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Journalists and jabs: Media coverage of the MMR vaccine*

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Abstract

The MMR vaccine became front-page news in early February 2002, in a much reported controversy about alleged links between MMR and autism. We examine both media content and public opinion and knowledge to explore how this controversy was presented, and, in turn, how this coverage influenced public perceptions. The news coverage of MMR was monitored over a seven and a half month period from 28 January to 15 September, 2002. Two national surveys were conducted—in April and in October, 2002—both based on over 1000 face to face interviews, with the purpose of exploring what the public learned from the coverage, and how this information may have influenced attitudes towards the vaccine. We will argue that the media's critical scrutiny of those supporting MMR was not matched by a rigorous examination of the case against it, and that the public was, as a consequence, often misinformed about the level of risk involved.

Keywords: vaccination; *trust*; *expertise*; *public opinion*; *evidence*; *media*

It was because of the media and the press that I looked into the MMR and decided well whoa, I'm not having that you know, otherwise, before, I didn't think anything of it.

(Nonimmunizing parent cited in Evans et al. 2001: 906)

1. Introduction

Since 1994, Dr. Andrew Wakefield has published a number of reports purporting to link the measles, mumps and rubella (MMR) vaccine with autism and/or bowel disease. The media have followed Wakefield's research, particularly after the publication of Wakefield et al. in the *Lancet* in 1998. MMR vaccination rates have declined since 1998 and, at the time of writing, the current national vaccination rate has fallen from a high of 92% to around 80%.[1] Not only has this coverage had an impact on public health, policy-makers, politicians, clinicians and the Department of Health have been forced to defend a vaccination policy that is, for the most part, uncontroversial in the rest of the world. In the mid-1990s Australia saw its MMR rate decline slightly (see Leask and Chapman 2002 for a discussion of this). Various accusations have been made against the MMR vaccine in the USA, Sweden and Germany but have failed to make a serious dent in national vaccination rates. In 1993, Denmark's MMR uptake fell after a television program attacked the vaccination (Begg et al. 1998).

In February 2002, two events brought the MMR vaccine onto the British national news agenda. The BBC broadcast a *Panorama* program that raised doubts about the safety of the MMR vaccine. The program was based on a paper coauthored by Wakefield (Uhlmann et al. 2002) published in *Molecular Pathology*, a medical journal with a small circulation which was eventually prepublished on the Internet following demand after the *Panorama* program was aired. The following week the media reported outbreaks of the measles virus, prompting questions about the take up of MMR. Although this was not the first time the vaccine had been under media scrutiny, the spring 2002 controversy was, most conspicuously, the moment that threw the vaccine into the public spotlight. This research will examine the primary themes in the media coverage in 2002 and will analyze the effect the coverage of the MMR vaccine had on public opinion.

2. Background: Immunization in the media

The fall in MMR vaccination rates has created much concern amongst public health professionals who tried to understand the reason for the declining take-up. Many are fairly clear about who is to blame; as Evans et al. (2001: 909) argue: 'media reports about MMR had affected most parents' immunization decisions, except for those few who were already committed to their views, being either strongly pro or strongly anti-immunization.' (see also Mason and Donnelly 2000, and Fitzpatrick 2002). Similarly, in a longitudinal study of vaccination rates, Ramsay et al. (2002: 914–915) showed that awareness of, and perceived safety in the MMR vaccine fell after significant periods of media interest but rose again once media interest fell away (see also Reilly 1999: 135 for similar effects in the BSE case).

Whilst previous research shows that many non-vaccinators were against vaccination in general (Meszaros et al. 1996: 699) it appears that many of

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those now rejecting the MMR vaccine still chose to have other childhood vaccinations and are only shunning the MMR vaccine.

Other vaccines have also been the subject of acute media attention. In the 1970s, in the wake of concerted efforts by anti-vaccination parents and subsequent media coverage, uptake of the pertussis (whooping cough) vaccine dropped significantly, from 81% to 31% (Begg et al. 1998: 561). That this drop took place over a number of years and saw instances of whooping cough significantly increase has served to remind scientists that they should not take the recent MMR coverage lightly.

A prominent theme of the research on this issue to date has been what many regard as the undue weight given to Andrew Wakefield's research, or as Ramsay et al. (2002: 915) put it: 'the extent of media interest in the potential side effects of MMR has been disproportionate to the weight of negative evidence. In addition, sufficient weight has not been given to the positive evidence that allows redress of the balance in favor of MMR.' It is certainly true that the weight of evidence suggests that the MMR vaccine is safe. A number of studies have found no link between MMR and autism or bowel disease (e.g., DeWilde et al. 2001; Madsen et al. 2002; Peltola et al. 1998; Taylor et al. 1999; Taylor et al. 2002) while Anna Donald and Vivek Muthu's review of the research suggests that all the credible evidence refutes any such link (Donald and Muthu 2002) and that there is still, to date, *no* empirical data linking the vaccine to autism (Wakefield's data links autism/bowel disease to the measles virus—the link with MMR is speculative). At the same time, the option of offering three separate vaccines (recommended by Wakefield), according to the BMA Board of Science and Education, is untested and increases a child's risk of infection (British Medical Association 2003).

