

by Gene Tarne & David Prentice, 8/8/10

When scientists play politics with science, society and science both suffer, sometimes with life-threatening implications. One recent example is Climategate, with revelations that leading global warming researchers played with the data, concealed and tried to suppress data that challenged their assertions, and attempted to game the peer review system. And as a result of scientists caught playing politics with science, claims of man-made global warming have been met with growing skepticism.

But a similar scenario has played out regarding human embryonic stem cell research (hESCR). With the introduction of legislation to codify the Obama administration's rules expanding the federal role in funding hESCR, it's time that the extravagant claims for such research suffer the same fate.

Like Climategate, the public policy debate over hESCR has shown that scientists are not always disinterested parties. Rather, scientists can be every bit as political and partisan as the politicians, selectively using scientific "evidence" to justify their ideological viewpoint.

The patterns of behavior promoting public funding of hESCR have been strikingly similar to Climategate: selective use of data, manipulation of the peer review process, demonizing colleagues who question the prevailing orthodoxies, and appeals to a bogus scientific "consensus," among others. Those who question this supposed "consensus" have been dismissed as scientifically ignorant and accused of playing politics with science.

Indeed, President Bush's policy on hESCR was a prime example of what opponents dubbed the "war on science." Their narrative, dutifully echoed by the mainstream media, was that limiting federal funding of hESCR showed that Bush was either ignorant or contemptuous of science, willing to play politics to appease his pro-life base.

In contrast, President Obama characterized his executive order lifting the Bush-era restrictions as "ensuring that scientific data is never distorted or concealed to serve a political agenda, and that we make scientific decisions based on facts, not ideology."

His remarks were risible. The scientific facts regarding hESCR are remarkably flimsy and incapable of supporting the extravagant claims for such research. Such claims advance a political agenda -- legitimizing and guaranteeing federal funding for ethically contentious research. For the

same political reasons, the increasingly strong evidence of actual therapeutic benefits to patients from ethically non-contentious adult stem cell research was distorted or concealed.

Senator Arlen Specter declared that hESCR "could result in a veritable fountain of youth by replacing diseased or damaged cells." Sen. Tom Harkin said in 2005 that apart from Hurricane Katrina relief, the most urgent issue facing the nation was lifting the Bush restrictions on hESCR because "people are dying from diseases and medical conditions that might be cured through embryonic stem-cell research. ... [E]very day of delay by the Senate has life-and-death consequences." Nancy Pelosi waxed theological, saying "Scientists have been given an almost biblical power to cure through advances in embryonic stem cell research"<sup>1</sup>.

Many patient advocacy groups -- and celebrities associated with them -- also were not shy in hyping hESCR. The Alliance for Aging Research said that it allows us to "imagine a world without debilitating costly diseases such as Parkinson's, heart disease and diabetes." Michael J. Fox flatly stated that hESCR has the "potential to eliminate diseases, literally save millions of lives"<sup>2</sup>, while Christopher Reeve told a Senate committee, "For the true biological miracles that researchers have only begun to foresee, medical science must turn to undifferentiated [embryonic] stem cells"<sup>3</sup>.

Scientists themselves -- eager for federal research dollars but determined that no one outside the "research community" should tell them what they could or could not do -- also joined in.

Then-NIH director Harold Varmus testified that "within the course of the next decade or two ... many -- many diseases would be at least treated, if not entirely cured"<sup>4</sup> by embryonic stem cells. Michael West, president and CEO of Advanced Cell Technologies, declared embryonic stem cells among the gifts "that mankind occasionally is given ... that can greatly advance the human condition"<sup>5</sup>. Dr. Bert Vogelstein of Johns Hopkins University testified that embryonic stem cells would prove beneficial "for any of these diseases: Alzheimer's disease, Parkinson's disease, a variety of spinal cord injuries, certain types of diabetes, many others ... The only hope on the horizon is through transplantation of these [embryonic] stem cells"<sup>6</sup>.

By the rhetorical standards set by hESCR proponents, Varmus' prediction that many diseases would be treated "within the next decade or two" was conservative. More often, proponents would offer five to ten years. Jose Cibelli, a

leading proponent of hESCR, admitted that such pronouncements were essentially meaningless. Asked when therapies using hESCs would be ready, Cibelli told the Baltimore Sun, "My answer is five years. It's the same thing as saying I have no idea"<sup>7</sup>.

Five and even ten years have come and gone, and there are no treatments or cures using hESCs. One clinical trial approved by the FDA in 2009, then put on safety hold, was reapproved in July 2010, but as yet, not a single patient has even been injected with hESC. The five- to ten-year predictions were apparently designed to mislead people into thinking treatments were imminent, and to realize them, all Congress needed to do was expand federal hESCR funding.

In 1992, journalist Gregg Easterbrook, writing on the global warming debate, coined what he called the "Law of Doomsaying": "Predict dreadful events whose arrival impends no sooner than 5 years hence, no later than 10" -- i.e., soon enough to scare people into action, but far enough away that they will not recall if your predictions prove wrong. In the hESCR debate, let's call it the "Law of Exaggerated Expectations": Predict wildly optimistic outcomes for cures no later than ten years hence, but no sooner than five years away -- a seemingly reasonable time to raise expectations and support for the research, but far enough off that people will forget if it is wrong.

