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ANNEX 5

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**Food Standards Agency
communications on
food additives and
children's behaviour**

REPORT

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A. BACKGROUND AND OBJECTIVES

Research undertaken by Southampton University suggests that eating or drinking some artificial food colours could be linked to a negative effect on children's behaviour. In light of these findings, the Food Standards Agency (FSA) has revised its advice to consumers.

In short, the advice states: if a child shows signs of hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD), eliminating the colours used in the Southampton study from their diet might have some beneficial effects.

Qualitative research was commissioned to gauge parents' response to the revised advice.

More specifically, research was intended:

- to examine parents' understanding of food additives, including...
 - the effects these can have on behaviour,
 - their awareness of Southampton University's study
 - their grasp of the implications of this work
- to explore parents' understanding of the FSA's updated advice, including...
 - perceptions on the target audience
 - thoughts on relevance / importance of the advice
 - views on the practical implications of the advice
- ...and their preferences for how the advice should be communicated

B. RESEARCH APPROACH

In total, 50 face to face interviews were conducted.

10 pre-recruited interviews, each lasting approximately 30 minutes, with parents of children diagnosed with ADHD or children showing signs of hyperactivity. These broke down as follows:

- 7 mothers, 3 fathers
- 5 ABC1, 5 C2DE
- 5 with children diagnosed with ADHD (some taking Ritalin or an equivalent medication);
- 5 with children showing signs of hyperactivity, inattention and impulsivity, but not diagnosed and not taking any medication
- a range of children's ages, from 5 to 16
- all spoke English as a first language
- 5 in South London; 5 in Birmingham

40 short qualitative interviews with parents of children who did not display any long-term symptoms, lasting approximately 20 minutes.

Sample variables were as follows:

- 29 mothers, 11 fathers
- a mix of BC1 and C2DE
- a range of children's ages, from 3 to 16
- all spoke English as a first language
- 20 in South East London; 20 in Lichfield

Fieldwork was conducted between 3 and 9 October 2007 by Africa Munyama and Ben Toombs.

C. MANAGEMENT SUMMARY AND CONCLUSIONS

Context

1. Food additives was a familiar issue for most respondents, although few knew much about the effects of individual additives. Most equated them with E numbers, and assumed that, in general, they were bad rather than good. Additives were thought less serious than salt, fat and sugar, however, and few parents of children without ADHD or a similar condition made efforts to avoid them.
2. Additives were strongly and widely associated with 'hyperactivity' in children, largely as a result of hearsay and media coverage. Some knew that colourings in particular had this effect. Few could think of any other adverse effects additives might have.
3. The term 'hyperactivity' was understood in two very different ways: for parents of children without ADHD or similar conditions it was a short period of over-excited behaviour; parents of children with ADHD or similar conditions saw it as a long-term, serious condition. Many of the former knew that this type of behaviour was a reaction to eating or drinking something, although few knew exactly what or why. Most of the latter recognised that certain foods and drinks could make their children worse, and were more convinced that colourings in particular were the cause.

Reactions to the content of the advice

4. The language and tone of the advice raised few objections. Almost all found the advice easy to understand without being patronising, free from jargon or technical terms (apart from the E numbers themselves), and comprehensive in that it covered what they thought they needed to know.
5. The original version of the advice was widely misinterpreted by parents of children without ADHD or similar conditions: they assumed that 'signs of hyperactivity' referred to the 'hyperactive' reactions that many children are prone to; and the paragraphs describing what is meant by 'hyperactivity' came too late to correct this assumption. These parents therefore assumed that the advice was aimed at them. The revised version, in which the paragraphs describing hyperactivity were moved to the top, was much less open to this interpretation; respondents were much more likely

to believe that the advice was aimed primarily at parents of children with ADHD or similar conditions.

Potential use of the advice

6. Parents of children with ADHD or similar conditions were very interested in and grateful for this advice. It told them in which additives to avoid and suggested that ADHD is being taken seriously. A number admitted that it would be difficult to avoid all the additives in practice, but most did not think these difficulties would be insurmountable.
7. There was a widespread view among parents of children without ADHD or similar conditions that the advice should be borne in mind, even though it (the revised version) was not aimed at them. This was for three main reasons: the advice gave a plausible explanation of their children's over-excited reactions to food and drink (which they wanted to avoid); avoiding the listed colourings was seen as simple good parenting; and the research situation would have made it more difficult for them to say they would ignore it, even if they actually would in real life. It did not seem, however, that these respondents would take the advice as seriously as the parents of children with ADHD or similar conditions. It should also be remembered that the internet is a self-selecting medium: only those who are already interested in the issue of hyperactivity or additives will come across the advice.

Channels

8. Most respondents initially expected the advice to be available in leaflet form; some suggested the internet as well as leaflets. Health and ADHD websites were often thought most sensible, but the eatwell.gov.uk site was thought appropriate by almost all, as long as the more intuitive websites link to it. Posting the advice on the internet alone would help to define the audience, but some thought it should be more widely available. One or two commented that the internet alone might exclude poorer and less well educated people, whom they imagined to be a key audience for communications such as this.

