



## Preconception Nutrition: Building Advocacy and Social Movements to Stimulate Action

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*Building advocacy for preconception nutrition***1 Preconception Nutrition: Building Advocacy and Social Movements to Stimulate Action**

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*Building advocacy for preconception nutrition*32 **Abstract**

33 Action to improve preconception nutrition is a collective, societal responsibility. We believe that the  
34 DOHaD society is ideally placed to facilitate the development of a global agenda for preconception  
35 nutrition which recognises the societal importance of nutrition for young women and men, and  
36 supports them in optimising their nutritional status for the benefit of the next generation. In this  
37 paper, we outline four key actions that can be taken by the members of DOHaD's international  
38 society located across 67 countries, and nine regional societies, to demonstrate this leadership role.  
39 The recommended actions to place preconception nutrition at the top of national and regional  
40 agendas include i) continuing to build the scientific evidence, ii) monitoring of progress made by  
41 governments and commercial companies, iii) developing advocacy coalitions that unite individuals  
42 and organisations around common policy options, and iv) working with partners to develop an  
43 emotive and empowering preconception nutrition awareness campaign. Collectively these actions  
44 hold the potential to develop into a preconception nutrition social movement to invoke high-level  
45 government support and across sector policy action, while raising public demand for action and  
46 engaging corporate actors.

47

48 **Key words** preconception nutrition, advocacy, social movement, policy options, nutritional status

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49 Despite increased academic awareness, including publication of a Lancet Series that stressed the  
50 role of nutritional status before pregnancy in determining the health of the next generation,<sup>1-3</sup>  
51 awareness of the importance of the preconception period and its lifelong influence on health  
52 outcomes remains low amongst health professionals and the wider public.<sup>1</sup> A new focus on the  
53 preconception period has arisen in part because the majority of interventions aimed at optimising  
54 maternal nutritional status in pregnancy have been disappointing in the magnitude of their effect.  
55 Additionally, there is mounting evidence from human and animal studies highlighting how the  
56 physiological status of parents prior to conception can shape the health outcomes of the next  
57 generation. Importantly, we now appreciate that poor reproductive health in both men and women  
58 is linked to sub-optimal body composition, for example excessive body fat.<sup>2</sup> Increasing evidence for  
59 the benefits of improving preconception health, plus the knowledge that pregnancy planning is more  
60 common than previously thought, suggest that the preconception period has underexploited  
61 potential as a point of intervention.<sup>1</sup> The low public health awareness of preconception nutrition as  
62 a strategy for disease prevention needs to be redressed at both individual and population levels.

63 The focus of this paper is to advance the agenda for preconception nutrition rather than  
64 preconception health as a whole. **There is mounting biological evidence that a woman's, and a  
65 man's, nutritional status before pregnancy is a significant determinant of egg and sperm quality and  
66 determinant of their children's chances of later life disease.<sup>4</sup> Additionally, embryos are exceptionally  
67 sensitive to their nutrition environments from the moment of conception. Thus preconception  
68 nutritional status for both women and men is a necessary focal point for improving preconception  
69 health.** We **therefore** propose that a new, positive message about preconception nutrition needs to  
70 be developed which encompasses not just the health benefits for parents and their children, but also  
71 the well-being of future families and society at large. This message will emphasise that  
72 preconception nutrition is not simply about changing individual behaviours. It is about recognising  
73 that the context (social, environmental, economic, and political) in which potential parents live, and  
74 their motivations, shape the kinds of dietary practices that they engage in. Learning from consumer

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75 marketing techniques suggests that generating a message which elicits an emotional response from  
76 the public towards the benefits of improved preconception nutrition could fuel wider changes in  
77 society that are beneficial to all regardless of age, ethnicity, socioeconomic position or reproductive  
78 health status. This response could form the basis of a social movement for preconception nutrition.  
79 Such a movement would provide a focused set of messages and goals. As is demonstrated below,  
80 adopting a broader focus, for example on preconception health rather than preconception nutrition,  
81 could dilute the focus and likelihood of developing policy strategies that can be easily enacted and  
82 effectively evaluated. Furthermore, key policy issues related to preconception nutrition align nicely  
83 with existing research priorities, advocacy agendas and policy approaches aimed at addressing other  
84 health and societal issues such as obesity, climate emergency and poverty. A nutrition focused  
85 preconception movement would thus be further supported by co-ordinated advocacy coalitions,  
86 made up of actors at local, national and international levels who share common policy ambitions,  
87 such as increasing consumption of plant-based foods and meals, to achieve a range of different  
88 outcomes.

89 This paper explores what might constitute advocacy coalitions and a social movement for  
90 preconception nutrition, and recognises that diverse methods may be needed to direct this  
91 movement in different settings. We propose that the International DOHaD Society is ideally placed  
92 to campaign for preconception nutrition and can take four key actions to drive forward a social  
93 movement.

94

**95 What is currently being done to address poor preconception nutrition?**

96 At the national level, recognition of the need for targeted activities to improve preconception health  
97 and nutrition is increasing. In some countries, however, efforts remain inadequate. In the UK, the  
98 Chief Medical Officer's 2014 annual report (The health of the 51%: women) included a chapter

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99 dedicated to preconception health with a particular focus on reducing maternal obesity and  
100 encouraging healthy dietary behaviours using media campaigns.<sup>5</sup> Public Health England have  
101 produced a number of educational resources for health service providers on preconception care.<sup>6</sup>  
102 The NHS Long Term Plan, published in January 2019, pledges an expansion of perinatal mental  
103 health services for women, spanning preconception through to 24 months after the birth of their  
104 baby.<sup>7</sup> In the US, the Action Plan for the National Initiative on Preconception Health and Health Care  
105 2012-2014 was developed to improve the health of women of childbearing age to consequently  
106 improve pregnancy outcomes.<sup>8</sup> This strategy involves using social marketing campaigns to promote  
107 preconception health to the public and raise women's awareness of health care services they can  
108 use. These examples from high-income countries incorporate preconception nutrition into a broader  
109 package of preconception health, but have a heavy focus on educating women about the need to  
110 improve their dietary behaviours, often neglecting the need for supportive environments and  
111 adequate resources **or the dietary changes required by their male partners**. While the importance of  
112 targeting women in these strategies is understandable, we propose that framing the issue of  
113 preconception nutrition without including the important role of men or broader society is  
114 problematic. Implementing these types of strategies alone can act to individualise the problem,  
115 possibly increasing the burden of responsibility that women feel for the health of their offspring  
116 and/or increase inequalities as those with poorer health have fewer resources at their disposal.<sup>9</sup>  
117 Initiatives in low- and middle-income countries, such as extending girls' education and providing  
118 women with cash and food transfers, highlight ways in which the broader society can promote  
119 preconception nutrition and share the responsibility. **Globally, more needs to be done to highlight**  
120 **the need for improvements in men's nutritional status during the preconception period alongside**  
121 **that of women.**<sup>1 10</sup>