There is also broad agreement that journalists possess a great deal of power when reporting science that becomes controversial, and that they 'play a major role in constructing popular understanding of the science in question' (Dunwoody 1999: 69). Seale's (2002: 213) overview of the impact of media coverage of scientific controversies found that 'many people (if not all) do seem to soak up prejudices, copy unhealthy habits and distrust doctors and medicines unreasonably when media health stories encourage these things'.

We shall, in what follows, investigate these assumptions in relation to the MMR controversy, in order to establish the nature of media coverage, the extent to which that coverage influenced public perceptions and whether such influence leads to people being informed or misinformed about the issue. Our own view is that claims about the link between MMR and autism are, at best, speculative, while all the epidemiological research discounts such a link. However, the question for us, is not whether it is right or wrong to be concerned about the MMR vaccine, but whether such concerns are based on current majority scientific information which suggests the MMR vaccine is by far the safest option to vaccinate a child against the three diseases.

3. Methodology

The media content sample was chosen to focus on three of the main news sources in Britain, incorporating television, radio and both the broadsheet and tabloid press, from 28 January to 15 September, 2002. The two news programs with the largest audience in the UK were chosen: the weekday BBC 6:00 evening news and ITV 6:30 evening news. The newspaper sample covers a range of broadsheets and tabloids, with five dailies (*Guardian, Daily Telegraph, Daily Mail, The Sun, The Mirror*) and four Sunday newspapers *(Mail on Sunday, Sunday Times, News of the World, Observer).* We focused on the BBC radio news program *Today* (highlights archived on the Internet), because of its high (albeit fairly upscale) audience for a radio news program, and because of the influential role it plays on the wider news agenda. All stories that contained the term 'MMR' were analyzed in detail.

Two surveys were carried out in April and October 2002. Both street surveys were conducted in Swansea, Bromley, Maidstone, Salisbury,[2] Birmingham, Liverpool, Skipton, Glasgow, Swindon and Newcastle. A total of 1035 interviews were carried out in April and 1037 interviews in October and spread evenly between the locations above (for all data presented here the *n* for the April survey is 1035, and 1037 for the October survey). All interviews were conducted on the street around the busy areas of the city and town centers. The samples were weighted to be nationally representative in terms of gender, age and occupation.[3] The survey questions were designed to find out what people knew about science issues that appeared regularly in the news, the MMR vaccine was one of the issues addressed and where there is public interest involved.

4. Findings

Our media sample consists of 521 stories; 14 appeared on television, 18 on radio and the majority, 489 stories, are found in newspapers. Coverage differed between those newspapers who campaigned on the issue (*Daily Mail, The Sun*) and those that did not, and between radio and television (see Table 1). The total coverage for the sample period on television was just over 46 minutes—a total of 23.36 minutes on ITV and 22.32 minutes on BBC. The total radio coverage was 1 hour and 35 minutes.

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Table 1. *Total number of MMR stories, 28 January to 15 September 2002*

The Sun	90
Daily Mail	82
Guardian	78
Daily Telegraph	72
The Mirror	66
Sunday Times	32
Mail on Sunday	28
Observer	23
News of the World	18
Today Programme	18
ITV Evening News	8
BBC Evening News	6
Total	521

The reporting of the MMR story overall was fairly consistent. While some media outlets took more overt positions on the issues than others, most coverage revolved around the same set of messages and ideas. The dominant narrative was that MMR was a public health controversy that became an urgent problem for Tony Blair's government. This was highlighted by the fact that the Prime Minister's young son, Leo Blair, was a child at vaccination stage. Many reporters felt it was in the public's interest to know whether or not Leo had had the triple jab—with Blair's son Leo becoming a test of the sincerity of government support for the vaccine. Amid reports that vaccination rates were falling, the media also latched onto Wakefield's 'solution' to the 'problem' of MMR—the idea of single vaccines as a safe alternative.

Of the 521 stories on MMR recorded over a seven and a half month period, 57% of the entire sample appeared in one month between 28 January and 28 February (see Figure 1). Coverage was most concentrated on television, after the *Panorama* broadcast 71% of television coverage appeared in the period between 2 and 16 February. It appears that it was in this key period that the dominant framework for understanding the MMR controversy was established.

