epimonitor
THE EPIDEMIOLOGY MONITOR
A monthly update covering people, events, research and key developments

SPECIAL DOUBLE ISSUE

Ethics Turmoil In Epidemiology

Recent revelations about the ties between prominent epidemiologists and private industry have surprised many epidemiologists, particularly those who knew and loved the late University of California Berkeley's Pat Buffler. At the same time, the revelations about Paolo Boffetta and Carlo La Vecchia in Le Monde, while disappointing to some colleagues, appeared to come as no surprise to others. "It's just the tip of the iceberg," says the Imperial College's Paolo Vineis in Le Monde.

These reports come at a time when institutions such as the International Agency for Research on Cancer which classifies the carcinogenic potential of many environmental agents are also coming under close scrutiny for some of their activities.

To cover these stories, The Epidemiology Monitor is publishing a longer combined January/February 2014 issue with articles about the following:

1) the Center for Public Integrity's investigative report on Pat Buffler,
2) a recap of the articles about Italian epidemiologists appearing in France's Le Monde newspaper,
3) an exclusive interview with David Heath, the reporter who carried out the investigations on Pat Buffler,
4) a statement about the Buffler revelations by the Dean of the University of California Berkeley School of Public Health, and
5) an interview with Kathleen Ruff, a human rights activist who has worked with the Joint Policy Committee of the Societies of Epidemiology in issuing their joint statement on asbestos, and

Key professional groups in epidemiology have yet to comment on these revelations. Readers are invited to weigh-in on one or more of these articles by completing a comment form found at the end of each article or by posting to our Facebook page. Posting to our Facebook page will be interactive for those who wish to comment and receive comments on their responses. Comments by email to epimon@aol.com are also invited and will be published next month. We are interested in your comments on:

1. What do you think happened?
2. Why did it happen?
3. What, if anything, should be done about it?

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Investigative Report Raises Questions About The Late Pat Buffler's Multiple Relationships With Industry

Revelations Only Add To Heartbreak About Her Death, Says Colleague

A detailed report by David Heath from the Center for Public Integrity has revealed that the late Pat Buffler, the well-known and much-loved University of California Berkeley epidemiologist, served as a consultant for private industry for many years without publicly disclosing these activities and relationships. Because of the large number of these relationships, her failure to disclose them in journal articles or grant applications, and the variety of tasks she performed for industry, the article raises the possibility that Buffler rendered opinions that were influenced by the money she received rather than the scientific evidence itself. (See related article—An exclusive interview with investigative journalist David Heath). [Ed. In the interest of full disclosure, The Epidemiology Monitor acknowledged in its obituary last fall its high regard for Pat Buffler.]

Standard of Evidence

However, establishing beyond a shadow of a doubt that her opinions were actually slanted or tainted by money received is a difficult, if not impossible standard to meet. Because of her death, Buffler was not interviewed by Heath about the allegations and thus could not offer any alternative explanations for her views or activities in question in various roles as expert witness, advisor, or report writer. Indirect evidence or a pattern of behavior are all that is left to go on, perhaps with the exception of personal testimony among persons in a position to judge.

Suspicion

One highly suspicious set of opinions is the one she rendered in a lead based paint lawsuit in California. In advance testimony, she wrote that "…there are many indicators that the risk of injury to children living in homes with lead-based paint is low, and that the risk to children from lead based paint in homes is not probable or imminent. There is a dramatically declining number of children with elevated blood levels, including a declining number of 'state' cases [Ed. those meeting a specified case definition], despite the fact that the numbers of children who are being screened is markedly increasing..."

This statement appears to suggest that Buffler is questioning the causal relationship between exposure to lead and chidren's health. However, reading the original document, Buffler was rendering an opinion about whether or not an abatement plan was justified, and not about the relationship between lead exposure and health. In fact, her report

-Buffler continues on page 4

Le Monde Investigative Report Describes Questionable Practices By Epidemiologists

In a second report which sent shock waves through the epidemiology community in December, the French newspaper Le Monde published an investigation detailing questionable activities of Paolo Boffetta. The questionable behavior has aroused the opposition of consumer groups opposed to the selection of Boffetta to fill the directorship of the government's Center for Epidemiology and Public Health. In at least one instance, Le Monde also reported that Boffetta and a colleague Carlo La Vecchia failed to disclose a potential conflict of interest in an article published in the European Journal of Cancer Prevention.

