VIRAL HEPATITIS

PUBLISHED BY THE VIRAL HEPATITIS PREVENTION BOARD

August 2001

Volume 9 - Number 1

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This edition of *Viral Hepatitis* is prepared from material presented at the Viral Hepatitis Prevention Board meeting (**'Behavioural issues in hepatitis B vaccination'**) held 23-25 March 2000 in Antwerp, Belgium.

EDITORIAL

Immunisation: a victim of its own success?
Immunisation is the most medically effective and cost-effective way to control vaccine-preventable diseases, and vaccines have saved millions of lives world-wide. But vaccination runs the risk of becoming a victim of its own success as the historical memory of dreaded childhood diseases disappears. Where it was once universally accepted that immunisations are a safe and important way to protect against serious infectious diseases, this unquestioned acceptance can no longer be taken for granted.

Although the vast majority of parents are still supportive of immunisation, both for their children and for the community at large, a noteworthy minority are not. Furthermore, even those who are supportive of immunisation often know little about how vaccines work. They may be susceptible to misconceptions about immunisation, and studies show that a significant minority of the public do hold important misconceptions about vaccination. These may range from the belief that vaccines cause serious side effects to the idea that too many immunisations will weaken a child's immune system.

When misconceptions about vaccines are reported in the media this can have very damaging effects – causing individuals to refuse immunisation for their children, lowering overall vaccination coverage rates, or even interrupting established and successful immunisation programmes. The latter was the case in France, when scientifically unsupported allegations about the safety of the hepatitis B vaccine prompted the French government to suspend temporarily the adolescent immunisation programme administered through the school health system.

So what can be done to avoid losing the public's confidence in immunisation? The answer lies in communication – communication between parent and practitioner, among health care experts and public policy makers, with the local and national media, national health authorities, and among international organisations.

To make informed decisions, the public needs plainspoken, science-based information on the clinical efficacy, safety, side effects, and duration of protection of vaccines. Also important is the source of information. It is clear that the public's preferred and most trusted source of information about immunisation is their health care practitioner. Several studies covered in this meeting report indicate that parents overwhelmingly want to be informed about immunisation by their doctor.

Doctors also express a need for immunisation information. As the demands on their time increase, and as immunisation information becomes increasingly complex, health care professionals need concise, timely information that helps them explain to parents the rationale behind immunisation recommendations. Doctors look to the public health authorities and professional bodies to relay this information. Policy makers also need access to the latest scientific perspectives on immunisation, written in appropriate language.

Furthermore, the public receives information from a variety of sources, including the lay and medical media. It is important for the medical community and public health authorities to understand the needs of the media and to learn to communicate effectively with journalists from the lay and medical media. The media can have a tremendous impact on the public's attitudes towards immunisation and they can reach the widest audience.

Journalists will write about vaccination if it is a topical issue that clearly presents a need and an opportunity to say something new. Journalists are also under considerable time pressures and have a mandate to report, that which is interesting and newsworthy; this can lead to a tendency to oversimplify and sensationalise.

The quality of media coverage can be improved, however, by developing good working relationships with the media, and through consistent, science-based but straightforward communication with leading journalists and editors. Simple, clear, science-based messages that convey the scientific underpinnings of immunisation recommendations and address important issues about immunisation can go a long way towards helping journalists – at the local, national, and international levels - create balanced, accurate articles.

Good science and good communication are the keys to maintaining public trust in immunisation and are needed to dispel misconceptions about immunisation. Only with the support of the public, policy makers and the media will life-saving immunisation programmes continue unabated.

Johannes Hallauer,
on behalf of the Viral Hepatitis Prevention Board (VHPB)

Report on the Viral Hepatitis Prevention Board meeting held 23-25 March 2000 in Antwerp, Belgium

Vaccination and ethics: individual rights versus societal health

Vaccination against a communicable disease may be voluntary or compulsory. Different societies have chosen different approaches with respect to childhood immunisation against the major illnesses that threaten in early or adolescent life, and may have chosen a voluntary approach for some diseases while mandating compulsory vaccination for others.

The ethical issue of whether it can be justified for society to force parents to have their children vaccinated is the subject of continuing debate, and is given sharper prominence by parental concerns about possible adverse reactions to immunisation.

The debate can be viewed at the 'micro-philosophy' level of the individual, and concerns the individual's right to self-determination, and at the 'macro-philosophy' level, which concerns the relationship between the individual and the society, and the obligation to protect other individuals from harm.

Ethics have long been used in societies as a tool for humans to promote their survival, with the individual having responsibility to act in the interest of the group. This view is shared by many diverse cultures, and takes a number of forms: basic education is made compulsory; laws must be adhered to or the individual is punished; passports are required for safe conduct; marriage, birth, and death certificates, as well as driving licenses and building permits are all accepted as part of everyday life. Even unspoken rules such as manners, customs, and tradition exert an influence over the individual and often compel him to act in a way that is not self-determined.

In the medical sphere, the micro-philosophy of the right to individual autonomy implies that no-one should be subjected to treatment without first having given informed consent, while the macro-philosophy of the obligation to protect other individuals from harm implies that the doctor has a duty of beneficence (to do good) and non-malfeasance (to do no harm).

Individuals may choose to reject vaccination for a variety of reasons, including:

- no perceived threat from the disease
- an allergy to the vaccine
- fear (of the vaccine, needles, pain, etc.)
- a distrust of doctors
- a distrust of science
- a resistance to the collective will
- a belief that vaccination is unnatural
- a belief that vaccination against disease is usurping God's will.

Considered from the micro-philosophy level, the individual's right to autonomy suggests that he has the right to reject vaccination on whatever grounds. However, those responsible for public health issues may take the macro-philosophy view that compulsion is the only way to achieve sufficiently high vaccine coverage to provide the desired degree of protection for the population against a disease. Furthermore, coercion may be ethically exercised if this is done to prevent harm to others. Since innocent bystanders may potentially suffer illness if infected by someone who has refused vaccination, it would, by this argument, be ethical to make vaccination compulsory.

The Council of Europe's statement regarding human rights addresses this issue. Put forward in 1966, the statement reads that

> **'Everyone has the right to liberty and security of person' except 'for the lawful detention of persons, *for the prevention of spreading of infectious diseases*'.**

While Article 8.1 states:

> **'Everyone has the right to respect for his private and family life, his home, and his correspondence'.**

Article 8.2 continues:

> **'There shall be no interference by a public authority with the exercise of their right except such as is in accordance with the law and is necessary in a democratic society in the interests of national security, public safety, or the economic well-being of the country, for the prevention of disorder or crime, *for the protection of health* or morals, or for the protection of the rights and freedoms of others'.**

Compulsory vaccination does raise the issue of how the individual will be coerced into allowing vaccination that he or she does not want. A number of approaches have been employed, and coercion can be exerted through: laws and sanctions; withholding a license to act (for instance, allowing children to enter the school system only after they have been immunised); social pressure; and requiring compensation from the individual (in terms of service or time, as is the case with conscientious objectors).

While compulsory vaccination may be ethically justified in some cases, a voluntary approach can also be highly successful, provided it is accompanied by information campaigns that appeal to rational decision-making and the obligation to accept responsibility for the well-being of others.

The experience in the United Kingdom provides a good example. Levels of immunisation in the UK are high, despite the fact that vaccination is voluntary, although there is some variation from one area to another. Although it is unlikely that a decision by a small minority of parents to reject vaccination for their children will significantly alter the level of population immunity, the level of 'herd' immunity to a potentially serious disease is seen as a key factor in determining whether or not compulsory vaccination could be judged as acceptable.

A voluntary policy must be pursued with sufficient vigour, or it will fail. To be effective, voluntary vaccination must be backed by strong efforts to explain its value, coupled with honest and accurate information about risks and benefits. With voluntary vaccination, coverage can be eroded quickly if trust in vaccine safety is damaged. And while some may judge it unethical to require compulsory vaccination, it is also unethical to allow a campaign to fail through insufficient presentation of the benefits to society.

In essence the macro-philosophic view prevails over the micro-philosophic position. Should the individual be dissatisfied with this arrangement or any of the offered accommodations (such as payments to the state, enhanced insurance premiums, voluntary social work, etc.) then he or she would have the option of signing up with a society that did not have such obligations on the individuals. (The right of the individual to leave the society must not be impugned. The rights of an individual to join another society would be up to the negotiation of a mutually agreeable 'social contract'. Of course, the individual would have to balance the discomfort of remaining in a society that requires vaccination against the uncertainties of being accepted by another society that did not have such rules and that was willing to negotiate satisfactory terms).

Based on a presentation by Prof R E Spier, School of Biological Sciences, University of Surrey, Guildford, UK.

Infant hepatitis B immunisation programmes: attitudes of paediatricians, family practitioners, and parents

A study conducted in 1993 by researchers at the University of North Carolina, Chapel Hill in the United States found that paediatricians and family physicians differ in both agreement with and adoption of universal hepatitis B (HB) immunisation for infants. Adoption of recommendations is likely to be influenced by practice policy, physician attitudes, and perceived parental opinions.

