

Communicating with healthcare providers

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ABSTRACT

Studies of risk communication have identified healthcare providers, especially physicians, as the source of information most trusted by the public on issues of environmental health. Nothing in medical, nursing or most healthcare provider training actually prepares practitioners to play this role and healthcare providers are generally more oriented toward treatment and medical care than prevention and public health. Healthcare providers require education in order to play this role but rarely seek it. Gaps in the knowledge of professional on the issue of *Cryptosporidium* illustrate the problem. For members of the professional water community, communicating with healthcare providers is best done when messages are delivered in familiar settings, such as hospital Grand Rounds (a universal format for teaching conferences) and provided in a narrative (case-based) form but gaining access is difficult if the topic is not obviously clinical in nature. In addition to being a critically important target group itself, public health professionals are easier to reach and may mediate good working relationships with medical practitioners. We suggest a strategy for water utilities based on partnerships with academic public health and providing education through well-recognized formats in continuing medical and nursing education.

Key words | health professionals, healthcare providers, medical education, physicians, public health, risk communication

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INTRODUCTION

During incidents involving compromise of the water disinfection or delivery system, water professionals must communicate with healthcare providers, such as physicians and nurses, on an urgent basis. This is much easier if the professional communities have already engaged in communication before the crisis occurred. However, access and motivation are difficult to achieve until an emergency actually occurs (Timmins 2006).

Healthcare providers, especially physicians, are important sources of information on health issues for the public and their opinions, however well- or ill-conceived, are very influential. Their endorsement or skepticism can reinforce or invalidate a public health message related to water. Their compliance is also required if testing or reporting is required or if specific vulnerable groups (such as patients who are

immunocompromised due to HIV/AIDS, cancer chemotherapy or hemodialysis) are at risk. Therefore, it is critical that healthcare providers understand the health message, especially during an event, and have sufficient background before the event occurs to accept and validate it when asked.

Surveys repeatedly confirm that the public has greater confidence in physicians than any other group as a source of information on environmental health issues, including those related to water (Trauth 1994; Franco & Bisio 1997; Dutta-Bergman 2003; McComas 2004; Krewski *et al.* 2006). However, there is nothing in the education and training of most physicians to justify this confidence. With few exceptions, noted below, neither physicians nor nurses are taught about water issues in a systematic way and most have

little motivation to seek this information out for themselves (Guidotti *et al.* 1998). Providers in other healthcare professions are generally taught even less, with the exception of dentists, who learn about fluoride. Even public health practitioners, who constitute a different profession within health, are less well informed on water issues than they could be, because water quality is no longer considered a primary determinant of disease in developed countries. The initiative and outreach must come from the water community (Eisenberg *et al.* 2001; Meinhardt 2007).

The water community therefore has a challenge and an opportunity, a disadvantage and an advantage. The challenge is to reach out and to engage healthcare providers before emergencies occur, in order to facilitate crisis communication in a later water emergency, at a time when healthcare providers are not necessarily motivated to pay attention. The opportunity is that preliminary work done beforehand can help shape compliance with advisories during an emergency and back up communication with the public during events (Jardine 2003). The disadvantage is that few healthcare providers relate to the issue of drinking-water quality. The advantage is that there is an almost clean slate, with few deeply engrained misconceptions.

The number and proportion of physicians and nurses engaged in prevention and public health is very small in both the US and the UK. Most primary-care providers do understand the value of prevention but find it very difficult to practice preventive medicine because the system does not reward it. In referring to prevention, incidentally, one always uses the adjective “preventive”; never, under any circumstances, “preventative”. The latter usually marks the speaker as uninformed in matters of public health and preventive medicine (Johnson 2006).

WHO ARE HEALTHCARE PROVIDERS?

Satisfactory definitions of “healthcare provider” are lacking. (For example, see Wikipedia, which offers only the tautology “health care provider is anyone who provides health care to another person or persons as a profession. Health care providers include physicians, nurses, physician assistants, nurse practitioners, homeopaths, and the like”.) We prefer our own, that healthcare providers are those

professionally qualified persons who provide services associated with the identification, diagnosis, treatment, relief and rehabilitation of a health problem (illness or injury) directly to individuals (that is, patients) or to well individuals for preventive purposes. “Healthcare practitioner” is less often used in the United States, somewhat more often used internationally.