122

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123 Advocacy efforts for preconception nutrition at the transnational level have begun but a more co-  
124 ordinated effort is needed. In 2012, the World Health Organisation (WHO) developed a global  
125 consensus on Preconception Care to Reduce Maternal and Childhood Mortality and Morbidity and  
126 released a strategy for member states to stimulate action.<sup>11</sup> The strategy highlights the  
127 transgenerational importance of preconception health interventions in improving the health and  
128 well-being of adolescents, women and men, and describes evidence-based interventions that  
129 address 13 areas, with nutrition being the first. The importance of addressing malnutrition in all its  
130 forms for improved health is widely recognised. The United Nations General Assembly, for example,  
131 proclaimed a Decade on Nutrition 2016-2025.<sup>12</sup> It is therefore not surprising that preconception  
132 nutrition, with a particular focus on women of childbearing age and adolescent girls, has been  
133 integrated into a number of transnational initiatives including the: Rome Declaration on Nutrition;  
134 Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition<sup>13</sup> and associated  
135 six Global Nutrition Targets 2025; Global Action Plan for the Prevention and Control of  
136 Noncommunicable Diseases 2013-2020;<sup>14</sup> Commission on Ending Childhood Obesity,<sup>15</sup> Global  
137 Strategy for Women's, Children's and Adolescent's Health (2016-2030);<sup>16</sup> and United Nations  
138 Sustainable Development Goals.<sup>17</sup> Intervention recommendations for preconception nutrition across  
139 these initiatives include nutrition counselling, social marketing campaigns, plus iron and folic acid  
140 supplementation focusing on adolescent girls and women. **There is, however, little evidence that  
141 these recommendations or indeed guidelines of any other type are being implemented and their  
142 impacts evaluated in more than a piecemeal fashion. In the UK, for example, there is no national  
143 strategy for delivering improved preconception healthcare.<sup>18</sup> The other issue is that  
144 recommendations for action are almost all individually focused, burdening women with  
145 responsibility for improving their nutritional status, and ignoring the roles of policy, society and  
146 commercial interests in creating an unsupportive food environment.<sup>19</sup>**

147 Explicit advocacy efforts for preconception nutrition from other international nongovernment  
148 organisations (NGOs) are less apparent. UNICEF's Scaling Up Nutrition for mothers and their children



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149 has a primary focus on improving nutrition in the 1000 days from conception to 2 years of age  
150 although it does recognise the need to enhance the nutritional status of women of reproductive age  
151 and adolescent girls.<sup>20</sup> The World Obesity Federation and World Public Health Nutrition Association  
152 do not explicitly address the issue of preconception nutrition in their respective activities of  
153 preventing obesity and building workforce capacity in public health nutrition. Combining action with  
154 these organisations as part of a preconception nutrition social movement offers a potentially  
155 efficient method of achieving complementary health objectives. Partnering with these, and other,  
156 groups who have aligned policy options and are currently gaining traction with governments is  
157 necessary to build critical mass for a social movement.<sup>21</sup>

158 Advocacy coalitions are coordinated advocacy efforts involving an alliance of diverse organisations,  
159 groups and individuals at local, national and international levels that can harness societal support  
160 and political will to spur action on an issue.<sup>22</sup> A core function of the International DOHaD society is to  
161 support the development of evidence and interventions to promote a healthy start to life. This  
162 includes understanding and promoting the improvement of the preconception nutritional status of  
163 women, men and adolescents.<sup>23</sup> The society is committed to engaging, at a high level, with civil  
164 society, government, non-government and other organisations on the healthy start agenda. It is  
165 therefore ideally placed to facilitate the development of advocacy coalitions that can define the  
166 agenda for preconception nutrition.

167

**168 What makes for a successful advocacy coalition?**

169 In order to place preconception nutrition firmly on the agenda of governments and incite policy  
170 action across the globe, strong advocacy coalitions within international, national and local policy  
171 subsystems (i.e. government agencies, research institutions, non-government organisations, the  
172 media, commercial interests and influential individuals) are required. These alliances are likely to be

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173 most influential if they are focused on a specific policy subsystem, defined by a territorial boundary,  
174 or substantive issues related to preconception nutrition.<sup>24</sup> They need to engage as many of the  
175 subsystem participants in the coalition as possible, good examples being those with aligned policy  
176 agendas for healthy food environments from the non-communicable disease and climate change  
177 communities. **These groups also advocate for reducing availability and advertising of ultra-processed**  
178 **foods and greater availability and promotion of plant-based foods.** Strong leadership, adequate  
179 resources, and coordinated infrastructure is required to ensure advocacy coalitions sustain  
180 engagement over the potentially lengthy period of time necessary to achieve high-level, coordinated  
181 policy action.

182

183 Action to improve preconception nutrition in low- and middle-income countries has been observed  
184 through political support for the adoption of strategies to address social, environmental and  
185 economic determinants of malnutrition, coupled with active involvement and advocacy by civil  
186 society and community groups. In Brazil, strong leadership by central government on nutrition and  
187 food security led to significant advances in preconception nutrition for women and virtual  
188 eradication of undernutrition and wasting among children aged under five across the entire country  
189 between 1994 and 2006.<sup>25 26</sup> **Sustained and organised efforts by civil society organisations played a**  
190 **critical role in bringing food insecurity to the top of the national agenda. They framed the issue as a**  
191 **societal, rather than individual, responsibility and established a 'shadow social cabinet' to keep**  
192 **government engaged and accountable.** Policy continuity and complementarity across multiple  
193 sectors, and all levels of government, resulted in increases in the minimum wage and financial  
194 support for poor families, as well as improved access to education, healthcare, water and  
195 sanitation.<sup>27</sup> We note with regret that these significant achievements are now under threat with  
196 President Bolsonaro extinguishing the National Council for Food and Nutrition Security when he took  
197 up office in January 2019. In Maharashtra, India, the government established a state-wide Nutrition

