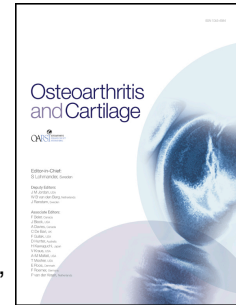


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Priorities for the effective implementation of osteoarthritis management programs: an OARSI international consensus exercise

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Priorities for the effective implementation of osteoarthritis management programs: an OARSI international consensus exercise.

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Abstract:

Objective: The Joint Effort Initiative was endorsed by Osteoarthritis Research Society International (OARSI) in 2018 as a collaboration between international researchers and clinicians with an interest in the implementation of osteoarthritis management programs (OAMPs). This study aimed to identify and prioritise activities for future work of the Joint Effort Initiative.

Design: A survey was emailed to delegates of the 2018 OARSI World Congress attending a pre-conference workshop or with a known interest in OAMPs (n=115). Delegates were asked about the most important issues regarding OAMP implementation. The top 20 issues were synthesised into 17 action statements, and respondents were invited to participate in a priority ranking exercise to determine the order of importance of the statements.

Results: Survey respondents (n=51, 44%) were most commonly female (71%), with an allied health background (57%), affiliated with universities (73%) from Oceania (37%), and Europe/UK (45%). The five highest ranked action statements were:

- i) Establish guidelines for the implementation of different OAMP models to ensure consistency of delivery and adherence to international best practice.
- ii) Develop and assess training and education programs for health care professionals (HCPs) delivering OAMPs.
- iii) Develop and evaluate the implementation and outcomes of novel models of OAMPs.
- iv) Develop and assess core skill sets and resources for HCPs delivering OA care.
- v) Develop a framework for enhancing the quality of care provided by OAMPs.

Conclusion: Prioritising statements will bring focus to the future work of the Joint Effort Initiative in the future and provide a basis for longer-term actions.

Key words: Consensus, osteoarthritis, chronic care, management programs, priority setting

1 **Priorities for the effective implementation of osteoarthritis management programs: an OARSI**
2 **international consensus exercise.**

3

4 **Introduction**

5 Osteoarthritis (OA) is a leading cause of global disability (1, 2). The prevalence of this disabling condition
6 is projected to rise rapidly in the presence of an aging population and increasing rates of obesity (3).
7 International guidelines make clear, consistent recommendations for evidence-based management of
8 OA (4). There is relative consensus amongst these guidelines that hip and knee OA management should
9 be tailored to the individual and include the following three core effective, non-surgical, non-
10 pharmacological interventions: i) self-management and OA education; ii) exercise; and iii) weight loss for
11 people with hip or knee OA who are overweight or obese (5). Serious discrepancy remains between
12 these recommendations and the actual care received by patients, particularly underutilisation of the
13 three core treatments (6) and over-reliance on pharmacological agents and surgery (7). This discrepancy
14 may be attributed to the following factors: inadequate time available to deliver complex interventions,
15 lack of support for behaviour change, exercise interventions are undervalued, clinicians believe they are
16 under-prepared, and dissonant patient expectations (8, 9).

17

18 In order to address evidence-practice gaps, several specialist osteoarthritis management programs
19 (OAMPs) have been developed and implemented internationally (10). These OAMPs aim to deliver
20 coordinated, evidence-based care for people with OA. We have operationally defined an OAMP as a
21 model of evidence-based, non-surgical OA care that has been implemented in a real-world setting, and
22 comprises the following four components:

23 i) personalised OA care - (tailored to the individual needs of the patient);

24 ii) provided as a package of care with longitudinal reassessment and progression;

25 iii) comprising two or more components of the core, non-surgical, non-pharmacological interventions
26 (education, exercise, and weight-loss) and;

27 iv) optional evidence-based adjunctive treatments as required (e.g. assistive devices, psychosocial
28 support).