List of Practices

Boffetta's critics, according to Le Monde, accuse him of consulting for industry and of "reletavizing" or "contesting" the risks linked to various products when there is a large consensus about the risks in the scientific community. Furthermore, Boffetta is accused of changing his position on risks associated with various chemicals after he left his post at the International Agency for Research on Cancer. Among the stances which have been questioned are those Boffetta has taken on dioxin, acrylamide, berylium, formaldehyde, and others.

Irregularities

The episode with the European Journal of Cancer Prevention occurred when Boffetta and La Vecchia published a literature review in the journal while a court appeals process was underway. The literature review, according to Le Monde, reached conclusions that were supportive of the strategy being used by the company defending itself against the role of asbestos in causing the deaths of several workers. Boffetta had also previously appeared in court on behalf of the company's defense.

Further suspicion was raised when it was learned that the literature review article was published in only a matter of days after submission, and that La Vecchia was one of the co-editors of the journal. Also, the co-authors declared they had no conflict of interest.

Letter to Journal

In January, an ad hoc group of scientists and activists wrote to the International Agency for Research on Cancer to complain to the agency that while Boffetta was co-authoring the paper on behalf of IARC he was employed by the company defending itself. They called for a retraction of the no conflict of interest statement. IARC has responded to the complainants that it has informed the editor of the British Journal of Cancer about a non-declared potential conflict of interest of one of the co-authors.

Stakeholders

In another January development, the National Association for the Defense of Asbestos Victims has written to the directors of the agencies

- Le Monde continues on page 8

"...the literature review article was published in only a matter of days after submission,"

"...it has informed the editor of the British Journal of Cancer about a non-declared potential conflict of interest..."

-Buffler continued from page 4

recognized the importance of lead and highlighted the remarkable progress made in reducing risk over the years. Hers appeared to be more a risk-benefit argument against a home lead abatement plan than about a causal role for lead. One can more easily imagine differences of opinion about the payoff from abatement plans than about the causal role of lead.

"...no one had a clue about what she was doing and it was a shock to everyone."

On the Other Hand

In another example from the same expert opinion, Buffler estimated the likelihood of children being harmed by lead in homes with lead based paint as 1 in 58,400 and this estimate is incorrect according to other experts more familiar with the lead literature. During the proceedings, Buffler's credentials were questioned since she had never studied or published on lead. The judgment by some experts quoted by Heath is that Buffler should have known better.

Surprise

"...Buffler's activities were 'not well-buried'..."

The allegations about Pat Buffler have come as a giant surprise to many who knew and worked with her and had no inkling of her numerous relationships with industry. "We are heartbroken about her death," said one colleague, "and these revelations only add to the heartbreak." According to the colleague, "no one had a clue about what she was doing and it was a shock to everyone." Similar reactions were reported by other colleagues in Heath's report.

Theories

Some who spoke with the Epidemiology Monitor believe that Buffler must have been leading a double life to have so many accomplishments in epidemiology and public health while at the same time having so many undisclosed relationships and activities with industry sources. Interestingly, Heath told the Monitor that what was unique for him in writing his expose is that while there was a lot of apparent surprise caused by his revelations, he said Buffler's activities were "not well-buried" and he did not have to scratch very deeply to find what he found but others around her did not see.

Pattern of Post-Mortem Attacks?

A discussion of Buffler's activities is hampered by the fact that she died unexpectedly last fall and some are made uncomfortable discussing allegations about her when she is not around to explain her activities. Some are even suspicious that a pattern may be emerging of criticizing prominent epidemiologists after they pass away as occurred for Richard Doll after his death. One epidemiology colleague who knew Buffler well called the Heath report "post-mortem assassination".