Even the respected New England Journal of Medicine jumped on the bandwagon, announcing its willingness to distort the peer review process to promote embryonic stem cell research. In July 2003, the NEJM announced it would give preferential treatment to publishing papers that shed a favorable light on hESCR. And it did so for explicitly political purposes -- to "boost the controversial field's standing among politicians and the public"<sup>8</sup>.

It certainly needed a boost -- very little scientific evidence supports hESCR. Nonetheless, the "scientific community" insisted there was a "consensus" that embryonic stem cells had the greatest potential to cure any number of diseases, period. This bogus "scientific consensus" soon became the new orthodoxy, and there was to be no dissent.

In April 2007, Nature Neuroscience set its sights on Maureen Condic, professor of Neurobiology and Anatomy at the University of Utah. In an editorial, the journal attacked her for being "anti-scientific" and "polemical" and engaging in "disingenuous distortions of scientific arguments." Her crime? In the pages of First Things (the editorial attack pointedly described it as a

"conservative Roman Catholic magazine"), Prof. Condic, relying on the peer-reviewed, published literature, challenged the prevailing orthodoxy, throwing much-needed cold water on the extravagant hESCR claims, going so far as to suggest that adult stem cells may well prove to be more efficacious in actually helping patients!

In 2002, Roger Pielke, Director of the Center for Science and Technology Policy Research at the University of Colorado, noted in the journal Nature the trend to politicize science: "As political battles are waged through 'science', many scientists are willing to adopt tactics of demagoguery and character assassination as well as, or even instead of, reasoned argument ... science is increasingly the battlefield on which political advocates, not to mention lawyers and those with commercial interests, manipulate 'facts' to support their positions"<sup>9</sup>.

...Or ignore facts altogether. In 2007, Sen. Tom Harkin waved away evidence for adult stem cells, saying, "Scientists have known about adult stem cells for forty years, and they still haven't provided the answer for juvenile diabetes." He said this on the very day that the Journal of the American Medical Association (JAMA) published clinical trial results using adult stem cells in a treatment that reversed juvenile diabetes in patients.

In a May 2008 House committee hearing, Weyman Johnson, board chair of the National Multiple Sclerosis Society and an MS sufferer himself, testified that "embryonic stem cell research holds unique promise to repair nerve cells to slow the progression of MS and to find a cure"<sup>10</sup>. Yet in February 2008, JAMA published data showing benefits of adult stem cells for patients with various auto-immune diseases, including MS (see also the statement of Barry Goudy, one of the MS patients treated). Embryonic stem cells have achieved nothing regarding MS even in animal models.

At that same hearing, Rep. Diana DeGette commented that "I know that these wonderful patients who are here today who have been cured by adult stem cells, mostly for blood-related diseases, would never say that somebody with diabetes or somebody with Parkinson's or somebody with nerve damage or somebody with macular degeneration -- all diseases for which embryonic stem cell research has shown promise and adult stem cells have shown no clinical promise -- no one would say those people should not be cured..."

She was zero for four. Rep. DeGette seemed embarrassingly unaware of the year-old JAMA study showing adult stem cells' efficacy for

juvenile diabetes patients -- and Rep. DeGette is co-chair of the Congressional Diabetes Caucus.

Parkinson's? In 2004, both Dr. Michel Levesque and Dennis Turner, a Parkinson's patient Levesque treated with Turner's own adult stem cells, testified regarding the positive results of the treatment. Leveque subsequently published his findings in the peer-reviewed *Bentham Open Stem Cell Journal*.

Nerve damage? Published studies using adult stem cells to treat spinal cord injuries include a 2006 report by Portugal's Dr. Carlos Lima in collaboration with Dr. Jean Peduzzi-Nelson of Wayne State University. They published a second report in 2009 using adult stem cells to treat more spinal cord injured patients.

Macular degeneration? Far from showing "no clinical promise," University of Louisville researchers have announced plans for a human trial of adult stem cells for macular degeneration. Rep. DeGette also seemed completely oblivious to the fact that the patient who testified was treated with his own adult stem cells for heart damage, not a "blood-related disease."

This was a remarkable display of ignorance by one of the leading proponents of hESCR. But DeGette went even farther in dismissing evidence inconvenient to her political agenda. "It makes me particularly angry when people try to claim that adult stem cells can substitute for cures for diseases for which adult stem cells have shown no clinical promise whatsoever[.]"

Her remark showed the flip-side of hyping hESCR to advance a political agenda -- demonize and dismiss those who disagree.

At one Senate hearing, Dr. Jean Peduzzi-Nelson outlined her research showing positive adult stem cell treatment for spinal cord injury. Yet Sen. Frank Lautenberg's first question for her was "Are you a member of a pro-life group?" -- repeating it with an even more McCarthyesque tinge: "Are you now a member of a pro-life group in any way?" Simply identifying someone as pro-life was apparently sufficient reason to dismiss his or her scientific facts.