The term “health professional” has a special usage. It is restricted to professionally trained healthcare workers with special expertise in a field with a broadly recognized credentialing mechanism, including formal licensure by state or provincial government, who provide medical care and direct health services to individual patients or clients. In common language, the term “health professional” is used to refer to all trained and qualified people who work in the health sciences and who deliver care directly to patients or keep the healthcare delivery system functioning on a technical level, such as laboratory personnel. Professionals who deliver care directly are also called “healthcare providers”. However, that term “health professional” (usually not healthcare) in legislation refers to *licensed* healthcare professionals, or providers, which in turn excludes many people who keep the hospital and healthcare system running but do not deliver care directly to patients. The term “healthcare provider” is not usually applied to public health workers who do not deal with individual clients or who are not also qualified as providers of healthcare, although such people may be considered “health professionals” generally. Neither term is usually applied to administrators and managers, unless they also have direct duties or are actively supervising healthcare practitioners on clinical matters.

Who are the healthcare practitioners? Table 1 lists the recognized health professions that are commonly considered healthcare providers. Although they are omitted from this discussion, laboratory technicians are included because they have an interest and appreciation for water-related issues and should not be overlooked in planning outreach and communication.

Most healthcare providers are aware that there is an association between water and health. However, they assume that waterborne diseases are now uncommon in developed countries such as the US and the UK. They associate waterborne disease with conditions in the developing

Table 1 | Recognized health professions

Physicians
Nurses and nurse practitioners
Physician assistants
Dentists
Dental hygienists
Pharmacists
Emergency medical technicians
Laboratory technicians
Dieticians
Midwives and nurse midwives
Respiratory therapists
Certain practitioners of alternative and complementary healing systems (e.g. acupuncturists, massage therapists, chiropractors)
Others

world where factors related to water supply and access are also at work. Increasing concern over disinfection byproducts, drinking water is now sometimes perceived, if it is thought about at all, as a potential hazard as opposed to a public health achievement.

Waterborne health issues probably occur often in clinical practice but are seldom recognized as such. They are most obviously a factor in diarrheal disease (where they are seldom recognized as waterborne), the practical management of hemodialysis and opportunistic infection in individuals who are profoundly immunosuppressed. Less common water-related diseases, such as Legionnaire's disease, and water as a habitat for parasitic diseases, are not pertinent to drinking water and will not be discussed.

OBSTACLES TO COMMUNICATION

The primary obstacle to communication with health providers is cultural. Broadly speaking, the community of water professionals is grounded in engineering, and therefore driven by precision, predictability and performance, and the community of health professionals is grounded in medicine, and therefore driven by uncertainty, risk-aversion and outcomes. To reach out to healthcare providers, it is important to understand their culture. There are various subcultures in each of the professions that result in

demonstrable differences, such as the historically troubled relationship between nursing and medicine as professions. However, healthcare providers share many cultural values in common, such as the high value placed on providing reliable and effective care to the needy. Knowing a bit about this culture is important in communicating with them.

Physicians, nurses and other healthcare providers (the term "allied health professionals" is sometimes used) treat individuals and, if they are conscientious, manage the prevention of disease among their patients. With few exceptions they are oriented to individual patients, not public health, and are much more concerned with diagnosis and treatment than with finding the cause of the disease. The exceptions are physicians in prevention and public health (preventive medicine in the US, community medicine in the UK) or occupational and environmental medicine and nurses in community health or occupational health nursing. These are small but critical specialty fields which, as will be discussed, represent possible points of entry into their respective professional communities. There is also a cultural divide in healthcare between those who perceive the individual receiving care as a patient or as a client, the latter term implying more autonomy. Therefore, the water message will generally be most effective if personalized and made in reference to a specific patient care situation.

Healthcare providers tend to be narrowly focused and, with significant exceptions which will be discussed below, concerned with personal risk rather than community risk. The entire healthcare system reflects this orientation and this is, in part, why the public health system, which deals with health protection on the population level, developed historically as a separate, state-guided system in the United States and the United Kingdom. Therefore, it is unlikely that a public health argument, cast in abstract and especially statistical terms, will be highly motivating or that the public health system will be an effective conduit for a water message intended for healthcare providers.