Triggers for Investigation

However, the investigation of Buffler's activities were undertaken months before her death, according to Heath, and were unrelated. He

-Buffler continues on page 6

Exclusive Interview

A Conversation With David Heath

Award-Winning Investigative Reporter Of Detailed Article Documenting Ties Between Pat Buffler And Industry

A surprising report for many epidemiologists about the University of California Berkeley's late Pat Buffler appeared in December 2013 on the website of the Center for Public Integrity. Entitled "Public Health Researcher Also Worked for Industry, Revealing Entanglements of Science", the detailed report presented evidence of multiple relationships Pat Buffler had with industry and of contributions she made in various settings which appeared to be conflicts of interest. Since many colleagues reading or learning about these allegations were shocked, and some raised questions about the motives and qualifications of David Heath, the reporter who conducted the investigation, we interviewed him to dig further behind the story. Below is the exclusive interview given to the editor of The Epidemiology Monitor. To facilitate the discussion of the important issues raised by this report, we invite our readers to submit their responses to the interview on our Facebook page or to epimon@aol.com.

Epi Monitor: Can you tell us a bit about your background as a journalist and your work at the Center for Public Integrity?

Heath: I've spent most of my career working for newspapers in Seattle, St. Louis and Louisville. For the past 21 years, I've done investigative reporting exclusively. While at the Seattle Times I coauthored an investigation into researchers who had financial stakes in deadly experiments at the Fred Hutchinson Cancer Research Center. That series won many national awards including Harvard University's Goldsmith Award. It was also a finalist for the Pulitzer Prize in 2002. I also coauthored a series exposing medical researchers who were paid to divulge secrets about ongoing drug trials to elite Wall Street investors. In recent years, the Justice Department has started prosecuting people engaged in this practice.

In 2009, I joined the Huffington Post Investigative Fund which later merged into the Center for Public Integrity, a nonprofit investigative unit that collaborates with major news outlets. I worked with PBS Frontline on a program on questionable dental practices at corporate chains. Last year, I produced two segments for PBS NewsHour on corporate influence over the EPA's efforts to evaluate hexavalent chromium.

Epi Monitor: How did you come to do this article? What were the triggers?

Heath: It's a long story, but the short version is that as I was researching

-Heath continues on page 8

"...some raised questions about the motives and qualifications of David Heath..."

"It was also a finalist for the Pulitzer Prize in 2002."

-Buffler continued from page 4

told the Monitor that he undertook the investigation because he was a reporter covering environmental issues and was looking into connections between industry and environmental science. In doing so, Health told the Monitor that he kept running into cases where Buffler was involved in some fashion. Also, Buffler had a reputation among plaintiff attorneys, and they had some documentation about her work. These developments indicated to Heath that further investigation was promising, and he undertook the extensive work reported by Center for Public Integrity.

"If you are getting $500 an hour to give your opinions, it defies credibility that you are not being influenced in some fashion by the advice you give."

Conflicts of Interest

Another colleague confided that plenty of epidemiologists are serving as paid consultants and should perhaps not be surprised by the revelations about Buffler. "If you are getting $500 an hour to give your opinions, it defies credibility that you are not being influenced in some fashion by the advice you give," according to our source.

"We have guidelines up the kazoo and they have absolutely no clout."

Other epidemiologists who spoke with The Epidemiology Monitor have expressed grave concerns about the extent to which the field is being corrupted by the influence of lucrative assignments for private industry. Another revelation in December about the activities of Paolo Boffetta, another well-known and well-liked Italian epidemiologist has fueled the current high level of concern about conflicts of interest throughout the field (see related article in this issue).

Implications for Epidemiologists

Other than shock and surprise, the actions taken by the epidemiology profession or other organizations such as the National Institutes of Health or research universities in a position to issue guidelines or make other interventions are limited to date. In the works are calls for removing the offending epidemiologists from positions of responsibility as editors or public officials.

Effective Measures

However, what truly effective measures can be taken is still unclear. One well placed epidemiologist told us that the answer is not in more guidelines. "We have guidelines up the kazoo and they have absolutely no clout.´ Also, "industry's influence is pervasive in setting up journals, selecting editors, and failing to disclose conflicts of interest. Industry has deep penetration in public health institutions," added this observer who claimed not to be shocked by the revelations about Buffler.