Conducted two years after the Advisory Committee on Immunization Practices (ACIP) recommended universal immunisation of infants, the study aimed to assess rates of agreement with and adoption of the universal hepatitis B vaccine recommendation among paediatricians and family physicians in nine states. The researchers also looked at physicians' attitudes related to hepatitis B immunisation and their perceptions of parental attitudes regarding the hepatitis B vaccine.

Questionnaires were mailed to 3,014 physicians (1,165 paediatricians and 1,849 family physicians) selected from the American Medical Association (AMA) Masterfile, a database of all physicians in the United States. The study population represented metropolitan and non-metropolitan areas in California, Texas, Wisconsin, Colorado, Massachusetts, Tennessee, Pennsylvania, Georgia, and Hawaii. These states were chosen to provide variability with respect to region of the country, population dispersion, patterns of organisation of care (fee for service vs. managed care), state vaccination distribution systems, and immunisation rates.

The researchers were primarily interested in whether the physicians agreed with and had adopted the recommendation for universal hepatitis B immunisation, and what factors influenced agreement and adoption.

The possible influencing factors considered included physician characteristics such as speciality, practice type (solo vs. groups vs. public clinic), practice location, and the proportion of patients enrolled in managed care plans and in Medicaid. Physician attitudes to HB immunisation (e.g., perception of long-term efficacy and the infection risk among their patients), sources of immunisation recommendation information, knowledge about the recommendation, personal completion of the HB immunisation series, and impressions of parental opinions about the vaccine were also studied.

The results of the study showed that paediatricians were more likely than family physicians to report that they knew 'a lot' about the recommendation (95% vs. 84%), agreed with it (83% vs. 57%), and had adopted it into practice (90% vs. 64%). More physicians in both specialities adopted the recommendation than actually agreed with it.

The gap in adoption rates between paediatricians and family practitioners was difficult to explain. Since few family practitioners were unaware of the recommendation, the issue was not one of being uninformed. Rather, many family practitioners were unconvinced that universal hepatitis B immunisation was in the best interest of their patients.

For paediatricians, those in solo practice were less likely than others to have adopted the recommendations (85% vs. 96%) and AAP (American Association of Pediatricians) members were more likely than non-members were to have adopted the recommendations (93% vs. 84%).

With respect to personal immunisation status, 90% of family physicians and 87% of paediatricians had completed the hepatitis B vaccine series. Family physicians who had completed the HB vaccine series were more likely to adopt the recommendation for universal hepatitis B immunisation (64% vs. 45%) but were no more likely to agree with it. Among paediatricians, personal hepatitis B immunisation was associated with increased rates of agreement (80% vs. 64%) and adoption (88% vs. 76%).

Several factors seemed to influence physicians to implement the policy even when they did not agree with that policy. For paediatricians, having more than 50% of patients enrolled in managed care plans was associated with higher rates of adoption but not agreement; the decision to implement the policy may have been dictated by the managed care organisation, sometimes in conflict with the personal opinions of the physicians.

Perceived parental opinion was an important factor in influencing physician behaviour. The data show that parental request was associated with greater likelihood of adoption by both paediatricians and family physicians. Parental objection was negatively associated with the adoption of the recommendation to immunise.

Knowledge, agreement, and adoption of hepatitis B immunisation recommendation among physicians responding to the survey

	Family physicians (N=679) (%)	Paediatricians (N=742) (%)
Knows a lot about the recommendation	84	95
Agrees with the recommendation	57	83
Adopted the recommendation	64	90

Physician perception of parental and staff attitudes about hepatitis B vaccination

	Percentage of family physicians who agree with this statement (N=679)	Percentage of paediatricians who agree with this statement (N=742)
Parents know about the recommendation	20	37
Parents resist the recommendation	14	9
Parents request hepatitis B vaccine	13	23
Parents resist the number of injections now recommended at a single visit	34	22
Office staff resist the number of injections now recommended at a single visit	23	12

Over half of the physicians in the study perceived their infant patients to be at low risk for hepatitis B infection; these physicians were less likely to agree with or adopt the universal hepatitis B recommendation. Physician concern about the long-term efficacy of hepatitis B vaccine was also associated with a lower likelihood of agreeing with and adopting the recommendation.

The study concluded that even though agreement with and adoption of universal hepatitis B immunisation has increased over time, the rates remain lower than the levels of adoption for other vaccines. Research is needed to identify critical issues and potential barriers as new vaccines are introduced. Furthermore, information on vaccine recommendations should be provided to physicians and parents in a convincing, easy-to-understand, and timely manner.

Based on a presentation by Dr Gary Freed, University of Michigan, Ann Arbor, Michigan, USA.

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Freed GL, Freeman VA, Clark SJ, et al. Pediatrician and Family Physician Agreement with and Adoption of Universal Hepatitis B Immunization. The Journal of Family Practice 1996; 6: 587-592.

A model for understanding why physicians adopt clinical recommendations

Many different factors influence physician adoption of clinical guidelines. In the case of vaccination, medical societies and public health officials traditionally assumed that physicians would agree with and adopt new immunisation recommendations as a matter of course. However, recent studies demonstrate a variation in awareness and adoption of new immunisation recommendations for *Haemophilus influenzae* type b (Hib) and hepatitis B vaccines among physicians.

Using children's vaccine recommendations as a case study, researchers at the University of North Carolina, Chapel Hill established a model that can be used to identify and understand many of the characteristics likely to impede or facilitate guideline adoption. Although immunisation recommendations are used as a case study, the model is useful in understanding factors related to physician adoption of clinical guidelines in general.

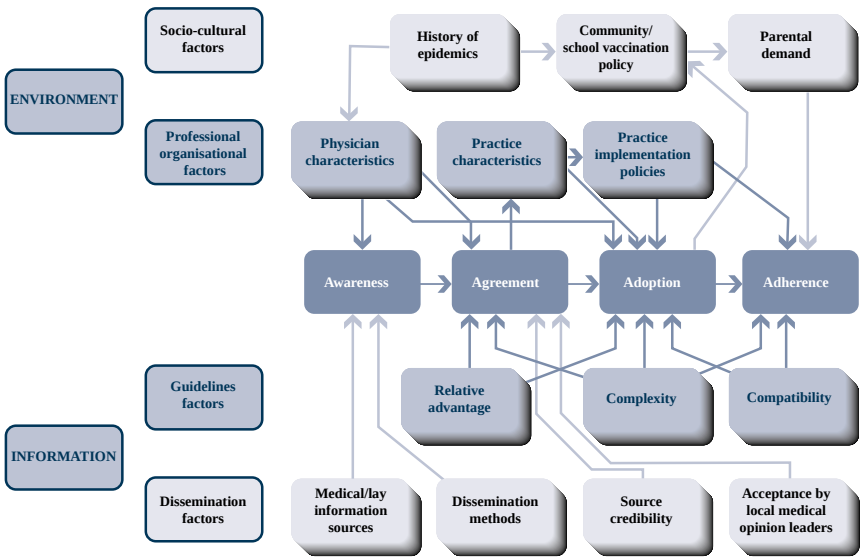
The model establishes four steps in the process of adopting guidelines: awareness, agreement, adoption, and adherence, each of which can be catalysed or retarded by many influences. These influences can be grouped under (1) *environmental characteristics* of the physician's practice and (2) *information characteristics* of the guideline.

Environmental characteristics include socio-cultural, professional, and organisational factors. Socio-cultural factors encompass such things as previous history of epidemics, community or school vaccination policies, and parental demand. Professional and organisational factors comprise individual physician characteristics (e.g., age, speciality), practice characteristics (e.g., solo, group) and practice management policies.

In terms of individual physician characteristics, it is not only age, training, and speciality, but also values, social position, and social background, which influence patterns. It is also necessary to understand the organisational context in which the physician works and how this impacts decision-making. The individual motivation to innovate is in direct relation to the support or obstacles presented within the organisation. The effects of group style or peer pressure are thought to be stronger in more formally organised practices, such as health maintenance organisations. It has also been noted the time to adopt new therapies is shorter for physicians in group practices than for those in solo practice. Outside factors strongly influence practice as well. State or local regulations specifying vaccine requirements for public school attendance strongly influence physician's vaccine practices.

Information characteristics comprise features of the guideline itself and the way in which the information is disseminated. The characteristics of immunisation recommendations would include the relative advantage of the recommendation, its complexity for providers and parents, and its compatibility with existing recommendations. When new vaccine recommendations are made for diseases not perceived as severe or life-threatening, the relative advantage becomes less clear to physicians and parents. The perception of relative advantage of new recommendations also wanes as the living historical memory of dreaded childhood diseases diminishes. In addition, each new vaccine recommendation increases the complexity of the entire process, adding room for confusion and error.

Model of the immunisation recommendation implementation process



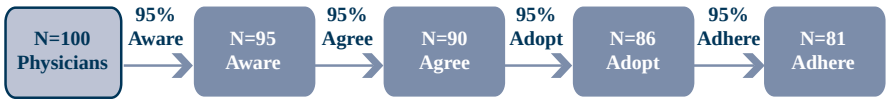
Awareness, agreement, adoption, adherence

The process of implementing a new immunisation recommendation begins with awareness, where the physician learns about the guideline. The sources of information may include communications from the scientific institutions (e.g., CDC), speciality societies, local health departments, medical journals, television or other lay media, or colleagues.

