A further dimension to the role of insulin and the development of colorectal cancer has recently been revealed from the UK General Practice Research Database.¹¹ From a study cohort of some 24 000 patients with type 2 diabetes mellitus, 125 developed colorectal cancer after a median follow up of seven years. Importantly, among the users of insulin for at least one year (n = 3160), the age and sex adjusted hazard ratio was 2.1 (95% CI: 1.2 to 3.4, P = 0.005), a positive association that was strengthened after adjustment for potential confounders. Although it had been shown that exogenous insulin injections stimulate the growth of precursors of colorectal cancer in animals, this study provides the strongest evidence in humans to date that an increased risk of large bowel cancer may be an unfavourable side effect of long term treatment with insulin. However, after a half century of critical clinical use, insulin is unlikely to undergo the "hormone bashing" that has been the recent fate for hormone replacement therapy containing oestrogen. The indispensable contribution of insulin to diabetes care and the reductions in non-neoplastic complications from optimisation of glycaemic control clearly outweigh the absolute risk of colorectal cancer.

Yang et al draw an analogy to risk among individuals with a family history of colorectal cancer and, by implication, suggest a more stringent approach to screening in people on insulin for diabetes.¹¹ Such a proposal is questionable as it is based on an estimated only twofold increased risk in patients. Experience should be drawn from the debate on colorectal cancer screening in patients with acromegaly, another endocrine disorder characterised by a modest (two-fold) increase in the risk of colorectal cancer.¹² Screening for colorectal cancer is not without its potential morbidities, and detailed analyses of risks and benefits need to be undertaken before a widespread recommendation for aggressive screening is advocated in patients with type 2 diabetes mellitus. As the prevalence of type 2 diabetes mellitus will undoubtedly increase in line with the growing epidemic of obesity,

the associations between diabetes and risk of colorectal cancer will be the subject of increasing scrutiny and research.

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Competing interests: AR and SS have received hospitality from Diagnostic Systems Laboratories, and from several pharmaceutical companies including Eli-Lilly, Pfizer, Novo Nordisk, and Novartis. AR has also received a lecture honorarium from Eli-Lilly. SS receives research funding from Pfizer, Novo Nordisk, and Novartis.

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Has the UK government lost the battle over MMR?

Possibly, but the war can still be won by openness and communication

Since the World Health Organization introduced its Expanded Programme on Immunization in 1974, multiple vaccinations—such as for diphtheria, tetanus, and pertussis (DTP) and measles, mumps, and rubella (MMR)—have been used to help eradicate childhood diseases that cause death and disability worldwide. Smallpox has already been eradicated. The United Kingdom has provided DTP since the 1950s and MMR since 1988. Lowered prevalence rates of disease, serological surveys, and treatment specific trials have lent support to this policy.^{1 2} In short, evidence already exists.

Unfortunately not all countries have the infrastructure that is required to put the evidence into practice. This deficiency is greatest in infancy, when the window of opportunity between maternally derived immunity

and susceptibility to infection is narrowest and childhood diseases kill and disable most.³ In Ethiopia in 1974, the World Health Organization reached only 12% of its child targets. By contrast, in the United Kingdom in 1998 the MMR campaign reached 92% of its targets.

That has been the high point of its coverage in the United Kingdom so far. The goal is herd immunity, where the proportion of people susceptible to infection in a physically interacting population is so low that transmission of infection is unlikely. Local populations interact intensively, but today people interact globally through travel. Eradication depends on global herd immunity, but near safety can be achieved for national populations with local coverage as long as it approaches 95% of the target.

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To enable this policy to be put into effect, parents have to accept that the welfare of their own children is interdependent with that of the population with which their children interact. This is most likely within the civic culture typically associated with developed countries and their urbanisation, where evidence and infrastructure also favour the campaign. An analogy for treating vaccination as something normal is the discipline of driving vehicles on public roads. Even though the high densities of traffic in urbanised countries would otherwise increase the probability of collisions, cross-nationally road casualties are inversely related to traffic density.⁴

Yet by 2002 the United Kingdom had become the deviant case in global MMR policy.⁵ Having reached one of the highest levels of MMR coverage by a relatively early date, it actually lost ground. Paradoxically, one of the lowest levels of coverage of MMR is now to be found in the most urban of the world's populations, that of London, at around 75%.

Health professionals found a scapegoat for this reversal in a researcher, Andrew Wakefield, who claimed in 1998 that the MMR vaccination campaign might account for what he took to be the coincident rise in cases of diagnosed autism. Subsequent epidemiological research did not support this claim.⁶ Yet Wakefield's views gained credibility with some parts of the public.

Parents who refused MMR vaccination for their children were not necessarily irrational.⁷ The high level of coverage achieved before that point had so far reduced the risk of contracting the diseases that parents began to see the vaccine itself as more of a threat to their children. In a developed world context, measles less often leads to death and disability. A short illness might seem a price worth paying if a greater hazard, such as autism, might conceivably follow the vaccine.

Arguably, the explanation for the reversal lies not with Wakefield or even with parents who took his claims seriously, but with a failure of leadership by health professionals, lack of support for them from policy makers (including the prime minister), and mischief made by journalists.

A pervasive belief prevails among health professionals and scientists in the United Kingdom that the public has lost trust in them, but surveys have repeatedly shown that the public has faith in them and

much less in politicians and journalists. A corollary of their mistaken belief is evidence that some health professionals, in offering individual advice on the safety of MMR, acquiesced in their clients' anxieties rather than attempting to allay them.⁸

Many of course were robust in defence of the evidence, yet evaded opportunities for public dialogue. The solution is not to affect disdain for the bearers of false news but develop two way communication about risk between experts and the public as equals, which Richard Horton, who published the paper by Wakefield's study group of 1998 in the *Lancet*,⁹ has subsequently suggested. Its focus would be: MMR and autism—learning the lessons.¹⁰ If the United Kingdom has all but lost the battle for MMR, the war itself can still be won by openness.

Meanwhile journalists fill the void. They sometimes have more interest in amplifying risk than allaying public anxiety. But *Dispatches* on Channel 4 television on 19 November 2004 notably chose instead to discredit Wakefield for an interest in marketing a single vaccination for measles.¹¹ This may be a turning point.

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Competing interests: None declared.

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Patients' safety

Progress is elusive because culture in health care has not changed

Since 2000, when "To Err Is Human" stimulated action to eliminate errors and mitigate the resultant harm in the United States¹ and "An Organisation with a Memory" initiated similar efforts in the United Kingdom,² healthcare systems worldwide have devoted considerable attention to the safety of patients. Yet despite attempts to reduce adverse events through multilevel interventions and information technology, widespread change in the culture of health care remains elusive.

The numbers of affected patients are astounding. In the United Kingdom, adverse events with resultant

harm were estimated to occur in some 10% of hospital admissions, equating to more than 850 000 events annually. In the United States, extrapolations based on medical record reviews imply that 44 000-98 000 lives were lost because of medical errors each year. Although some posit that these numbers were inflated, ongoing work indicates that these estimates may be conservative. For example, Davis et al found that 12.9% of hospital admissions in New Zealand were associated with an adverse event.³ Zhan and Miller examined the incidence of 18 hospital based diagnoses suggestive of errors and found that injuries may add 2.4 million