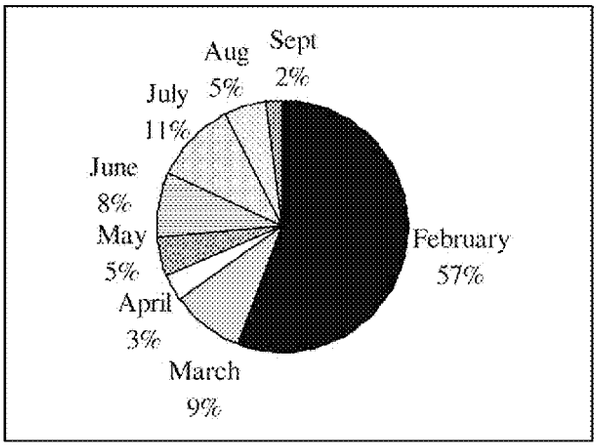

Figure 1. *Number of stories/month, February to September 2002 (n=521)*

Unlike many other science stories (Hargreaves, Lewis and Speers 2003), the MMR controversy was primarily covered by nonspecialist correspondents. In essence, this was a science story that moved from medical journals to the national news agenda without stopping for long with specialist correspondents. Only 20% of the stories in our sample were authored by science or medical correspondents, although this did vary from one medium to another. All the MMR stories on the *Today* radio program, for example, were presented by general news correspondents, whereas science/medical correspondents were more likely to present stories on television, where just less than 40% of MMR pieces were presented by them. This justifies the work of groups like the Science Media Centre (SMC) based out of the Royal Institution in London, UK. The SMC concentrates its work on general news journalists rather than science correspondents, who their research shows, are, for the most part, doing good work when reporting science issues.

5. The 'link' with autism

The MMR story linked together a series of themes. The link between MMR and autism—and hence the more general idea that the MMR jab may be unsafe—clearly provided the impetus for the story, and was mentioned in 70% of the stories in our analysis (See Figure 2). In just a few cases, such as the following example, reporters made the unproven nature of the link explicit:

(1) This week another paper from Dr Wakefield and colleagues found measles virus in the guts of 75 out of 91 children with bowel disease and 'developmental' problems including autism. The virus was present in the guts of five out of 70 healthy children. The study did not look at a link with MMR.

(*Daily Telegraph*, 7 February 2002)

In general, however, Wakefield's research received little in the way of analysis or scrutiny. Indeed, Wakefield is mentioned in only a quarter of the stories, with the broadsheet newspapers accounting for most of these references (suggesting that this was an aspect of the story that was often dropped by those media with less space available). Wakefield was referred to in 50% of MMR articles in both the *Sunday Times* and the *Observer*, in 35% of the *Daily Mail's* articles, and in only 12% of articles in *The Sun* and *The Mirror*.

While reporters did not necessarily endorse Wakefield's claims, the sheer repetition of the idea that the MMR jab might be linked to autism appears to have influenced public understanding of this issue. When asked 'Some recent research has suggested there might be a link between the MMR vaccine and which

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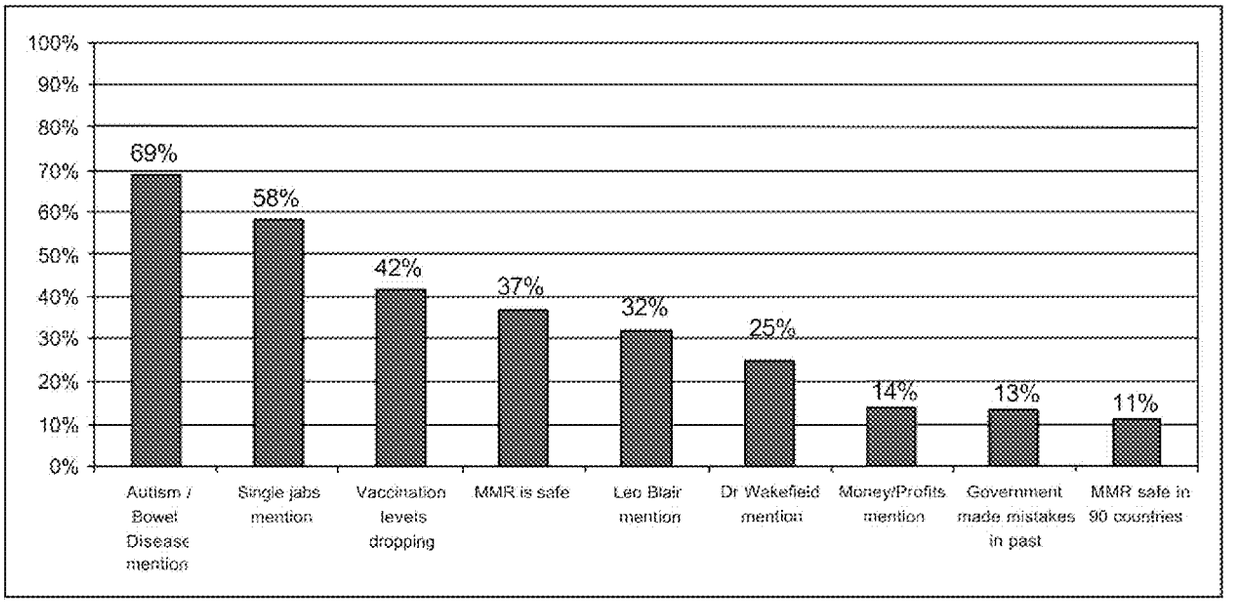

Figure 2. *Frequency of messages in MMR stories (rounded up to the nearest percentage) (n=521 stories)*

medical disorder?' two thirds of the people in our surveys (67% in April and 66% in October)[4] were able to name the specific condition linked with MMR.

