

# An evaluation of a public–private partnership to reduce artificial trans fatty acids in England, 2011–16

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**Background:** The Public Health Responsibility Deal (RD) is a public–private partnership in England involving voluntary pledges between government, and business and other public organizations to improve public health. One such voluntary pledge refers to the reduction of trans fatty acids (TFAs) in the food supply in England by either pledging not to use artificial TFAs or pledging artificial TFA removal. This paper evaluates the RD's effectiveness at encouraging signatory organizations to remove artificially produced TFAs from their products. **Methods:** We analysed publically available data submitted by RD signatory organizations. We analysed their plans and progress towards achieving the TFAs pledge, comparing 2015 progress reports against their delivery plans. We also assessed the extent to which TFAs reductions beyond pre-2011 levels could be attributed to the RD. **Results:** Voluntary reformulation via the RD has had limited added value, because the first part of the trans fat pledge simply requires organizations to confirm that they do not use TFAs and the second part, that has the potential to reduce use, has failed to attract the participation of food producers, particularly those producing fast foods and takeaways, where most remaining use of artificial TFAs is located. **Conclusions:** The contribution of the RD TFAs pledges in reducing artificial TFAs from England's food supply beyond pre-2011 levels appears to be negligible. This research has wider implications for the growing international evidence base voluntary food policy, and offers insights for other countries currently undertaking work to remove TFAs from their food supply.

## Introduction

Trans fatty acids (TFAs) are unsaturated fats that occur naturally in small quantities in some meat and dairy products, but are predominantly consumed in an industrially produced form.<sup>1</sup> Artificial TFAs from partially hydrogenated vegetable oils (pHVOs) have been added to processed foods as an inexpensive way to extend food shelf-life and increase palatability.<sup>2</sup> TFAs provide no nutritional role or demonstrable health benefit,<sup>3</sup> and impart detrimental effects on health, particularly cardiovascular health.<sup>4</sup> Many countries are now moving to either remove or reduce artificial TFAs from the food supply. The World Health Organization recommends that national governments virtually eliminate pHVOs from the human food supply and replace artificial TFAs with unsaturated fats as a cost-effective 'best buy' to help reduce NCDs by 25% by 2020.<sup>5</sup>

### Evidence on effectiveness of actions to reduce or remove TFAs

The literature on the effectiveness of voluntary, legislative and regulatory policies at local and national level to reduce dietary TFAs concludes that regulatory approaches are more effective than voluntary approaches, though the latter can also contribute to minimizing TFAs in the food supply. A 2013 systematic review by Downs *et al.*<sup>6</sup> included 26 studies published after 1990 (when evidence of the health effects of TFAs consumption first appeared) that were: empirical and conducted in a 'real-world' setting; evaluating a trans fat policy e.g. on labelling, voluntary limits or bans; and studying a policy's effect on trans fat levels in, e.g. food, diet, blood or breast milk. The authors concluded that all options had some merit, though national and local bans were most effective at eliminating TFAs from food products. Conversely, mandatory

trans fat labelling and the use of voluntary limits were reported to have variable results. A 2015 systematic review by Hendry *et al.*<sup>1</sup> independently updated the review by Downs *et al.*<sup>6</sup> and aimed to narrow their review to the effectiveness of regulatory action on levels of artificial TFAs in foods, and/or on individuals' purchasing or consumption behaviors, or manufacturers' reformulation of products, substitution of ingredients, promotional activities, or price changes. The authors reviewed seven studies of the effectiveness of limits on artificial TFAs, which refers to either setting maximum upper limits (usually <2%) on the finished product or banning the use of artificial TFAs during food production. All seven studies reported considerable reductions in TFAs content. The authors also reviewed seven studies on mandatory labelling, six of which found that mandating trans fat labelling decreased the content of artificial TFAs in a wide variety of foods. Like Downs *et al.*, the authors concluded that regulatory approaches to set maximal limits or require labelling were both effective in reducing TFAs in the food supply.