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198 Mission in 2005 to reduce malnutrition, focusing on the first 1000 days and encompassing pre-  
199 pregnancy and adolescent nutrition.<sup>28</sup> A range of whole-of-government approaches were adopted  
200 including better access to clean water, markets, healthcare and reproductive services, nutritional  
201 supplementation programmes and enhanced education for girls. These **evidence-based**  
202 interventions were **identified by scientific and civil society groups, and** managed by **local**  
203 communities to build grass roots demand and facilitate sustainability through normalising practices.  
204 The initiative resulted in halving of stunting rates among children aged under two between 2005 and  
205 2012.<sup>29</sup>

206 Evaluation of the driving factors responsible for these successes indicate that the use and framing of  
207 evidence of child mortality **and morbidity** rates as a government responsibility by a strong advocacy  
208 coalition that attracted civil society and media support prompted a swift and concerted policy  
209 response.<sup>28</sup> **In higher income countries, childhood obesity is one example of morbidity that is likely**  
210 **to provide a focal point for advocacy coalitions on preconception nutrition.** Tackling broader socio-  
211 environmental determinants in policy subsystems where opposing advocacy coalitions operate, like  
212 well-resourced food industry groups working to prevent taxes or marketing bans on unhealthy foods  
213 and beverages, can be challenging. In the midst of strong opposition from the tobacco industry, for  
214 example, initiatives to control tobacco smoking took approximately five decades to garner policy  
215 action and change public opinions on the issue.<sup>30</sup> Yet the examples from India and Brazil suggest that  
216 public concern about a nutrition-related issue can rise quickly and can be harnessed to address the  
217 contextual determinants of poor diet.

218

**219 How do we turn an advocacy coalition into a social movement?**

220 A key factor in the success of the Brazilian example was the organised social movement that placed  
221 nutrition, and societal responsibility to transform the social and environmental conditions that

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222 create malnutrition, at the top of the national agenda.<sup>25</sup> This was achieved through the creation of  
223 collective demand. The 'National Campaign against Hunger' not only raised public awareness of the  
224 need to tackle malnutrition, but also coordinated thousands of food donation committees and  
225 provoked the government to review the issue and create a policy response. This account is  
226 consistent with the Advocacy Coalition Framework from political science, which describes how shifts  
227 in public opinion on an issue can invoke rapid policy action, particularly when coupled with advocacy  
228 coalitions who act with a clear voice for policy change.<sup>24</sup> Successful advocacy coalitions employ a  
229 variety of resources, including scientific information and public opinion, through a range of avenues,  
230 including traditional or social media, to place pressure for action on government and corporate  
231 stakeholders. In Brazil, proponents of the National Campaign against Hunger developed a coalition in  
232 the form of a think tank with political affinities that created a critical mass of activists, produced  
233 research evidence and monitored the government's progress in reducing malnutrition.<sup>25</sup> Hence the  
234 important ingredients for this social movement can be summarised as including scientific evidence,  
235 public awareness and support, political engagement and independent monitoring of national  
236 progress on the issue. The DOHaD society can take a leading or facilitating role on each of these key  
237 actions in the development of a social movement for preconception nutrition.

238

239 The scientific evidence for the health benefits of preconception nutrition exist, but public awareness  
240 of this important life stage remains low.<sup>1</sup> We believe that raising awareness among civil society,  
241 alongside the activities of advocacy coalitions, is required for a social movement to achieve timely  
242 action that positions preconception nutrition into new and existing government and commercial  
243 policies. We propose that an awareness-raising campaign that forms part of a social movement  
244 differs from social marketing campaigns traditionally used by health activists. The premise of  
245 previous health-related social marketing campaigns has been to focus on changing an individual's  
246 behaviour by providing information about a health concern and offering instructions about he/she

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247 can adopt alternative, healthier behaviours. While great resource has been directed towards social  
248 marketing campaigns in an attempt to make them engaging to all, those targeting complex health  
249 behaviours, such as adhering to dietary recommendations, in unsupportive environments have  
250 largely failed to help groups with the greatest need. They can even increase inequalities in the  
251 targeted health behaviours.<sup>31</sup> In addition, such social marketing campaigns on their own are often  
252 ineffective at mobilising large-scale demand for change given their focus on individual  
253 responsibility.<sup>32</sup>

254 Theories of social practice, and the field of consumer marketing offer alternative approaches. Rather  
255 than focusing on behaviour, which assumes that individuals make rational choices about how they  
256 act, social practice theory emphasises that actions are largely based on shared social conventions.  
257 Shove and colleagues' work on social practices highlights the importance of everyday actions as a  
258 central element of social transformation, and that policymakers should understand that these  
259 actions are historically and culturally situated.<sup>33</sup> Social practice theory recognises that individuals  
260 require not only knowledge or competence to engage in a practice, but also the resources or  
261 environments to successfully enact that practice, and a purpose or meaning that motivates the  
262 practice.<sup>33</sup> This theory provides some insight as to why information campaigns on their own are not  
263 enough to ensure changes in health behaviours and improvements to health outcomes, as  
264 knowledge forms only one element of enacting practices. If access to resources and/or a sense of  
265 meaning are missing, then it is unlikely that people will adopt a new practice or adapt an existing  
266 one. **A campaign to improve preconception nutrition has an advantage over other health campaigns  
267 because it has inherent meaning and purpose; the desire to grow healthy, long-lived babies is  
268 intrinsically motivating to those wishing to be parents. Pregnancy is known to engage women and  
269 men in improving their health behaviours.<sup>34 35</sup> There is currently untapped potential to extend the  
270 period of enhanced motivation for healthy dietary behaviours into the time before conception.**  
271 Theories of social practice also emphasises, as others have,<sup>36 37</sup> that social policy cannot impose  
272 change on societies from the 'outside'. Policy makers and politicians are a part of the social systems

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273 and arrangements that they govern, and their actions shape social practices in turn. In the Brazilian  
274 case, for example, the practical action taken by the advocacy coalition to improve access to  
275 nutritional and monetary resources will have dramatically shaped peoples' abilities to enact  
276 practices around diet and eating. DOHaD's role in facilitating advocacy coalitions on preconception  
277 nutrition would be part of a purposeful strategy to align the elements of practices that would serve  
278 to improve preconception nutrition, particularly the distribution of resources in order to promote  
279 supportive food environments across societies.