Conclusions

9. The revised format of the advice seems to be the one to pursue, but the tone and language need no revision. There is a tendency for parents of

children without ADHD or similar conditions to take heed of the advice whatever format it takes, but it seems unlikely that many will act upon the revised version in real life, especially if it is confined to the internet.

D. FINDINGS

1. **Context**

1.1 Awareness of food additives

Almost all respondents knew something about food additives; very few had nothing to say at all. For most, additives equated to E numbers only, which were generally known to be artificial rather than natural. Some also thought of other, more natural examples, such as Omega 3, vitamins and 'good' bacteria; and some thought of salt, fat and sugar, although probably more as other examples of 'bad' ingredients than as substances that were added to food products.

Most had some idea of why E numbers are added to foods: colouring, preserving and enhancing taste were the most common reasons (in that order). Awareness of additives and what they do had come from a number of sources, but many had gleaned information from the media over the past few years.

WHY DO WE ADD STUFF LIKE THAT TO OUR FOOD?

"To prolong shelf-life, and the colouring is to make food look attractive and maybe give some kind of extra taste. So it is about taste, the look of it and the shelf-life."

D20 Qualihall, Lichfield

There was a general sense that, overall, additives are bad. This was for a number of reasons, mostly related to perceptions of the nature of additives rather than specific knowledge. First, additives are added to products, and more 'natural' food was often assumed to be better. Second, they are artificial; again, 'natural' substances were thought better. Third, they are often present in food in large numbers, and many worked on the basis that a cocktail of E numbers must be bad. But additives were also (often strongly and immediately) associated with hyperactivity in children. This last point is of course vital to understanding of and responses to the advice, and is covered in detail below.

WHAT DO YOU THINK OF WHEN I SAY FOOD ADDITIVES?

"The response is a negative one. It suggests that the food is anything but natural, the things that have been added are not native to that particular food. So it is a pejorative term."

D16 Qualihall, Lichfield

"I think about numbers on the packaging and colours. The more there are on the packet, the worse it is for you."

D20 Qualihall, Lichfield

"I wouldn't have thought that any would be good. You never hear of them being good, you always hear E numbers in certain sweets make kids go hyper and stuff like that, so I would always assume that they are bad."

D3 Qualihall, Bexleyheath

IS THERE A SENSE THAT SOME ADDITIVES ARE WORSE THAN OTHERS?

"I think so. I'm only going by what I've heard, about certain colourings in Smarties and that, the yellow and something. The blue ones are supposed to be bad."

D19 Qualihall, Bexleyheath

Although additives in general were thought to be bad, they were rarely regarded as being as 'serious' as salt, fat and sugar. Media and advertising coverage of the dangers of too much salt, fat and sugar was well known (especially Sid the slug); and salt, fat and sugar content is more clearly marked on packaging, if not on the front, then more prominently in the list of ingredients. Because of this, many said they checked levels of salt, fat and sugar on the foods they bought as a matter of course. But understanding of what individual additives do (to food and to people) was very low, and it was widely thought difficult to find out about this since additives are only shown on the back of packaging and are listed as E numbers or technical names which meant little to most respondents. Indeed, some were under the impression that additives with higher E numbers are worse than those with lower numbers: one or two tried to avoid E numbers of 300 or 400 and over.

"Fat and salt we do look at more than additives. They are easier to find on the back of a packet. Nobody knows what an E number is when it comes down to it. So you ignore them."

D10 Qualihall, Lichfield

"They need to have E numbers right at the top because obviously there is not so much of it [on the packaging]. I wouldn't know E110 or E129, I wouldn't know which one was worse, because that is how they refer to them."

D4 Qualihall, Bexleyheath

Few respondents actively avoided additives unless they had a specific reason for doing so (see below), unless they were clearly marked and additive-free alternatives were available, or unless a product contained large numbers of them.

"I try not to let them have anything that's got a lot in. We went somewhere the other day when they were choosing an ice cream. There was a list on the wall of E numbers for all the ice creams, and we chose the two that didn't have any in. But I couldn't really tell you why I do that, I just think that maybe I should be avoiding them."

D1 Qualihall, Lichfield

Some respondents recognised that not *all* additives are bad (preservatives in particular were often thought necessary and beneficial), although the idea that some might be good and others bad was in itself confusing for some.

"I read the papers and they always have an article saying that these foods have got all the E numbers in it. I've got a bit confused actually sometimes they say some are good for you and then most others say they are bad for you. But I'm not quite sure which is good and which is bad."

D2 Father of child showing signs of hyperactivity, BC1, South London

"Well obviously there are E-numbers but it is a bit confusing about what is good and what is bad."

SO YOU THINK THERE ARE SOME GOOD ONES?

"Or less bad, I should say."

D6 Qualihall, Bexleyheath

BC1 respondents were likely to be better informed about these questions than C2DEs; they were also more likely to have picked up on recent media coverage of the association between colourings and hyperactivity. Parents of children with ADHD or a similar condition did not seem significantly more informed about additives in general than the rest of the sample.