### Response to TFAs in the UK food supply

In the UK, as early as the mid 1990s there were recommendations by the Department of Health to reduce TFAs consumption.<sup>7</sup> Voluntary reformulation by the food industry facilitated by the UK Food Standards Agency reduced TFA in vegetable oils used in UK food production to a minimum (<1%).<sup>8</sup> One study found that by 2007 the concentrations of TFAs in a sample of processed foods had fallen to below 0.2/100 g (the processed foods included pizza, garlic bread, breakfast cereals, quiche, fat spreads, a range of fish and meat products, chips, savoury snacks, confectionery and ice cream).<sup>9</sup> Thus TFA reduction efforts had already reached below the 2% of food energy targets<sup>10</sup> well before the start of the RD. A remaining concern, however, is that even though significant reductions have

**Table 1** RD pledges on TFAs

Trans Fat pledge	Interventions described in the section 'How you can deliver this pledge' <sup>17</sup>
F3(a). Non use of Artificial Trans Fat F3(b). Artificial Trans Fat Removal	No interventions, just confirmation of delivery of this pledge i.e. that artificial TFAs are not used. Businesses who have not already done so are asked to: <ul style="list-style-type: none"> <li>• remove pHVO from foods.</li> <li>• ensure that the fats and oils used in the preparation of foods, e.g. frying oils, are &lt;2% total trans.</li> <li>• procure products and adapt their practices to remove artificial TFAs.</li> </ul>

Source: Department of Health 2016.<sup>17</sup>

already been achieved, a substantial minority of the population could have much higher intakes than the population average.<sup>11</sup> A recent study finds that one important source of TFAs in the UK is takeaways, with some kebab meals within the study sample having up to 5.2 g/meal.<sup>12</sup> Thus, because TFAs are present in a number of often unlabelled fast foods, and it is still possible to consume up to 20 g of TFAs in one day,<sup>13</sup> far exceeding the recommended levels.<sup>11</sup> This echoes the concerns of the 2010 National Institute for Health and Clinical Excellence report on cardiovascular disease risk among UK citizens,<sup>14</sup> which stated that trans-fats remained a significant health hazard especially for individuals living on low incomes and/or who regularly consume fried, baked and other processed fast foods.

The current response (since 2011) to TFA removal in the UK continues to be voluntary reformulation, under the auspices of the Public Health Responsibility Deal (RD), a public-private partnership initiated in March 2011 and involving voluntary agreements across four 'networks' (food, alcohol, health at work and physical activity).<sup>15</sup> The RD aims to bring together those with an interest from government, academia, the corporate sector, public bodies and voluntary organizations who can commit to a range of pledges which aim to improve public health. At time of writing (June 2016), 776 organizations had committed to one or more RD pledges across the four networks.<sup>15</sup> After committing to a pledge, signatory organizations are asked to provide plans for fulfilling the pledge (the 'delivery plan'). Guidance is provided to organizations<sup>16</sup> outlining a range of interventions which they can implement. Organizations are also asked to report their progress in the spring of each year.

The RD pledge on reducing the level of TFAs in the food supply in England has two parts: (i) pledging not to use artificial TFAs (by acknowledging the statement 'We do not use ingredients that contain artificial TFAs'); and (ii) pledging artificial TFA removal (by responding to the statement 'We are working to remove artificial TFAs from our products within the next 12 months.').<sup>15</sup> Participating organizations are asked to do this voluntarily by either removing pHVO from foods; ensuring that the fats and oils used in the preparation of foods, e.g. frying oils, are <2% total TFAs; and/or procuring products and adapting their practices to remove artificial TFAs. The TFA pledge delivery plans and progress reports are available on the RD website.<sup>15</sup>

## Methods

### *Analysis of signatory organizations' pledges*

We analysed publically available data on RD signatory organizations' plans and progress towards achieving the TFAs pledge. Each pledge document outlines a range of possible interventions (reported in table 1) that a partner can choose to implement to deliver the pledge. We assessed progress reports provided for the TFAs pledges in 2015 against what had been originally set by organizations in their delivery plans.

