Madden M. *Partnership Gives Research Voice to Pressure Ulcer Patients*.; 2010.

51. MacDermid JC, Fess EE, Bell-Krotoski J, et al. A research agenda for Hand Therapy. *J Hand Ther*. 2002;15(1):3-15. doi:10.1053/hanthe.2002.v15.0153

52. Rybarczyk MM, Schafer JM, Elm CM, et al. A systematic review of burn injuries in low- and middle-income countries: Epidemiology in the WHO-defined African Region. *African J Emerg Med Rev africaine la Med d’urgence*. 2017;7(1):30-37. doi:10.1016/j.afjem.2017.01.006

53. Whitaker J, O’Donohoe N, Denning M, et al. Assessing trauma care systems in low-income
and middle-income countries: a systematic review and evidence synthesis mapping the Three Delays framework to injury health system assessments. *BMJ Glob Heal.* 2021;6(5):e004324. doi:10.1136/bmjgh-2020-004324

54. Lee A, Davies A, Young AE. Systematic review of international Delphi surveys for core outcome set development: representation of international patients. *BMJ Open.* 2020;10(11):e040223. doi:10.1136/bmjopen-2020-040223

55. *A Systematic Approach for Undertaking a Research Priority-Setting Exercise. Guidance for WHO Staff.* Geneva; 2020.

56. Tong A, Synnot A, Crowe S, et al. Reporting guideline for priority setting of health research (REPRISE). *BMC Med Res Methodol.* 2019;19(1):243. doi:10.1186/s12874-019-0889-3

57. Working with our patient and public voices (PPV) partners. Reimbursing expenses and paying involvement payments. NHS England.

58. Staley K, Crowe S, Crocker JC, Madden M, Greenhalgh T. What happens after James Lind Alliance Priority Setting Partnerships? A qualitative study of contexts, processes and impacts. *Res Involv Engagem.* 2020;6(1):41. doi:10.1186/s40900-020-00210-9

**Figure legends**

**Figure 1.** PRISMA flow diagram.
Figure 2. Overall completeness of reporting of REPRISE checklist by year of publication of priority setting exercise.
Table 1. Inclusion and exclusion criteria.

| Inclusion criteria                                                                 | Exclusion criteria                                                                 |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| • Studies which elicited stakeholder priorities for research in plastic and        | • Studies irrelevant to plastic and reconstructor surgery                           |
| reconstructive surgery                                                             |                                                                                    |
| • Full length, peer-reviewed, English language articles                            | • Studies assessing priorities for practice and policy (quality indicators), not    |
| • Studies using the following methods for identifying research priorities:         | research                                                                           |
| consensus methods (such as Delphi technique), workshops, consensus conferences,    | • Non-original research (literature reviews, policy documents, clinical guidelines,|
| surveys, qualitative approaches (interviews, focus groups)                        | editorials, commentaries) or basic science research                                 |
| • Published from database inception to 11th June 2021                              | • Protocol studies                                                                  |
|                                                                                    | • Non-English language articles                                                    |
Table 2. Characteristics of included studies.

| Geographical scope | N studies |
|--------------------|-----------|
| National           | 14        |
| International      | 3         |

| Country             | N studies |
|---------------------|-----------|
| United Kingdom      | 8         |
| United States       | 7         |
| Canada              | 3         |
| Netherlands         | 1         |
| Norway              | 1         |
| Australia           | 1         |
| India               | 1         |

| World Bank income status | N studies |
|--------------------------|-----------|
| High                     | 16        |
| Lower middle             | 1         |