The next step in the process is agreement, when the physician understands and approves the recommendation. Movement towards agreement is influenced most strongly by the credibility of the information source, the relative advantage of the new recommendation over the status quo, the complexity of the new recommendation, and the agreement by local medical leaders.

The next step is adoption, where physicians move to a concrete endorsement of the recommendation to patients and change clinical practice accordingly. The more complex the new recommendation, the longer it will take to adopt. Adherence, the final step, involves the outcome: whether or not patients consistently receive immunisations as recommended. Here parental agreement plays a role; parental agreement may be influenced by physician recommendations, friends, school requirements, and the news media, all of which can impact parents' impressions of the safety, efficacy, and need for the vaccine.

The awareness-to-adherence model: the effect of 95% progression through each stage in the process



The model implies that all stages are equally significant and that progression through one stage is essential to reach the next. However, some influences on physician behaviour may be so great as to cause stages to be skipped.

Based on a presentation by Dr Gary Freed, University of Michigan, Ann Arbor, Michigan, USA.

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Freed GL, Pathman DE, Konrad TR, et al. Adopting Immunization Recommendations: A New Dissemination Model. Maternal and Child Health Journal 1998; 4: 231-239.

Attitude towards vaccination differs between countries in Europe

A six-country survey of the public's understanding of vaccination carried out by IFOP-Gallup (a French market research company) showed significant differences in the awareness of and attitudes towards vaccination among Europeans.

Twenty-five health journalists and five hundred members of the public from each country included in the survey were interviewed by telephone in their native languages between December 1997 and January 1998. The countries included in the survey were Belgium, France, Germany, Italy, Spain, and the United Kingdom. In total, 3,004 people participated in the survey.

Respondents from the public were surveyed on:

- spontaneous awareness of vaccine-preventable diseases;
- motivations for and obstacles to getting vaccinated;
- sources of information and level of trust;
- preferred sources and type of information;
- expectations for future vaccine research.

While press respondents were surveyed on:

- vaccine-related topics covered in the press and motivations for covering vaccination in the lay press;
- sources of information and level of trust.

There was, however, one striking similarity among the attitudes of all those interviewed. It is clear that the main source of information on vaccination for the European public is a medical contact (71%), most often a general practitioner, but also paediatricians, nurses, and school or occupational health professionals. The level of trust among the public is also very high (more than 90%); in addition, the general practitioner or medical contact is the preferred source of information for Europeans (77%).

Overall, the public were most aware that flu (44%) is a vaccine-preventable disease; this is not surprising, in that the study was conducted during the flu season when communication campaigns were under way. Poliomyelitis (32%) and tetanus (30%) came just after flu, followed by measles (29%), rubella (21%), and hepatitis B (20%). The Belgians, Italians, and Spanish have a relatively poor knowledge of vaccination in general. Germans have a good understanding of which diseases are vaccine-preventable, and are most aware of diphtheria as a vaccine-preventable disease.

In France, respondents seem to know more about vaccine-preventable diseases than other Europeans, and are particularly sensitive to flu and hepatitis B. Respondents in the UK know basic vaccination quite well, as well as vaccinations for travellers. Awareness of hepatitis B vaccine, on the other hand, is the lowest among the six countries, perhaps because hepatitis B is not part of the routine vaccination programme in the UK.

Overall, principle motivations for getting vaccinated include: fear of the disease (48%); vaccine efficiency (46%); doctor's recommendation (13%); and travel (12%). The main obstacles to vaccination are: fear of general side effects (19%); fear of local side effects (13%); fear of needles (8%); and lack of time (7%).

The French mentioned time constraints more than other respondents; this could be due to the fact that in France people have to go to their doctor, then pharmacist, then doctor again to be vaccinated. Belgians fear the disease less than others in Europe, but conversely seem more afraid of getting the disease through the vaccine. Germans are motivated mainly by fear of getting the diseases, and vaccines are considered an efficient way to prevent them. Respondents in Italy receive vaccination because vaccines are considered efficient, while Spain is characterised by a higher sensitivity to health authority campaigns. UK respondents are more often vaccinated for travel reasons than others are. In the UK, some fears about side effects are apparent and negative media coverage is also an obstacle to vaccination. In all countries, however, the positive aspects are far higher than the negative ones, and nearly one-third of respondents could not state a reason not to be vaccinated.

In the last year, 46% of the interviewed journalists covered a vaccination issue between one and three times. Twenty percent covered a vaccination topic more than four times. Topics covered most often include: flu (88%); hepatitis B (79%); and hepatitis A (73%). The main reason for writing an article on vaccination is to cover a topical issue that clearly presents a need and an opportunity to say something new.

In-depth articles represent 9% of coverage; seasonal vaccination (flu, travellers) accounts for 7%; while research and development and new vaccines represent only 3% of articles or programmes. In particular, the Belgian press writes more in-depth articles (20%) than their European colleagues; the German press includes more seasonal articles (16%) than the average; and the Spanish mentioned epidemics as their main subjects, which is not surprising given the meningococcal disease events in Spain in 1997.

The main source of information (71%) on vaccination for the public is a medical contact, and the level of trust is very high (over 90%). Print media is the second most cited source of information (32%), with 65% saying they trust this source of information. This is followed by broadcast media (32%), which has a trust level of 73%, and word of mouth (15%), which rather surprisingly rates highly in terms of trust (72%).

Belgians mention doctors as the main reference more than anyone else (75%); in France, the media is a more important source of information than in other countries (67%), and as many people receive their information from the media as from the medical community. In Spain, the role of the health authorities is stronger than elsewhere (15% vs. 5%). In Italy, the role of the medical community is weaker (59%) than in other countries, despite its good credibility rating (nearly 100%). In the UK, one can notice a larger difference than in other countries between the trust in the medical contact (95%) and the trust in the media (54%).

The press mainly receives information from the government or other public bodies (89%). Doctors and international organisations also play an important role as experts. The medical press are the third most important source of information for the lay press, while vaccine companies, the Internet, and pressure groups are less frequently consulted. Doctors, international organisations, and the international medical press are considered to be the most credible sources.

The general practitioner is the most appreciated source of information for the public in Europe (77%). There is also a strong expectation from the public for information from the health authorities (58%). The media are also expected to play a role in disseminating information (51% for broadcast media and 43% for print media). High expectations are placed on pharmacists (42%), which contrasts with the fact that they are not currently playing an important role. Those in Belgium, Germany, and Spain do not have a high demand for more information, while in France 57% want more information, as is the case in Italy (68%) and the UK (61%).

Generally speaking, the type of vaccine information Europeans are looking for is similar: information on clinical efficacy (35%), general side effects (28%), local side effects (21%), and duration of protection. Diseases that can be avoided by vaccination are also of interest.

In terms of expectations for the future, AIDS is spontaneously mentioned as the first wish in terms of a vaccine (71%), followed by cancer (55%), and hepatitis C (10%). AIDS and cancer were one and two for all countries.

The reactions of respondents to the survey indicate that demographic groups can be identified that cut across national boundaries. Understanding the attitudes of these groups can be useful to health authorities and physicians who are attempting to reach different populations and make them aware of the value and necessity of immunisations. Knowing where different groups look for information is also useful when creating information campaigns about immunisation programmes.

Demographics in terms of attitudes towards vaccination

All of the 3,004 people surveyed could be grouped into one of seven categories in terms of their attitudes towards vaccination. These groups include:

- **the unaware father** who knows little about vaccination and follows the doctor's advice;
- **the negative elder** who views vaccines as unessential and diminishing the immune system and who looks to the media for information;
- **the passive** includes those who see vaccination as a childhood requirement and a matter for the health authorities;
- **the protective mother** who is well informed an who trusts paediatricians and the health authorities but not the media;
- **the highly involved** are people who often belong to risk groups such as health care workers and who are the most vaccinated against all diseases;
- **the anxious, well-off mother** who considers vaccines important but who would perhaps hesitate to get vaccinated because of fear of disease from vaccination;
- **the sceptic middle aged** who sees vaccination as specific to childhood, and who is unconvinced of its value and does not feel he needs further information.

Based on a presentation by Dr Karine Van Hasbrouck, Aventis Pasteur MSD, France.

Parents and the lay public: attitudes towards immunisation

A series of focus groups and a national survey conducted by the National Network for Immunisation Information (NNii) in the United States found that the vast majority of parents correctly understand that immunisations are a safe and important way to protect their children against serious infectious diseases. Another important finding was that their child's doctor is their primary and preferred source of immunisation information. Paediatricians were viewed by 84% of the public as the most credible and authoritative source of information about immunisation. Also important, however, was the finding that 20-25% of parents have serious misconceptions that may undermine their confidence in immunisation.