Health providers have been acculturated to put individuals first, above group interests. Their training is focused toward helping one person, one at a time, and not the population or community. This is necessary to function in fields such as medicine and nursing but imposes certain limitations on perception of risks. The interest of healthcare providers is primarily in providing medical treatment and

keeping people healthy. There is only limited interest in the causes of disease because healthcare providers usually see patients after disease has already occurred. Therefore, the initial water message might be better framed in terms of protecting the health of patients at high risk as a result of a current health condition, as opposed to leading with a more general message about waterborne disease. Most healthcare providers take it for granted that municipal water supplies are clean and assume that waterborne disease is rare. Therefore, the water message should not be centered on water itself but on the contaminant or hazard.

The important feature of the culture of healthcare is that, notwithstanding the rapid advances in biomedical science, it is very conservative. Physicians are generally slow to change the basic treatment approaches they have learned (although they may change the pills they use to do it), and are skeptical of new theories. They are generally very averse to taking risks in treatment (indeed, the first rule of medicine is often quoted as "First do no harm."). This may not match the usual image of the fast-paced progress of medical science but it is very characteristic of medical practice, particularly among the best physicians. Therefore, the most effective water message should avoid speculation, stick to the facts and comply with accepted biomedical knowledge.

Physicians also tend to be very skeptical of knowledge outside of biomedical and clinical research. They have mastered one highly technical, empirical, eclectic area of knowledge and they may be reluctant to admit that other areas of equal complexity exist that they do not know a thing about (it has been said that every physician is secretly jealous of engineers). Their first inclination is to be skeptical of what they hear unless it comes from a source they trust within medicine. Therefore, the message should be delivered through professional channels appropriate to each profession.

Another feature of healthcare providers is that their worldview tends to be conditioned by the most recent experiences they have had and especially by their last case. Most will not have seen a patient with an obvious waterborne illness for many years and so for them it is not an issue. The healthcare providers most likely to be concerned about water are those who work with renal dialysis patients, who are primarily concerned with water

chemistry, and those who work with immunosuppressed and HIV-positive patients, who are concerned with microbial infection. Therefore, the initial water message will be better received if it deals with a common clinical management problem recognized by the healthcare practitioner as a practical problem and likely to have been seen recently.

Healthcare is a difficult career these days, especially for primary care physicians (including family medicine or general practice), nurses and emergency medical technicians. Staffing shortages, increasing demand (partly because the population is aging), budget constraints, managed care (in which the delivery of medical services is routinized and monitored), and healthcare finance and insurance problems have resulted in severe strains on every profession that involves provision of care to individuals. Most healthcare providers, especially in primary care (rather than specialty practice), are feeling overwhelmed, underpaid and underappreciated. They are not likely to sit still for a long explanation of how important water quality may be for their patients, especially if it is abstract or theoretical, unless the message is tied to their specific patients and has a note of urgency. Therefore, the water message should be delivered in such a way that it is easily received and assimilated without extraordinary effort on the part of the practitioner.

EXAMPLE: *CRYPTOSPORIDIUM* AWARENESS

A practical demonstration of these ambivalent attitudes toward water and health is provided by the documented experience of physicians in Connecticut, who were surveyed in 1996 in a study conducted by the Connecticut Department of Public Health and the Centers for Disease Control and Prevention (Roberts *et al.* 1996; Morin *et al.* 1997). This survey found that the overwhelming majority of physicians did not know that *Cryptosporidium* was a reportable disease. Among practitioners in relevant specialties, 70% did not realize that a special laboratory request had to be ordered to identify *Cryptosporidium* and 75% rarely or never tested for it by any means, even for their high-risk patients such as those with HIV/AIDS. Because the frequency of cryptosporidiosis cases is compiled solely

from laboratory-confirmed cases, the reported incidence is artificially low, perhaps by an order of magnitude, as confirmed in other studies (Frost *et al.* 2002). From the busy health practitioner's point of view, this neglect of cryptosporidiosis is not negligent: there are many competing priorities for his or her attention and for the most part, based on the information the physician receives in the course of a day or through continuing education, this diagnosis is not considered to be a frequent health threat. This, in turn, results in the counterintuitive conclusion that raising awareness and education would lead to a dramatic increase in reported cases and a false perception of an epidemic, were that to occur.