What is missing from much of even the more balanced coverage is any sense of the *weight* of scientific evidence, which is firmly stacked on the side of those who support MMR. The impression created by most of the reports we looked at is merely that there is *conflicting* evidence on this issue, a point we will return to later.

Overall references to the autism/MMR link were made rather more often than the body of evidence indicating the safety of MMR jab. This is, perhaps, indicative of what journalists regarded as newsworthy about the story: the potential threat is seen as of greater news value than a lack of threat (Manning 2001). Thus while there were attempts to present both sides, this balancing act was, overall, tilted in favor of the potential threat (allegedly) posed by MMR.

Television took the lead in balancing Wakefield's claims against other scientific evidence: half the television reports on the issue referred to evidence that 'MMR is safe', while less than a third (32%) of the broadsheet press reports did so. Similarly, over a third of all TV reports mentioned that the MMR vaccine is regarded as 'safe in the 90 countries' in which it is used, which was one of the Department of Health's primary messages. However, this point was made in only 12% of tabloids and 9% of broadsheets, not once on radio, an average of 11% overall.

When the phrase 'MMR is safe' appeared, it was often prefaced or suffixed by information which challenged its safety. The following examples are fairly typical:

(2) a. Although health chiefs insist that the MMR vaccine is safe, many parents have been put off by uncertainty over possible links to autism and bowel disorders

(*Daily Mail*, 2 February 2002)

b. The government has mounted campaigns to persuade parents the MMR jab is safe after some research linked it to autism and bowel disorders in children

(*Sunday Times*, 28 April 2002)

6. The three-vaccine solution

Wakefield's recommendation that single vaccines are somehow safer than the MMR vaccine was a persistent theme in media coverage, mentioned in 58% of our sample. The fact that when Wakefield made this claim at a press conference, none of his co-authors endorsed it, was largely ignored in media coverage. In 2004 all co-authors of the original 1998 *Lancet* paper, except one, disassociated themselves (again) from Wakefield's findings. This disassociation was in light of revelations that there might be a conflict of interest as Wakefield received funding from the Legal Services Commission to look into the potential link between MMR and autism at the same time as he published the 1998 *Lancet* paper.

The case against single jabs is threefold: all the empirical data suggests that MMR is safe; the time lapse between three separate injections (Wakefield recommended a year) increases the likelihood of infant infection; and that, unlike MMR, there is no

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research on three separate vaccines (British Medical Association 2003). The idea of single vaccines nonetheless appealed to a certain 'common sense' of increasing parental choice, while the case *against* single jabs (and hence of limiting parental choice) is difficult to make in a limited amount of time. Indeed, the framework constructed here seems to place the burden of proof on the side of those *defending* the MMR vaccine.[5]

In this discursive climate, it was much easier for journalists to feel that, in advocating parental choice as a solution to the 'problem' of MMR, they were speaking in parents' interests. This idea thereby gained a great deal of currency—especially on television and in the tabloids (where 71% and 62% of stories mentioned the proposal to offer single jabs).

It fell to the *News of the World* to point out that:

(3) THERE is NO scientific evidence to support claims that giving MMR as three separate vaccines is safer than supplying it in a combined jab. No other country recommends using separate jabs.
(10 February 2002)

In one of the few other references to the absence of testing on the single vaccines, in a short article in the Education section, the *Guardian* reported:

(4) Did you know? The single measles vaccine is not licensed in Britain. GPs have to import it from overseas, and must take personal responsibility for any side-effects.
(19 February 2002)

Any suggestions that a single vaccine might be problematic were rare. Despite the lack of evidence, the single vaccine was widely reported as a way forward.

The Sun, sensing a popular campaign on behalf of this 'common sense' solution, campaigned for 'choice' and many editorials and articles emphasized the safety of the single vaccines over the MMR vaccine:

(5) *The Sun* has been demanding separate jabs for measles, mumps and rubella be made available on the NHS. Campaigners say single shots are safer than the triple jab—although the Government insists they can be MORE dangerous.
(7 February 2002)

The debate was not, on the whole, about the key scientific aspects of the controversy. The fact that the empirical evidence provided by Wakefield and his colleagues in the 1998 paper in the *Lancet* did not involve the vaccine at all (implicating the measles virus, *not* the MMR combination) received very little discussion. In short, the subsequent publicity given to the single vaccine occurred despite there being no empirical evidence to support it. These points matter, because the coverage clearly shaped the way many people understood the issue, and appears to have led to a loss of confidence in the vaccine in Britain—while confidence remains high elsewhere.

Indeed, when we asked people in our surveys which option they would choose,[6] the percentage opting for MMR was 53% in our April survey and 47% in our October survey, while 30% in both surveys said they would prefer three single vaccines. Given that many people have had an unproblematic experience of MMR, this suggests a remarkable level of support for an untested alternative.