An independent non-government organisation, NNii, conducted the focus groups to study the attitudes of the lay public with relation to immunisation. In early 1999, the series of fifteen focus groups was conducted nationwide with an ethically, economically, and attitudinally diverse sample of parents of young children. The primary purpose was to uncover the full range of relevant immunisation beliefs, knowledge, and behaviours that influence parents' decision-making about immunisations. The results of the research were used to develop a comprehensive questionnaire for use in a national survey. The national survey was conducted among a representative sample of parents of young children and expectant parents to assess the prevalence of key immunisation beliefs and behaviours. The study has since been published in the November issue of *Pediatrics*.[1]

Although general support for vaccination was widespread among those surveyed, a significant proportion of parents expressed certain misconceptions about immunisation. NNii also conducted an additional set of four focus groups to assess parents' response to a television network news programme aired in the US that presented allegations that the hepatitis B vaccine may cause serious chronic illnesses, or death, in an unknown proportion of people receiving the immunisation. Most participants found the segment to be unsettling, and some indicated it would cause them to reconsider immunising their children against hepatitis B. Conversely, most participants were at least somewhat sceptical of the news segment, believing that TV news magazines tend to sacrifice balance in favour of sensationalism.

In addition, two focus groups were held with physicians to discuss communicating with patients about immunisations, to assess their perceived needs for additional communication resources, and to pre-test a concept for a resource kit designed to help health care professionals communicate more effectively about immunisations with their patients.

Participants responded favourably to the patient communication resource kit concept, especially its comprehensive nature (all the communication information they require in a single location) and its focus on helping parents with questions and reservations about selected vaccines or the immunisation concept to better understand the scientific basis of the recommendation to immunise. The Resource Kit, called 'Communicating with Patients about Immunisation' is now available on-line from the NNii web site: http://www.immunizationinfo.org. A conflict in the attitudes of parents and physicians regarding immunisation was brought to light by the survey. Although parents want immunisation information to come from their health care provider, the health care providers believe that the CDC and other government organisations should be more active in spreading this information. Additionally, health care providers express an increasing need for concise information from government authorities about immunisation issues.

Some key findings of the focus groups and survey were that:

- The large majority of parents are highly supportive of immunisation, both for their own children and for the community at large.
- Most parents give little thought to immunisation issues and have little knowledge about infectious diseases. Furthermore, most parents do not actively seek or process immunisation information.
- Parents know little about how vaccines work, how they are produced, how they are recommended, or how they are monitored once they are available and incorporated into immunisation programmes.
- Parents get information about immunisations from a variety of sources including books, newspapers, magazines, television, and the Internet, but they want their health care providers to answer their questions about immunisation and to provide them with materials they can read.
- Lateral networks (such as friends working in the health care sector) are an important source of information for parents.
- A significant minority of parents hold important misconceptions that may serve to undermine their support of vaccination in the future.

Some of the most commonly cited misconceptions about immunisations are that:

- diseases disappeared before vaccines were introduced;
- children should only be vaccinated against 'serious' diseases;
- most children who get diseases have been vaccinated;
- vaccines can cause many harmful side effects;
- diseases have been eliminated so there is no need for vaccines;
- receiving too many immunisations will weaken a child's immune system. For example, in the NNii survey, approximately 25% of respondents believed that a child's immune system could be weakened by immunisation.

NNii has identified a number of challenges to be met in order to help parents, policymakers, health care professionals, and the media, to gain a better understanding of the issues and to make the best possible immunisation-related decisions.

Simple, clear messages that convey the scientific underpinnings of immunisation recommendations and clarify important misconceptions must be delivered repeatedly and through a number of sources (most importantly, through their child's doctor) to parents. Repetition over time of these messages is the most certain means of helping parents make good, informed decisions.

Additionally, health care professionals have issued a clear call for help. Increasing time pressures and the increasing amount of information make education responsibilities far more challenging for them. Communication tools that maximise the health care professionals' time and credibility are essential. Policy makers also need access to the latest scientific perspectives on immunisation, written in appropriate language.

Changing the nature of media coverage of immunisation issues may be the most difficult challenge of all, but possibly the most important as press coverage affects the quality of information reaching all audiences. The quality of media coverage can be improved, however, through consistent, well-prepared, science-based but plainspoken outreach to leading journalists and editors.

Based on a presentation by Dr Bruce Gellin, Vanderbilt University School of Medicine, Nashville, Tennessee, USA.

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1. Gellin BG, Maibach EW, Marcuse EK. Do Parents Understand Immunizations? A National Telephone Survey. Pediatrics 2000;106:1097-1102.

Attitudes of health care providers to hepatitis B immunisation in six EU countries and the US

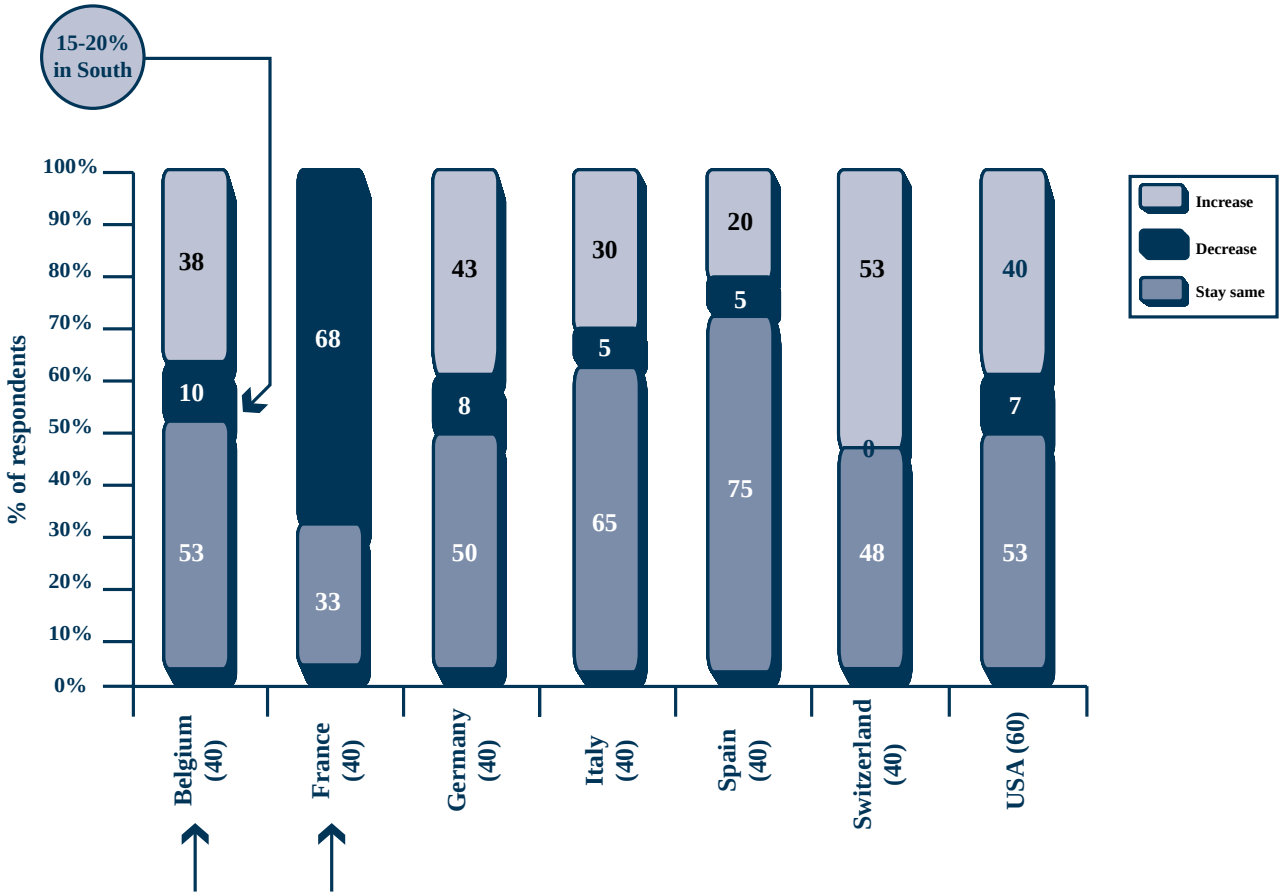
A seven-country survey on the attitudes of health care providers concerning the safety of hepatitis B immunisation found that physician practice concerning immunisation is most strongly influenced by patient attitudes when there is a public crisis of confidence in a vaccine.

The study was conducted at the end of 1998 in response to the persistent concerns in France over the safety of the hepatitis B vaccine and the possibility that it may be linked to new cases or flare-ups of multiple sclerosis (MS). Although no scientific data support the idea that HB vaccine causes or exacerbates MS, the uptake of HB vaccine and of other vaccines as well has decreased significantly in France since the first media reports of a possible link between HB vaccine and MS. It was this crisis of public confidence that led the Ministry of Health in France to suspend temporarily the universal adolescent immunisation against hepatitis B through the school health system.

In France, the media have had a tremendous impact on public perception of hepatitis B vaccine. At the peak of the vaccine safety scare, there were more than a dozen television broadcasts and over eighty articles in the lay media covering the topic in one week. In a nine-month period, hepatitis B vaccine coverage dropped by 50% for infants and 60% for adults. SmithKline Beecham Biologicals (now called GlaxoSmithKline) commissioned a study to determine the international impact of the situation in France and any possible 'spillover' to other countries. A telephone survey of over three hundred physicians from Belgium, France, Germany, Italy, Spain, Switzerland, and the United States was conducted. The sample was nationally representative of physicians who had been involved in hepatitis B immunisation programmes within the past twelve months. Eligibility for family physicians was restricted to those who had recommended hepatitis B vaccination to at least one subject per month during this period; specialists were required to have recommended immunisation to at least ten patients per month on average.

