

unerupted third molars, though there is no evidence of a causal link. There is enormous potential for mistaken diagnoses and unnecessary surgery: regular dental surveillance, both clinical and radiological, is the cornerstone of modern preventive dentistry, and facial pain is a common complaint, particularly in young adults. Radiological surveys of the mouth and jaws have shown that about one in five people in their 30s have at least one unerupted third molar¹² and that these can remain in situ throughout life without pathological change.

The complications associated with the removal of unerupted third molars should not be underestimated. The surgery entails incision, stripping of periosteum, bone and tooth removal, and suturing. Pain, swelling, and trismus are almost universal after this procedure, and the incidence of both inferior dental and lingual nerve damage is high. After surgical removal of lower third molars, 5-15% of patients suffer some numbness of the anterior two thirds of tongue and ipsilateral lower lip, and lingual numbness is permanent in about 0.5% of cases.¹³

Surprisingly, until very recently no studies of the preferences of patients have been carried out. Recent evidence, however, suggests that the disadvantages and complications of surgery are generally considered by patients as more serious than those of non-intervention. In any event, the prophylactic removal of third molars should be abandoned. If surgery was carried out only where

National Institutes of Health consensus criteria existed then surgical morbidity and costs would be reduced substantially.

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Side effects of dental materials

No evidence that dental restorations are hazardous to health

The supposed dangers of dental amalgam have been much in the news recently—amalgam has been blamed for mercury poisoning and other systemic disease. Dental materials contain several toxic components, including carcinogenic and teratogenic components and allergens, and, although they are manufactured to be inert and biologically inactive, clearly they may release some elements into the mouth. Despite these potential problems decades of worldwide clinical experience and research show that side effects to dental material are rare.

Side effects are estimated to occur at a frequency of between 1 in 1000 to 1 in 10 000 treatments involving restorative materials.¹ Most reactions are mild, but severe allergic reactions occur rarely. The typical allergic response to dental materials is a delayed contact hypersensitivity reaction (type IV), which can be initiated by minute amounts of the allergen in sensitised individuals. Toxic reactions, on the other hand, are dose dependent. Minute amounts are released from dental materials. Therefore, allergic reactions are by far the most common.

Fluorides used to prevent dental caries can, like most drugs, be toxic, therapeutic, or non-reactive, depending on the dose. Their benefits in preventing tooth decay are now well established, but it took years of research to convince lobby groups and politicians about the benefits of the "fluorine poison."

A common approach to low dose exposure to toxic agents is to identify groups with a higher than normal exposure to the agent. Dentists, dental assistants, and technicians (who handle dental materials every day) have more allergic reactions than the average patient,² but the

life expectancy of dentists is higher than average. Sporadic reports of small groups of dentists have shown accumulations of elements present in dental materials,³ but finding a toxic element in an organ is not the same as showing a toxic reaction.

Recent extensive reviews of side effects to dental materials have confirmed that existing dental materials are safe and effective. In 1990 the American Food and Drug Administration held a public hearing to consider whether dental amalgam should be classified in a higher risk group: it decided it should not. Similar conclusions about the risks came from a National Institutes for Health technology assessment conference in 1991⁴ and from the Swedish Medical Research Council in 1992.⁵ The most detailed report was presented by the American Public Health Service, based on extensive multidisciplinary evaluations.⁶ This overall conclusion about safety does not mean that side effects never occur or that further research is unnecessary. But it does represent a substantial body of state of the art evidence.

Despite this evidence, the lobby for abandoning the use of dental amalgam is strong and seems to have unlimited access to a mass media that is willing to promote scare stories. These groups do not, however, take into account the type and frequency of side effects or the increased costs of alternative materials. The long term cost of gold and resin based restorations in molar teeth will increase four to eight times depending on the fee schedule used.⁷

Misnomers like "mercury amalgam" and "mercury fillings" are bandied about in the media, with the effect of misleading the public—who "know" that mercury is toxic.