7. Declining vaccinations—A self-fulfilling prophecy?

As stated earlier, the majority of parents (84% at the time of our study, see note 1) were vaccinating their children with the MMR vaccine. However, the decline in public confidence—the idea that vaccination levels were falling as a consequence of parental anxieties—was reported in 42% of MMR stories. A number of media reports used data rather selectively, which, although often technically correct, implied a more dramatic fall in the take up of the MMR jab. So, for example, the *Today Programme* reported that the MMR vaccine was down to '70% uptake in some areas' (2 February 2002), the *Daily Mail* reported that 'Uptake of the triple vaccine has fallen to 'dangerously low levels' in some areas, according to the Public Health Laboratory Service' (2 February 2002), while ITV News reported that 'in parts of London that figure is down to 65%—meaning only two children in three are having the MMR jab. With so many children left unprotected medical experts fear there is a distinct possibility of a measles epidemic.' (5 February 2002).

Other media simply made claims without any supporting evidence. *The Sun*, for example, reported:

(6) …growing concern of possible links between MMR and autism and bowel disorders have seen a massive drop in the number of parents opting for the treatment. The connection was made by Dr Andrew Wakefield in 1998. No scientists confirmed his findings but many parents say their children changed dramatically after the injection.
(5 February 2002)

That most parents were still vaccinating their children with MMR was rarely reported in the media. This disregard for the actions of the majority of

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parents frustrated the medical community who argued: 'media reports of widespread public refusal to accept MMR are wrong. Most mothers continue to seek advice from health professionals and the vast majority will go on to have their child immunized with MMR' (Ramsay et al. 2002: 916). The idea that the take-up of MMR was falling fairly rapidly also seems to have hit home. When asked the following, 'The MMR vaccine was first used in the UK in 1988. Research published in 1998 caused the first controversies surrounding the vaccine. Since that time the number of children vaccinated with MMR has…?' 20% in each survey replied that levels had *fallen by half* whilst 31% in April and 26% in October stated it had fallen by a quarter. Less than 20% gave the correct response, 'Fallen by a small amount'. This suggests that people are not necessarily responding to the details of media content but to its broad thrust. In this case, the repetition of the theme of declining take-up, often with the use of dramatic language or figures, led to an assumption overestimating that decline.

Ironically, the declining confidence created by this coverage may have made this a self-fulfilling prophecy. We do not know, as yet, what the longer term implications of this story are for the decline in take-up of the MMR vaccine, although our survey offers some clues. When respondents were asked what choice they would make, about half opted for the MMR vaccine. For many respondents, of course, this is merely a hypothetical choice. Nevertheless, this does suggest that while it remains the most popular option, there has been a loss of confidence in the vaccine. Indeed, our surveys found a decline in those opting for the MMR vaccine—from 53% in April to 47% in October. While this drop is too small to be given undue significance, it is reflected in the statistics in MMR take-up, which fell by 4% over the last quarter of 2002 and the first quarter in 2003 to dip below 80% (from a high of 92%).

8. The role of the Prime Minister

The Prime Minister's role in the story was mentioned in 32% of MMR reports—by no means the most prominent aspect of the coverage, but an important theme at a certain stage in the story's development. The following transcript from ITV news, broadcast on 4 February 2002, is indicative of the way the story developed, using the Prime Minister's son as a hook to hang the rest of the story on.

(7) In Tonight's poll most respondents think that Tony Blair should go public. 80% also want alternatives to MMR. This Liverpool clinic does just that—offering single jabs for each disease to worried parents.
Parent (holding child): You should be able to have your children vaccinated singly at your own doctors. I object strongly to being told what and when to inject into my children.
Cut to: Dr. Pat Troop, Deputy Chief Medical Officer: We have no concerns about our current vaccine. I think it will send a very strong signal that parents will say, hang on we think that maybe there is a problem around this vaccine—why else would you offer us a single vaccine—and confidence would go.

The Prime Minister's personal involvement was obviously newsworthy, but we should not overlook the significance of Tony Blair's role in the story. For people confused about who to trust, this was an important indicator of the government's faith in its own position. In a nutshell, was the government's support for MMR deeply felt or merely tactical and strategic? Leo Blair might, therefore, be reasonably seen as a test of the government's confidence in its own position. As *The Sun's* political editor, Trevor Kavanagh put it:

(8) Through no fault of his own Leo has complicated a very sensitive dilemma. His parents' silence fuel the doubts which the PM insists are groundless.
(7 February 2002)

In some ways, then, the Blair family dilemma encapsulated many of the story's themes about parental concern, parental choice, and the degree of trust that can be placed in the official government line. It is, perhaps, for these reasons that a question about his position (that it was a private matter for his family)[7] received the highest number of correct answers in both of our surveys with 66% of respondents in April correctly answering, 'The Prime Minister has stated that this is a private matter.', rising to 70% in October.

Overall, it appears from our data that the more prominent themes in the coverage—the link with autism, the single vaccine option, the (alleged) decline in public confidence and the role of the Prime Minister in the story—made an impression on people. We now turn to one of the more critical elements of the story—the way in which the actual claims and counter claims about MMR were reported, and how these reports influenced public perceptions about the safety of the vaccine.