In terms of prescribing habits of physicians, very little change (between 0% and 8%) was found among physicians in Germany, Italy, Spain, Switzerland, and the United States. In Belgium, a 10% decrease in the intention to vaccinate was found; when taken by region, this decrease was most pronounced in the southern, French-speaking part of the country. Here the intention to vaccinate declined by between 15-20%.

Impact of public perception of hepatitis B vaccine safety
- October 1998, after the French crisis in the same year - on physicians' intention to vaccinate

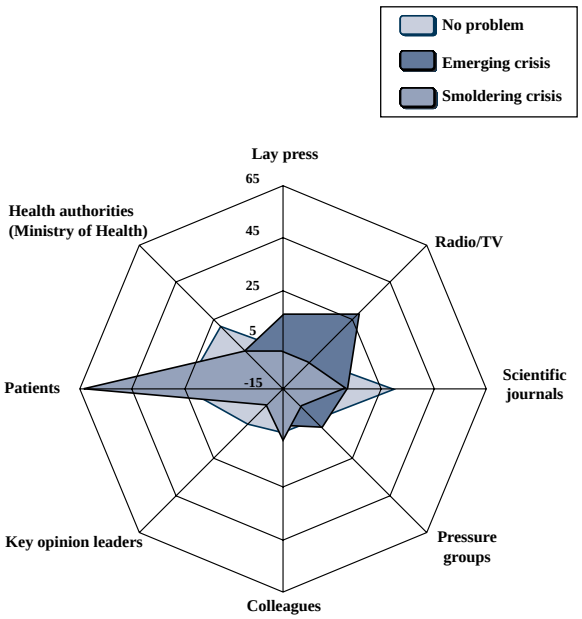


What became clear in the survey was the relative importance of information channels, depending on the public's attitudes towards the vaccine. Under normal circumstances, where the vaccine is not in the spotlight, health care providers rely primarily on scientific journals, the health authorities, and colleagues to determine their prescribing habits. When an issue of concern has been raised and a possible crisis is emerging, radio and television and the lay press exert considerable influence. Once the situation has escalated to a crisis, patient opinion can drive the process, with health care providers influenced primarily by their patients' refusals to be vaccinated.

The results of the survey highlighted a number of key factors for disseminating information and maintaining physician and public confidence in a vaccine. First, there is a need to be aware of the relative importance of a variety of different information channels and an understanding of how these channels come into play in a crisis. Second, an awareness of the need to act proactively when a possible crisis is brewing, and to generate and disseminate appropriate scientific evidence is essential. Third, a realisation that crises are about emotions as well indicates that not only statistics but also emotions need to be addressed. Finally, it is important to have a process in place before a negative situation occurs so that concerns can be addressed in a timely manner.

Based on a presentation by Dr Christian Courtois, SmithKline Beecham Biologicals, Rixensart, Belgium.

Relative importance of information channels (%) for driving physicians' attitudes towards hepatitis B vaccination



Allegations about vaccine safety: hepatitis B and multiple sclerosis

Allegations that a vaccine can cause serious adverse effects may have a dramatic effect on public perceptions of the risk/benefit ratio of immunisation, and can put strong pressure on government authorities to withdraw support for vaccination programmes, whether mandatory or voluntary. Allegations that hepatitis B vaccination could result in demyelinating diseases such as multiple sclerosis led the French authorities to suspend routine school-based vaccination temporarily in October 1998, despite contrary recommendations by VHPB and WHO.

Whether or not there was a factual basis for such allegations was reviewed at a specially convened meeting of VHPB in Geneva in September 1998, immediately before the action by the French government. Reports of the main conclusions of this meeting subsequently appeared in leading journals in which it was stated that there was no basis for concluding that there was a link between the vaccine and any demyelinating diseases, including multiple sclerosis.[1,2]

The conclusion that there is no link between the vaccine and any demyelinating diseases was reached after considering three main possibilities: (1) the association between vaccination and disease could be a coincidence; (2) the vaccine could have acted as a trigger for disease expression; (3) there might be a true causal relationship.

Coincidence emerged as the favoured hypothesis to explain observations of central nervous system diseases in subjects shortly (2-3 months) after hepatitis B vaccination. Supporting this are data from routine reporting systems in the US, Italy, and Canada, as well as manufacturers' pharmacovigilance systems, although these data are derived from passive reporting, which may be insensitive. Three published North American studies and three more recent, unpublished studies failed to uncover evidence for an association between vaccination and neurological adverse events. Moreover, the age and sex distribution of MS cases reported through spontaneous reporting systems matched those of cases that preceded the use of the vaccine.

Arguments against the other two hypotheses include:
(a) the distinctly different geographical distributions of naturally occurring hepatitis B infection and multiple sclerosis, and (b) the lack of any plausible biological evidence for a causal link. Epidemiological data on an association between the two are equivocal.

The reasoned consensus of the expert group was, therefore, that there was no reason to suspect a link between vaccination and multiple sclerosis, or other demyelinating diseases. However, this advice did not dissuade the French government from ordering a temporary suspension of the immunisation programme. Other factors than strictly objective considerations are likely to have played a dominant role in this decision, namely: the actions of media representatives and special interest groups in creating public pressure to halt vaccination.

The role of the media and anti-vaccination groups in feeding vaccine 'scares' is not new, nor restricted to the case of hepatitis B vaccination. Publication a few months earlier of a report by Wakefield et al.[3] on a possible association between measles-mumps-rubella (MMR) vaccination and the development of chronic bowel disorder and behavioural abnormalities (autism) was also given widespread publicity and has resulted in a significant downturn in vaccine coverage in the UK.[4] In their *Lancet* article, Wakefield et al.[3] comment:

> **'We did not prove an association between measles, mumps, and rubella vaccine and the syndrome described. Virological studies are under way that may help resolve this issue'.**

Also:

> **'If there is a causal link between measles, mumps, and rubella vaccine and this syndrome, a rising incidence might be anticipated after the introduction of this vaccine in the UK in 1988. Published evidence is inadequate to show whether there is a change in incidence'.**

Careful qualifications of this type, appropriate in a scientific publication, are not always included in the 'punchier' reports that appear in the mass media. Hence, an allegation may end up being spread in a stronger form than its original proposers may have felt warranted in the light of the available data. As with other vaccine-preventable associations, the validity of the evidence for a link between MMR vaccination and neurological damage was debated in detail in the medical press[5] but technical issues underlying the plausibility of the allegations may easily become buried in a media storm that resonates with attitudes about vaccination held by the lay public.

Furthermore, the conclusions of expert groups may appear weak because of the absence or inadequacy of data (e.g., reporting bias of passive reporting systems), and the way in which conclusions are phrased. For example, VHPB reported that: 'The data available to date, although limited, do not demonstrate a causal association between HB immunisation and CNS demyelinating diseases, including MS'. Such objective reporting is not always correctly interpreted by the press and public.

As reported by Dr Stephen Bartlett, Kew Gardens, UK.

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Small is beautiful: communication at the local level

Even though immunisation is one of the most important success stories of modern medicine, the unquestioning public acceptance that vaccines once enjoyed can no longer be taken for granted. But it is not only the lay public that at times voices opposition to immunisations; the threat to immunisation can come from a number of sources.

Certain groups have a well-known opposition to vaccination, such as anti-vaccine groups and those who oppose vaccination for religious reasons. However, threats to vaccination can also come from more orthodox and unexpected sources, such as the surveillance systems and the research community. This was the case in 1999 with the thiomersal scare, in which hepatitis B infant vaccination programmes in the US were discontinued because of the mercury contained in the vaccine preservative thiomersal.

The medical community has also been known – sometimes unwittingly – to contribute to negative stories about vaccination. The allegation that Crohn's disease and autism could be linked to the MMR vaccine was made by members of the medical community and published in peer-reviewed medical journals. And although what is printed in medical journals may be hypothetical, it is not necessary read as hypothetical by lay readers. Although the allegations were unfounded, they had an impact on the uptake of MMR vaccine in the UK.

At the local level, health care providers can be instrumental in cultivating a good working relationship with the media and in providing them with sound, timely information.

The news media can further fuel a vaccine scare by not providing balanced reporting, by promoting the minority viewpoint, and by overemphasising the emotional aspects of a story. When the political leaders fail to support sound public health practice – as was the case in France with the hepatitis B vaccine – because of unfounded allegations, this also undermines immunisation initiatives. Finally, opposition to immunisation can be based on reasons that have nothing to do with vaccination as such. Those favouring alternative medicines, for instance, may oppose vaccination, as may those opposed to medical testing on animals.

The local health care community and immunisation experts can, however, do quite a lot to counter misconceptions about immunisation and establish support at the grassroots level. The role that general practitioners, nurses, and local experts can play in conveying scientifically valid information to the public cannot be underestimated. Doctors are parents' most trusted and preferred source of immunisation information and their support of immunisation can allay parents' concerns and contribute to the success of immunisation programmes.