29 The objectives of these programs are to help individuals address their pain, stiffness and loss of function,
30 while improving their quality of life and maintaining independence. Existing OAMP service delivery
31 models have been tailored to local contextual features and hence are all very different (10). However,
32 the core components of OAMPs consistently include education around OA, support for self-
33 management, exercise programs and promotion of increased physical activity. These are often
34 combined with other evidence-based therapies when indicated such as: weight loss interventions;
35 psychological support; review of analgesics and prescription of assistive devices (10). The international
36 development of OAMPs is still in its infancy, and there is a pressing need for coordinated, broad-scale
37 strategies to ensure the implementation of high quality, evidence-based programs as these are adapted
38 to meet local needs.

39
40 The majority of OAMPs are available at a relatively small-scale, in high-income countries with stable
41 healthcare systems within Europe, North America and Australasia (11-16). A recent review has
42 highlighted the need to develop, implement and evaluate models of service delivery across the
43 spectrum of OA disease and pointed to the dearth of OAMPs in low- and middle-income countries (10).

44 In response to growing international interest in OAMPs, a group comprised mainly of researchers and
45 clinicians have established the *'Joint Effort' Initiative* which was endorsed by the Osteoarthritis Research
46 Society International (OARSI) in 2018. The Initiative seeks to provide a structure whereby activity related
47 to implementation of OAMPs may be harmonised and standardised, particularly around optimising the
48 quality and delivery of care, health professional training, fostering international research collaborations,

49 while minimising duplication of effort and resources. The Initiative's mission is to investigate the most
50 effective OAMP models to use, develop long-term strategies for effective implementation in different
51 socioeconomic and cultural environments while ensuring the health professional workforce is
52 appropriately skilled to deliver high-quality care and to help identify research priorities to facilitate best-
53 practice care.

54
55 The first action of the Initiative was to identify and prioritise activities for future work. The prioritisation
56 exercise was undertaken in two parts. Firstly, we invited delegates at the 2018 OARSI World Congress in
57 Liverpool UK who were interested in OAMPs to participate in a survey. We sought their views on the
58 most important issues surrounding the international implementation of OAMPs, and to identify
59 potential gaps for further research. Following this broad survey, interested respondents were invited to
60 participate in a prioritisation exercise to rank the top priorities for future action. This paper presents the
61 findings and priorities identified by the survey and outlines the future actions of the Initiative.

62 63 **Method**

64 An overview of the process is outlined in Figure 1.

65 66 *Participants*

67 We sent an email invitation to all delegates of the 2018 OARSI World Congress who were attending a
68 pre-conference workshop or had a known interest in OAMPs (n=115) to complete a survey (Survey 1).
69 We then invited all consenting respondents to participate in a prioritisation exercise to rank the top
70 priorities (Survey 2). Ethical approval was granted by the Human Research Ethics Committee of the
71 University of Sydney (2018/262), and the survey was endorsed by the 2018 OARSI Conference
72 Organisers. A study information sheet was provided to potential participants, and completion of the

73 survey was considered indicative of informed consent to participate. Participation was voluntary, and
74 only completed surveys were included in the analyses.

75

76 *The surveys*

77 Two custom-designed surveys were developed for this study.

78 *Survey 1*

79 The first survey was designed to seek participants' views on the most important issues that need to be
80 addressed concerning the international implementation of OAMPs. A link to the survey was emailed to
81 participants attending the OARSI pre-congress meeting two days before the event (24th April, 2018) via
82 REDCap, a secure web-based application (17). Following requests from the delegates, the survey
83 remained open for 17 days until the 10th May, 2018 to allow participants to complete the survey once
84 they returned home from the congress.

85

86 The survey took 10-15 minutes to complete. The first section asked questions about the respondent's
87 demographics and their prior experience with OAMPs (see Appendix 1). In the second section,
88 participants were asked to identify three issues they considered important for implementation of
89 OAMPs that should be addressed. This free-text section was presented first so participant answers were
90 not influenced by the multiple-choice options. The remainder of the survey presented multiple-choice
91 questions spanning the three domains drawn from the Donabedian framework for quality assessment in
92 healthcare (18) and a fourth domain focussed on research priorities. The domains were defined as:

- 93 i) *Structural and environmental considerations*: attributes of the setting or environment in
94 which healthcare occurs, including material resources, human resources and organisational
95 structure.