9. The 'expert' parent and the balancing act

The use of members of the public as 'experts'—as they clearly are in this story—is fairly uncommon in news stories. So, for example, we may often see or hear members of the public complain about the state of public transport, but they are rarely allowed to use their experience as a basis to offer a prescription about what should be done. In general, it is left to

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experts or politicians to make sense of people's experience (see Inthorn, Lewis and Wahl-Jorgensen 2003). The MMR story was, in this respect, unusual, since the public were often used to provide a common sense, anecdotal expertise to support Wakefield's claims.

Nonetheless, an emphasis on the 'average parent' and the effects on their families is a common convention used by journalists. Brookes (2000) highlights a similar emphasis in BSE coverage and Henderson and Kitzinger (1999) report a similar emphasis on 'dramatic personal accounts' in the coverage of stories on genetics. What makes the MMR story distinctive was the way in which parents—in the absence of medical experts, most of who backed MMR—were used to provide support for Wakefield's claims.

Thus while the statistics suggested that the 'average parent' still opted for the vaccine, our analysis of media coverage provided a very different picture. In our sample, anti-MMR parents outnumbered those in favor of the vaccine, with 67% of parents quoted being against the MMR vaccine compared to only 13% who were quoted in its support (20% were unclear or undecided). This was most apparent on radio, where not one pro-MMR parent was quoted. This amounts to a significant over-representation of public opposition to the MMR jab. The following *Daily Mail* article illustrates this emphasis:

(9) Parents Mark, 38, a City trader, and Kate, 36, said they 'still feel confident we made the right choice' in not giving their children the MMR jab. 'We know children who've had the MMR and have reacted badly to it,' said Mr Fazakerley. 'One had a form of autism diagnosed after he had the MMR. Others have had bowel problems.'
Mother-of-three Pouli Otton yesterday called for single jabs on the NHS. Her daughters Natasha four, and Eleanor two, attend White House School and have had single jabs, while baby Alfred, eight months, stays at home and has not been immunized yet. She said: 'The whole thing makes me really cross. 1 don't know how people can refute the link the evidence suggests between MMR and autism.'
(14 February 2002)

As we have suggested, since most health experts were fairly clearly lined up in support of the MMR vaccine, balance was often provided by pitching medical experts against parents, particularly those from the pressure group Jabs (Justice, Awareness and Basic Support) an approach facilitated by the work of parental pressure groups on this issue. Set up by parents in the mid-1990s, Jabs aims to provide support for those parents who claim their children are damaged by vaccines. They also believe the current vaccine damage payment scheme is inadequate and are campaigning for increased compensation and supporting families who are suing pharmaceutical manufacturers. This balancing act created a serious difficulty for scientists and health professionals, who are only able to propose dry generalizations and abstract data against the more emotive and sympathetic figures of parents with real experiences and concerns. The role of parents in this balancing act allowed anecdotal evidence from parents with autistic children to enter the discussion—which, while not authoritative as scientific evidence, is powerful rhetorically.

Leask and Chapman also point to the 'liberal use' of personal stories in negative press coverage of vaccination (2002: 454). The following piece, an excerpt from a piece over 6 minutes long, is typical of the coverage, using parents who rejected the MMR vaccine opposite a scientist:

(10) *…Dr. Helen Bedford (Institute of Child Health)*: We know that by giving single vaccines the coverage of immunization would be reduced leaving individual children at risk of the diseases but also allowing the diseases to circulate in the population.
(CUT to parents in doctors waiting room)
Journalist: But some parents worried about MMR believe they should have an option for single doses.
Parent: 1 think there's sufficient enough concern and uncertainty that 1 don't see any down side in giving them the single jab.
Another parent: There should be a choice between the triple and the single injections.
(*ITV 6:30 News*, 6 February 2002)

Attempts to balance claims about the risks of the MMR jab tended merely to indicate that there *were* two competing bodies of evidence rather than offer more substantive evaluations of the case for or against a link. As Clements and Ratzan observed, 'To the audience, these polar views may appear more or less equal in merit…In reality, these two options are wildly unequal, with hugely different levels of certainty.' (2003: 23). This is not particular to the MMR issue and is common in the coverage of many scientific disagreements.

Research into other scientific controversies also highlights the problem of 'balancing' differing sides in science stories. So, for example, research into coverage of the creationism controversy in the USA found that journalists had reduced the arguments to two equally competing sides (Taylor and Condit 1988). In discussing the impact of reducing scientific arguments to two competing sides in the initial coverage of Aids, Steve Epstein argues this left the public 'unable to judge for themselves the relative solidity of consensus among AIDS researchers, (they) assumed controversy was rampant' (1996: 175).

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Table 2. *Public assumptions about the weight of scientific evidence on MMR by vaccinations options favored (n=1035)*

'Which of the following statements is true?'	Choice of vaccination			
	MMR vaccine (%)	3 separate jabs (%)	No vaccination (%)	Don't know (%)
Current evidence suggests a link between MMR and autism	17	42	30	15
Current evidence suggests NO link between MMR and autism	41	20	15	15
There is equal evidence on both sides of the debate	37	35	44	57
Not answered	5	3	11	13

Mormont and Dasnoy (1995: 61) suggest that, in general, the media tend to portray complex 'problems as conflicts between opposed parties' (see also Dunwoody 1999; Singer and Endreny 1993). In short, the journalistic routine of balance, while laudable in many ways, becomes problematic when the weight of evidence falls clearly on one side.

