

## Faith Healers and Physicians — Teaching Pseudoscience by Mandate

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In the 1939 movie *The Wizard of Oz*, Frank Morgan plays five roles. In one of them, he is a flim-flam hawker of trivia traveling across the plains of Kansas in a horse-drawn wagon. In another, he is the wizard who, concealed by a curtain, manipulates a machine that controls all of Oz. Now, more than 65 years later, another pitchman is rolling across Kansas, but unlike Morgan's bumbling peddler of trinkets and dreams, the new one has no interest in such trifles. It is an articulate and sophisticated anti-evolution movement called "intelligent design." At its core is the idea that a supernatural being — a hidden wizard — has a hidden hand in shaping the living world.

The intelligent design movement has attracted support from U.S. politicians at every level of government, from the Dutch minister of education, and from the Roman Catholic archbishop of Vienna, who has determined that the theory of evolution is inconsistent with the teachings of his church. In his objection to evolution, the cardinal joins Joseph Stalin, who forbade its teaching in the Soviet Union. More important than approval from high-profile national and international leaders, however, is the determination by members of public school boards in at least 20 states that intelligent design should be taught in school beginning in the ninth grade. It has been 80 years since the Tennessee legislature passed the Butler Act, which

made the teaching of evolution a misdemeanor, and 80 years since John Scopes, a high school science teacher and football coach, was found guilty of violating that law. In the Scopes trial, Clarence Darrow argued, "We have the purpose of preventing bigots and ignoramuses from controlling the education of the United States." Darrow lost his case, and despite all the ensuing decades of science education, the movement to teach intelligent design has spread from school houses to college campuses and university postgraduate programs. I fear that it will soon reach medical schools.

The debate has been prominent in the press and major scientific journals, but it has not been featured in medical journals, nor has it been discussed publicly by leaders of academic medicine or professional medical societies. Some might ask why physicians should care about how we educate our children, and what difference it would make to medicine if we taught children intelligent design as a counterweight to evolution — which, according to the proponents of intelligent design, is a mere theory. But acquiescing to this anti-science movement would have far-reaching consequences for the development of future generations of physicians, for the likelihood of discovering new therapies, and for understanding health and disease.

To understand why intelligent design constitutes an insidious

menace to medicine, it is helpful to trace its roots. In part, it evolved from creationism, which takes the Genesis story of creation literally. Creationism has been discredited, however, by indisputable physical evidence — carbon dating, for example. In 1987, the teaching of creationism in public schools was forbidden by the U.S. Supreme Court (*Edwards v. Aguillard*). Still, a large part of the public believes in creationism and yearns for a return to God in public schools. Opinion pollsters tell us that the public admires scientists but fears godless science that has no place for a Creator. It is mistrust of the very basis of science — especially the biologic sciences — that fuels enthusiasm for a "hidden hand" in the workings of the living world. Detractors of the theory of evolution contend that there are too many holes in it: it is inconsistent with the fossil record, they say, and it fails to fully account for what we see today in the living world. Worse, it cannot tell us about the meaning of life.

At its root, intelligent design is a medieval theological proposition that is based on faith, not logic, and certainly not science. It is theology dressed up as science, but it cannot be easily dismissed. The clever twist is that its proponents do not use such words as "God" or "deity" in public or in their literature, nor do they draw on the Bible to buttress their case. This omission, they believe, permits them to deny that

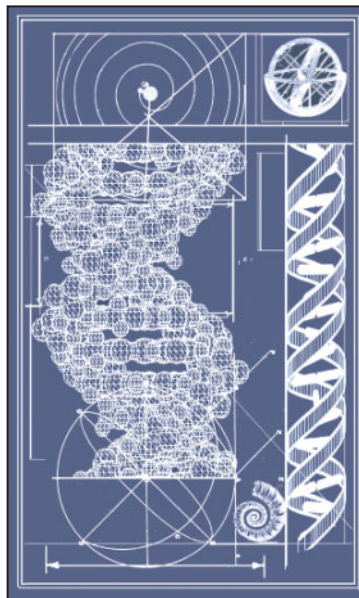
intelligent design is faith-based. But what, then, is the meaning of “hidden hand,” “intelligent creator,” or “the Designer”? It is this elusiveness about the intelligent creator that gives intelligent design immense appeal: God can be introduced into the school curriculum without any mention of God.

Some of the supporters of intelligent design are knowledgeable and sophisticated. Phillip Johnson, professor emeritus of law at the University of California, Berkeley, and one of the founders and financial backers of the intelligent design movement, can accurately pinpoint many problems that the theory of evolution has not come close to solving. His criticisms have merit, and his focus on precisely those things that we do not yet know blocks any rational dialogue. But Johnson and his followers always end up in the same blind alley: the problems are too complex to be explained by any proposition other than the existence of an intelligent designer. They argue, for example, that some organs, such as the eye, are too complex to have arisen by blind chance; hence, the eye must have been designed by an intelligent creator.

The same argument is no doubt applicable to the blood-clotting system: it is too complex to have arisen through mutation and natural selection. Therefore, a hidden hand must have created hemostasis. The promoters of this line of thought do not tell us any more than that about the origins of the hemostatic system — they say only that a complex biologic system demands a creator. But they neglect to tell us that their creator of hemostasis must also be responsible for deep venous throm-

bosis and pulmonary embolism, the natural consequences of a complex system of blood clotting. Clearly, such a worldview could have ramifications for those who would study, elucidate, and treat such disorders.