To be effective, however, health care professionals must themselves be 'convinced'; they must be convinced of the merits of immunisation, they must recommend immunisation to their patients, and they must set a personal example by having themselves and their children immunised.

Doctors are parents' most trusted and preferred source of immunisation information and their support of immunisation can allay parents' concerns and contribute to the success of immunisation programmes.

Unfortunately, not all general practitioners can be classified as 'convinced'; there are also the antagonistic, the unsure, and the uninvolved physician. Education of the unconvinced is essential. In the case of the unsure and the uninvolved this would involve training, support, and perhaps financial reward for complying with regulations. In the case of the antagonistic, training would definitely be required, and in extreme situations, professional sanctions for failing to deliver mandatory vaccines would perhaps be necessary. It should also be remembered though that even the convinced require support from the local and national health authorities, as well as ongoing written updates and a resource for expert advice.

At the local level, health care providers have another important role to play. They can be instrumental in cultivating a good working relationship with the media and in providing them with sound, timely information for news stories concerning vaccination. The media reach a very wide audience and can be instrumental in relaying positive stories about vaccination.

Local and regional media do report on vaccine-related stories and will often consult local experts for their articles. During these times they are likely to give more credence to information provided by someone they trust and with whom they have a good working relationship. It is important to build the foundations of a relationship before a vaccine scare takes place; once a scare has happened it is too late.

Developing a good relationship with journalists and editors involves working with the media (not using them), cultivating a long-term relationship, keeping in regular contact, being available and courteous when called upon, and showing an understanding of what type of information they need.

Publicising the benefits of immunisation and dispelling the myths has become necessary as the voices against vaccination have become increasingly outspoken and have received media coverage disproportionate to their numbers. The misconceptions propagated by those opposed to immunisation can undermine the overall public confidence in vaccination. Vaccines are safe and effective, and the great achievement of vaccination is the improvement in human health and the reduction in suffering. Perhaps it is time for a pro-vaccination lobby, and what better place to start than at the local level?

Based on a presentation by Dr Robert Aston, Wigan & Bolton Health Authority, Bolton, UK.

Communication and crisis prevention: a UK example

A clear and consistent message and an evidence-based approach are essential when communicating with the public about vaccination, according to the Childhood Immunisation Programme of the UK's National Health Service (NHS).

The Childhood Immunisation Programme is responsible for:

- disseminating information to the public
- providing health care workers with information on immunisation
- research into the attitudes of the public and the health care sector towards vaccination
- working with the media to inform the public about immunisation.

One of the ongoing projects of the programme involves the bi-annual tracking of the attitudes of mothers about immunisation.

The purpose of conducting this research is to provide information on four main areas:

- mothers' knowledge of immunisation
- mothers' attitudes towards immunisation
- mothers' experiences of immunisation services
- mothers' response to advertising.

In the most recent survey conducted in 1998, researchers found that mothers have a fairly high awareness of immunisations. Prompted awareness of immunisations ranged from 54% for tuberculosis to 95% for MMR immunisations. The chart below shows the range of awareness.

Percentage of mothers in the UK who were aware of specific immunisations

Immunisation	Percentage
MMR	95
Polio	92
Hib	79
Pertussis	65
Tetanus	78
Diphtheria	73
Tuberculosis	54
Don't know of any immunisations	1

On the whole, mothers in the UK have confidence in the safety of immunisations, with those stating that immunisations are completely safe or pose only a slight risk going from a low of 73% for MMR to a high of 88% for tetanus vaccine.

In terms of where people receive information on vaccination, the survey showed that leaflets were the top source for information (71%). Health or child magazines (29%) and TV advertisements (22%) were other sources. Health professionals giving immunisation advice include the health visitor (59%) and the general practitioner (28%). The research clearly indicated that a very important source of information on immunisation for the public (in particular, mothers of small children) is the health care professional; 77% of mothers look to their health care provider to inform them about immunisation. The public continues to have a high level of trust in general practitioners and health visitors.

The majority of respondents were satisfied with their immunisation visit; however, nearly 30% did indicate some dissatisfaction. The reasons expressed included:

Not able to ask all questions wanted	**9%**
Not given enough time to discuss issues	**19%**
Not given sufficient explanation	**18%**
Overall dissatisfied	**6%**
Some dissatisfaction	**25%**

Shown to be a vital link in the communication chain, health care workers were also surveyed on their opinions and experiences with regard to receiving information about immunisation. The health care workers expressed a need for direct information for the public from the immunisation programme, and asked for regular updates, as new information becomes available about vaccines and immunisation programmes. In particular, special study days, telephone helplines, and e-mail bulletins were suggested as ideal means for communicating new information.

Feedback from the public and health care workers gathered through research and pre-testing of all aspects of the programme ensures that immunisation resources and activities are properly targeted. Consequently, public information campaigns about immunisation have been successful in helping to garner public support for immunisation programmes.

Experience has shown that when the public is able to make an informed choice about immunisation, that choice is a positive one.

A recent campaign initiative about meningitis C undertaken by the programme is an example of how a number of resources, including advertising, the press, and professional mailings, can be used to get the word out about an immunisation programme. The aim of the meningitis C information campaign was to make people aware of the risks of the disease, to give them information about the vaccine, and to introduce them to the schedule for the immunisation programme itself.

Keeping the public informed helps to maintain their confidence in immunisation; experience has shown that when the public is able to make an informed choice about vaccination, then that choice is a positive one.

In the case of the meningitis C campaign, the NHS produced a professional quality leaflet entitled 'Meningitis C: Reduce the Risk, Your Guide to the New Meningitis C Vaccine'. This leaflet, which was made available to all households with children who would receive the vaccine, explained about the disease, how it could be contracted, and how it could be prevented through immunisation. It also let parents know how the programme would be implemented.

The leaflet campaign was accompanied by a television advertisement that further reinforced the message contained in the leaflets. Television was the medium chosen for this campaign because it allowed the NHS to reach everyone who needed to know about the immunisation programme, as well as enabling the NHS to control the message sent. In addition, it has been found that TV lends importance to a message and is effective in building coverage quickly. The meningitis C immunisation programme was successfully implemented, illustrating that the public responds well to clear, factual communication and a consistent message.

When communicating with the public about immunisation health care providers need to:

- be clear
- be consistent
- know the facts
- be open
- use the information and resources available
- take an evidence-based approach.

Based on a presentation by Dr Joanne Yarwood, Health Promotion England, Immunisation Programme, London, UK.

Approaches to communication: a US example

The National Network for Immunisation Information (NNii) was established in the US to provide the public, health care professionals, policymakers, and the media with up-to-date, scientifically valid information related to immunisation for the purpose of helping them to understand the issues and make informed decisions.

The formation of the NNii was prompted primarily by three concerns:

- Voices opposing routine immunisation seem to be enjoying dramatically increased volume in the media, with a corresponding decline and disproportionate representation of science-based voices.
- Our historic low rates of vaccine-preventable diseases brought about by our historic high immunisation coverage rates might diminish the perception of the continuing need for immunisations, and obscure the truth about both the efficacy and safety of our immunisations, especially for those without familiarity of the severity and epidemic potential of vaccine-preventable diseases.
- A continued erosion in public confidence in immunisations, coupled with complacency allowed by our current success, may lead many to exempt themselves and their children from immunisations. Should this occur on an expanded scale, this could threaten the health of communities as a result of expanding the pool of those susceptible to vaccine-preventable diseases.

In 1999, the NNii developed a series of simple, clear messages, based on extensive research with parents. The messages are designed to reinforce appropriate beliefs, counter misunderstandings, and introduce important new concepts. These messages are at the core of all NNii outreach and can be used by health care professionals, spokespeople, and other individuals and organisations to help parents, policymakers, and the media understand why physicians and other experts recommend immunisation.

Programme messages are prioritised into three categories: a single overriding communication objective; core messages; and secondary messages. Priority was determined, using qualitative and quantitative audience research, based on each message's ability to help parents understand why their paediatrician and other experts recommend immunisation.

Single overriding communication objective

- Immunisations are one of the most important ways parents can protect their children against serious infectious diseases.

This message reinforces an important existing belief, and parents indicate it is the single most compelling thought that explains their physician's (or nurse's) recommendation to immunise.

Core messages

- Immunisations are extremely safe thanks to advancements in medical research and ongoing review by doctors, researchers, and public health officials.

Once explained, parents place great value in the fact that there is ongoing review by trusted and competent experts, yet few parents are aware of this process. This message presents new information and builds on parents' belief in the ability of medical research to improve our lives.

- Children are far more likely to be harmed by serious infectious diseases than by immunisations.

  This is a simple direct risk-risk comparison that confirms and reinforces what most parents already believe to be true.

- Infants and young children are particularly vulnerable to infectious diseases; that's why it is critical that they are protected through immunisation.

  This message is consistent with and builds on parents' feelings about the fragility of infants, while directly countering a common misperception that infants' fragility means they should not be immunised. This is an important new thought for many parents.