In this instance, the journalistic convention of balancing two sides of a story thus worked to amplify Wakefield's claims. Singer and Endreny suggest that this creates a misleading appearance of a scientific body of evidence more or less equally divided between two positions, rather than between a consensus of scientific opinion and a dissenting voice:

> The net result of these processes may be a spurious image of equally valid opposing positions, an image that serves to confuse, rather to enlighten, the unsophisticated reader. In addition, the presentation of divergent opinions, if there is no 'weighting' by either the relative frequency with which they are held or the quality of evidence on which they are based, may convey an inaccurate, even biased, picture of knowledge in a field. (1993: 15)

So did this balancing act on MMR achieve 'a spurious image of equally valid opposing positions', as Singer and Endreny suggest? Our surveys provide evidence that it may well have done. When asked about the weight of scientific evidence, according to our survey results, many people (25% in April, falling to 20% in October) felt that Wakefield's speculative claim was actually *backed* (rather than contradicted) by most research. But the traditional 'balanced' approach taken by many reports seems to have been what lingered in most people's minds: indeed, the impression of an equally divided body of research on the controversy appears to have hardened between April and October, rising from 39% to 53%.[8] In the October survey, only 23% were aware that the weight of evidence actually favored supporters of the vaccine.

What we see here is a distinctive pattern of learning, whereby people absorb a dominant media framework, and then use it to make suppositions (Lewis 2001). So even where reporters spell out the relative weight of evidence, as the following two reports show: What appears to *get heard* is merely that there are two bodies of evidence.

> (11) parents…have to decide who to trust—either the vast array of medical experts here and abroad who are convinced MMR is safe or Dr. Wakefield who has the vocal support of a minority of parents
>
> (*BBC News*, 7 February 2002)

> (12) THE Mirror cannot guarantee 100 per cent that the MMR triple jab is safe. Nor can Tony Blair. Nor can the medical profession. But consider the facts. In 90 countries MMR is used to inoculate children. The UK is the only one in which there is any suggestion it is not safe. And even here there has only been one report warning that it could lead to autism. Yet panic has gripped much of the nation. Perfectly sensible parents are terrified that they are threatening the health of their infants if they give them the triple jab.
>
> (*The Mirror*, 7 February 2002)

If we look at assumptions made about the weight of MMR research in more detail, we find evidence of a relation between those assumptions and attitudes towards the vaccine. In short, the more people overestimated the weight of evidence of Wakefield's side, the more likely they were to opt for the single vaccine rather than MMR. Table 2 shows that, of those who chose 'the MMR vaccine' as their preferred choice of vaccination, 41% also knew that the weight of evidence 'suggests no link between the MMR vaccine and autism', more than double the percentage of those who chose 'three separate injections' (20%) or 'no vaccination' (15%). Similarly, while 42% of those who favored single vaccines thought the weight of evidence was on Wakefield's side, only 17% of those who favored MMR believed this to be the case.

Given the risks involved following a loss in public confidence, should journalists subject the claims of scientists like Wakefield to more critical scrutiny

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before reporting them? This raises a more general question about the coverage of science, which we put to people in our October survey. We asked 'If a scientist makes claims that go against the great majority…how do you think the media should approach these claims?' Perhaps surprisingly, nearly half, 48%, felt that when scientists go against the grain (as Wakefield has), the media should *wait* until other studies confirm those findings before covering it (compared to 34% who said it was news, and hence should be reported).[9] This reticence may seem odd, particularly since this issue does not involve issues of privacy, and since such work may already be in the public domain through publication in reputable journals. But it speaks to the degree to which many people feel the need for expert *guidance* on scientific issues.[10]

10. Conclusions

Our study reveals that the main elements of the story—the alleged link between MMR and autism, the Prime Minister's refusal to disclose whether his son Leo had been given the MMR jab and the subsequent fall in public confidence—all associate the vaccine with uncertainty and doubt. All these elements, in turn, became widely known. This supports other research in the reporting of risk which finds that only certain themes and story lines are highlighted (Henderson and Kitzinger 1999: 567).

But could the public understand the intricacies of this scientific story? Our research suggests that the information most likely to be communicated is often based on oft-repeated associations (Lewis 1992, 2001). Indeed, the ability of people to absorb the dominant messages in the MMR coverage demonstrates the power of the news media to inform (or misinform) public perceptions.

The downside, in this instance, was that the overall framework used to tell the story created a perception of a divided scientific community with two conflicting bodies of research. This perception may have been exacerbated by Tony Blair's refusal to comment (which, for some, may have made the government's endorsement of the MMR jab ring hollow), and the sense that parents across the country were abandoning the MMR vaccine and demanding single vaccines instead. Most people were thus unaware:

a. that claims about the link were based on studies that invoked the measles virus rather than MMR;
b. that the great weight of research has failed to find any such link; or
c. of the untested nature of the three vaccine alternative.