| Royal College of Surgeons Plastic Surgery Subspecialty area | N studies |
|-----------------------------------------------------------|-----------|
| Burns\(^b\)                                               | 6         |
| Hand and upper limb surgery                               | 4         |
| Skin                                                      | 2         |
| Congenital                                               | 1         |
| General Plastic and Reconstructive Surgery                | 2         |
| Breast surgery                                           | 1         |
| Aesthetic surgery | 1 |
|---------------------------------|---|
| **Year of publication**<sup>c</sup> | | |
| Pre-2004 | 4 |
| Post-2004 | 13 |
| **Type of prioritised research questions**<sup>d</sup> | | |
| Treatment (intervention) | 13 |
| Health services | 8 |
| Aetiology | 6 |
| Psychosocial | 6 |
| Education | 5 |
| Economic evaluation | 4 |
| Prevention | 4 |
| Quality of life | 4 |
| Prognosis | 3 |
| Diagnosis | 2 |
| **Stakeholders**<sup>e</sup> | | |
| Surgeons/doctors | 9 |
| Nurses | 7 |
| Allied health professionals | 10 |
| Patients and care givers | 8 |
| Researchers | 1 |
| Industry representatives | 1 |
| Other | 6 |
| Multidisciplinary stakeholders (>1 profession) | 7 |
| **Steering group members**<sup>f</sup> | | |
| Professional Group                                      | N  |
|--------------------------------------------------------|----|
| Surgeons/doctors                                      | 9  |
| Nurses                                                 | 3  |
| Allied health professionals                            | 5  |
| Patients and care givers                              | 3  |
| Other                                                  | 1  |
| Multidisciplinary stakeholders (>1 profession)         | 5  |
| Training / experience in priority setting (e.g., JLA advisor) | 5  |

*a* Does not total 17 due to international studies

*b* In the original RCS classification, burns is included in the ‘trauma’ subspecialty group

*c* The JLA was established in 2004

*d* Inclusion of question type per study, not per question; does not total 17 as some studies included multiple question types

*e* Unclear in n=1 study

*f* Not stated in n=5

Table 3. Study methodology.

| Methods for gathering uncertainties (per study)         | N  |
|--------------------------------------------------------|----|
| Systematic review                                      | 1  |
| Clinical guidelines and/or policy documents             | 2  |
| Survey                                                 | 9  |
| Stakeholder consultation/focus group                   | 4  |

| Methodology of research prioritisation (per study)      | N  |
|--------------------------------------------------------|----|
| Methodology                        | Percentage |
|------------------------------------|------------|
| James Lind Alliance                | 5          |
| Qualitative only                   | 3          |
| Delphi techniques                  | 3          |
| Other survey (single stage)        | 3          |
| Consensus conference               | 2          |
| Mixed methods                      | 1          |

| Average number of uncertainties/priorities, per stage (interquartile range) |   |
|------------------------------------------------------------------------------|---|
| Uncertainty gathering<sup>a</sup>                                             | 41 (13-719) |
| Interim priority setting<sup>b</sup>                                          | 30 (26-30)  |
| Final consensus meeting<sup>c</sup>                                           | 10 (9-12)   |

| Median number of stakeholders per stage (interquartile range) |   |
|--------------------------------------------------------------|---|
| Gathering uncertainties<sup>d</sup>                          | 197 (79-338) |
| Interim priority setting<sup>e</sup>                          | 191 (127-289) |
| Final prioritisation or consensus meeting<sup>f</sup>         | 25 (22-29) |
| One stage prioritisation process                              | 42 (25-248) |

<sup>a</sup> Unclear or N/A in n=6  
<sup>b</sup> Unclear or N/A in n=10  
<sup>c</sup> Unclear or N/A in n=5  
<sup>d</sup> Unclear or N/A in n=11  
<sup>e</sup> Unclear or N/A in n=9  
<sup>f</sup> Unclear or N/A in n=5
### Table 4. Comprehensiveness of reporting (REPRISE)