1.2 Additives and hyperactivity

When asked upfront what they knew about additives, the majority of respondents quickly and spontaneously said that they 'made kids hyperactive'.

"We all know about E numbers, Smarties. You give your kid a packet of Smarties and he'll be bouncing off the wall in five minutes. Fizzy drinks can have the same affect."

D13 Qualihall, Bexleyheath

WHAT DO YOU THINK OF WHEN I SAY FOOD ADDITIVES?

"I just know they go into a lot of juices and you have to watch like Es and all that sort of thing. I've heard that some of them make children hyperactive."

D21 Qualihall, Bexleyheath

Some left it at this; others were able to break the claim down further, stating that colourings in particular have this effect, and, in some cases, that there has been a recent study which has confirmed this. These more informed respondents tended to be BC1s and parents of children who had reacted in some way to additives in the past (either through ADHD or in a short-term sense – see below).

“Some are with colourings and especially with their sweets. Not that long ago, a week or 10 days ago, they had in the paper, they had all these sweets which had certain E numbers in them and they were saying that they weren’t good for children. It was surprising, it was quite popular brands of sweets which all kids seem to eat.”

D2 Father of child showing signs of hyperactivity, BC1, South London

“A little in the press recently on additives and young children, some additives make them hyperactive.”

D7 Qualihall, Lichfield

“E numbers, food colouring. I can’t remember what it is but it’s a certain food colouring, like in Skittles and stuff.”

D17 Qualihall, Bexleyheath

Awareness of the association between additives and hyperactivity came from one or more of three sources. Most common was ambient knowledge – a vague belief, built up over time from media coverage and hearsay. Less frequent was explicit recall of recent media coverage of the results of the Southampton University study (although never its provenance).

“I have heard a lot about that and I know in the paper they have been putting out a lot of reports saying that food colourings and E numbers do actually cause hyperactivity.”

D4 Mother of child showing signs of hyperactivity, C2DE, South London

“You hear lots of confusing things. It was not so long ago that there was some evidence that it was connected to hyperactive behaviour, but I think from what they were saying it just really affects those who’ve been diagnosed with a problem, not necessarily your average child. But it is very confusing, you hear that many different things and I do try to steer clear of artificial things, but on the other hand I’m always a bit suspicious that things say they contain no artificial colourings and yet they are still bright pink. So I take it all with a pinch of salt really.”

D3 Qualihall, Lichfield

Many said that media coverage of this issue (both general and recent) had tended to be sensationalised and simplified, often to the point of saying ‘additives make children hyperactive’. This of course raised

awareness of the connection, but was not thought very helpful in actually dealing with it, and some thought such stark messages were actively unhelpful and tantamount to scaremongering.

“The problem with the media is it can stir you into panic mode. Media coverage is acceptable but the problem is it does cause mass hysteria and panic a lot of the time.”

D10 Qualihall, Lichfield

“You pick it up as you go along. If I was to read an article in a daily paper and it said ‘x’ about additives I would probably skip it. I would probably presume the article is going to be negative or critical of food additives.”

D16 Qualihall, Lichfield

Experience of the effects of certain food types on respondents’ children, or children they knew, was also common. But it was clear that there was a great deal of confusion over whether such changes in behaviour were due to additives, sugar or caffeine.

Few respondents could think of any other adverse effects that additives might have, and none mentioned eczema, asthma or other conditions. As a result, many said that if anyone should be wary of additives, it was parents of children who were ‘hyperactive’. Some also thought that allergy sufferers should be careful.

1.3 Perceptions of hyperactivity

1.3.1 *Two definitions*

Respondents’ understanding of the term ‘hyperactivity’, and its colloquial partner ‘hyper’, was crucial to their understanding of the advice. Two basic and clearly segmented definitions emerged. One related to a short-term reaction, involving over-excitement and general ‘bouncing off the walls’, often referred to as ‘going hyper’ or ‘a hyper moment’. Most respondents in the qualihalls had children who reacted in this way, or knew of others who did; they had not experienced ADHD or long-term hyperactivity.

“I don’t think you stay hyperactive. It is a reaction to what you’ve eaten”

D4 Qualihall, Bexleyheath

The second definition related to a continuous, serious condition involving a number of symptoms, and was described by respondents with children

with ADHD or a similar condition, or who knew others with such children. This second set of respondents often drew a clear and absolute distinction between the two situations: short-term 'hyperactivity' was nothing like what they experienced or knew of. But for the first set of respondents, short-term 'hyperactivity' was itself a serious issue, since they had nothing to compare it to.

"I don't think people know the difference between a hyperactive child and one that has a sugar rush. That is the problem. My son can literally keep going from when he gets up at 7 in the morning until 9 when he goes to bed, he is like on a constant buzz. That to me is hyperactive, whereas someone that gets bursts of running around being silly isn't."