- 96 ii) *Process and implementation considerations*: how the person seeks care and the healthcare
97 professional provides care.
- 98 iii) *Outcome considerations*: the effects of care on the health of the person including changes in
99 knowledge and behaviour.
- 100 iv) *Areas for OA management program implementation research*: potential research questions
101 raised at previous OARSI meetings by delegates with an interest in OAMPs.

102 Finally, an open-ended question asked respondents to identify any considerations or research questions
103 that had not been previously identified. Between seven and 13 multiple-choice options were provided
104 for the four domains above. The options for each domain were developed following discussions
105 amongst participants at previous OARSI OAMP workshops (Amsterdam, 2016 and Las Vegas, 2017),
106 through literature review and consensus from the authors of this paper. The survey participants were
107 asked to select the three options within each domain that they considered to be the most important
108 issues for implementation of OAMPs. A full list of the survey questions is provided in the supplementary
109 materials.

110

111 *Survey 2*

112 Using data from survey 1, action statements were developed for the prioritisation exercise conducted in
113 survey 2. We compiled a list of the top 20 options chosen by participants in survey 1 derived from the
114 top three rated options to each of the four domains (12 topics), then the next eight highest ranked
115 options irrespective of the domain. The free-text responses were extracted from the database, and
116 coded thematically (JB and JE), with reference to the multiple-choice topics. Three additional topics
117 were identified (see Results), however these weren't identified with adequate consistency to justify
118 inclusion as separate action statements. Specific action statements were then developed for each
119 general topic aligned to the terms of reference of the Initiative and were deliberately broad in scope.

120 They were checked for overlap by the authors, and 17 action statements were ultimately circulated for
121 final prioritisation. Three of the original 20 topics were merged with others as they could be covered by
122 one action statement (see Table 2).

123

124 Participants of the prioritisation exercise were sent a link via the 1000minds software
125 (www.1000minds.com) June 2018 and were given two weeks for completion. 1000minds is a decision-
126 analysis research tool that prioritises statements according to their relative importance to the
127 participant. Pairwise-ranking presented the participants with two action statements and asked, "Which
128 of the following two options do you think is the higher priority to address?". This process was repeated
129 until all 17 action statements were ranked using the minimum number of presentations.

130

131 *Data analysis*

132 De-identified individual data were downloaded from REDCap and 1000minds and exported to an Excel
133 file. Descriptive statistics summarised demographic and survey data. Data are presented as frequency
134 data for options of the four domains in survey 1 and ranked according to frequency. The data outputted
135 from survey 2 using 1000minds included mean and median rankings for each action statement.
136 Interquartile ranges were calculated in Excel for each action statement.

137

138 **Results**

139 *Participant Demographics*

140 Of the 115 people invited to participate in survey 1, 51 (44%) of invitees completed responses (Table 1).
141 Of the 40 participants who consented to be contacted further for Survey 2, 26 (65%) participants
142 provided complete responses. There were no major differences observed in the characteristics of
143 respondents between the surveys because the second survey comprised a subset of the respondents

144 from survey 1. Most respondents were female for surveys 1 and 2 (71% and 65% respectively) and
145 approximately 50% had an allied health background. More than half of respondents in both surveys
146 were affiliated with a university. There were representatives from 12 countries in survey 1 and nine
147 countries in survey 2. Most respondents were from Europe/UK and Oceania. There were no
148 representatives from the African region, and only one from Asia and South America. While a third of
149 respondents were practising clinicians, all reported involvement in research, most held a PhD
150 qualification. The mean years of experience was 13.6 (SD 8.00) years in survey 1 and 12.5 (SD 8.83) years
151 in survey 2.