The observer noted "institutions nod and wink about conflicts of interest because they are funded and do not want to jeopardize their sources of funding." The observer added, "our field is very corrupted by the need for money and there are personalities with a duality to them. It is time to name names and bring this out into the open. Epidemiology is in a very bad place now and professional integrity has become a very serious matter. Alarm bells are ringing, and writing books about this is not doing enough. We need a hue and cry about this," concluded the observer. ■

Berkeley School of Public Health Stands Behind Buffler's Academic Work, According to Dean Stefano Bertozzi

[Ed. In response to a request from The Epidemiology Monitor, the Dean of University of California Berkeley School of Public Health provided the following statement of its position in response to the report on Patricia Buffler by The Center for Public Integrity. The statement is published here in its entirety.]

A story published last month suggested that research conducted by Dr. Patricia Buffler, a recently deceased professor and former dean of the UC Berkeley School of Public Health, might have been influenced by her association with private industry.

The story focused primarily on Dr. Buffler's work as a consultant and litigation expert for private industry. Since Dr. Buffler's consulting work took place outside the University and was completely separate from her academic activities, we are not in a position to know if the allegations are true, and sadly, she is no longer here to address these questions.

What is indisputable is that Dr. Buffler spent her academic career researching and publishing about the dangers of environmental toxins for adults and children. Those who knew her will attest that she was always forthright in expressing her views, and she never hesitated to single out chemical agents as threats to human health when the evidence warranted. The mission of her work, in large part, was the protection of children, and all available evidence suggests that she did everything she could to reveal rather than conceal any dangers when conducting research at UC Berkeley. We, like so many of her peers around the world, have great confidence in the scholarly work Dr. Buffler produced at the University, work that included more than 200 published articles over the course of her academic career, including 82 articles on childhood leukemia since her research program started in 1995.

We also have great confidence in the integrity of the past and ongoing research work of Dr. Buffler's collaborators in the Childhood Leukemia Study Group. This is derived, in part, from the fact that the group has in place multiple checks, both internal and external, on the integrity and validity of its reported research results. The group consists of a number of scientists, students and technicians working independently. Beginning in 2000 and continuing to the present, all the data in the Childhood Leukemia Study Group has been collected by an independent campus survey research organization (SRO) or by an independent private SRO. SRO activities were always overseen and managed by a committee that included the project manager, the associate director for research, and Dr. Buffler, as well as staff/researchers. None of the committee members reported any effort by Dr. Buffler to exclude, limit, or alter any data collected that might have been unfavorable to industry. Daily management of the

- Berkeley continues on page 13

"...we are not in a position to know if the allegations are true,"

"...she never hesitated to single out chemical agents as threats to human health when the evidence warranted."

-Le Monde continued from page 3

responsible for France's Center for Epidemiology and Public Health calling on them to firmly reject Boffetta's application for the open Director's position. They allege that his candidature for the position is associated with major conflicts of interest "totally incompatible with carrying out the directorship of the largest French epidemiology center." The assertions are based on Boffetta's role as a founder and vice-president of the International Prevention Research Institute, a consulting company which has done work for industry.

"All of this is taking place in the context where industry seeks in many domains to contest solid result...s"

Reactions

Reactions to the revelations about Boffetta and La Vecchia have not been the same as those surrounding the Pat Buffler revelations. For example, colleagues interviewed by Le Monde expressed no surprise and shock, but rather appeared to take them as further evidence of problems in the field. Other colleagues reacted by citing multiple other examples of questionable practices always favorable to industry.

"It is a huge mess, because Paolo is a magnificent researcher. For sure, he has the right to do what he does. And we, we have the right to no longer have confidence in him."

Tip of the Iceberg

In statements given to Le Monde, Paoli Vineis, at the Imperial College of London, said that this work is only the tip of the iceberg. All of this is taking place in the context where industry seeks in many domains to contest solid results by creating confusion, for example, by supporting the idea that epidemiology is a weak science in which we should not have confidence, he told Le Monde

Rights and Confidence

Coming at approximately the same time as the revelations about Buffler, which appear to be of a different nature, the revelations about Boffetta and La Vecchia may prompt a response from epidemiology professional groups. For now, the reaction of one epidemiology colleague sums up the situation. He told Le Monde, "It is a huge mess, because Paolo is a magnificent researcher. For sure, he has the right to do what he does. And we, we have the right to no longer have confidence in him." ■

-Heath continues from page 5

corporate influence on environmental science, I kept coming across Patricia Buffler's work. A colleague of mine was having the same experience. Finally, we realized that she was on the board of directors of FMC Corp. while she was dean of UC Berkeley's School of Public Health. It seemed worth looking into.