D4 Mother of child showing signs of hyperactivity, C2DE, South London

1.3.2 Short-term reactions

Most respondents who understood hyperactivity in this way knew that it involved a reaction to something, largely because their children (or those whom they knew) did not normally behave like that and had eaten or drunk something identifiable just beforehand. Many thought that such reactions were common and widespread, and that this was a well known phenomenon. The strong association between this type of reaction and the term 'hyperactivity' seemed due in large part to the loose use of the more colloquial term 'hyper' to describe overexcitement of any kind.

"It's a fine line between a child being lively or hyper."

D4 Qualihall, Bexleyheath

Various triggers for this behaviour were mentioned, the most common being sweets and soft drinks. These foods and drinks (often only specific products within these categories) typically sent their children out of control for a short period, after which they calmed down and returned to normal.

"If they come back from a birthday party, it's horrendous. But then it wears off."

SO YOU WOULD CALL THAT HYPERACTIVITY?

"Yes, I suppose I would."

D6 Qualihall, Bexleyheath

"I have noticed once with my older child, after a Halloween party he did go a bit wild after having orange jelly on the top of a cake. And my friend's little girl, both of them went a bit, not naughty, but we had to separate them to bring them down a bit."

D1 Qualihall, Lichfield

Many had identified the products which had this effect, usually by a process of elimination or trial and error, and had tried to cut them out of their children's diet (at least during the week). The fact that this had improved their children's behaviour confirmed their conclusion that the product was the cause or trigger.

"I think it's a colouring in them. A normal fruit juice would not do that, it seems to be the orange one, because my daughter can have the Apple & Mango which is a different colouring to the Orange & Passionfruit. "

SO IT'S A PROCESS OF ELIMINATION?

"Yes, you just see how they are after they drink it and obviously the orange Fanta is really bad."

D4 Qualihall, Bexleyheath

"My son, if he has a certain one he goes bad, like if he has Coke."

WHAT HAPPENS IF HE HAS THAT?

"He bounces off the wall but that is most kids anyway."

SO HOW DID YOU WORK OUT WHAT WAS CAUSING IT?

"Well it's a case of giving it to him and then seeing what is causing it and then I change it and omit it from his diet."

D4 Qualihall, Lichfield

Many of these respondents were unsure exactly what it was about the products that induced this reaction: additives, sugar, caffeine or something else. They were therefore tackling the problem at a 'product level', rather than an 'ingredient level'. This notion seems important to their understanding of the advice (see below).

1.3.3 ADHD and similar conditions

The experience of these respondents was very different. Their children (or those whom they knew) were constantly over-active and impulsive, and had trouble concentrating and sleeping. The condition had an impact on children's performance, behaviour and sociability in school, and was extremely wearing for the parents.

"She don't listen, she's always on the go. She wakes up during the night and you can't get her to sleep. It's hard to get her to concentrate. She doesn't think of consequences. She knows that something is wrong and if I've told her off for something like hitting someone she does tend to get very aggressive."

D7 Mother of child showing signs of hyperactivity, C2DE, Birmingham

"He just forgets where he is and he's like 100 miles an hour. There's no fear there. If people are asking him to do something, he's miles away."

D8 Father of child showing signs of hyperactivity, C2DE, Birmingham

Some had (reluctantly) turned to medication in an attempt to control their children's behaviour; others had resisted this, even though it might have helped.

"I don't want him to go on medication because of all the things I've been told and hearing, it makes them like a zombie. I don't want to change his character or personality, I just want to subdue his exuberance. I want him to be as natural as he can."

D6 Father of child diagnosed with ADHD, C2DE, Birmingham

"I don't want him to be on Ritalin. They said it would only be the 5ml, the smallest dose, but I'm not completely happy with it. I would rather cope with it for now and see if he does get out of hand, because he's only five."

D9 Mother of child diagnosed with ADHD, BC1, Birmingham

These respondents saw hyperactivity as a constant, long-term condition, not as a reaction to something. But most recognised that certain foods and drinks could make their children even worse, and had attempted to cut out these products.

"I definitely think it has got something to do with what is in food. If he has certain sweets, he is fine and you know what to expect; if he has another type of sweet, he goes stupid. I am very careful what I do give him to eat because I do believe a lot of it is in food colourings. He can eat chocolate, if he has a straightforward chocolate bar he seems fine, if he has something like Haribo he is terrible."

D4 Mother of child showing signs of hyperactivity, C2DE, South London

"Crisps mainly. If he has crisps and these sort of sweets he doesn't sleep and he tends to jump about a lot and basically just not be himself. Since we've took them away he's been a lot better."

D8 Father of child showing signs of hyperactivity, C2DE, Birmingham

These respondents tended to have been much more 'scientific' about identifying which products triggered reactions, and a number had worked out, generally through trial and error, that certain colours in particular had this effect. They also tended to be much more convinced that it is additives, rather than sugar or caffeine, that trigger this reaction, either through what they had read or heard or through trial and error, and to be more aware of the results of the Southampton University study which confirmed this view.

"I find with orange squash with my son it makes him mad so I do try when I go shopping to check for E numbers, but it drives me mad. I stopped him having it and then he calmed down a bit and then since he had it back he is like a mad man."