Indeed, first and foremost, intelligent design should concern physicians because the debate influences education at all levels. Now that Bill Frist, the Senate majority leader and a graduate of Harvard Medical School, has come



out in favor of the teaching of intelligent design, medical students may soon be learning that only a hidden hand could be responsible for the complexities of oxidative metabolism in mitochondria. (An intelligent student might ask why the designer made mitochondria in the first place.) Moreover, the confusion between faith and science at the highest levels of public education can hardly be an asset to the pool of applicants to medical schools and graduate schools in the sciences.

What would it mean to take intelligent design seriously at the

medical school level? Its proponents tell us that gaps in our knowledge of how living organisms evolved vitiate the theory of evolution. Might we conclude, then, that the cancer cell and its evolution are so complex that a creative designer must be the cause of cancer? But if the designer created cancer, is it against the hidden hand's will to find a cure for cancer? Is it in accord with the plan of the intelligent designer to receive a treatment for cancer? After all, a Jehovah's Witness would rather die than receive a blood transfusion. Yet today more than ever, the profession needs physicians who can channel scientific discoveries to the sick. What effect will pseudoscience-by-fiat have on medical progress?

If we accept the premise that it is not in the long-term interest of medicine to disguise a faith-based belief as a scientific discipline and indoctrinate future physicians and scientists in a creed that thwarts the science of medicine, what can physicians do now? It seems to me that leaders of professional societies and prominent academicians should start speaking up. At the local level, doctors are prominent and respected. They serve on school boards, and some hold public office. They are influential teachers. Many have religious affiliations, and they surely know the difference between faith and science. Engaging in a public debate about intelligent design is probably not a good idea; any debate about faith and belief will surely end inconclusively. More desirable are education and acting to protect the profession and the public from pseudoscience. The main need now is to begin to understand

what the debate is about and to consider its consequences for the future of medicine.

The pity of it all is that opponents of the theory of evolution have missed the main point. The

central idea of the theory is not the Victorian image of a hairy ape with a human face. On the contrary, the theory unveils the beautiful thought that all living creatures are related — in a sense, we

are all one. This concept, if properly understood, can inspire more faith than any hidden Wizard.

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## Medicaid — Implications for the Health Safety Net

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Today, Medicaid helps to finance health and long-term care for more than 55 million low-income children and parents, people with severe disabilities, and elderly Americans, at an annual cost of nearly \$300 billion to the federal and state governments. The program currently provides health coverage to 1 in 4 U.S. children, covers half of all spending on nursing home care, and supplements Medicare for 7 million elderly and disabled persons.<sup>1,2</sup> Children account for half the enrollees, but the elderly and people with disabilities account for 70 percent of the spending (see graph).<sup>3</sup> Medicaid is the nation's health safety net, but its growing role and increasing costs in the face of state budgetary pressures and the federal deficit have made it a target for reform that could fundamentally reshape the program.

Governors, recovering from the recent economic downturn and concerned about balancing their budgets, are increasingly calling Medicaid's growth unsustainable. Many are seeking structural changes that would give them greater flexibility in terms of eligibility and benefits and shift more of the cost of care for the elderly to the federal government and Medicare. Many states are already looking for savings from more stringent eligibility levels,

leaner benefits, increased cost sharing, and further reductions in provider payment levels, which are often below those of Medicare and private insurance plans.

In an effort to limit federal spending, the budget proposed by the Bush administration offered to give states greater flexibility, but with less federal funding. In response, Congress enacted a budget resolution calling for a \$10 billion reduction in federal Medicaid spending over the next five years and opened the door to legislative changes to restructure Medicaid. At its August meeting, a new commission on Medicaid established by Health and Human Services Secretary Michael Leavitt recommended \$10 billion to \$11 billion in cost-saving measures, and it will consider broader reforms over the next year. As the states and the federal government engage in a fiscal tug of war over Medicaid, it is increasingly clear that there are no easy solutions and that the health care of millions of low-income Americans is at stake.

During the past four years, states have been actively attempting to restrain Medicaid spending through limits on prescription drugs and provider payments, combined with some reductions in eligibility and benefits for adults, but many are now turning

to more substantial changes and seeking greater freedom to restructure their programs. When Leavitt was its governor, Utah created a new primary care benefit package (one that did not include hospital or specialty care) for low-income adults, funded in part by reductions in benefits and increased cost sharing for poor parents who were already covered by Medicaid. Now, Tennessee and Missouri are undertaking major reductions in eligibility that could result in the dropping of as many as 200,000 and 90,000 adults, respectively, from their Medicaid programs. Other states, such as California, New Hampshire, Kentucky, and Georgia, are seeking to reduce spending on acute care by adding premiums for health insurance coverage, raising cost-sharing levels, and limiting coverage for doctors' visits, prescription drugs, and dental, vision, and home care services to a specified number of services per year. To constrain spending on long-term care, states such as Connecticut and Minnesota are seeking permission from the federal government to extend the period of time before Medicaid kicks in to pay for nursing home care if an inappropriate transfer of patients' financial assets has occurred.

Several states are seeking waivers from the federal government