TOP BIOETHICS STORIES: MARCH – MAY 2014

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"Japanese Researcher Backtracks on 'Breakthrough' STAP Cell Research" by Kiyoshi Takenaka and Kate Kelland, *Reuters,* March 10, 2014

> A Japanese scientist called on Monday for withdrawing stem-cell research he had been involved in that had appeared to promise a new era of medical biology as doubts have arisen over the results. The research, described as game-changing by experts at the time, was covered breathlessly in Japan after it was published in the journal *Nature*, with co-researcher Haruko Obokata becoming an instant celebrity. (http://tinyurl.com/pdaezjf)

The saga of the STAP cells (pluripotent stem cells derived from stimulating them with acid) began in March when one of the authors retracted his authorship of a paper that proposes a new and purportedly simpler technique for inducing pluripotency in stem cells. Since March, several labs attempted to reproduce the results, but could not. Some researchers noticed discrepancies in the figures in the paper. Haruko Obokata, the lead researcher in the paper was found guilty of research misconduct by an investigational committee. Even though Obokata apologized for the misconduct, she maintained that her technique worked. Finally, this June, she agreed to retract the papers. (http://tinyurl.com/n9ttpg7)

"European Parliament Approves Bill to Increase Clinical Trial Transparency" by Tania Rabesandratana, *Science*, April 3, 2014

> Researchers who do clinical trials in the European Union will have to make the results public under a bill approved by the European Parliament yesterday. In a sweeping vote held here yesterday, 594 members of the Parliament voted in favor of the plan, while only 17 voted against and 13 abstained. The vote, which confirms an informal deal reached in December between Parliament and the European Union's 28 member states, is a victory for activist groups who want trials data out in the open. (http://tinyurl.com/pflqr6q)

The new bill on clinical trial transparency, set to go into effect in 2016, will require researchers to report both successful and failed clinical trials within one year after the trial takes place. Researchers will also be required to provide a full clinical study report, including whether the medication is submitted for marketing authorization. While some believe this is a step in encouraging greater research transparency that will attract more markets to Europe, others think this will cause set-backs due to bureaucratic red tape and conflicts of interest.

"PET Scans Offer Clues on Vegetative States" by Denise Grady, *New York Times*, April 15, 2014

> A new study has found that PET scans may help answer these wrenching questions. It found that a significant number of people labeled vegetative had received an incorrect diagnosis and actually had some degree of consciousness and the potential to improve. Previous studies using electroencephalogram machines and M.R.I. scanners have also found signs of consciousness in supposedly vegetative patients. (http://tinyurl.com/ozmkohl)

New studies on brain activity using PET scans indicate that some patients who are diagnosed as being in a persistent vegetative state may actually be in a minimally conscious state, meaning these patients may have some awareness. Some people believe it is appropriate to withhold basic needs such as food and hydration from people in a vegetative state because they have no chance of meaningful recovery, while others maintain that these people deserve to have their basic needs met. However most agree that minimally conscious people are considered worthy of receiving basic needs because they exhibit some form of awareness and there is a chance of some recovery. This data calls into question some of our previous understandings of vegetative and minimally conscious states.

"Broad Institute Gets Patent on Revolutionary Gene-Editing Method" by Susan Young Rojahn, *MIT Technology Review*, April 16, 2014

> One of the most important genetic technologies developed in recent years is now patented, and researchers are wondering what they will and won't be allowed to do with the powerful method for editing the genome. On Tuesday, the Broad Institute of MIT and Harvard announced that it had been granted a patent covering the components and methodology for CRISPR—a new way of making precise, targeted changes to the genome of a cell or an organism. CRISPR could revolutionize biomedical research by giving scientists a more efficient way of re-creating disease-related mutations in lab animals and cultured cells; it may also yield an unprecedented way of treating disease. (http://tinyurl.com/qa29yb7)

A new gene editing technology, CRISPR, may be able to directly correct genetic disorders, by removing unwanted DNA in a cell and replacing it with DNA that has been synthesized in the lab. CRISPR is able to make multiple deletions and insertions at one time, making it the most robust gene editing system available. MIT was recently granted the patent on this new technology. Now scientists who have been using the CRISPR technique are waiting to see how MIT will handle their patent rights on the technology.