280

281 To transform social practices associated with preconception nutrition, increasing the availability of  
282 suitable resources needs to be coupled with an effectively communicated message that individuals  
283 and communities can connect with. Consumer marketing research shows that brands must develop  
284 an emotional and symbolic attachment with consumers if they are to succeed in the competitive  
285 marketplace.<sup>38</sup> Products are often purchased, or avoided, not for their functional qualities but for  
286 the symbols and feelings that the marketing materials arouse. To date health-related social  
287 marketing campaigns, such as the '5-a-day' campaign which aims to increase fruit and vegetable  
288 consumption, have not attempted to stimulate an emotional connection to the '5-a-day' brand. The  
289 standard technique has been to inform people of the health benefits of adopting the target health  
290 behaviour (i.e. eating more fruit and vegetables), albeit in fun and appealing ways. A campaign that  
291 triggers deep feelings and promotes societal attachment to a preconception nutrition 'brand',  
292 however, may have broad appeal and more success across diverse socioeconomic groups than  
293 traditional health campaigns. Such a campaign needs to be positive and aspirational, focusing on  
294 happy babies and contented families in order to trigger the emotional fulfilment that 'family' offers  
295 to all members of society.

296

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297 To successfully create a social movement for preconception nutrition, the awareness campaign  
298 needs to move beyond motivating individual behaviour change. One component could act to  
299 stimulate societal demand for governments and commercial companies to create an environment  
300 that delivers the human right of adolescents, and men and women of childbearing age, across the  
301 socioeconomic spectrum, to eat a healthy diet.<sup>39</sup> The 'Stand Up to Cancer' charitable programme is  
302 an example of a novel health campaign that calls on individuals to unite in overcoming a common  
303 threat to health. The power of the campaign lies in its ability to make people feel universally  
304 connected through the experience and injustice of cancer. It invokes a sense of desire to be part of  
305 the movement to fight back and appeals to individuals to be part of a collective action. While the  
306 specific messaging of such awareness campaigns will need to differ across contexts and cultures to  
307 be effective, the role of DOHaD societies and members can be consistent, by instigating, advising  
308 and supporting the campaigns.

309

**310 What is the future for preconception partnerships?**

311 We propose four key actions that leaders, members and supporters of the International DOHaD  
312 society can take to support a social movement for improved preconception nutrition. Firstly, to lead  
313 the development of advocacy coalitions at the national and local level. Secondly, to hold  
314 government and commercial companies to account by monitoring and reporting on their progress,  
315 or lack of, on key indicators and determinants of preconception nutrition and health. Thirdly, to  
316 identify partners who can lead a preconception nutrition awareness campaign, and advise on its  
317 content to stir emotion and create demand from civil society. Finally, to continue to build the  
318 scientific evidence-base for the crucial role of preconception nutrition in determining health status,  
319 and for effective strategies to optimise preconception nutrition.

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320 No one action alone is likely to invoke the necessary change for a social movement. All four actions  
321 will need to be implemented in a coordinated and timely manner for maximum benefit. Regional,  
322 national and local advocacy coalitions will ensure that differences in culture, resources, public health  
323 nutrition priorities and healthcare provision are accounted for. Long-term commitment is required  
324 by these coalitions to monitor government and commercial progress overtime. Including scientists,  
325 government departments, non-government and professional organisations, health and social care  
326 professionals, political activists and families as advocacy coalition members will expand the  
327 resources, capabilities and reach of the coalition to better facilitate effective monitoring. Linking  
328 with partners who campaign for similar policy options could prove effective at instigating action,  
329 particularly when external events provide opportunities to shock change in government and  
330 commercial activity. For example, a recent research funding call from UK Research and Innovation  
331 aims to unite different disciplines and sectors to collectively drive transformations to the UK food  
332 system for the benefit of both human and climate health. Departmental, non-government or other  
333 partners may be well placed to deliver the preconception nutrition awareness campaign. The  
334 advocacy coalition will be able to provide the scientific rationale for the campaign, and guide the key  
335 campaign messages. The messages will be framed to tap into the emotional and aspirational appeal  
336 of healthy parents and babies and to engender a collective demand for physical and social  
337 environments that prioritise healthy eating at this important lifecourse phase. **This message**  
338 **therefore stresses the need for greater societal responsibility to provide settings supportive of good**  
339 **preconception nutrition that does not place the burden entirely on women.** Such regional activities  
340 will be supported by ongoing international scientific activity investigating the mechanisms  
341 underlying preconception nutrition and longterm health, and designing and evaluating effective  
342 interventions.

343 **Monitoring key indicators of progress made by governments and commercial companies towards**  
344 **improvements in preconception nutrition is one function of the Preconception Partnership, an**  
345 **advocacy coalition established in the UK, in 2018.** The alliance, whose membership spans health,



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346 education, science, policy and charitable sectors, is developing a new national narrative about  
347 improving preconception health and nutrition. In June 2019, the coalition published a paper setting  
348 out a monitoring framework that will be regularly updated to provide evidence to hold government  
349 and other agencies to account for improving the state of preconception health in England.<sup>18</sup> The  
350 group is working to re-orientate health services, and introduce a preconception agenda into the  
351 education sector,<sup>40</sup> as well as pursuing alliances with individuals and organisations to place pressure  
352 on governments and corporate actors to create a healthy food system. Alongside these activities,  
353 the Preconception Partnership, with key partners, is in the early stages of influencing policy makers  
354 and developing a public awareness campaign, alongside continuing to draw from, and contribute to,  
355 the international scientific agenda on preconception nutrition. **Alliances like the UK Preconception  
356 Partnership will need to be formed across the globe to achieve significant impact on the issue of  
357 preconception nutrition. Scientific evidence gaps also need to be addressed, in particular knowledge  
358 of successful interventions to improve dietary habits before conception. Evidence from well-  
359 designed trials that take account of the social and environmental determinants of poor diet are  
360 needed to avoid exacerbating health and gender inequalities.<sup>3</sup>**

361 This is a call to you, the DOHaD leaders, members and supporters, who are upholders of the  
362 scientific imperative, to actively seek out other interested parties to build advocacy coalitions, or  
363 Preconception Partnerships, across the globe. These partnerships will have a variety of skills and  
364 resources and the common vision of healthy nutritional status being the global norm for young  
365 women and men. The UK Preconception Partnership provides an example of how activity can be co-  
366 ordinated at a national level. The International DOHaD Society, has shown that it can engage a wide  
367 variety of high-level stakeholders at international, national and local levels. By harnessing the  
368 capacity of DOHaD's nine regional societies and 67 member countries, we could realise the vision of  
369 a global social movement to promote preconception nutrition.