- People who are not immunised increase the chance that others will get the disease. Infectious diseases spread among people who have not been immunised, and among the small percentage of people for whom the immunisation did not work.

  Many parents assume that not immunising hurts only one's self and that immunisations are 100% effective. Parents felt this plain language introduction to the 'community immunity' concept was very important in that it helped them understand that personal decisions - both your own and others' - can place other people in the community at risk.

- There is lots of information about immunisations on the Internet and in the media, but not all of that information can be trusted. You should ask your doctor or nurse for their advice and guidance about where you can learn more.

  This statement confirms parents' general belief that 'you should not believe everything you hear'. However, parents felt this reminder was important in the context of immunisations, and felt strongly that their child's health care provider was their most trusted source of information on the topic.

Secondary messages

- Immunisation is one of the greatest medical success stories in human history - and has saved millions of lives in the twentieth century.

  This statement establishes the scope and achievement of the medical advances that have been made. Parents said that it reminds them not to take immunisations for granted.

- There are no effective alternatives to immunisation for protection against serious infectious diseases.

  Parents expressed that in issues of health and medicine, there are always options, and they want to know their options. This message helps them understand that none of the options (e.g., holistic approaches, breast-feeding, vitamins) other than immunisation are effective alternatives for protection against infectious diseases.

- Children who have not been immunised are at far greater risk of becoming infected with serious diseases.

  Parents expressed that they like to hear the numbers. This message was tested in conjunction with the statement: 'One study showed that children not immunised against measles were 35 times more likely to get the disease than children who were.' These results were very impressive to parents, although many were sceptical about the phrase 'one study showed', because it raised the question of what the other studies showed.

- Immunisations work by helping the body's own immune system to become stronger.

  A common misperception is that too many immunisations can weaken a child's immune system. This message helps to dispel that myth and was seen by parents as important information.

- Without immunisations, the diseases we are now protected from will return to sicken, and even kill, many infants and children. Some of those who survive the illnesses would also suffer from chronic health problems for the rest of their lives.

  This statement touches an emotional chord and reminds parents how serious and even life-threatening infectious diseases can be. This message was seen as key by the many parents who said they know little of the consequences of many widely prevented diseases.

- Dangerous infectious diseases that we now rarely see in the US can reach us from anywhere in the world in under a day thanks to airline travel, so we must all remain protected through immunisations.

  This message is congruent with the many messages parents hear of the world getting 'smaller' and serves as a reminder against complacency.

- The reason children now receive more immunisations than in the past is because we are able to safely protect them from more serious diseases than ever before.

  Many parents have a vague concern that today's children do get too many immunisations. This statement helps provide context for why today's children receive more immunisations, and why that is a good thing.

Based on a presentation by Dr Samuel Katz, Duke Medical Center, Durham, North Carolina, USA.

The experience of the CDC in preventing and managing crises

Scientists at the Centers for Disease Control and Prevention (CDC) in the US are frequently called upon to provide expert opinion and advice to policymakers and public health officials with regard to immunisation practice and the public health. This is done both on an ongoing basis and during times when the public or media question the merits and safety of immunisation.

An example of such an occasion occurred in February 1999, when a Congressional hearing was convened to discuss the safety of the hepatitis B vaccine and its routine use among newborns and children. This hearing was prompted in part by the anti-vaccine lobby and in part by negative media coverage. The meeting brought together vaccine victims, government and non-government immunisation experts, and anti-vaccine groups.

The US anti-vaccine group, National Vaccine Information Center, has been very vocal in expressing concerns about the safety of immunisation, including the hepatitis B vaccine; this group is seeking to roll back the policy of routine infant and adolescent immunisation for hepatitis B.

Additionally, anti-vaccine concerns were covered by a television news magazine programme (20/20: 'Who is calling the shots?'), which aired in January 1999. The programme purported to raise 'serious new questions about a vaccine most schoolchildren are forced to get, one given every year to millions of babies', asking 'is it smart preventative medicine or unnecessary risk?'

Although only 12 minutes of the programme were devoted to a discussion of the safety of the hepatitis B vaccine, an estimated 16 million viewers saw the segment. Furthermore, little time was given to exploring the science that supports the use of routine immunisation.

The CDC has identified four crucial steps that are necessary when working to avert or manage a scare about immunisation: identify the concern; analyse the science; assess the need for policy changes; and co-ordinate action with appropriate groups.

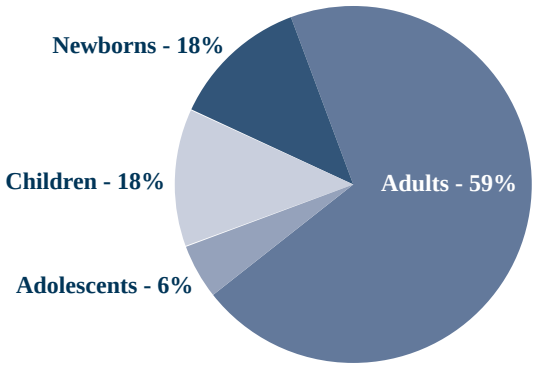
This approach, which was followed during the 1999 Congressional hearing helped result in the appropriate outcome: concerns were discussed, sound scientific data were presented that explained the rationale behind immunisation policies, and as a result, no change was made to public policy concerning HB immunisation.

Identify the concerns and analyse the science

A common misunderstanding voiced by some parents and by the anti-vaccine movement is that children are not at risk of HB infection because they do not engage in high-risk behaviour such as sexual activity or IV drug use, and as such, do not need to be vaccinated.

Infant immunisation is sound immunisation practice, however, because hepatitis B is also a childhood infection that can be transmitted through perinatal transmission or from child to child. Before routine hepatitis B immunisation was introduced, between 20,000 and 30,000 children were infected each year in the United States. In addition, children who become infected are at high risk of developing chronic infection, as is illustrated in the chart below.

Age of acquisition for persons with chronic HBV infection, United States



A second rationale for routine infant immunisation is that the programmes to prevent perinatal HBV transmission would not prevent a large proportion of infections in children, as only 20-50% of children who acquire HBV infection have an infected mother. Routine infant immunisation is needed to ensure that all children at risk of infection are protected.

In addition, reported cases of hepatitis B cannot be used to measure the disease burden associated with HBV infections in children, another common misconception. Most hepatitis B infections in children are asymptomatic; the only reliable way to measure the disease burden in children is to conduct seroprevalence studies.

The false perception that the number of adverse events reported in children after hepatitis B vaccination is higher than the number of cases of hepatitis B in children can be explained by the system for reporting adverse events in the US. The Vaccine Adverse Events Reporting System (VAERS) accepts all reports of adverse health events that follow vaccination, regardless of whether the adverse event is known to be caused by the vaccine. Again, additional studies would be needed: only by comparing rates of adverse events in vaccinated and unvaccinated populations would it be possible to determine whether the vaccine causes serious adverse events reported to VAERS.

The question has been posed by those sceptical of the safety of vaccines as to whether serious adverse events such as multiple sclerosis and sudden infant death syndrome (SIDS), in particular, can be associated with hepatitis B immunisation. The Vaccine Safety Committee of the Institute of Medicine conducted a comprehensive scientific review of possible adverse consequences and found that the evidence was inadequate to accept or reject a causal relation. The World Health Organization stated that the 'data available to date, although limited, does not demonstrate a causal association between hepatitis B immunisation and CNS demyelinating diseases, including multiple sclerosis. No evidence presented at the scientific

meeting (Geneva, 1998) indicates a need to change public health policies with respect to hepatitis B immunisation'.

Assess the need for change and co-ordinate efforts
Once the science has been reviewed, it may be necessary to consider policy changes. Ideally, policy changes should not be made during times of crisis. Instead, involved parties should take part in a deliberative process that takes into account the scientific basis of vaccine safety allegations, the need for policy changes, and the need for further research.

This deliberative process achieves the most when it involves the co-ordinated efforts of an array of experts, including immunisation policy groups, communications experts, immunisation partners (including state and local health departments, clinicians, and advocacy groups), and disease-specific experts. Disease-specific experts can lend great credibility to a position, as was the case when the National Multiple Sclerosis Society Medical Advisory Board issued a statement that in their view 'there is no evidence of a link between hepatitis B vaccination and MS'.

The dialogue must also involve taking seriously the concerns of anti-vaccine groups, keeping in mind that they share with immunisation experts and policy groups the common goal of safe vaccines.

It should also be remembered that it is not only necessary to analyse the science, but to communicate the results to the public and the media; this means designing communication strategies that address misperceptions regarding the risks of vaccination and the hepatitis B burden.

Finally, establishing an ongoing process to monitor and evaluate adverse events following vaccination will allay fears about safety, as will studies that compare risk of adverse events in vaccinated and unvaccinated populations.

Based on a presentation by Dr Eric Mast, Centers for Diseases Control and Prevention, Atlanta, Georgia, USA.

The role of WHO in communicating about immunisation

Communication about immunisation occurs on a number of levels: on the individual level, between parent and practitioner; on the local level, between health care professionals and the media, as well as with grassroots organisations; on the national level, among immunisation experts and policymakers, and the media; and on an international level among a number of national and international organisations. Internationally, the World Health Organization is vital in the chain of communication, providing expertise and acting as a communication 'hub' for national and professional bodies, industry, and other international partners in immunisation (such as banks, UNICEF, and USAID, among others).