152

153 ***Results of Survey 1***

154 *Current management programs*

155 Seventy-three percent of participants (n=37) reported working with OAMPs, most frequently in a
156 research capacity. The settings for these programs were primary care (n=17), embedded within clinical
157 trials (n=15), community-based settings (n=15), public hospitals (n=9), private hospitals (n=8), private
158 clinics or university clinics (both n=7) or commercial programs (n=3). Four respondents reported working
159 outside traditional models of healthcare delivery, including via online platforms, patient advocate
160 organisations, and private health insurance programs. All stages of program implementation were
161 represented (planning stage 17%, piloting program 36%, established and growing 36%, and established
162 and stable 31%).

163

164 *Results of multiple-choice questions*

165 Results from survey 1 are presented in Figure 2. The top 3 considerations selected for each domain
166 were:

167 i) *Structural / environmental considerations:*

- 168 1) operational funding for OAMPs,
169 2) incorporation of OAMPs into different healthcare systems, and
170 3) stakeholder engagement.

171 Reimbursement for participants to undertake OAMPs and increased engagement with healthcare
172 policy were also important.

173 ii) *Process and implementation considerations:*

- 174 1) the mode of delivery of the programs,
175 2) development of specialised clinical skill sets for HCPs working with OAMPs, and
176 3) provision of accurate, up-to-date information for OAMP consumers.

177 The next most frequently occurring topics were training for HCPs working in OAMPs, staying up-to-
178 date with current evidence (e.g. knowledge translation) and developing an overarching framework
179 for implementing OAMPs.

180 iii) *Outcome considerations:*

- 181 1) managing therapeutic effects and ensuring behaviour change,
182 2) ensuring both HCPs and consumers engaged with the program, and
183 3) development of self-management capabilities.

184 The next most important outcome consideration was ensuring OAMPs were cost-effective.

185 iv) *Research priorities:*

- 186 1) comparing clinical outcomes and cost-effectiveness of the programs,
187 2) training for HCPs delivering OAMPs, and
188 3) developing and testing novel models for OAMPs.

189 The next most frequent option chosen for research priorities was improving adherence to
190 international guidelines.

191 *Other considerations raised*

192 Free text fields allowed respondents to identify additional issues considered important for
193 implementation of OAMPs. Additional topics raised in this section, that were not included in the final
194 action statements, were:

- 195 • ensure care delivered is personalised,
- 196 • address prevention and monitor disease progression in the programs, and
- 197 • marketing and promotion of the programs.

198

199 **Results of Survey 2**

200 The final ranked list of priority action statements from survey 2 are presented in Table 2. The top five
201 ranked statements were:

- 202 i. Establish guidelines for the implementation of different OAMP models to ensure consistency of
203 delivery and adherence to international best practice.
- 204 ii. Develop and assess training and education programs for HCPs delivering OAMPs.
- 205 iii. Develop and evaluate the implementation and outcomes of novel and innovative models or
206 pathways of OAMPs.
- 207 iv. Develop and assess core skill sets and resources for HCPs delivering specialised OA care
208 including those who operate with an extended scope of practice.
- 209 v. Develop a framework for enhancing the quality of care provided to people living with OA who
210 engage with OAMPs including measurement of care quality and strategies for improvement.

211 The next highest-ranked priorities covered the themes of encouraging engagement of both consumers
212 and HCP with the programs, evaluation of the cost of running OAMPs, and how they operate within local
213 policy and healthcare environments. Securing operational funding for programs did not feature in the
214 final top 10 priorities, even though it received a lot of support in the initial survey.

215 **Discussion**

216 As part of a coordinated response to the global rise in the burden of chronic disease, the World Health
217 Organization (WHO) has released a global strategy to promote the implementation of integrated,
218 people-centred health services. This strategy requires a fundamental paradigm shift in the funding,
219 management and delivery of healthcare services (19) and requires the establishment of guidelines as to
220 how these new, complex models of care may be implemented. Models of care for musculoskeletal
221 health take the recommendations for evidence-based care (the 'what') and provide the 'how' regarding
222 implementation of these recommendations. The model of care has been described as providing the right
223 care, at the right time, in the right place, with the right team, using the right resources (20). The highest
224 ranked action statement identified in this study was to 'establish guidelines for the implementation of
225 different OAMP models to ensure consistency of delivery and adherence to international best practice
226 models of care'. The participants also felt that further work is required to assist international groups to
227 achieve the changes to health service delivery necessary to establish OAMPs by providing guidance
228 regarding not only the content, but also the processes that support the implementation of these
229 programs.