"A Fatal Wait: Veterans Languish and Die on a VA Hospital's Secret List" by Scott Bronstein and Drew Griffin, *CNN*, April 24, 2014 (article was updated on April 30, 2014)

> At least 40 U.S. veterans died waiting for appointments at the Phoenix Veterans Affairs Health Care system, many of whom were placed on a secret waiting list. The secret list was part of an elaborate scheme designed by Veterans Affairs managers in Phoenix who were trying to hide that 1,400 to 1,600 sick veterans were forced to wait months to see a doctor, according to a recently retired top VA doctor and several high-level sources. (http://tinyurl.com/qeojct6)

Reports surfaced that the Veterans' Affairs Hospital in Phoenix was placing patients on a "secret list" in which they would wait months or even years before they saw a doctor. Reports surfaced that some patients have died while waiting to see a doctor. This brought to light that the VA has some systemic problems with a shortage of personnel and finances to care for veterans. Eric Shinseki, the Secretary of Veteran Affairs, stepped down and, as of this writing, the Senate just drafted a bi-partisan bill to try to mitigate this problem going forward.

"Stem Cells Made by Cloning Adult Humans" by Monya Baker, *Nature*, April 28, 2014

> Two research groups have independently produced human embryonic stem-cell lines from embryos cloned from adult cells. Their success could reinvigorate efforts to use such cells to make patient-specific replacement tissues for degenerative diseases, for example to replace pancreatic cells in patients with type 1 diabetes. But further studies will be needed before such cells can be tested as therapies. (http://tinyurl.com/ocn283a)

Two different research groups announced that they had successfully made human embryos from cells obtained from adults through the use of cloning, or somatic cell nuclear transfer (SCNT). The embryos were made by taking the nucleus of the adults' cells and placing it inside of a donated egg. This procedure is fraught with ethical concerns, from egg donation, to making embryos for the sole purpose of destroying them. Researchers hope that these cloned embryos can be used for therapeutic purposes.

"Antibiotic Resistance Now 'Global Threat', WHO Warns" by Pippa Stevens, *BBC*, April 30, 2014

> Resistance to antibiotics poses a "major global threat" to public health, says a new report by the World Health Organization (WHO). It analysed data from 114 countries and said resistance was happening now "in every region of the world". It described a "post-antibiotic era", where people die from simple infections that have been treatable for decades. There were likely to be "devastating" implications unless "significant" action was taken urgently, it added. (http://tinyurl.com/ozq797n)

The World Health Organization called for the development of better antibiotics as well as better hygiene education and more judicious prescription practices by doctors to combat the threat of bacterial resistance to antibiotics. Some criticize the WHO's report as overstating the threat of a "post-antibiotic world." The WHO maintains that many diseases that were once treatable are not in about half of the patients who are given antibiotics.

"New Execution Protocol Similar to Doctor-Assisted Suicide Recommended" by Lindsey Bever, *Washington Post*, May 7, 2014

> Days after the botched execution of Oklahoma inmate Clayton Lockett, a bipartisan committee studying the death penalty has recommended a new one-drug lethal injection method to kill quickly and "minimize the risk of pain or suffering." The committee, formed by the Constitution Project long before the Lockett execution, urged states to administer an overdose of one anesthetic or barbiturate to cause death — the same method used in doctor-assisted suicides. (http://tinyurl.com/ncwy3hq)

The botched execution of Clayton Lockett in Oklahoma is one of many executions that have recently gone wrong. Some of the chemicals in the lethal three-chemical cocktail used in Oklahoma and in other states are in limited supply, causing states to seek out chemicals from less reputable sources or alternative drugs to execute prisoners. Furthermore, doctors have refused to be present at executions on ethical grounds, posing a problem if complications occur. Some believe one solution is to change the drugs that are used. This brings up questions of human dignity, obtaining drugs by ethical means, and the involvement of medical health professionals in the case of state executions.

"Ground Breaking Hip and Stem Cell Surgery in Southampton" *Medical Xpress*, May 16, 2014

> Doctors and scientists in Southampton have completed their first hip surgery with a 3D printed implant and bone stem cell graft. The 3D printed hip, made from titanium, was designed using the patient's CT scan and CAD CAM (computer aided design and computer aided manufacturing) technology, meaning it was designed to the patient's exact specifications and measurements. (http://tinyurl.com/qhu45ww)

New and interesting uses of 3D printing technology continue to appear in news outlets. In this unprecedented surgery, the patient was fitted with a hip made from titanium and infused with the patient's bone marrow cells so that it would graft on to the existing bone and grow new bone over the implant. Hip and knee replacement surgery is very common, and with this technology, not only can the parts can be tailor-made to fit the individual, but it may also reduce the need for subsequent surgeries.