COMMUNICATING WITH HEALTHCARE PROVIDERS

Messages are more readily accepted by healthcare providers when they are delivered in a familiar setting. A water message, to reach healthcare providers, should be delivered in a manner consistent with the ways in which healthcare providers normally receive and assimilate information.

The most powerful ways to communicate with healthcare providers are by health advisories and practice guidelines. Health advisories are alerts issued by local or state public health departments, such as "boil-water advisories". They may be targeted to physicians, usually in a crisis, to encourage them to look for evidence of waterborne disease or to educate patients at risk. During a water event, most health providers will pay attention to an advisory coming from the local department of public health but at other times they will often give them only cursory reading, if they are read at all.

Practice guidelines have not been used for this purpose but have great potential. In almost every field of medicine, teams of medical experts have been developing evidence-based clinical guidelines to guide providers in how to diagnose and manage various medical problems. These guidelines are often very powerful, because they are used by insurance companies and healthcare management organizations (HMOs) as the basis for "utilization review" to monitor whether particular services are appropriate and should be approved, by insurance carriers to decide whether the physician should be paid for services rendered

in a particular claim, and in malpractice litigation in determining whether care rendered meets community standards. Water is seldom mentioned but if the standard of care involved for a potentially waterborne illness involves clinical tests, referral for water testing or reporting to public health authorities, inclusion in practice guidelines has the potential to change physician behavior. Practice guidelines can only be developed by physicians but there may be room for input in some cases.

The most familiar and flexible way to deliver a water message, in a situation that is not urgent, is by a written article. The most credible vehicle for a suitably evidence-based article is the peer-reviewed medical, nursing or biomedical journal. The article has to be medical rather than water-quality oriented, convey new information or a new way of looking at existing knowledge, and obviously of interest to the intended audience and relevant to their practice. Peer-reviewed biomedical journals are generally not interested in educational articles but there are exceptions, notably the *American Family Physician*, which has published educational articles on water and health in the past. Recently, the *Canadian Medical Association Journal*, which is quite prestigious, published a brief article as a response to a spate of water-related illness outbreaks in the country (Copes 2006). As a practical matter it is difficult for non-physicians to write for medical journals and for non-nurses to have their submissions accepted by nursing journals but journals for other healthcare providers often welcome submissions from outside the field.

Medicine and other healthcare professions also support a large publishing enterprise of "throwaway" journals and ephemeral newsletters that are often in need of material. These publications are surprisingly well read because their articles are short, highly relevant and they are left lying around the doctor's lounges or offices.

Throwaway journals are being replaced by websites, which as we all know are very effective ways of conveying information, as long as the recipient is looking for it. Websites require active access and an incentive to make people want to access them. The water community therefore cannot rely on websites to communicate with healthcare providers. There has to be motivation to search them out.

A better option may be oral communication in a conference setting. Medicine, especially, has a long tradition

of oral conferences and lectures and physicians attend them frequently. The key to communicating with physicians, especially, is to demonstrate the relevance of the water message from the outset, preferably with a clinical case (starting a presentation with a case in which the patient dies is an easy way to get the undistracted attention of physicians, but it only works when a physician is presenting). Although epidemiological and other statistical information should be presented to validate what is said, statistical arguments are too abstract to motivate busy clinicians to pay attention.

At most medical institutions, the lecture or conference of greatest importance is called "Grand Rounds." Grand rounds (the term is always plural) is a universal medical institution, usually held weekly. Grand rounds are held either for all physicians or for the larger departments (and always by departments of medicine) by virtually every hospital in the country and by most clinical departments in medical schools (usually in conjunction with their teaching hospitals) (Herbert & Wright 2003). Grand rounds follows a specific format and makes it easy for the physician to learn. The speaker normally begins with the presentation of a recent or illustrative case, which leads into an hour-long discussion of the disease itself and recent developments in management. The narrative of the case presentation tells a story that can be remembered easily and often presents an intellectually stimulating puzzle that sets the tone but, unlike a mere anecdote, illustrates important features of the diagnosis. The subsequent presentation is organized in a predictable way, starting with the epidemiology of the disease, working through its biological mechanisms, proceeding to conventional and then to newer treatment options. At every important step, the evidence behind the statement is briefly reviewed and the strengths or weaknesses assessed.