230

231 An essential attribute of these major changes to health service delivery is the need to reorient and
232 educate the health workforce (21). This, coupled with the knowledge that health outcomes are largely
233 dependent on the quality of training and capabilities of health care professionals (HCPs) are important
234 drivers for the need to build workforce capacity to support models of care such as OAMPs (22).
235 Deficiencies have been identified in the current and emerging global healthcare workforces regarding
236 the capacity and capability to manage coordinated/integrated services such as OAMPs. There are
237 chronic shortages of HCPs responsible for managing musculoskeletal disorders across all professions,
238 particularly across low- and middle-income countries and in regional/rural areas (23).

239

240 There is growing evidence of a clear deficit in professional capabilities that limits the implementation of
241 optimal evidence-based OA care in healthcare (24). Several major barriers to the implementation of
242 evidence-based OA care have been identified (24, 25). Important common themes include that clinicians
243 feel under-prepared in terms of knowledge and skills to deliver treatments recommended by OA
244 management guidelines, and clinicians report doubts about the effectiveness of treatments for OA.
245 Given this evidence, it is unsurprising that the second most highly ranked action identified was the
246 development of training and education programs for HCPs delivering care in OAMPs. The fourth highest
247 ranked priority was closely related, and concerned the skills, confidence and training (including core
248 competencies) of health professionals delivering OAMPs.

249

250 Some work has been done to address the perceived lack of training, knowledge and skills for health
251 practitioners in general. A systematic review in 2010 identified that there was sparse literature available
252 at the time regarding the effectiveness of educational strategies used to improve professional
253 behaviours in the implementation of guidelines for OA management (26). Since this review there have
254 been several studies that have tested different strategies to improve the expertise of HCPs to deliver
255 recommended OA care. A Canadian observational study of the Getting a Grip on Arthritis[®] program
256 followed 553 HCPs in primary care for six months following inter-professional education workshops and
257 found significant improvements in best practice scores for knee OA cases (27). Two Dutch randomised
258 controlled trials tested the effectiveness of an interactive workshop approach to educating HCPs about
259 implementation of the Dutch physiotherapy guideline for hip and knee OA. The interactive workshop
260 was found to improve HCP guideline knowledge and adherence (28, 29).

261

262 The Management of OsteoArthritis In Consultations (MOSAICS) study in the United Kingdom tested the
263 clinical and cost-effectiveness of a model OA consultation (MOAC) that implemented the National
264 Institute for Health and Care Excellence (NICE) guidelines for OA management in primary care (30). A
265 key component of this trial was to develop and evaluate a training package for management of OA by
266 GPs and practice nurses. The MOAC was developed in consultation with GPs and patients using a Delphi
267 consensus exercise (31, 32) following which the practice nurse training program to support the MOAC
268 was developed and tested (32). The MOAC was tested in a cluster randomised controlled trial in 10
269 general practices and demonstrated improvement in the implementation of the core NICE guidelines for
270 OA care in the intervention group compared with controls (13). Given the accumulated evidence
271 regarding the use of educational interventions to improve the implementation of OA management
272 guidelines, it is logical to consider the combined findings of this body of evidence and focus future
273 efforts on harmonising rather than replicating the development of training and education programs for
274 HCPs delivering care in OAMPs. Identifying the core capabilities required of HCPs to deliver high-quality
275 OA care is the necessary first step and is work currently underway through the Initiative.