Some organic forms of mercury are indeed extremely toxic and easily absorbed in the digestive tract, and they can result in teratogenic effects. This scenario is, however, unrelated to any potential side effects of the mercury in dental amalgam. A small amount of mercury vapour is given off from amalgam restorations, especially after chewing and tooth brushing. If mercury vapour reaches the lung it can be efficiently absorbed into the blood stream. Lobbyists and journalists have leapt from the fact that this release of mercury can now be measured to the conclusion that it must have toxic effects. The vapour has, however, always been there; what has changed is our ability to measure it, but it still produces a very low incidence of identifiable effects. White lichenoid lesions in the oral mucosa have until now been the most common side effect to restorative materials. Moreover, dentists and their assistants handle amalgam in its soft stage, when the mercury vapour is at its maximum, and their rates of side effects remain low. How mercury is inactivated once it reaches the blood stream is still poorly understood. Its interaction with selenium and alcohol has not yet reached the debate in Britain or the United States, but it has in Sweden. Further studies on inactivation are clearly needed.

One problem is that the symptoms of mercury poisoning, which include headache, tiredness, dizziness, and irritability, are non-specific. It is easy for the detractors of amalgam to attribute these to the amalgam. Likewise, diseases with unknown causes have also been attributed to

amalgam restorations—these include multiple sclerosis, Alzheimer's disease, Parkinson's disease, and epilepsy. Yet no firm evidence of any association has been published. A few years ago aluminium was considered to be a possible causal factor in Alzheimer's disease, and many patients expressed concern about the amounts of aluminium in some resin based composite restorations. Now a recent television programme in Britain has implicated the mercury in amalgam as a cause of Alzheimer's disease (*Panorama*, BBC1, 11 July)—but it flies in the face of the available, carefully reviewed, evidence.

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Conscientious refusal to assist with abortion

Once governments recognise the rights of conscience then health care systems can make the necessary arrangements

Claims of conscience by doctors and nurses almost always relate to substantial moral issues that touch closely on their identity and integrity.¹ Abortion is such an issue. Agreement among reasonable and sincere individuals often seems beyond reach. Ethical reasoning promises no conclusive resolution but might constructively help us to understand the sources of disagreement and search for shared principles in the differences.²

The issues raised by abortion cannot be restricted to the simple contrast between the rights of a woman to control her reproduction and the rights of the fetus to protection from intentional harm.^{3,4} The discussion has to take account of fundamental beliefs—religious, cultural, feminist, and political.⁵ A recognition of the complexity of beliefs about abortion is essential in asking whether health care professionals have rights to refuse to help with abortion on grounds of conscience. Beauchamp and Childress have argued that individuals and society “bear a very heavy burden of proof in arguing that coercion of conscience is necessary.”⁶

People commonly decide what is morally right or wrong, good or evil, according to fundamentally different moral perspectives. Consequentialists judge acts right or wrong according to whether they yield the best overall results. This type of reasoning was evident in a commentary arguing that it is morally impermissible for nurses to refuse conscientiously to take part in second trimester abortions.⁷ Refusals to assist in abortion (in the first or second trimester) are frequently based on beliefs about moral

duties, injunctions of natural law, and the almost non-negotiable rights of people to be protected from intentional harm. People who hold those views recognise and regret the adverse consequences for pregnant women but find no compelling motivation to change their opposition to abortion. Even when people are willing to work at gaining a clearer understanding of their own moral traditions and seeking out shared values within disagreements the prospects remain poor for finding some neutral standpoint for resolution.⁸

Critics of conscientious objectors to abortion sometimes claim that they are making an error of fact when they characterise the fetus as “innocent human life.” In reality there is no basis in fact about which anyone can be wrong or comfortably right. A judgment on the moral status of the human fetus is arrived at by a decision to assign moral significance to the agreed facts of human development. The assigning of moral significance is, in turn, dependent on each person's choice of moral perspective and accompanying values about the broader significance of human personal and social life.

No morally neutral and non-question begging position can be found from which to judge conscientious refusals in abortion. Society can show a respect for autonomy of belief by spelling out a position that allows a presumptive right of conscientious refusal to doctors and nurses. Where abortion legislation is already in place and allows doctors a right to conscientious refusal but refuses it to nurses we need to ask why the nurses have been given second class