Continuing medical, nursing or other professional education courses are generally good ways to reach healthcare providers, who are perennially seeking credits. They provide a structured format that carries great credibility because they are subject to extensive documentation requirements. Continuing professional education programs that might be open to content relevant to water might be sponsored by local medical schools, local or state medical associations, certain specialty societies and hospitals.

The prospect of placing a speaker to deliver a water message is greatly improved if there is a current outbreak or there has been a recent severe outbreak involving water transmission.

Certain medical and nursing specialties are more receptive to the water message than others. Among the large medical and nursing specialties, general practice (in the UK), family medicine (in the US and Canada), pediatrics and general internal medicine are likely to be most interested in the risk of waterborne diseases and their importance in primary care. Specialties such as nephrology (kidney disease), gastroenterology, infectious disease and oncology (because so many patients are immunosuppressed) are most likely to be interested. General preventive medicine (in the US), community medicine (in the UK and Canada), occupational and environmental medicine, aerospace medicine, and occupational health and community health nursing specialty organizations are likely to be most interested in a water message but these professional communities tend to be small and scattered, with few providers in any one location. Almost all medical and nursing specialty organizations have annual meetings and the local chapter organizations are often grateful for interesting and relevant speakers. They will insist that the message be relevant to their members and evidence-based and usually will invite a speaker only once.

A promising vehicle for outreach to physicians on issues of water and health are the Pediatric Environmental Health Specialty Units (PEHSUs) in the US. These are Federally supported centers based at academic institutions that provide education to healthcare providers and the community on environmental problems affecting children. There is a network of PEHSUs covering Federal regions in the United States. Water messages are easily incorporated into their lectures, conferences and websites (Harvey & Guidotti 2004).

Another potential vehicle is medical advocacy groups. These are nongovernmental organizations concerned with a cause or an agenda for change. A prominent example is Physicians for Social Responsibility (PSR), the US affiliate of the International Physicians for the Prevention of Nuclear War, which has expanded its agenda from a narrow focus on nuclear security to include environmental protection. PSR has local chapters and meetings and is most likely to be interested in a controversial issue or neglected health risk.

Regardless of the vehicle of the water message, it is important to document the source of information presented and to make it clear that the source has been peer reviewed. Peer review is the main way by which physicians assess the quality of information they receive and, in a field where they lack familiarity, they will seek the reassurance of peer review that what they are hearing or reading is correct.

PUBLIC HEALTH AS ANOTHER CHANNEL

Public health is a field unto itself, with its own credentials, institutions and history. The modern use of the term as a synonym for publicly funded medical care is a corruption: the term more appropriately applies to protecting the health of populations as opposed to individuals. Public health is practiced mostly within institutions such as government departments. Public health departments routinely issue advisories during outbreaks or incidents involving risk of waterborne disease and their pronouncements are accepted as authoritative by physicians and other healthcare providers.

The central principle of public health is that it is more effective, humane and practical to protect the health of a community by population measures, such as water disinfection, than individual measures, such as boiling water in every household. Many physicians practice in public health settings, providing medical consultation to public health professionals or clinical services provided to individuals, such as immunization. This overlap between population-level public health and the provision of prevention-oriented individual medical services on a mass scale is called preventive medicine in the United States and public health medicine in the United Kingdom. It is health provided wholesale as opposed to retail. These distinctions are not widely understood, even in the fields of medicine and public health, but they are highly explanatory and helpful in developing strategies for outreach to healthcare providers.

Until recently, the public health system functioned largely independently from the medical care system and hospitals. There has been a massive reinvestment in public health in recent years motivated by fears of bioterrorism and by the threat of emerging infections, such as SARS and avian influenza. Although the mandates attached to this

reinvestment have often distorted the priorities of public health on the local level, they have boosted the public health system sufficiently to restore its role as a major player in health protection.

For obvious reasons, the public health community is predictably much more receptive to a water message than the majority of healthcare providers. The public health system would therefore be a bridge to healthcare providers and particularly a means of reaching physicians. To an extent, this is true. Physicians routinely receive reports and advisories from public health authorities and are required to report certain diseases, which they generally take seriously, especially if they pertain directly to their own field of practice. Public health professionals, especially physicians working in the system, generally know how to communicate with healthcare providers and so can act as intermediaries. Public health departments are generally good at communicating issues involving infectious disease but often poor or uncertain in communicating messages on chemical contamination. This has obvious implications in trying to use the public health community as a bridge in communicating a water message.