IS IT THE COLOURING OR THE SUGAR OR WHAT?

"I am not sure, it could be sugar, but then sweets have got a lot of colourings in so I think they do need to sort out colourings and things like that in children's food as they put it in and expect us to deal with it."

D5 Mother of child showing signs of hyperactivity, C2DE, South London

They were therefore tackling the problem at an 'ingredient level'. But few had a firm idea of exactly which additives they should be looking out for, and many believed that such explicit information is unavailable. Impressionistically, it seemed that parents of children who had been diagnosed with ADHD tended to be a little better informed than those with children who had not been diagnosed, but this was not a general rule, and in any case numbers in this part of the sample were small.

2. Reactions to the content of the advice

2.1 Language and tone

Very few respondents had any objections to the way in which the advice read. Almost all found it easy to understand without being patronising, free from jargon or technical terms (apart from the E numbers themselves), and comprehensive in that it covered the points they thought they needed to know.

"The phraseology was clear. It is pretty well devised. It is not an alert. It is more like an information sheet."

D20 Qualihall, Lichfield

A few felt that the advice was a little formal, but they could see why it should be, and did not really think this a problem. We would not, therefore, recommend changing the language or tone of the advice at all.

2.2 Relevance

Two versions of the advice were shown to respondents; both are appended to this report...

- the original version, starting 'if your child shows signs of hyperactivity...', was used in the first qualihall
- the revised version, starting 'hyperactivity is a general term...' was shown in all subsequent fieldwork

The revision involved moving the two paragraphs describing what hyperactivity and ADHD are to the top of the page. This proved necessary because of a widespread misinterpretation of the original version in the first qualihall. These respondents, who had a loose understanding of the term 'hyperactivity' and personal experience or knowledge of children's short-term reactions to certain food and drink products, assumed that 'signs of hyperactivity' in the opening paragraph referred to these reactions. The fact the colourings responsible for this reaction were listed just below this seemed to confirm their suspicions, and sparked their interest by promising to move their understanding of the problem from the 'product level' to the more useful 'ingredient level'.

The paragraphs describing what the FSA means by 'hyperactivity', on the other hand, came too near to the end of the advice to correct these assumptions, and the reference to '2 to 5%' was too recessive to suggest that this is not a widespread condition. As a result, most respondents in the first qualihall initially assumed that the advice was aimed at them, and was telling them that their children's short-term 'hyper' reactions were being triggered by the colours listed. Indeed, this made sense to them, and few had any reason to question the 'advice' to avoid these additives.

Moving the two descriptive paragraphs to the top of the page largely corrected this interpretation, at least on a rational level. Respondents in the second qualihall were much more likely to think that the advice was aimed primarily at parents of children with ADHD or a similar condition, and parents of children with ADHD immediately identified with the two descriptive paragraphs, which made it clear that the advice was primarily aimed at them and not the general public.

“You don’t want them [paragraphs on ADHD and hyperactivity] at the bottom. They need to be at the top. If somebody can read that and think it doesn’t apply to their child, then they are not going to panic. But if you do read it and know that it does apply to your child, then it is extremely helpful to know exactly what it is you need to cut out of their diet.”

D4 Mother of child showing signs of hyperactivity, C2DE, South London

Some parents of older children also believed that the advice would be more relevant to those with younger children than to themselves. They associated ADHD and similar conditions with younger children, and expected the effects of additives to be more pronounced at a younger age.

“I associate these problems with younger children than mine. Tots, three to five types where you would first get a warning sign of something going wrong with their development or educational potential. It might be people who’ve seen their kids expelled, having problems at school that would take an interest in this as a possible cause.”

D16 Qualihall, Lichfield

However, for a number of reasons which are discussed below, there was still a tendency for respondents in the second qualihall to take the advice on board and say they would try to avoid additives if possible. When it was explained that the FSA wants to avoid this happening, two additions were suggested to make the target of the advice even clearer. The first was to include in the first paragraph (‘Hyperactivity is a general term...’) the fact that the description refers to a regular, long-term pattern of behaviour, rather than an occasional, short-term reaction. The second was to include a sentence along the lines of ‘if your child is not among the 2 to 5% of children who display these types of behaviour on a routine basis, you may safely ignore this advice’.

2.3 Other content issues

The content as it stands raised a few other concerns and suggestions from individual respondents. Some, most strongly those with children with ADHD, felt that the advice should make it clearer that cutting out these additives *may* improve behaviour, but that it may have little or no effect. They stressed that different people react to different things (one had cut out these types of food in the past to no effect), and were concerned that parents would be disappointed or worried if following the advice did not work.

"I spent a year with him on a totally organic diet. No additives, no preservatives, and it didn't make any difference to him. The only thing that helped him was medication."

SO IT'S NOT A CAST IRON SOLUTION.

"Yes, they could probably re-phrase that by 'you could try' rather than 'you should try'."

D3 Mother of child diagnosed with ADHD, BC1, South London

"Because I do my best for the day to cut out his E numbers but that does not mean he is going to fully behave or do things that normal children would do. That's not how it goes."