Vaccine scares often occur on a national or even local level, but their impact is rarely restricted by borders, and the fall-out that occurs can have a global impact. In addition, the backlash is usually not limited to industrialised countries or to those countries with high coverage rates, but may also be felt in countries with high rates of infection for the vaccine-preventable disease. A vaccine scare may also taint other vaccines, with the public beginning to wonder if vaccination in general is unsafe. This was the case with the 1998 scare in France over the hepatitis B immunisation and its alleged association with multiple sclerosis. Although no link between hepatitis B immunisation and multiple sclerosis was demonstrated, coverage rates for hepatitis B immunisation dropped in France and in some other French-speaking countries, and coverage rates for other vaccines in France declined somewhat.

The WHO recognises the need when dealing with a potential vaccine scare to be proactive, and to have mechanisms in place for a rapid exchange of information. In addition, it is essential never to take reported adverse events lightly; this involves handling facts and rumours efficiently and quickly to avert a problem.

Immunisation safety ranks high on WHO's priority list, as reflected by the Immunisation Safety Priority Project. The main target is to establish a comprehensive system to ensure the safety of all immunisations given in national immunisation programmes by the year 2003. To achieve this, WHO promotes an overall culture of safety to allow for the prevention, early detection, and quick response to adverse events related to immunisation programmes to lessen their negative impact on health and on the programmes themselves.

Countries are the primary focus of this project, which has four major areas of activities:

1. ensure vaccine safety, from clinical trials, through vaccine distribution until the point of use;
2. promote and co-ordinate research and development of safer and simpler delivery systems;
3. establish efficient mechanisms that detect serious or potentially serious adverse events following immunisation (AEFIs) and enable prompt and effective response;
4. broaden access to safer and more efficient systems for vaccine delivery and sharps waste management. An external Steering Committee on Immunisation Safety has been created to provide technical and scientific advice on the strategies and activities, constraints, and requirements to accomplish the mission of the project.

Examples of recent developments in the Immunisation Safety Priority Project include:

- the establishment of a Global Advisory Committee on Vaccine Safety to provide a reliable and independent scientific assessment of vaccine safety issues and possibly recommend and co-ordinate the needed research/studies;
- the development of training material and activities on post-market surveillance and managing/ monitoring of AEFIs;
- partnership building with the media as part of the establishment of efficient reaction mechanisms to assist countries in managing crisis situations;
- collaboration with other international bodies such as the International Drug Monitoring Centre in Uppsala, Sweden, which is an international clearing-house for monitoring reported adverse events;
- a joint UNICEF-WHO statement on the safety of injections and the use of auto-disposable syringes.

WHO communication efforts take numerous forms: a special February issue of the WHO Bulletin that addresses immunisation safety; a vaccine safety web site, which includes information on responding to media enquiries; a newsletter; and technical papers. And of course, WHO liases regularly with the media, providing expert scientific opinion on issues surrounding immunisation.

Finally, the WHO established a Global Public Health Intelligence Network in 1998; this network acts as an early warning system for global public health events. An Internet-based system, the network searches continuously for events on communicable diseases, food and water safety, as well as exploring vaccine safety and monitoring rumours about immunisation. This early-warning detection system is a useful communication tool, helping organisations to adhere to the first rule of crisis prevention: monitor events so that it is possible to be proactive in heading off a crisis, and be forearmed with the scientific data and a communication plan. Its use for monitoring vaccine safety situations is currently being pilot tested.

Based on a presentation by Dr Philippe Duclos, WHO, Geneva, Switzerland.

Establishing communication with the media

A vaccine crisis can be defined as an actual or potential loss of confidence in vaccines or the vaccination service, precipitated by the report of a real or supposed adverse event. When this occurs, the incidence is often reported in the media, further fuelling the public's loss of confidence. Health care professionals and immunisation experts are often called upon by the media to provide expert opinion for the stories reported. Following a number of guidelines can ensure that coverage is as accurate and balanced as possible, and that the science – not the sensationalism – is brought to the fore.

• **Understand the perspective of the media**

When working with journalists, keep in mind that they will look for stories that attract attention, and that these are usually negative stories. It is rare that good news is news at all. In addition, the tendency is to personalise and dramatise news items so that they will be of greater interest to the reader.

• **Present a positive, confident image**

When asked for a recounting of the situation be honest and compassionate, recognising the individual suffering that may be involved. Accept responsibility where it is due and do not be defensive. Remember to be responsive to the needs of the media – they are looking for timely, accurate, and succinct information. This will help in creating a balanced story where all sides are heard. And finally, remain positive, stressing the overwhelming success of vaccines in preventing infectious diseases.

• **Simplify complex information**

It is the journalist's job to convey complex information (in this case about a scientific subject) to a lay public. Keep this in mind when providing information: keep messages simple; do not use jargon; use only data needed to support the message; highlight the human aspects of the issue so that the audience will feel connected. Remember: if the reporter does not understand the information, neither will the public.

• **Develop key messages**

Immunisation is arguably the most important success story of modern medicine. This is often overlooked during a crisis situation. Remind the media and public of the: (1) benefits in preventing disease; (2) risks of not immunising; (3) rarity of serious or long-term reactions to vaccination; (4) importance of vaccine safety to immunisation service providers; (5) action taken to investigate problems; (6) need to continue immunisation programmes.

• **Keep the press informed**

Rather than thinking of the media as an adversary, remember that they are useful in keeping the public informed and play a role in shaping public opinion. With that in mind, develop a good working relationship with journalists; maintain contact and development relationships, and keep the press informed. This involves a number of actions:

- Identify key messages to be conveyed;
- Appoint a spokesperson to convey them;
- Prepare a media kit (including relevant background material);
- Go to the press before they come to you;
- Hold press conferences; when all reporters have access to information a story is less likely to be sensationalised;
- Provide regular contact and follow-up after the crisis is over.

Based on a presentation by Dr Susan Goldstein, temporarily at WHO, Geneva, Switzerland.

VHPB recommendations for effective crisis prevention and management

The meeting reached a consensus on measures that can be taken to prevent future crises of confidence and to limit deterioration in public health due to refusal to accept or administer vaccination against viral hepatitis and other vaccine-preventable diseases. These are summarised in the following statement.

VHPB emphasises the special responsibility that doctors and nurses have when engaging in discussion on the benefits and risks of vaccination at the level of parents, the media, and professional and GP journals. It also recognises the need to reinforce the message that parents who vaccinate their children (which may be termed 'Good Parental Practice') are providing both them and the society with an important health benefit.

VHPB recommends:

- Education of general practitioners, paediatricians, nurses, medical students, public health officials, and the general public about the individual and societal benefits and side effects of vaccines, identifying the harm that can follow from a decrease in vaccine coverage.
- Education of health care professionals about how to communicate with parents and the media on vaccination.

The educational messages used must be clear, consistent, open, transparent, and evidence based. They should also guarantee an unambiguous interpretation in different languages.

VHPB also recommends:

- That vaccinovigilance activity should be strengthened in all countries and data made available across national authorities, including feedback on actions in different countries. This feedback should be the platform for action by the partners concerned (health authorities, academia, and networks).
- That there should be additional research on the attitude and behaviour of the general public, physicians, and nurses towards vaccines and vaccination, in order to build a secure foundation for ongoing and new vaccination programmes.The data from this research should be made accessible to all parties concerned.

VHPB recognises the need for a centralised resource for information on vaccine use and safety that is accepted as unbiased and objective, and that is able to provide timely, accurate, accessible, and trustworthy information to all.

VHPB further recommends:

The formalisation of informal networks and/or the creation of new networks at the local, country, and international level so that they can serve:

- as an Early Warning System for problem situations, by scanning local media to identify activities and situations that could lead to a weakening of confidence in vaccines;
- for co-ordinating activities and actively disseminating information;
- as a local sentinel system;
- to guarantee consistency and synergy in crisis management;
- as a Rapid Response Team for countering misinformation.

If these recommendations are followed, VHPB believes that the risk of unjustified allegations about vaccine safety escalating into crisis should be alleviated and their impact on the protection of public health minimised. Nevertheless, VHPB emphasises the importance of:

- reminding all parties of the benefits of vaccination, even during an ongoing crisis;
- using all available resources/channels and all available information to provide responses about vaccination safety that are clear, consistent, evidence based, and effective.

The Viral Hepatitis Prevention Board (VHPB) is supported by grants from the pharmaceutical industry (GlaxoSmithKline Biologicals, Aventis Pasteur MSD, Merck Vaccine Division), several universities in Europe, and other institutions. VHPB has strict operational and scientific independence. The VHPB Executive Secretariat also benefits from being located at the Department of Epidemiology and Social Medicine of the University of Antwerp, Belgium, where it has the infrastructure and administrative services at its disposal.

Viral Hepatitis is produced and published by VHPB, and printed by WILDA, Antwerp, Belgium.
Photogravure made by Ability Design, Antwerp, Belgium.

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