370

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**391 Ethical standards**

392 The work reported on in this article was conducted in accordance with universal ethical principles.

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486

*Building advocacy for preconception nutrition***1 Preconception Nutrition: Building Advocacy and Social Movements to Stimulate Action**

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30

31

32 **Abstract**

33 Action to improve preconception nutrition is a collective, societal responsibility. We believe that the  
34 DOHaD society is ideally placed to facilitate the development of a global agenda for preconception  
35 nutrition which recognises the societal importance of nutrition for young women and men, and  
36 supports them in optimising their nutritional status for the benefit of the next generation. In this  
37 paper, we outline four key actions that can be taken by the members of DOHaD's international  
38 society located across 67 countries, and nine regional societies, to demonstrate this leadership role.  
39 The recommended actions to place preconception nutrition at the top of national and regional  
40 agendas include i) continuing to build the scientific evidence, ii) monitoring of progress made by  
41 governments and commercial companies, iii) developing advocacy coalitions that unite individuals  
42 and organisations around common policy options, and iv) working with partners to develop an  
43 emotive and empowering preconception nutrition awareness campaign. Collectively these actions  
44 hold the potential to develop into a preconception nutrition social movement to invoke high-level  
45 government support and across sector policy action, while raising public demand for action and  
46 engaging corporate actors.

47

48 **Key words** preconception nutrition, advocacy, social movement, policy options, nutritional status

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49 Despite increased academic awareness, including publication of a Lancet Series that stressed the  
50 role of nutritional status before pregnancy in determining the health of the next generation,<sup>1-3</sup>  
51 awareness of the importance of the preconception period and its lifelong influence on health  
52 outcomes remains low amongst health professionals and the wider public.<sup>1</sup> A new focus on the  
53 preconception period has arisen in part because the majority of interventions aimed at optimising  
54 maternal nutritional status in pregnancy have been disappointing in the magnitude of their effect.  
55 Additionally, there is mounting evidence from human and animal studies highlighting how the  
56 physiological status of parents prior to conception can shape the health outcomes of the next  
57 generation. Importantly, we now appreciate that poor reproductive health in both men and women  
58 is linked to sub-optimal body composition, for example excessive body fat.<sup>2</sup> Increasing evidence for  
59 the benefits of improving preconception health, plus the knowledge that pregnancy planning is more  
60 common than previously thought, suggest that the preconception period has underexploited  
61 potential as a point of intervention.<sup>1</sup> The low public health awareness of preconception nutrition as  
62 a strategy for disease prevention needs to be redressed at both individual and population levels.

63 The focus of this paper is to advance the agenda for preconception nutrition rather than  
64 preconception health as a whole. There is mounting biological evidence that a woman's, and a  
65 man's, nutritional status before pregnancy is a significant determinant of egg and sperm quality and  
66 determinant of their children's chances of later life disease.<sup>4</sup> Additionally, embryos are exceptionally  
67 sensitive to their nutrition environments from the moment of conception. Thus preconception  
68 nutritional status for both women and men is a necessary focal point for improving preconception  
69 health. We therefore propose that a new, positive message about preconception nutrition needs to  
70 be developed which encompasses not just the health benefits for parents and their children, but also  
71 the well-being of future families and society at large. This message will emphasise that  
72 preconception nutrition is not simply about changing individual behaviours. It is about recognising  
73 that the context (social, environmental, economic, and political) in which potential parents live, and  
74 their motivations, shape the kinds of dietary practices that they engage in. Learning from consumer

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75 marketing techniques suggests that generating a message which elicits an emotional response from  
76 the public towards the benefits of improved preconception nutrition could fuel wider changes in  
77 society that are beneficial to all regardless of age, ethnicity, socioeconomic position or reproductive  
78 health status. This response could form the basis of a social movement for preconception nutrition.  
79 Such a movement would provide a focused set of messages and goals. As is demonstrated below,  
80 adopting a broader focus, for example on preconception health rather than preconception nutrition,  
81 could dilute the focus and likelihood of developing policy strategies that can be easily enacted and  
82 effectively evaluated. Furthermore, key policy issues related to preconception nutrition align nicely  
83 with existing research priorities, advocacy agendas and policy approaches aimed at addressing other  
84 health and societal issues such as obesity, climate emergency and poverty. A nutrition focused  
85 preconception movement would thus be further supported by co-ordinated advocacy coalitions,  
86 made up of actors at local, national and international levels who share common policy ambitions,  
87 such as increasing consumption of plant-based foods and meals, to achieve a range of different  
88 outcomes.

89 This paper explores what might constitute advocacy coalitions and a social movement for  
90 preconception nutrition, and recognises that diverse methods may be needed to direct this  
91 movement in different settings. We propose that the International DOHaD Society is ideally placed  
92 to campaign for preconception nutrition and can take four key actions to drive forward a social  
93 movement.

94

**95 What is currently being done to address poor preconception nutrition?**

96 At the national level, recognition of the need for targeted activities to improve preconception health  
97 and nutrition is increasing. In some countries, however, efforts remain inadequate. In the UK, the  
98 Chief Medical Officer's 2014 annual report (The health of the 51%: women) included a chapter



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99 dedicated to preconception health with a particular focus on reducing maternal obesity and  
100 encouraging healthy dietary behaviours using media campaigns.<sup>5</sup> Public Health England have  
101 produced a number of educational resources for health service providers on preconception care.<sup>6</sup>  
102 The NHS Long Term Plan, published in January 2019, pledges an expansion of perinatal mental  
103 health services for women, spanning preconception through to 24 months after the birth of their  
104 baby.<sup>7</sup> In the US, the Action Plan for the National Initiative on Preconception Health and Health Care  
105 2012-2014 was developed to improve the health of women of childbearing age to consequently  
106 improve pregnancy outcomes.<sup>8</sup> This strategy involves using social marketing campaigns to promote  
107 preconception health to the public and raise women's awareness of health care services they can  
108 use. These examples from high-income countries incorporate preconception nutrition into a broader  
109 package of preconception health, but have a heavy focus on educating women about the need to  
110 improve their dietary behaviours, often neglecting the need for supportive environments and  
111 adequate resources or the dietary changes required by their male partners. While the importance of  
112 targeting women in these strategies is understandable, we propose that framing the issue of  
113 preconception nutrition without including the important role of men or broader society is  
114 problematic. Implementing these types of strategies alone can act to individualise the problem,  
115 possibly increasing the burden of responsibility that women feel for the health of their offspring  
116 and/or increase inequalities as those with poorer health have fewer resources at their disposal.<sup>9</sup>  
117 Initiatives in low- and middle-income countries, such as extending girls' education and providing  
118 women with cash and food transfers, highlight ways in which the broader society can promote  
119 preconception nutrition and share the responsibility. Globally, more needs to be done to highlight  
120 the need for improvements in men's nutritional status during the preconception period alongside  
121 that of women.<sup>1 10</sup>