Epi Monitor: Some I have spoken with say everyone has an agenda, and they have questioned what your agenda may have been in choosing to investigate Pat Buffler and in reporting what you reported. They wonder if this agenda influenced your investigation and findings. What is your reaction to these views?

Heath: The Center for Public Integrity is a nonpartisan news organization that operates no differently than most newspapers with investigative teams. Our

- Heath continues on page 10

Interview With A Human Rights Activist On Recent Revelations About Prominent Epidemiologists

[Ed. Kathleen Ruff is founder of the human rights website RightOnCanada.ca and Senior Advisor on Human Rights to the Rideau Institute. Her report, "Exporting Harm: How Canada markets asbestos to the developing world", brought to public attention the destructive role that Canada has played on the world stage as propagandist for the asbestos industry. In 2011, she received the Canadian Public Health Association's National Public Health Hero Award for her work in exposing the inaccurate propaganda of the asbestos industry and in mobilizing the scientific community to speak up about the dangers of chrysotile asbestos and to call for a ban on its mining and export. She has received the Rideau Institute Leadership Award for making an outstanding contribution to a progressive vision of Canada, in particular for challenging the influence of the asbestos lobby on Canada's policy on asbestos and calling on the government to heed independent, reputable scientists. In October 2013, she was the recipient of a Special Award from the Collegium Ramazzini to honor her steadfast and effective advocacy in the international effort to ban the ongoing use of asbestos and for promoting better occupational and environmental health protections throughout the world."]

Epi Monitor: As activist who works with scientists on human rights issues and on asbestos challenges, what is your reaction to the revelations about Pat Buffler's ties with and contributions to industry?

Ruff: I am sickened by Buffler's betrayal of science and public health. If we truly believe that science and public health matter, then we have a duty to hold her accountable for her actions. It was not from ignorance or stupidity that Buffler testified on behalf of paint companies that lead in paint poses little risk to children. It was financially advantageous to her to misrepresent the science and to contribute to harming children. Inner-city children in impoverished families were harmed by continued exposure to dilapidated lead-paint in their homes during the 13 years' delaying of remedial action, caused by the lengthy court case. Public health professionals have a deep moral duty to support greater health protection, not inferior protection, for the most vulnerable children. Buffler would not have allowed any children in her own family to be exposed to this known hazard.

"Public health professionals have a deep moral duty to support greater health protection,"

Buffler is not the issue. Her misconduct is just one more example of many, where prestigious scientists, after many years of outstanding work, have betrayed their scientific and ethical commitments for personal financial gain. Just as in the fields of politics, law and finance, unethical conduct occurs in the field of science. We would be irresponsibly naive to pretend it does not.

"...unethical conduct occurs in the field of science. We would be irresponsibly naive to pretend it does not."

The real issue is how the scientific and academic community deals with the problem. The University of

- Ruff continues on page 16

-Heath continued from page 8

mission, as with any investigative reporting, is to expose abuses and wrongdoing as a way to curb them.

"I was impressed that she criticized the Food and Drug Administration for delays that may have cost hundreds of children their lives."

I have been working on a series of stories about the chemical industry's influence on the science of toxic chemicals. Earlier in the year, I wrote about academics on an IRIS peer review panel who, unknown to the EPA, had conflicts of interest. One was hired by PG&E on chromium VI matters while actually serving on the panel reviewing chromium VI. Another had been a litigation witness for industry in seven chromium VI lawsuits. The EPA left it up to a private contractor to select and vet the panelists. After my report appeared on PBS NewsHour, the EPA changed its rules for selecting peer-review panels.

Epi Monitor: The investigation seems to be very exhaustive involving many persons and documents. How long did it take you to do this work?