276
277 OAMPs have been implemented internationally and tested across a variety of settings including teaching
278 hospitals (e.g. Osteoarthritis Chronic Care Program) (14), university clinics (e.g. Amsterdam
279 Osteoarthritis Cohort) (33) physiotherapy clinics (e.g. ActiveA, Good Living with OA Denmark and Better
280 Living with OA) (12, 15), community care (e.g. ESCAPE-PAIN) (11) and general practice (e.g. PARTNER
281 model, MOSAICS and the SAMBA model) (13, 34, 35). Yet, there are many parts of the world that have
282 not yet implemented OAMPs within their health systems. There is a raft of reasons why OAMPs have not
283 become established uniformly across the world, and many of the perceived barriers and enablers to the
284 management of OA have been synthesised in a recent systematic review (24). There were no enablers
285 reported, but several barriers were identified including the perception that OA as a condition is not that

286 serious and is seen as a comorbidity in the context of other conditions (e.g. cardiovascular disease,
287 diabetes)(2). This perception has further compounded system-related barriers to the implementation of
288 evidence-based OA care (36). Where the health policy and infrastructure required to support
289 differentiated OAMPs is lacking, new, innovative models of care might prove to provide at least part of
290 the solution. New models of OA care service delivery utilising technology such as telehealth, online
291 consultations and online platforms have been designed and are being tested in current research (37-40).
292 The third highest ranked activity statement of the Initiative was to 'develop and evaluate the
293 implementation and outcomes of novel and innovative models or pathways of OAMPs'.

294

295 As these new models of service delivery for OAMPs are developed, tested and implemented, it is very
296 important to consider the quality of OA care delivered across these programs. This was ranked the fifth
297 most important consideration for future action in the Initiative consensus exercise. Quality care
298 indicators were used to measure uptake of core non-surgical OA management in the MOSAICS study
299 (13). These quality indicators and other metrics that reflect whether the core components of OA
300 management are met (i.e. education around OA, support for self-management, exercise programs and
301 promotion of increased physical activity (10)) would go a long way to ensure the provision of consistent,
302 quality care across all international programs.

303

304 There are several limitations to note with this study. First, the survey was limited to people attending
305 the OARSI meeting, or who were existing members of the Initiative. Second, the participants of the
306 survey, and the Initiative generally hail from high-income nations, have pre-existing involvement with
307 OAMPs, and a strong research focus. Consequently, we received minimal input from lower- or middle-
308 income countries, countries outside Western Europe and Australia. The disproportionate representation
309 of our respondents may be due in part to the 2018 OARSI meeting being hosted in the UK, but is

310 probably more related to the lack of OAMPs internationally (10) and the ad-hoc approach to their
311 development. This important limitation is being addressed as an immediate priority by the Initiative. The
312 Initiative Steering Committee now includes representatives from North America and Asia. We are
313 currently inviting researchers and HCPs particularly from Africa, Asia, Central and South America to
314 engage with the Initiative. Finally, the participants of this study were mostly academics, a smaller
315 proportion were clinicians, while patients and the public were not consulted. It is crucial that all end-
316 users including clinicians, patients and the public are engaged in this work. A North American consumer
317 advocacy organisation now has representation on our steering committee, and we are currently
318 developing strategies to involve HCPs, people with OA and the general public in our work.

319
320 The findings from this study are generic and should cross international borders. However, further
321 discussions around implementation in different health systems and settings are critical as an ongoing
322 focus of the Initiative. We have recently had a “Discussion Group” endorsed by OARSI and will use this
323 forum to encourage greater participation in the Initiative’s broader activities. .

324

325 ***Future actions***

326 In addition to expanding our engagement and collaboration activities, the Initiative has proposed four
327 working groups to address the areas prioritised. They will be:

- 328 • ***Core Capabilities***: This group is currently working to identify the core capabilities required of
329 HCPs to deliver high-quality OA care. These core capabilities will provide a framework for the
330 future development of strategies for training and educational activities. The working group is
331 presently undertaking an international scoping exercise and is actively seeking input from
332 consumers and clinicians.