| Item                                                                 | References               | N (%)   |
|----------------------------------------------------------------------|--------------------------|---------|
| **Context and scope**                                                |                          |         |
| Define geographical scope                                           | 11,14,23–29,15–22        | 17 (100%) |
| Define health area/focus                                            | 11,14,23–29,15–22        | 17 (100%) |
| Define end-users of the research                                     | 11,19                    | 2 (12%)  |
| Identify the research focus                                         | 11,14,23–29,15–22        | 17 (100%) |
| Identify the type of research question                               | 14,15,18,20,21,23,26     | 7 (41%)  |
| Identify the time frame                                              | 20,25                    | 2 (12%)  |
| **Governance and team**                                             |                          |         |
| Describe the selection of project leaders and team                   | 11,14,15,26–29           | 7 (41%)  |
| Describe the characteristics of the project leader and team members  | 14,19,23,28              | 4 (24%)  |
| Describe any prior training or experience in research priority setting| 14,20,25,26              | 4 (24%)  |
| **Inclusion of stakeholders/participants**                          |                          |         |
| Define the inclusion criteria for stakeholder groups                 | 11,14,23–29,15–22        | 17 (100%) |
| State the strategy for identifying and engaging stakeholders         | 11,14,15,19,20,22,24–29,17| 13 (76%) |
| Indicate the number of participants and/or organisations involved    | 11,14,25–29,15–17,19–23  | 15 (88%) |
| Describe the characteristics of stakeholders                         | 11,14,26–29,15–17,19–23  | 16 (94%) |
| State if reimbursement for participation was provided | 0 |
| **Identification and collection of research topics/questions** | |
| Identify the approach to priority setting | 11,14,23–29,15–22 | 17 (100%) |
| Describe the methods for collecting research topics or questions | 11,14,26–29,15–17,19,20,22,24,25 | 14 (82%) |
| Describe the framework used to organise/aggregate topics or questions | 11,14,16,19,20,22,26–29,17 | 11 (65%) |
| Describe methods and reason for initial removal of topics or questions | 14,16,26–28 | 5 (29%) |
| Describe methods for checking if research questions have already been answered | 14,25–28 | 5 (29%) |
| Describe the number of research topics or questions | 11,14,27–29,15,16,19–22,25,26 | 13 (76%) |
| **Prioritisation of research topics/questions** | |
| Describe methods for prioritising or achieving consensus | 11,14,27–29,15,16,19,21–24,26 | 13 (76%) |
| Provide reasons for excluding research topics or questions | 14,16,26–29 | 6 (35%) |
| **Output** | |
| Describe the dissemination of the priority setting exercise | 14,15,19,22,26–28 | 7 (41%) |
| Published in a peer-reviewed journal | 11,14,23,24,26–29,15–22 | 16 (94%) |
| Define the specificity of the research priorities | 14,15,24–29,16–23 | 16 (94%) |
### Evaluation and feedback

| Description                                                                 | ID   | Total % |
|----------------------------------------------------------------------------|------|---------|
| Describe how the priority setting exercise was evaluated and any changes made | 14,19 | 2 (12%) |
| Describe how priorities were made accessible for review by stakeholders     | 14   | 1 (6%)  |

### Translation and implementation

| Description                                                                 | ID     | Total % |
|----------------------------------------------------------------------------|--------|---------|
| Outline the strategy or action plan for implementing priorities            | 15,16,19,22,26,27 | 6 (35%) |
| Describe how the impact will be measured                                    | 14,16,29 | 3 (18%) |

### Funding and conflicts of interest

| Description                                                                 | ID     | Total % |
|----------------------------------------------------------------------------|--------|---------|
| State sources of funding                                                    | 14,19,20,23,25–27,29 | 8 (47%) |
| Outline the budget and/or cost of the project                              |        | 0       |
| Declare any conflicts of interest                                           | 14,19,20,26–29 | 7 (41%) |

### Table 5. Recommendations for future priority setting exercises in plastic surgery

| 1. Research priority setting exercises focussing on traumatic injuries and (non-breast) cancer reconstruction |
| 2. Inclusion of steering group member(s) with experience in research priority setting |
| 3. Multidisciplinary research priority setting initiatives |
| 4. Increased representation of lower income countries and patient stakeholders |
| 5. Improved quality of reporting across all domains of REPRISE (in particular, the recruitment and characteristics of steering group members and stakeholders, the |
|   |   |
|---|---|
| **processes for collecting and prioritising uncertainties and funding disclosures and conflicts of interest** | |
| **6. Development and widespread use of strategies to assess implementation and impact of priorities** | |