Heath: I worked on the story for approximately six months. Patricia Buffler died in the middle of my research.

Epi Monitor: You have mentioned Pat Buffler's memorial. What strong impressions did you get from her memorial service?

Heath: It was clear from the memorial that many of Pat Buffler's colleagues and students were heart broken by her death. So many people used the same words to describe her, such as: generous, warm, charming and elegant.

"...research shows that financial conflicts produce more favorable results for the companies involved. "

Epi Monitor: What did you learn about her contributions to public health that seemed most impressive to you?

Heath: I was impressed that she criticized the Food and Drug Administration for delays that may have cost hundreds of children their lives. It dealt with delays in putting Reye's syndrome warning labels on aspirin bottles.

Epi Monitor: Do you think that behavior reveals a courage she had to speak her honest opinion, at least in some difficult circumstances?

Heath: Of course. But I think all scientific opinions should be honest.

Epi Monitor: I understand from colleagues that they have no reason to believe that her research work for NIH was impacted in any way by her relationships with industry. Do you agree from what you know?

Heath: I suspect that's what scientists always say when they have a conflict of interest. Yet research shows that financial conflicts produce more favorable results for the companies involved.

Epi Monitor: What do you consider to be your most well-documented findings about Pat Buffler's work with industry which violated established rules of ethical conduct or went against standards of good professional conduct?

Heath: Well, I spent months on this story and did a lot of interesting research that didn't make it into

-Heath continues on page 14

Lancet Asks— What Is The State of Science, And How Should Medical Science Change?

Waste Prevention Is The Goal

A provocative set of critiques has been published in Lancet at the outset of 2014 asking---how should medical science change? The problem identified is that existing systems established to assure the quality of science are not performing well enough. The issue can be framed as one of waste, according to Lancet. The current system results in wrong questions being asked by scientists, poor study designs being applied, research that is inaccessible, and findings distorted by selective reporting and other biases, says the Journal.

According to Yale epidemiologist Michael Bracken, one of the authors of the series, "while the biomedical research community currently provides a huge amount of benefit to society, it does so in spite of the present high degree of wasted research, [and] this series documents how much more could be accomplished if we substantially improved the efficiency of the research enterprise." A 2009 report in the Lancet estimated that an astonishing 85% of the research investment in 2010 amounting to $200 billion was wasted.

Discussion Called For

The Lancet calls for a discussion not only in the Journal but at conferences and other venues. Put succinctly, the question on the table is—how should the entire scientific enterprise change to produce reliable and accessible evidence that addresses the challenges faced by society and the individuals who make up those societies?

Framework

The Lancet series offers a framework to understand the current state of science by noting that political, social, cultural, and economic conditions operate on all of the actors in the enterprise to produce the current situation. These actors, exposed to the various conditions, are driven or choose to act based on their own physical and intellectual abilities, the external opportunities that present themselves, and the motivations or incentives available to energize their behavior, according to Lancet. Changing the system will require altering the determinative conditions and/or drivers.

5 Questions

The Lancet series begins with a series of five articles each seeking to address a specific question. They are:

1. Are research decisions based on questions relevant to users of research?
2. Are appropriate research designs, methods, and analyses used?
3. Is the regulation and management of research efficient?
4. Is research information fully accessible?
5. Are unbiased and usable research reports being produced?

For answers to these questions, see the January 8 2014 online issue of The Lancet.

"...much more could be accomplished if we substantially improved the efficiency of the research enterprise."

"Are research decisions based on questions relevant to users of research? "

Facebook Makes Fun Of Princeton Research By Using Correlation As Causation

"Not All Research Is Created Equal"

"...they predicted that Facebook "will undergo a rapid decline in the coming years,"

"...some methods of analysis lead to pretty crazy conclusions."

If you watched the news at all this month, you heard about the attention-grabbing research conducted by two Princeton engineers predicted the demise of Facebook, and the amusing tongue in cheek research carried out in response by Facebook. What happened?

Research Model

The Princeton researchers assumed that online social networks behave like infectious diseases, that is, adoption of social media is like getting an infection, and abandoning social media is like recovery from illness. They modified an infectious disease model to predict what would happen with susceptibles, infected persons, and those who recovered.