333

- 334 • **Training and Educational Resources:** This group will develop and evaluate a professional
335 training and education program for HCPs delivering OAMPs.
- 336
- 337 • **OA management program implementation:** This group will seek to develop guidelines for the
338 broad scale implementation of OAMPs. This may involve developing a compendium of
339 information for HCPs, policy makers and consumers from different existing resources. New
340 resources may also be developed as required. These resources will focus on ensuring that
341 OAMPs meet the core recommendations for OA care and provide support for developing
342 OAMPs.
- 343
- 344 • **Outcomes of OAMPs:** A working group will be assembled to work on developing a core set of
345 outcome measures for OAMPs. This will enable the testing and comparison of existing and novel
346 models of OA care service delivery particularly the comparison of clinical versus cost-
347 effectiveness. Systems that include the ability to share data will also enable comparative
348 effectiveness studies. A long-term goal may be to establish and maintain a data repository to
349 facilitate future research of OAMPs.

350

351 **Conclusion**

352 Prioritizing statements will bring focus to the future work of the Joint Effort Initiative in the immediate
353 future and provide a basis for longer-term actions.

354

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364

365 **Author contributions**

366 DH conceived the study. JE, JB, DH, KB and KD designed the study, JB and JE collected and analysed the
367 data, and JE and JB drafted the manuscript. All authors gave critical review and advice on the study
368 design and interpretation, including the questions for both surveys. All authors contributed to reviewing
369 and revising the manuscript and agreed on the final draft.

370

371

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379

380

381 **Conflict of Interest**

382 DJH provides consulting advice to Tissuegene, Merck Serono and TLCBio.

383

ACCEPTED MANUSCRIPT

384 **References**

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495

496 **Figure Legends**

497

498 **Figure 1: Overview of the prioritisation process.**

499

500 **Figure 2: Total number of responses received to multiple-choice options in each domain.** A maximum
501 of 3 responses were allowed for each domain.

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503 **Table 1: Participant demographics for survey 1 and survey 2.** (*) designates multiple answers were
 504 allowed for that question.

| | Survey 1 n (%) unless otherwise stated | Survey 2 n (%) unless otherwise stated |
|----------------------------------|---|---|
| Total completed responses | 51 (44) | 26 (65) |
| Sex | | |
| <i>Female</i> | 36 (71) | 17 (65) |
| Region | | |
| <i>Asia</i> | 1 (2) | 1 (4) |
| <i>Europe/UK</i> | 23 (45) | 10 (38) |
| <i>Oceania</i> | 19 (37) | 12 (46) |
| <i>North America</i> | 7 (14) | 3 (12) |
| <i>South America</i> | 1 (2) | 0 |
| Primary affiliation | | |
| <i>University</i> | 37 (73) | 19 (73) |
| <i>Hospital / other medical</i> | 12 (23) | 6 (23) |
| <i>Other research</i> | 2 (4) | 1 (4) |
| Profession | | |
| <i>Medical</i> | 14 (27) | 10 (38) |
| <i>Allied Health</i> | 29 (57) | 12 (46) |
| <i>Scientist</i> | 5 (10) | 3 (12) |
| <i>Other</i> | 3 (6) | 1 (4) |

| Current role | n=67* | n=35* |
|--|--------------|--------------|
| <i>Allied Health</i> | 3 | 1 |
| <i>Medical</i> | 7 | 6 |
| <i>Researcher</i> | 47 | 24 |
| <i>Educator/lecturer</i> | 7 | 2 |
| <i>Public health/policy</i> | 2 | 2 |
| <i>Other</i> | 1 | - |
| Practicing clinician | | |
| <i>yes</i> | 16 (31) | 10 (38) |
| Years of experience mean years (SD) | 13.6 (8.00) | 12.5 (8.83) |
| Involved in research | | |
| <i>yes</i> | 50 (100) | 26 (100) |
| Highest degree | | |
| <i>PhD</i> | 36 (70) | 17 (65) |
| <i>MD</i> | 2 (4) | 1 (4) |
| <i>Masters by Research</i> | 4 (8) | 2 (8) |
| <i>Completing PhD</i> | 9 (18) | 6 (23) |

Table 2: Top 20 topics identified from Survey 1 and the respective action statements developed for each. Results are ranked in order by the highest priority topics identified by survey 2. A lower median value means participants rated this action as a higher priority for OAMP implementation.