D9 Mother of child diagnosed with ADHD, BC1, Birmingham

No respondents came away thinking that additives *cause* ADHD or long-term hyperactivity, but one or two thought the advice should make it clearer that these conditions have a number of causes and triggers, and that while cutting out these additives may have a beneficial effect, this is not the only measure to be taken. The penultimate paragraph ('It is important to remember...') which conveys this message was thought short, recessive and inconclusive.

"When they say there's many different causes, to me they can't put their finger on exactly what causes it. They can scientifically link those colours to attributes and behaviour patterns in kids but for them to say your upbringing, or premature birth and stuff, can bring this condition on, I don't understand how they make that link."

D6 Father of child diagnosed with ADHD, C2DE, Birmingham

A few would have liked a little more information about who had conducted the research which forms the basis for the advice, although the FSA's provenance was authoritative enough for almost all. Having said this, however, across the whole sample, the second half of the revised version was thought much less interesting and useful than the first half, and many did not really take it in.

"I have asked officials over the years to get a list of what to give and not to give. So all I'm interested in is the top part up to there, and I wouldn't be interested in the bottom part."

D10 Mother of child diagnosed with ADHD, BC1, Birmingham

3. Potential use of the advice

3.1 Parents of children with ADHD

These respondents were very interested in and grateful for this advice. In practical terms, it told them exactly which additives to avoid, both as E numbers and as technical names, something which many had not known for certain and had had to work out for themselves.

“That’s exactly what our younger boy is like. We’ve noticed that certain sweets affect him more so we’re very conscious of limiting it or controlling what he actually has. But we’ve never really known which ones are the ones he should be avoiding. Like they’ve given names to them now. I’ve never seen a name on it.”

IS IT USEFUL TO HAVE THE NAMES?

“Definitely. I think it’s easier to know the names. I probably would remember the names better than I would the E numbers.”

D2 Father of child showing signs of hyperactivity, BC1, South London

IS THIS THE FIRST TIME THAT YOU’VE SEEN INDIVIDUAL ADDITIVES WRITTEN OUT IN THAT WAY?

“Yes. It was more general than that. It was just E numbers which is why I went for a total organic diet. It would have made it a lot easier to try it and it would be something that I would try again, now that I know specific E numbers. I would go home and think: ‘I wonder what he eats most of and how much of these are in it.’ Definitely I would look. Even though I’m not sure it would make a huge difference to him now, I would still give it a go. Nothing to lose.”

D3 Mother of child diagnosed with ADHD, BC1, South London

“Gosh it is all the colours, isn’t it? I didn’t realise they can put these things in without giving the number if they use the name. That is what I found very confusing because you look at something and it has got no E numbers in it but it actually has. I will now look out for those particular E numbers, I think it is worth keeping a diary of what you give them. That is so helpful. Now I will know that it is really those E numbers.”

WOULD YOU TRY AND MEMORISE THEM?

“I was going to ask for a copy.”

D4 Mother of child showing signs of hyperactivity, C2DE, South London

“Now I will be aware after seeing this. I will try anything to see if I can calm him down. Once you start doing it and then going shopping you must get used to it, what you have to buy.”

D5 Mother of child showing signs of hyperactivity, C2DE, South London

The advice also suggested that ADHD and hyperactivity is being taken seriously by scientists and ‘the authorities’. In emotional terms, it suggested that, contrary to what some felt that other parents believe,

ADHD is not necessarily a result or sign of bad parenting (despite the penultimate paragraph).

“Most people would think that children with ADHD is caused by bad parenting. So they saw a child they wouldn't be thinking ‘That child has definitely had some E111 today’, they'd be thinking ‘That's a bad mother’. So it is quite nice that there is something out there saying it might not be that, it is a reaction and that also it does mention that it isn't just that you are doing something wrong. There is a medical reason for this. I think it is nice to have it more official. It's nice to know that someone has made a point of looking into it and realised that yes it does exist.”

D3 Mother of child diagnosed with ADHD, BC1, South London

Two or three of these respondents wanted to take the paper copy of the advice away with them; almost all the others wanted to know the webpage's address. Most said they would try the advice out, although they recognised practical difficulties, such as remembering which additives to avoid (especially if they are sometimes referenced by name and sometimes by E number), and finding the additives on the ingredients lists of products during a busy shopping trip.

WOULD IT BE POSSIBLE TO LOOK FOR SPECIFIC E'S IF YOU HAD A LIST THERE?

“It would just take me for ever to do my shopping.”

D5 Mother of child showing signs of hyperactivity, C2DE, South London

“It's too time consuming. When you go shopping the last thing you want to be doing is picking up things: ‘That's got an E number, that's got an E number.’ Bringing up a child with ADHD, if you are in a supermarket with him and he is running riot, running up and down the aisles, picking up this and picking up that, the last thing you want to be doing is trying to read this and check up on him at the same time. This is why it should be straightforward, bang, it's there in your face.”

D8 Father of child showing signs of hyperactivity, C2DE, Birmingham

Most, however, did think these difficulties would be insurmountable.