They used Google search query data as a surrogate for usership of online social networks and then looked at the performance of the model for MySpace, a social network site whose members came and went in the recent past. They were satisfied with the model and applied it to Google query data about Facebook. Based on the results from the model, they predicted that Facebook "will undergo a rapid decline in the coming years, losing 80% of its peak user base between 2015 and 2017."

Facebook Reaction

Facebook data scientists responded not in bureaucratic fashion but by spoofing the "robust" methodology of the Princeton engineers, namely by following the principle that correlation equals causation. Facebook research based on Facebook Likes showed that Princeton is itself at risk of disappearing, and based on Google search data showed Princeton papers in journals dropping dramatically. Also, Google search scores reveal that Princeton trends have been declining for years.

Acknowledging their paper was not peer-reviewed, the authors acknowledged that they were mostly trying to provide a fun reminder that not all research is created equal, and some methods of analysis lead to pretty crazy conclusions.

To read the reports, visit:

Princeton report

http://tinyurl.com/mwknh5l

Facebook report

http://tinyurl.com/kbcr2t7

To print a copy of this issue of The Epidemiology Monitor go to the archives section on our website
xxx.xxx

-Berkeley continued from page 7

data was supervised by the project manager and the associate director for research. Study data are stored on a secured server located on campus. Access to any study data is restricted to the staff and scientists in compliance with State and UC Berkeley regulations, and no data were provided to industry contacts. Also laboratory studies were conducted by co-investigators in independent laboratories.

The actual statistical data analyses were conducted by either senior researchers such as statisticians, the associate director for research, or junior researchers such as post-docs and graduate students under the supervision of senior researchers.

Manuscripts were prepared by the lead author (not by Dr. Buffler), and multiple iterative drafts were reviewed by *all* co-authors including Dr. Buffler. Both positive and negative findings that used original data from the Childhood Leukemia Study Group were published, regardless of the contents. More specifically, the group did indeed publish papers showing increased risks of childhood leukemia with self-reported home use of some pesticides (Ma et al, EHP, 2002), increased risk with some agricultural herbicides (Metayer et al. JESEE 2013), gene modification on association with home pesticides (Chokkalingam et al. Cancer Causes and Control, 2013), and increased risk with proximity to applications of certain agricultural pesticides (Rull et al, Environm Res, 2009).

Dr. Buffler worked tirelessly to improve the methodologies to quantify exposure to chemicals in epidemiologic studies, and to establish international collaborations to better identify the causes of leukemia in children.

Had she lived, Dr. Buffler was going to be the next president of the International Epidemiological Association. The association's obituary for Dr. Buffler noted her objectivity, saying, "She was an advocate with a strong sense of pragmatism, putting science first in the agenda, without getting side-tracked by the emotional tones of a debate."

"She was an advocate with a strong sense of pragmatism, putting science first in the agenda,"

The attention brought by the article to the importance of disclosure of potential conflicts of interest in public health research has prompted a review of our procedures at the School of Public Health. We have learned that this is an unusual situation within our school, as no other member of our Faculty Senate from the School of Public Health is a member of a for-profit corporate governing board. We will be reviewing our conflict of interest training to ensure we have regular discussions about it with our faculty. We are committed to ensuring that those faculty who do have potentially disclosable private interests fully understand their disclosure obligations, including to funders, colleagues, students, and publishers.

"We have learned that this is an unusual situation within our school,"

In today's world there is and should be extensive collaboration between the public sector, the private sector and the academy. This creates a situation where real and potential

-Berkeley continues on page 14

-Berkeley continued from page 13

conflicts of interest cannot be eliminated—they must be managed. We at the School of Public Health are committed to constantly improving our approach to these collaborations and to fostering robust open dialogue about these issues. However, it greatly saddens us that the reputation of a beloved faculty member who was revered by her colleagues, students, and peers around the world has been challenged within a couple of months of her death, when she is no longer able to participate in that robust dialogue, and while we and her family are still in mourning. She would probably have provided many explanations, among them the admonition that if we make it too difficult for an academic epidemiologist to serve on the board of a large chemical company, then chemical companies won't have academic epidemiologists on their boards—and that outcome might be worse for the public's health than the alternative. ■

"She would probably have provided many explanations,"

"Some of the criticisms I heard were more harsh than the article reflects."