The mainstream media joined in: the Washington Post's Rick Weiss, in a "news" report, identified opponents of embryo cloning as "religious conservatives" and not so subtly compared them to the Taliban<sup>11</sup>.

When President Clinton's National Bioethics Advisory Committee (NBAC) recommended federal funding for hESCR, it did so conditionally: "In our judgment, the derivation of stem cells

from embryos remaining following infertility treatments is justifiable only if no less morally problematic alternatives are available for advancing the research ... The claim that there are alternatives to using stem cells derived from embryos is not, at the present time, supported scientifically. We recognize, however, that this is a matter that must be revisited continually as science advances" (p.53, emphasis added).

In other words, they recognized that given the ethical problems associated with hESCR, it should not even be undertaken if viable alternatives exist.

But the insistence on continuing hESCR in the name of cures raises the question as to whether the NBAC was simply being disingenuous when it said hESCR should be pursued only if no alternatives are available. It now seems nothing more than a clever political ploy, designed to allay concerns over the ethically contentious nature of hESCR. Lip service to "advances of science" showing the efficacy of alternatives would not derail the political drive for federal funding of hESCR.

The most ironic -- and most troubling -- aspect to the stem cell debate is that all the talk about "playing politics" with science obscured the fact that in an open society, there is and must be a role for politics in determining the parameters within which science will be conducted. By itself, science is not competent to set these parameters. Science is a method to obtain knowledge; it can determine that one way may be more effective or more efficient than another. But efficient does not always mean morally acceptable.

In congressional testimony, Dr. Stuart Newman, a professor at New York Medical College, offered a hypothetical. Researchers have agreed among themselves that fourteen days is the outer limit to destroy embryos to obtain their stem cells. But, Newman wondered, why stop there? After all, more valuable cells could be obtained from cloned embryos allowed to develop to eight to nine weeks. "Right now, it would be a hot potato, but once we have ... gotten used to the idea ... And once stem cell harvesting from two-month clonal embryos is in place, who could resist the pleas to extend the time frame ... ? I emphasize that all of this makes perfectly good scientific and medical sense. The only thing that stands in the way is the sense of propriety concerning the uses to which developing human embryos and fetuses may be put<sup>12</sup>.

Our "sense of propriety" must of necessity be based on something other than science. We (currently at least) reject such research not because it is scientifically unsound, but because

we sense it is morally and ethically beyond the pale. Refusing to permit research that may be the most efficient from a scientific perspective because of ethical concerns may make the research more costly and time-consuming to pursue -- but that cost is the price we pay to keep our humanity.

That is why in an open society, determining public policy on science requires hearing from many voices, voices from outside the scientific community such as ethicists, religious leaders, economists, philosophers, and others, in addition to members of the scientific community. The perspectives they bring should not and must not be dismissed as ideological, sectarian, or narrow-minded. Just as war is too important to leave to the generals, setting public policy on science is too important to leave to the scientists.

By the same token, when actual scientific evidence is dismissed because it is inconvenient to political goals, then all that's left is the politics. And once that happens, all that's left is to use the issue to score political points off your opponents.

By the time President Obama signed his executive order vastly expanding the role of the federal government in hESCR, the actual science of stem cell research advances to help patients had long ago left the building. Should Rep. DeGette succeed in passing her legislation, it will not protect the president's executive order from politics. It will, though, protect it from science.

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<sup>1</sup> "Obama Action on Stem Cells Would Boost State and National Research Efforts, Sanford Experts Say," Business Wire, 1/12/09

<sup>2</sup> Stem Cell Research Could Lead to Parkinson's Cure, CNN Today, 9/14/2000

<sup>3</sup> Testimony before the Senate Committee on Appropriations, Subcommittee on Labor, Health and Human Services and Education, 4/26/00

<sup>4</sup> Testimony before the Senate Committee on Appropriations, Subcommittee on Labor, Health and Human Services and Education, 12/2/98

<sup>5</sup> Testimony before the Senate Committee on Appropriations, Subcommittee on Labor, Health and Human Services and Education, 8/1/01

<sup>6</sup> Testimony before the Senate Committee on Appropriations, Subcommittee on Labor, Health and Human Services and Education, 10/31/01

<sup>7</sup> "Stem Cells: A Long Road Ahead;" Baltimore Sun, 3/8/04

<sup>8</sup> "Influential Journal Plans to Publish More Stem Cell Studies Editor: Deterring Political Opposition to Research is Goal;" Boston Globe, 7/17/03

<sup>9</sup> "Policy, politics and perspective;" Nature, v. 416, p. 367, 3/28/02

<sup>10</sup> Testimony before the Health Subcommittee of the House Energy and Commerce Committee, 5/8/08

<sup>11</sup> "Bush Unveils Bioethics Council;" Washington Post, 1/17/02

<sup>12</sup> Testimony before the Senate Committee on Labor and Pensions, Subcommittee on Health, 3/5/02

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