122

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123 Advocacy efforts for preconception nutrition at the transnational level have begun but a more co-  
124 ordinated effort is needed. In 2012, the World Health Organisation (WHO) developed a global  
125 consensus on Preconception Care to Reduce Maternal and Childhood Mortality and Morbidity and  
126 released a strategy for member states to stimulate action.<sup>11</sup> The strategy highlights the  
127 transgenerational importance of preconception health interventions in improving the health and  
128 well-being of adolescents, women and men, and describes evidence-based interventions that  
129 address 13 areas, with nutrition being the first. The importance of addressing malnutrition in all its  
130 forms for improved health is widely recognised. The United Nations General Assembly, for example,  
131 proclaimed a Decade on Nutrition 2016-2025.<sup>12</sup> It is therefore not surprising that preconception  
132 nutrition, with a particular focus on women of childbearing age and adolescent girls, has been  
133 integrated into a number of transnational initiatives including the: Rome Declaration on Nutrition;  
134 Comprehensive Implementation Plan on Maternal, Infant and Young Child Nutrition<sup>13</sup> and associated  
135 six Global Nutrition Targets 2025; Global Action Plan for the Prevention and Control of  
136 Noncommunicable Diseases 2013-2020;<sup>14</sup> Commission on Ending Childhood Obesity,<sup>15</sup> Global  
137 Strategy for Women's, Children's and Adolescent's Health (2016-2030);<sup>16</sup> and United Nations  
138 Sustainable Development Goals.<sup>17</sup> Intervention recommendations for preconception nutrition across  
139 these initiatives include nutrition counselling, social marketing campaigns, plus iron and folic acid  
140 supplementation focusing on adolescent girls and women. There is, however, little evidence that  
141 these recommendations or indeed guidelines of any other type are being implemented and their  
142 impacts evaluated in more than a piecemeal fashion. In the UK, for example, there is no national  
143 strategy for delivering improved preconception healthcare.<sup>18</sup> The other issue is that  
144 recommendations for action are almost all individually focused, burdening women with  
145 responsibility for improving their nutritional status, and ignoring the roles of policy, society and  
146 commercial interests in creating an unsupportive food environment.<sup>19</sup>

147 Explicit advocacy efforts for preconception nutrition from other international nongovernment  
148 organisations (NGOs) are less apparent. UNICEF's Scaling Up Nutrition for mothers and their children

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149 has a primary focus on improving nutrition in the 1000 days from conception to 2 years of age  
150 although it does recognise the need to enhance the nutritional status of women of reproductive age  
151 and adolescent girls.<sup>20</sup> The World Obesity Federation and World Public Health Nutrition Association  
152 do not explicitly address the issue of preconception nutrition in their respective activities of  
153 preventing obesity and building workforce capacity in public health nutrition. Combining action with  
154 these organisations as part of a preconception nutrition social movement offers a potentially  
155 efficient method of achieving complementary health objectives. Partnering with these, and other,  
156 groups who have aligned policy options and are currently gaining traction with governments is  
157 necessary to build critical mass for a social movement.<sup>21</sup>

158 Advocacy coalitions are coordinated advocacy efforts involving an alliance of diverse organisations,  
159 groups and individuals at local, national and international levels that can harness societal support  
160 and political will to spur action on an issue.<sup>22</sup> A core function of the International DOHaD society is to  
161 support the development of evidence and interventions to promote a healthy start to life. This  
162 includes understanding and promoting the improvement of the preconception nutritional status of  
163 women, men and adolescents.<sup>23</sup> The society is committed to engaging, at a high level, with civil  
164 society, government, non-government and other organisations on the healthy start agenda. It is  
165 therefore ideally placed to facilitate the development of advocacy coalitions that can define the  
166 agenda for preconception nutrition.

167

**168 What makes for a successful advocacy coalition?**

169 In order to place preconception nutrition firmly on the agenda of governments and incite policy  
170 action across the globe, strong advocacy coalitions within international, national and local policy  
171 subsystems (i.e. government agencies, research institutions, non-government organisations, the  
172 media, commercial interests and influential individuals) are required. These alliances are likely to be

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173 most influential if they are focused on a specific policy subsystem, defined by a territorial boundary,  
174 or substantive issues related to preconception nutrition.<sup>24</sup> They need to engage as many of the  
175 subsystem participants in the coalition as possible, good examples being those with aligned policy  
176 agendas for healthy food environments from the non-communicable disease and climate change  
177 communities. These groups also advocate for reducing availability and advertising of ultra-processed  
178 foods and greater availability and promotion of plant-based foods. Strong leadership, adequate  
179 resources, and coordinated infrastructure is required to ensure advocacy coalitions sustain  
180 engagement over the potentially lengthy period of time necessary to achieve high-level, coordinated  
181 policy action.

182

183 Action to improve preconception nutrition in low- and middle-income countries has been observed  
184 through political support for the adoption of strategies to address social, environmental and  
185 economic determinants of malnutrition, coupled with active involvement and advocacy by civil  
186 society and community groups. In Brazil, strong leadership by central government on nutrition and  
187 food security led to significant advances in preconception nutrition for women and virtual  
188 eradication of undernutrition and wasting among children aged under five across the entire country  
189 between 1994 and 2006.<sup>25 26</sup> Sustained and organised efforts by civil society organisations played a  
190 critical role in bringing food insecurity to the top of the national agenda. They framed the issue as a  
191 societal, rather than individual, responsibility and established a 'shadow social cabinet' to keep  
192 government engaged and accountable. Policy continuity and complementarity across multiple  
193 sectors, and all levels of government, resulted in increases in the minimum wage and financial  
194 support for poor families, as well as improved access to education, healthcare, water and  
195 sanitation.<sup>27</sup> We note with regret that these significant achievements are now under threat with  
196 President Bolsonaro extinguishing the National Council for Food and Nutrition Security when he took  
197 up office in January 2019. In Maharashtra, India, the government established a state-wide Nutrition