However, there are limits to the extent that public health can bridge the gap with healthcare providers. Most physicians and almost all nurses and other healthcare providers only encounter the public health system in narrow applications or in crisis situations and are generally unfamiliar with its routine functions, which include disease outbreak investigations, health education, analyzing trends and inspecting restaurants.

Confusingly, certain medical and nursing specialties have professional ties to public health as close as to medicine or nursing and form a natural bridge between public health professionals and healthcare providers. However, this bridge may not work very well for water messages. Within their respective professions, general preventive medicine, occupational and environmental medicine, community health nursing and occupational health nursing are small and considered to be somewhat exotic or obscure and often struggle to make themselves heard on more mainstream issues. They are therefore not necessarily the best bridges to medicine and nursing, although worth engaging as allies and partners for what they have to offer on their own.

A STRATEGY FOR THE WATER COMMUNITY

The community of water engineers, managers and experts needs to establish better communication channels with healthcare providers. This may be best done with a dual-track strategy, by which local utilities establish relationships with their local healthcare providers while organizations representing the water sector as a whole coordinate national or regional-scale outreach activities.

A potential strategy to do this might have the following elements:

- Establish closer relationships with local departments of health. This establishes a channel to the public health professions and a potential bridge to healthcare practitioners.
- Partner with local universities, medical schools and schools of public health, supporting educational activities.
- Cultivate speakers and spokespersons within the healthcare professions and support them in giving presentations to their peers. This one-on-one, leadership development approach has the advantage of keeping the message consistent and preparing experts who can respond to media and professional inquiries during incidents. A good example is Dr. Patricia Meinert, of Amot Ogden Medical Center in Elmira, New York, who, through the EPA and other support, is now a national spokesperson for emergency preparedness and water security in the US.
- Use existing channels of communication within the healthcare professions rather than attempting to arrange special events. This is not only more convenient for the healthcare provider but more credible.
- Be conscious of labeling. A general presentation entitled "Water and Health" is not likely to attract much interest these days among busy practitioners. A title such as "Why What's In Drinking Water Matters to Your Patients" may attract more attention (Copes 2006).
- Start with topics of direct relevance and concern, preferably those that are of local concern: lead, nitrates, *Cryptosporidium* and other pathogens. A kit or downloadable PowerPoint presentation might help local presenters keep talks accurate and evidence-based.
- Topics such as trace chemicals and disinfection byproducts should be addressed as they come up but healthcare providers are not likely to attend sessions on these topics in large numbers unless there has been a major news story in the past few days.
- Do not approach medical schools with a request to have more class time on water. It will not happen and the request will sound naive. The medical school curriculum is too crowded already and the subject of epic battles in medical education. The water community has a better chance of improving the presentation and accuracy of medical school education on water issues by in some way assisting faculty whose lectures already touch on waterborne illness or related topics.
- Do not make lists of all possible waterborne diseases that include exceedingly rare or relatively unimportant health issues. This has the effect of trivializing the major health issues and making the list look naive. Concentrate on the big issues.
- Schools of public health can be major partners for the water community. Schools of public health do not always bridge to communication with healthcare providers but they are a place to start. Environmental health is a required course in all schools of public health, so they must deal with water.
- Reach out to departments of environmental and occupational health in schools of public health. They are the home for water issues and often include healthcare providers on their faculty. Many physicians who teach in schools of public health also hold faculty appointments in the medical schools of the same institution. However, physicians mainly interested in public health are only rarely political leaders in their medical schools, because their energies and influence are necessarily divided.
- Partner with clinical and environmental toxicologists for chemical contamination. Toxicologists are a very small medical specialty and are not represented in every medical school or hospital. Where they exist, however, they are invaluable resources and connect with many organizations and facilities, such as poison control centers, that are important to the water community in emergencies.
- Use different channels and tactics. No one method is likely to work for all healthcare providers or to establish a lasting impression on physicians and nurses. Communication has

to be repeated, preferably in different ways, without becoming tedious and subsequently reinforced.

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