3.2 General public respondents

As noted, most respondents in the second qualihall (who saw the revised version of the advice) felt it was not primarily aimed at them, even if they had a child who reacted ‘hyperactively’. But there was a widespread view, even among respondents whose children did not react in this way, that the advice should be taken on board nonetheless. This appeared to be for one or more of three reasons: the relevance of the advice to parents whose children reacted hyperactively was

plausible; the advice was associated in a wider sense with being a good parent; and the research situation would have made it difficult for respondents to say they would ignore the advice.

In the first case, respondents knew *what* their children reacted to (they had 'product level' understanding), but not always *why* they reacted. The list of colours was enticing because it promised to increase respondents' understanding of their children's behaviour by giving them 'ingredient level' information, and credible because the foods listed (soft drinks, sweets, cakes, ice cream) were known to be the triggers for hyperactive reactions. The colours listed were therefore plausible triggers of these reactions, and worth avoiding if parents wanted to prevent these reactions from occurring.

In the second case, avoiding the listed colours was seen as something a good parent should do once s/he knew about them. In a general sense, the examples of foods containing the colours were undeniably 'bad' because they contained large amounts of sugar etc; many thought that good parents would restrict their consumption even if they contained no additives at all. To some extent, therefore, the advice was regarded as part of a wider effort to encourage healthy eating. More specifically, if there were any chance at all that the cumulative effect of consuming the listed colours over time might cause hyperactivity or start reactions, good parents would avoid them even if their children did not react at the moment.

"My take on this is, obviously if your child has got ADHD then you shouldn't be giving them the E numbers. But also as well, even if your child hasn't got it I don't think you should be giving children loads of E numbers."

D13 Qualihall, Bexleyheath

"I'll definitely look out for these in food. Because if it's bad for a hyperactive child then I don't think that means it's 100% good for a normal child."

D21 Qualihall, Bexleyheath

In the third case, and in light of these points, it is likely that many respondents said they would not ignore the advice because they did not want to appear to be uncaring about their child's reactions or to be bad parents. In addition, the simple fact that they were being shown the advice would have made many automatically assume it was intended for them.

Having said all this, it did not appear that many general public respondents would take the advice as seriously as those with children with ADHD, and the latter's concerns about remembering the specific additives and checking products were more strongly felt. It should also be remembered that, if the advice is to be communicated by internet alone, most of the general public would not see it in the first place (see below). And some respondents (mostly those without children who reacted hyperactively) did feel able to say that they would ignore the advice.

"I'm quite happy carrying on as I am. It would be great if these things are reviewed. If I have the choice of something full of E numbers and something that wasn't, obviously I would pick the one that wasn't."

D1 Qualihall, Lichfield

"How do you avoid colour in your foods. You'd have to buy all the healthy home produce and things like that. So I wouldn't personally go out and start thinking: 'Oh no!'"

D3 Qualihall, Bexleyheath

There were some respondents who took the opposing view, however. They valued and took note of the advice because it clarified the rather vague understanding about additives and hyperactivity they had gleaned from the media, and reassured them that only certain additives might have this effect, rather than all of them. These respondents thought the advice should be publicised as a counterweight to the sensationalised and simplified messages put out by the media, which had confused and concerned them in the past without giving them any way of acting on this concern.

4. Channels

Most respondents initially expected the advice to be available in leaflet form, usually in medical locations, schools and supermarkets, and most thought it should be made available to everyone, even if it is not intended for everyone. This preference was at least partly due to a wish to have the list of colours in their hands while shopping.

"I think certainly through school. That's really the first port of call for education. Definitely be available through that and I think also, during the school term we get letters about changes in the school. So that's really where I would think it would get to everyone then."

D2 Father of child showing signs of hyperactivity, BC1, South London

"Should be available to everybody, maybe at supermarkets. You get the leaflets. Places like health visitors and clinics would be good. Anyone with a child would go to a clinic at some point, so that would be good. But also it should be the supermarkets. Childminders or carers."

D2 Qualihall, Bexleyheath

SO WHERE WOULD YOU EXPECT TO SEE THIS?

"I'd probably expect to see this when you go around to the doctor and health visitors' offices, maybe schools, you could have it there on notice boards. Leaflets and posters."

D4 Qualihall, Bexleyheath

Some suggested the internet as well as leaflets – health and ADHD websites were seen as the most sensible locations. When shown the eatwell.gov.uk webpage where the advice is currently located, most thought this a sensible location: it is the FSA's advice, so it should be on their website; and the website gives the advice authority.

"It should be on there I would have thought. Yes, definitely. I guess if it's from the Food Standards Agency then I guess it would be on their website."

D3 Qualihall, Lichfield

Many said they would not think to look on the FSA's website for this type of advice, and that parenting, health, dietary and ADHD sites seemed more logical. But as long as it is brought up by a sensible web search, and is linked to these types of site, most were not overly concerned about where the advice is located.

The idea of having the advice on the internet alone divided respondents. Some thought that this would help with the targeting: only those who wanted and needed to know about additives and hyperactivity would find it; those who did not would not stumble across it and assume it was relevant to them. Others, however, thought it important that people are told about these additives so that they can make up their own minds about whether or not to take the advice on board.