So why did journalists pick up on Wakefield's research to start with? In part, because the framework for a public health controversy in which a maverick scientist takes on the establishment had already been established by the CJD/BSE crisis. As *the News of the World* and *The Mirror* put it:

(13) The government takes the line that there is 'no scientific evidence' to link MMR to autism. But parents can remember ministers insisting British beef was safe. Only single jabs will persuade those who have lost trust in government to have their children inoculated.
(*News of the World*, 3 February 2002)

(14) Of course there is a chance, however slim, that the experts are wrong. The British people, with their experience of mad cow disease, are entitled to be sceptical.
(Editorial, *Mirror*, 7 February 2002)

In this sense, the BSE/CJD controversy acted as a media template for the MMR story, it provided a 'context for unfolding events, serve(d) as foci for demands for policy change and inform(ed) the ways in which we make sense of the world.' (Kitzinger 2000: 81; see also Henderson and Kitzinger 1999 for a similar discussion of risk in media coverage of genetics).

There are two problems here. First, Wakefield's claims were not taken up by the media because of their merits. The fact that Wakefield employs a public relations firm, Bell Pottinger, and the fact that there are parental lobby groups available to push the case and provide easy copy for reporters, undoubtedly helped push his ideas onto the news agenda. Second, scare stories about British beef may have economic consequences but they do not create public health risks. The decline in take up of the MMR vaccine, on the other hand increases the chances of outbreaks of measles, mumps or rubella, all of which have potentially dangerous consequences.

We might conclude by saying that the critical scrutiny of those supporting MMR was not matched by a rigorous examination of the case against it. What most journalists failed to do, in this instance, was to interrogate Wakefield's claims or to examine the risks attached to the single vaccines option. The consequences of this failure on public health remain to be seen.

So what lessons does the MMR story provide for journalists? For us, the main issues of journalistic practice raised by this case are threefold. It is important, first of all, to be aware of the public health consequences of such stories. Journalists are sometimes uncomfortable with the idea that they play a role in influencing public attitudes, but when stories involve a potential risk to public health, they should proceed with caution. The fact that this story was covered mainly by nonspecialist reporters—who would, perhaps, have been less aware of the issues involved—does not suggest that it was.

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Secondly, the traditional 'balance' framework, since it tends to assume equal weight on both sides, can be misleading when the weight of evidence is very much on one side. At the moment journalists tend *either* to assume that the weight of evidence is probably correct (as, for example, most do in the coverage of global warming), or, as they did in the MMR case, take their lead from the BSE/CJD story and treat the medical and governmental establishment with a great deal of suspicion. It could be argued that, in this instance, journalists simply made the wrong choice—and thus should have ignored Wakefield's claims unless more compelling research emerged—but there should also be a way of covering a story in which the weight of evidence is made clear.

Finally, the MMR story also pinpoints the problems that occur when important claims are not subject to critical scrutiny. The precise nature of the empirical evidence provided by Wakefield and his colleagues was rarely reported. Had, for example, journalists spent more time going back to the 1998 *Lancet* article and examining it, it would have been a great deal more informative. The public would have been put in a better position to judge the evidence on its merits.

Notes

* This article is based on research published in *Towards a Better Map: Science, the Public and the Media*, available at: www.esrc.ac.uk/publications.

1. Statistics available at Public Health Laboratory Service (PHLS) website www.phls.org.uk/topics_az/vaccination/cover.htm. The statistics are measured by the number of children who had received the vaccine by their second birthday. The government admits that the measuring system is not perfect as it does not measure those vaccinated after their second birthday, nor does the system keep track of children who move out of their initial assessment area, nor children who have had single vaccines.
2. Taunton in first survey, changed due to newly introduced council charges.
3. Data production and interviews were conducted by Research and Marketing Ltd in Cardiff, Wales, UK.
4. Other answers: 'Blindness' Apr: 3% Oct: 4%, 'Dyslexia' A. and O.: 2%, 'Down's Syndrome' A.: 8% O.: 7%, 'Don't know' A.: 21% O.: 22%.
5. One of the earliest studies examining the relationship between science coverage and public opinion found that the appearance of a dispute often works to benefit *opponents* of technology see Mazur (1981), also Nelkin (1975).
6. The question asked: 'If you were making a decision on whether to vaccinate your child against measles, mumps and rubella, what would you choose?'
7. The question asked: 'Which of the following statements is true, 'the Prime Minister's son, Leo Blair, has had the MMR vaccine', 'The Prime Minister's son, Leo Blair, has not had the MMR vaccine', or 'the Prime Minister has stated that this is a private matter'?
8. The question asked 'Which of the following statements is true…?' with four possible answers: 'The weight of scientific evidence currently suggests a link between MMR vaccine and autism'; 'The weight of scientific evidence currently suggests no link between MMR vaccine and autism'; 'There is equal evidence on both sides of the debate; and 'Not answered'.
9. 18% had no opinion and only 34% felt the media should 'Give prominent coverage because it is news'.
10. See Collins, H and Evans, R. (2002) for an exposition on new definitions of expertise from a science and technology studies perspective.

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