### *The use of 'additionality' to establish the counterfactual*

We assessed the extent to which organizations' activities could be attributed to their participation in the RD. Though attributing causality to a national public policy such as the RD can be difficult as there is no obvious comparison that can be drawn, we were able to establish a counterfactual by employing the concept of additionality,<sup>18,19</sup> defined here as the extent to which a planned or completed activity was likely to have been brought about by the RD, as opposed to an activity which was already happening or would have happened irrespective of the RD. Thus the counterfactual was derived from assessing organizations' delivery plans to ascertain which actions organizations would have taken in the absence of the RD. Criteria for judging the level of additionality were developed in line with the Public Health Outcomes Framework's assessment criteria for indicators,<sup>20,21</sup> and validated.<sup>22</sup>

### *Bias minimization*

We established a range of measures to reduce bias throughout our methods by: (i) pilot testing our data extraction tool to remove potential inconsistencies between raters before the main rating began; (ii) considering a delivery plan to be a statement of intent by organizations, and progress reports to be a statement of achievements that should be taken at face value; (iii) rating the delivery plans independently first (blind ratings); followed by (iv) discussion and agreement in pairs and with a third rater in the event of disagreement; and (v) rotating the pairs of raters so that pair A-B coded delivery plans in pledge A1, Pair B-C coded delivery plans in pledge A3, and so forth.

## Results

### *Additionality of the RD and progress against delivery plans*

The 90 signatory organizations to the pledge confirming non-use of TFAs ('We do not use ingredients that contain artificial TFAs') were either food manufacturers, retailers or caterers. The formulation of the pledge implies that an organization can only sign up to this first part if it has already stopped using TFAs, in which case, there is no possibility of any added value from compliance with the pledge. Thus the added value of the RD will have been minimal because the first part of the TFA pledge was in effect monitoring current use of TFAs rather than an opportunity to set out how changes might be made to remove TFAs: 91% of the signatory organizations (82 out of 90) were assessed either as having already removed TFAs, or as having had removal of TFAs underway before the RD started and, therefore, their actions were judged by us as not likely to have been brought about by the RD. Most of the progress reports mostly simply reconfirmed whether TFAs were being used or not, often recalling that removal of TFAs was undertaken several years before the RD.

The second part of the TFA pledge does ask about plans to remove TFAs and therefore had the potential to encourage removal of

remaining TFAs. Yet only 11 organizations signed up to it, of which five were catering companies and two were universities. Although these partners were not in a position to reformulate food products at the point of manufacture, some reported replacing products (e.g. using different types of oils). The remaining four signatory organizations were pub chains, a small specialized food manufacturer, and an entertainment company. Three of the 11 signatory organizations were judged as likely to have been encouraged by the RD to make changes; and five of the 11 were judged as potentially likely to have been motivated by the RD to change.

## Discussion

This evaluation finds that the RD pledge to reduce TFA in the food supply in England has had limited added value, in large part because the first component of the pledge involves a simple statement confirming non-use of TFAs and was signed predominantly by organizations which had already removed TFAs before joining the RD. The reporting guidelines provided by the Department of Health state that 'shortly after signing up to F3(a) "(the first TFA pledge)", partners will be asked to provide a delivery plan in which they must confirm when they met this pledge. [...] There will be no further reporting for these partners once they have confirmed that they have completed this pledge'.<sup>17</sup> This is arguably a contradiction in terms, since it involves asking for a 'delivery plan' simply to confirm having met the pledge.

Moreover, organizations which signed up to the second part of the pledge (which relates to actually removing TFAs from products) were not in a position to do so, since they were not manufacturers; their activities were therefore likely to have been limited to adapting their catering-related purchases and practices. Although this has some merit, only 11 partners signed up. Although RD partners include major UK food manufacturers with considerable market share, including producers of fast food or takeaways, which are reportedly still an important source of TFAs consumption in the UK,<sup>12</sup> none of these signed up to the second part of the TFA pledge.

Many countries have now implemented a ban on artificial trans fats: Denmark led the way in 2003<sup>23,24</sup> and crucially the ban included all imported food products. Similar bans were introduced in Austria and Switzerland in 2009,<sup>24</sup> and the USA is the latest to announce the implementation of a trans fats ban.<sup>25</sup> The evidence synthesis conducted as part of this study finds that while all interventions aimed at reducing TFAs have merit, regulatory approaches such as mandated national and local limits are more effective at minimizing TFAs in the food supply than voluntary limits. This is supported by a recent modelling study which concludes that a regulatory policy in England to eliminate artificial TFAs from the food supply would be the most effective and equitable policy option.<sup>26</sup> An important outcome of a ban would be that companies and small shops producing fast foods and takeaways (still reported to be an important source of TFAs in England<sup>12</sup>) would be compelled to remove the substance from their products. Finally, given the international trade agreements in which England participates, the risk of jeopardizing the advances already made in national TFA reduction through, for example, the import of less regulated products (as reported in a 2015 European Commission report<sup>27</sup>) could be mitigated by strengthening standards with minimal impact on the food supply and quality, as was done in Denmark.<sup>23</sup>