Some inevitably raised the issue of people lacking internet access.

"That is fine but I don't think a lot of people who have children that have this will necessarily have access to the internet."

D4 Mother of child showing signs of hyperactivity, C2DE, South London

On this note, a few had the prejudicial but perhaps relevant thought that limiting the advice to the internet might miss those people who most needed it. They assumed that poorly educated and deprived parents are

least likely to recognise the association between food products and hyperactive behaviour, and most likely to be allowing their children large quantities of these products. They thought it unlikely that these parents would be able to, want to, or think to search the internet for advice about additives and hyperactivity, and that a more pro-active approach to communicating with them would be needed.

“The person who is educated and interested enough to find out this information would use it wisely and in a measured fashion. Without sounding a snob your Wayne and Waynetta types who might have kids with this condition aren't going to get much mileage out of this.”

D16 Qualihall, Lichfield

Appendix

ORIGINAL VERSION

Food additives and hyperactivity

If your child shows signs of hyperactivity or Attention Deficit Hyperactivity Disorder (ADHD), you should try to avoid giving your child the following artificial colours because this might help improve their behaviour.

- sunset yellow (E110)
- quinoline yellow (E104)
- carmoisine (E122)
- allura red (E129)
- tartrazine (E102)
- ponceau 4R (E124)

These colours are used in a number of foods, including soft drinks, sweets, cakes and ice cream.

When colours are used in food, they must be declared in the list of ingredients as 'colour', plus either their name or E number. So if you choose to avoid certain additives, you can do this by checking the label.

If you buy any foods that are sold without packaging you will need to check with the person selling the product or with the manufacturer.

Some manufacturers and retailers have told the Agency that they are already working towards finding alternatives to these colours.

The European Food Safety Authority is reviewing the safety of all food colours that are approved for use in the European Union. New information on these artificial colours and hyperactivity in children will be looked at by EFSA by January 2008.

It is important to remember that hyperactivity is also associated with many other factors in addition to additives. These include premature birth, genetics and upbringing.

Hyperactivity is a general term used to describe behavioural difficulties affecting learning, memory, movement, language, emotional responses and sleep patterns. In the context of this advice, it is when a child is over-active, can't concentrate and acts on sudden wishes without thinking about alternatives. There is no single test for diagnosing hyperactivity. Experts think it affects 2 to 5% of children in the UK. The figures are higher in the United States.

Attention deficit hyperactivity disorder (ADHD) is more than just hyperactive behaviour. It is linked to a specific pattern of behaviour, including reduced attention span and difficulties concentrating such that they affect the child's ability to learn and function at home and at school. Children with ADHD often have learning difficulties and behavioural problems.

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1. Introduction

- name, age, occupation, household composition

2. Awareness of food additives

- what do they know about food additives; where have they heard this; have they heard anything recently; if so, what
- why do they think additives are added to food; what are the benefits; what do they do – colour, taste, preserve etc
- how easy is it to find out whether foods have additives; do they look; do they consider this when choosing food
- do they think additives have any downsides; if so, what; are some kinds of additives ‘worse’ than others – which
- are there any sorts of people who should be more wary of additives than others; why is this; where have they heard this

3. Understanding of FSA advice

GIVE RESPONDENT A COPY OF THE ADVICE; ASK THEM TO READ AND ANNOTATE IT AS THEY SEE FIT

- how would they sum up what they have just read; what is its main message
- whom does it seem to be aimed at – them, or other people; why do they think this
- is this advice new to them; were they familiar with the principle, if not the detail; what seems to have prompted it
- if they think the advice is for them, what is it telling them to do and why; does it suggest that this is *all* they need to do
- if they think the advice is *not* for them, can they ignore it safely; if not, why not
- is anything unclear – words, phrases, paragraphs; how could this be better expressed

- does anything seem less useful or irrelevant; why is this

IF NOT ALREADY COVERED, PROMPT ON...

- **parents of children with hyperactivity:** do they understand that removing specific additives might have some beneficial effects on behaviour
- **parents of children with hyperactivity:** do they understand that there are a number of factors that contribute to hyperactivity, and that omitting these specific additives from the diet may not have any effect on behaviour
- **parents of children without hyperactivity:** do they understand that they do not need to avoid these specific additives
- **all:** why do they think these points did not come out in the general discussion; is it the advice's concept, expression, detail; how could these points be made clearer

4. Channels

- how do they think this advice should be communicated to parents – which channels would be best for them
- what do they think of having it on the internet; which websites would seem most sensible; would it be enough to have a link from these websites

SHOW RESPONDENT THE EATWELL.GOV.UK PAGE ON A LAPTOP

- what do they think of this webpage as a 'home' for this advice – pros and cons; do they think they would find it there if they needed it; how do they think they would find it

5. Summing up

- what have they learned that is new; what have they been asked to do
- how important does this new information / advice seem
- how do they think they would have found out about it in 'real life'
- thank and close