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198 Mission in 2005 to reduce malnutrition, focusing on the first 1000 days and encompassing pre-  
199 pregnancy and adolescent nutrition.<sup>28</sup> A range of whole-of-government approaches were adopted  
200 including better access to clean water, markets, healthcare and reproductive services, nutritional  
201 supplementation programmes and enhanced education for girls. These evidence-based  
202 interventions were identified by scientific and civil society groups, and managed by local  
203 communities to build grass roots demand and facilitate sustainability through normalising practices.  
204 The initiative resulted in halving of stunting rates among children aged under two between 2005 and  
205 2012.<sup>29</sup>

206 Evaluation of the driving factors responsible for these successes indicate that the use and framing of  
207 evidence of child mortality and morbidity rates as a government responsibility by a strong advocacy  
208 coalition that attracted civil society and media support prompted a swift and concerted policy  
209 response.<sup>28</sup> In higher income countries, childhood obesity is one example of morbidity that is likely  
210 to provide a focal point for advocacy coalitions on preconception nutrition. Tackling broader socio-  
211 environmental determinants in policy subsystems where opposing advocacy coalitions operate, like  
212 well-resourced food industry groups working to prevent taxes or marketing bans on unhealthy foods  
213 and beverages, can be challenging. In the midst of strong opposition from the tobacco industry, for  
214 example, initiatives to control tobacco smoking took approximately five decades to garner policy  
215 action and change public opinions on the issue.<sup>30</sup> Yet the examples from India and Brazil suggest that  
216 public concern about a nutrition-related issue can rise quickly and can be harnessed to address the  
217 contextual determinants of poor diet.

218

**219 How do we turn an advocacy coalition into a social movement?**

220 A key factor in the success of the Brazilian example was the organised social movement that placed  
221 nutrition, and societal responsibility to transform the social and environmental conditions that

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222 create malnutrition, at the top of the national agenda.<sup>25</sup> This was achieved through the creation of  
223 collective demand. The 'National Campaign against Hunger' not only raised public awareness of the  
224 need to tackle malnutrition, but also coordinated thousands of food donation committees and  
225 provoked the government to review the issue and create a policy response. This account is  
226 consistent with the Advocacy Coalition Framework from political science, which describes how shifts  
227 in public opinion on an issue can invoke rapid policy action, particularly when coupled with advocacy  
228 coalitions who act with a clear voice for policy change.<sup>24</sup> Successful advocacy coalitions employ a  
229 variety of resources, including scientific information and public opinion, through a range of avenues,  
230 including traditional or social media, to place pressure for action on government and corporate  
231 stakeholders. In Brazil, proponents of the National Campaign against Hunger developed a coalition in  
232 the form of a think tank with political affinities that created a critical mass of activists, produced  
233 research evidence and monitored the government's progress in reducing malnutrition.<sup>25</sup> Hence the  
234 important ingredients for this social movement can be summarised as including scientific evidence,  
235 public awareness and support, political engagement and independent monitoring of national  
236 progress on the issue. The DOHaD society can take a leading or facilitating role on each of these key  
237 actions in the development of a social movement for preconception nutrition.

238

239 The scientific evidence for the health benefits of preconception nutrition exist, but public awareness  
240 of this important life stage remains low.<sup>1</sup> We believe that raising awareness among civil society,  
241 alongside the activities of advocacy coalitions, is required for a social movement to achieve timely  
242 action that positions preconception nutrition into new and existing government and commercial  
243 policies. We propose that an awareness-raising campaign that forms part of a social movement  
244 differs from social marketing campaigns traditionally used by health activists. The premise of  
245 previous health-related social marketing campaigns has been to focus on changing an individual's  
246 behaviour by providing information about a health concern and offering instructions about he/she

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247 can adopt alternative, healthier behaviours. While great resource has been directed towards social  
248 marketing campaigns in an attempt to make them engaging to all, those targeting complex health  
249 behaviours, such as adhering to dietary recommendations, in unsupportive environments have  
250 largely failed to help groups with the greatest need. They can even increase inequalities in the  
251 targeted health behaviours.<sup>31</sup> In addition, such social marketing campaigns on their own are often  
252 ineffective at mobilising large-scale demand for change given their focus on individual  
253 responsibility.<sup>32</sup>

254 Theories of social practice, and the field of consumer marketing offer alternative approaches. Rather  
255 than focusing on behaviour, which assumes that individuals make rational choices about how they  
256 act, social practice theory emphasises that actions are largely based on shared social conventions.  
257 Shove and colleagues' work on social practices highlights the importance of everyday actions as a  
258 central element of social transformation, and that policymakers should understand that these  
259 actions are historically and culturally situated.<sup>33</sup> Social practice theory recognises that individuals  
260 require not only knowledge or competence to engage in a practice, but also the resources or  
261 environments to successfully enact that practice, and a purpose or meaning that motivates the  
262 practice.<sup>33</sup> This theory provides some insight as to why information campaigns on their own are not  
263 enough to ensure changes in health behaviours and improvements to health outcomes, as  
264 knowledge forms only one element of enacting practices. If access to resources and/or a sense of  
265 meaning are missing, then it is unlikely that people will adopt a new practice or adapt an existing  
266 one. A campaign to improve preconception nutrition has an advantage over other health campaigns  
267 because it has inherent meaning and purpose; the desire to grow healthy, long-lived babies is  
268 intrinsically motivating to those wishing to be parents. Pregnancy is known to engage women and  
269 men in improving their health behaviours.<sup>34 35</sup> There is currently untapped potential to extend the  
270 period of enhanced motivation for healthy dietary behaviours into the time before conception.

271 Theories of social practice also emphasises, as others have,<sup>36 37</sup> that social policy cannot impose  
272 change on societies from the 'outside'. Policy makers and politicians are a part of the social systems

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273 and arrangements that they govern, and their actions shape social practices in turn. In the Brazilian  
274 case, for example, the practical action taken by the advocacy coalition to improve access to  
275 nutritional and monetary resources will have dramatically shaped peoples' abilities to enact  
276 practices around diet and eating. DOHaD's role in facilitating advocacy coalitions on preconception  
277 nutrition would be part of a purposeful strategy to align the elements of practices that would serve  
278 to improve preconception nutrition, particularly the distribution of resources in order to promote  
279 supportive food environments across societies.