| Rank survey 1 | Topic presented in Survey 1 | Action statement presented in Survey 2 | Median Rank | (IQR) | Action statement ranking |
|--------------------------|---|--|------------------------|--------------|---|
| 8 | Mode of delivery of the OA Management Program | Establish guidelines for the implementation of different OA Management Program models to ensure consistency of delivery and adherence to international best practice (see 7) | 6.25 | 8.88 | 1 |
| 7 | Implementation and adherence to international OA guidelines | Incorporated into statement 8 above | - | - | 1 |
| 18 | Training for OA management program personnel | Develop and assess training and education programs for HCPs delivering OA Management Programs | 7.00 | 8.38 | 2 |
| 6 | Novel models or pathways of OAMP | Develop and evaluate the implementation and outcomes of novel and innovative models or pathways of OA Management Programs | 7.50 | 8.38 | 3 |
| 9 | Skills, confidence and training (including core competencies) of health professionals | Develop and assess core skill sets and resources for HCPs delivering specialised OA care including those who operate with an extended scope of practice. | 7.50 | 8.38 | 3 |

| | | | | | |
|----|---|---|------|------|----------|
| | delivering the OAMP | | | | |
| 1 | Managing therapeutic effects / behaviour change | Incorporated into statement 9 above | - | - | 3 |
| 11 | Quality of the OA care provided for consumers | Develop a framework for enhancing the quality of care provided to people living with OA who engage with OAMPs including measurement of care quality and strategies for improvement. | 7.75 | 6.37 | 4 |
| 19 | Developing consumer self- management | Develop, assess and compare programs in community settings (e.g. care managers/ coordinators/teams) that aim to support self- management for people living with OA | 8.50 | 6.87 | 5 |
| 16 | Consumer engagement with the OAMP | Develop and assess strategies to enhance the engagement of people living with OA with OA Management Programs including uptake and adherence. | 8.50 | 7.25 | 5 |
| 15 | Health-care provider engagement with the program | Evaluate and develop strategies to enhance the engagement of all relevant health providers with OA Management Program models of care | 8.75 | 5.25 | 6 |
| 2 | Comparison of clinical outcomes and cost | Develop, evaluate and compare clinical outcomes vs cost- effectiveness for the delivery of different models of OA Management Programs | 8.75 | 7.0 | 6 |

| | | | | | |
|----|--|--|-------|-------|----|
| 20 | Cost-effectiveness of OAMPs | Incorporated into statement 2 above | - | - | 6 |
| 4 | Health care system | Evaluate the implementation of OA Management Programs, and how they operate within different healthcare systems (e.g. government supported vs user-pays) | 8.75 | 8.63 | 6 |
| 17 | Healthcare policy | Develop strategies to influence/change healthcare policy to support the implementation and maintenance of OAMPs | 9.00 | 5.5 | 7 |
| 5 | Skills, confidence and training of HCP delivering OAMPs | Develop and assess competency standards (certification) for all HCPs delivering OA Management Programs | 9.75 | 7.63 | 8 |
| 12 | Reimbursements of out-of-pocket for OAMP participants (public, private, insurance) | Develop strategies to engage healthcare policy and insurance agencies to limit out-of-pocket expenses for OA Management Program participants | 10.25 | 10.0 | 9 |
| 14 | Provision of accurate information for consumers | Develop and maintain resources that provide accurate, evidence-based information for people living with OA. | 10.50 | 2.25 | 10 |
| 3 | Operational funding for programs | Develop and assess strategies to secure and maintain operational funding for OA Management Programs | 11.00 | 10.25 | 11 |
| 13 | Stakeholder engagement | Implement and assess strategies that aim to achieve broad OA Management Program stakeholder engagement within the greater implementation framework | 11.25 | 8.12 | 12 |

| | | | | | |
|----|--|---|-------|------|----|
| 10 | A core recommended set of outcome measures for OAMPs | Develop a set of minimum core set of outcome measures for OAMPs | 12.25 | 7.37 | 13 |
|----|--|---|-------|------|----|

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