A positive development, to the best of our knowledge independent of the RD, appears to be the growing willingness of the food industry to agree a legal limit of TFAs in the food supply, as illustrated by an open letter<sup>28</sup> signed by major food companies, and health and consumer organizations sent to the European Commission in October 2015 asking it to consider legislating to limit the content of industrially produced TFAs in foods to 2/100 g fat. This may be an indication of political will and stakeholder buy-in within various

sectors to act to impose a legal limit and to achieve a 'level playing field' for businesses.<sup>29</sup>

With undeniable scientific evidence on the detrimental effects of TFAs' consumption on heart health, it is useful to understand barriers and facilitators to TFA regulation. Reported barriers include competing interests, beliefs and attitudes,<sup>30</sup> lack of standardization of TFA definitions; gaps in consumer and civil society advocacy,<sup>30</sup> and a lack of consumer awareness and understanding of TFAs.<sup>30,31</sup> Facilitators to TFA regulation include supportive organizational infrastructures with commissioned expert task forces which can review scientific and policy literature,<sup>32</sup> increased international and local visibility of the issue of TFAs,<sup>31</sup> and the role of the media in facilitating food supply change by increasing consumer awareness and pressure on industry to meet the challenges of TFAs reduction.<sup>32</sup>

These findings are consistent with earlier results from the wider evaluation of the RD, and illustrate the fundamental importance for any voluntary pledges or targets to be well-defined, specific and measurable. In addition, as noted in related papers on this evaluation,<sup>33-35</sup> reporting needs to be consistent and comprehensive, ideally involving some form of independent, public monitoring, rather than relying on industry self-reports.<sup>36</sup>

Given the prominence of the RD within the Government's strategy to reduce diet-related ill health, we consider these findings to be of great public health and policy importance. This research also has wider implications for the growing international research on voluntary food policy, and offers useful insights for other countries currently undertaking work to remove TFAs from their food supply, as there is limited empirical evidence on the process and impact of voluntary strategies to reduce TFAs.

## Limitations

There may have been unpublished or ongoing evidence reviews we did not locate (although we searched all relevant sources of systematic reviews to identify published evidence), or new reviews published after the completion of the included reviews. Moreover, the poor quality of the annual reports of signatories made it difficult to provide more systematic assessments of signatories' progress. Some may argue that absence of evidence differs from evidence that the RD is not effective, i.e. that it is possible that there is evidence of the effectiveness of the RD that we haven't yet found, therefore we should assume that the RD is an effective policy. However, we would argue that this represents a burden of proof fallacy; our in-depth evaluation concludes that there is sufficient evidence to make the assertion that the RD TFA pledge is unlikely in its current formulation to be effective at reducing trans fats. Finally, although we made every effort to validate our methods for assessing progress against plans, and to reduce bias, we were assessing delivery plans written by organizations which may not initially have received much guidance on what and how to write these documents. Thus it is possible, though we believe highly unlikely, that organizations inadvertently under-played their achievements.

## Conclusions

Trans fats have no demonstrable health benefits or nutritional role, and they are harmful to heart health. Though average per capita use has fallen to acceptable levels in recent years due to earlier successful voluntary approaches, TFAs remain in the English food supply, particularly in fast foods and takeaways. The evidence indicates that the most effective way to remove the remaining artificial TFAs is by law at the point of manufacture. Yet, the RD TFAs pledge is highly unlikely to make a significant additional contribute to efforts to remove TFAs from the food supply in England, given that part of it merely encourages monitoring of TFA use, while the other part on reformulation has failed to engage major manufacturers or producers of fast foods.

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*Conflicts of interest:* None declared.

### Key points

- The strategies most likely to be effective in reducing or removing TFAs are not reflected in the Responsibility Deal TFA pledges.
- The design of the RD pledges to remove TFA in the food supply was problematic, with the first component of the pledge relating to a simple statement confirming non-use of TFAs.
- The component of the TFA pledge which encouraged reduction in TFA use failed to attract the participation of food producers, particularly those producing fast foods and takeaways.
- Our evaluation concludes that the current RD TFA pledges are unlikely to contribute to the RD's stated objective of improving public health.

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