280

281 To transform social practices associated with preconception nutrition, increasing the availability of  
282 suitable resources needs to be coupled with an effectively communicated message that individuals  
283 and communities can connect with. Consumer marketing research shows that brands must develop  
284 an emotional and symbolic attachment with consumers if they are to succeed in the competitive  
285 marketplace.<sup>38</sup> Products are often purchased, or avoided, not for their functional qualities but for  
286 the symbols and feelings that the marketing materials arouse. To date health-related social  
287 marketing campaigns, such as the '5-a-day' campaign which aims to increase fruit and vegetable  
288 consumption, have not attempted to stimulate an emotional connection to the '5-a-day' brand. The  
289 standard technique has been to inform people of the health benefits of adopting the target health  
290 behaviour (i.e. eating more fruit and vegetables), albeit in fun and appealing ways. A campaign that  
291 triggers deep feelings and promotes societal attachment to a preconception nutrition 'brand',  
292 however, may have broad appeal and more success across diverse socioeconomic groups than  
293 traditional health campaigns. Such a campaign needs to be positive and aspirational, focusing on  
294 happy babies and contented families in order to trigger the emotional fulfilment that 'family' offers  
295 to all members of society.

296



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297 To successfully create a social movement for preconception nutrition, the awareness campaign  
298 needs to move beyond motivating individual behaviour change. One component could act to  
299 stimulate societal demand for governments and commercial companies to create an environment  
300 that delivers the human right of adolescents, and men and women of childbearing age, across the  
301 socioeconomic spectrum, to eat a healthy diet.<sup>39</sup> The 'Stand Up to Cancer' charitable programme is  
302 an example of a novel health campaign that calls on individuals to unite in overcoming a common  
303 threat to health. The power of the campaign lies in its ability to make people feel universally  
304 connected through the experience and injustice of cancer. It invokes a sense of desire to be part of  
305 the movement to fight back and appeals to individuals to be part of a collective action. While the  
306 specific messaging of such awareness campaigns will need to differ across contexts and cultures to  
307 be effective, the role of DOHaD societies and members can be consistent, by instigating, advising  
308 and supporting the campaigns.

309

**310 What is the future for preconception partnerships?**

311 We propose four key actions that leaders, members and supporters of the International DOHaD  
312 society can take to support a social movement for improved preconception nutrition. Firstly, to lead  
313 the development of advocacy coalitions at the national and local level. Secondly, to hold  
314 government and commercial companies to account by monitoring and reporting on their progress,  
315 or lack of, on key indicators and determinants of preconception nutrition and health. Thirdly, to  
316 identify partners who can lead a preconception nutrition awareness campaign, and advise on its  
317 content to stir emotion and create demand from civil society. Finally, to continue to build the  
318 scientific evidence-base for the crucial role of preconception nutrition in determining health status,  
319 and for effective strategies to optimise preconception nutrition.

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320 No one action alone is likely to invoke the necessary change for a social movement. All four actions  
321 will need to be implemented in a coordinated and timely manner for maximum benefit. Regional,  
322 national and local advocacy coalitions will ensure that differences in culture, resources, public health  
323 nutrition priorities and healthcare provision are accounted for. Long-term commitment is required  
324 by these coalitions to monitor government and commercial progress overtime. Including scientists,  
325 government departments, non-government and professional organisations, health and social care  
326 professionals, political activists and families as advocacy coalition members will expand the  
327 resources, capabilities and reach of the coalition to better facilitate effective monitoring. Linking  
328 with partners who campaign for similar policy options could prove effective at instigating action,  
329 particularly when external events provide opportunities to shock change in government and  
330 commercial activity. For example, a recent research funding call from UK Research and Innovation  
331 aims to unite different disciplines and sectors to collectively drive transformations to the UK food  
332 system for the benefit of both human and climate health. Departmental, non-government or other  
333 partners may be well placed to deliver the preconception nutrition awareness campaign. The  
334 advocacy coalition will be able to provide the scientific rationale for the campaign, and guide the key  
335 campaign messages. The messages will be framed to tap into the emotional and aspirational appeal  
336 of healthy parents and babies and to engender a collective demand for physical and social  
337 environments that prioritise healthy eating at this important lifecourse phase. This message  
338 therefore stresses the need for greater societal responsibility to provide settings supportive of good  
339 preconception nutrition that does not place the burden entirely on women. Such regional activities  
340 will be supported by ongoing international scientific activity investigating the mechanisms  
341 underlying preconception nutrition and longterm health, and designing and evaluating effective  
342 interventions.

343 Monitoring key indicators of progress made by governments and commercial companies towards  
344 improvements in preconception nutrition is one function of the Preconception Partnership, an  
345 advocacy coalition established in the UK, in 2018. The alliance, whose membership spans health,

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346 education, science, policy and charitable sectors, is developing a new national narrative about  
347 improving preconception health and nutrition. In June 2019, the coalition published a paper setting  
348 out a monitoring framework that will be regularly updated to provide evidence to hold government  
349 and other agencies to account for improving the state of preconception health in England.<sup>18</sup> The  
350 group is working to re-orientate health services, and introduce a preconception agenda into the  
351 education sector,<sup>40</sup> as well as pursuing alliances with individuals and organisations to place pressure  
352 on governments and corporate actors to create a healthy food system. Alongside these activities,  
353 the Preconception Partnership, with key partners, is in the early stages of influencing policy makers  
354 and developing a public awareness campaign, alongside continuing to draw from, and contribute to,  
355 the international scientific agenda on preconception nutrition. Alliances like the UK Preconception  
356 Partnership will need to be formed across the globe to achieve significant impact on the issue of  
357 preconception nutrition. Scientific evidence gaps also need to be addressed, in particular knowledge  
358 of successful interventions to improve dietary habits before conception. Evidence from well-  
359 designed trials that take account of the social and environmental determinants of poor diet are  
360 needed to avoid exacerbating health and gender inequalities.<sup>3</sup>

361 This is a call to you, the DOHaD leaders, members and supporters, who are upholders of the  
362 scientific imperative, to actively seek out other interested parties to build advocacy coalitions, or  
363 Preconception Partnerships, across the globe. These partnerships will have a variety of skills and  
364 resources and the common vision of healthy nutritional status being the global norm for young  
365 women and men. The UK Preconception Partnership provides an example of how activity can be co-  
366 ordinated at a national level. The International DOHaD Society, has shown that it can engage a wide  
367 variety of high-level stakeholders at international, national and local levels. By harnessing the  
368 capacity of DOHaD's nine regional societies and 67 member countries, we could realise the vision of  
369 a global social movement to promote preconception nutrition.

370

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**386 Conflicts of Interest**

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**391 Ethical standards**

392 The work reported on in this article was conducted in accordance with universal ethical principles.

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