-Heath continues from page 10

the story. I limited my article to the most well-documented and easiest to explain examples. The article links to many of the original documents cited.

A lot of sources were shocked to learn about Buffler's role at FMC Corp. She served on the board for 17 years, doing research on pesticides and herbicides that could affect the $2 million worth of stock she owned in the company. Yet she never disclosed that relationship when applying for grants or publishing her research.

I quote Sheldon Krimsky, a Tufts University expert in conflicts of interest, calling it "the worst case of conflict of interest I've seen in years."

Epi Monitor: You mentioned some ideas you might have about how and why the violations you reported on were carried out. What appears to be the most plausible explanation(s) for any violations she may have made?

Heath: Unfortunately, I never had a chance to talk to Patricia Buffler to get her explanation. So I don't know what she thought or what motivated her.

Epi Monitor: Do you believe there are different or equally plausible explanations for your findings? Or do you believe there is one best convincing explanation?

Heath: Perhaps what you are really asking is if it's possible that the scientific opinions Buffler gave on behalf of industry were genuine and sincere. I suspect that she would say that they were. On the other hand, I interviewed scientists who viewed some of Buffler's work as indefensible. I don't know how many scientists would say that lead-based paint doesn't pose a risk to children. Some of the criticisms I heard were more harsh than the article reflects.

Epi Monitor: As you know, another prominent epidemiologist in France has recently been the subject of an article in Le Monde describing potential conflicts of interest in

-Heath continues on page 15

-Heath continued from page 15

working for industry. Epidemiologists are concerned about what these episodes reveal and what to do about them.

Assuming that your findings about Pat Buffler of questionable or unacceptable behavior are true, what remedies do you think might work to prevent or lessen this behavior in the future?

Heath: If I were to be completely frank, I don't think the scientific community has ever come to terms with the problem of conflicts of interest. I have always sensed an attitude that scientists believe that they cannot be corrupted by money. It's just not true.

There has been research showing that even when drug companies give doctors small freebies, it has an influence on their behavior. The prevailing theory is that conflicts can be managed, but I don't see much evidence to back this up. I suspect that this approach to handling conflicts is itself influenced by money. Working for industry can be quite lucrative.

Universities also play a critical role here. Most research schools encourage faculty to consult for industry, which can have the natural effect of downplaying or even overlooking conflicts.

Certainly at a minimum there has to be disclosure. And I think it's fair to give research by scientists with conflicts less weight than other research. Think how seriously you would take the work of a journalist who was paid by the subjects he wrote about.

Epi Monitor: You said that some of your sources predicted that you would receive a lot of negative feedback about your report, but so far have not received a single one. You have received a lot of responses expressing surprise about the findings. Were the potential conflicts extremely well hidden or disguised? If not, what do you think accounts for all the surprise and shock?

Heath: As I began looking into scientists who work for industry, her name kept coming up. I did an earlier story about an epidemiologist working for the state of California who was on a sort of crusade to debunk the allegations in the film Erin Brockovich. Without getting into the details, Buffler crossed paths with this scientist while working for Lockheed Martin in a toxic tort case. I read her deposition and saw that her involvement with industry was quite extensive and some of that work seemed questionable.

Her early CVs included a long list of consulting work for industry. I couldn't imagine that her work with FMC Corp. was a secret to her colleagues. I always wondered why those who knew her best didn't seem to question these relationships. I suspect it was because she was so well liked and respected.

Once I started talking to people who knew a lot about Buffler's work for

-Heath continues on page 16

"I don't think the scientific community has ever come to terms with the problem of conflicts of interest."

"The prevailing theory is that conflicts can be managed, but I don't see much evidence to back this up."

-Heath continued from page 15

industry, I heard lots of complaints.

Epi Monitor: Are you investigating other public health scientists at Berkeley or elsewhere for similar violations?

Heath: Yes, I'm continuing to investigate other examples.

Epi Monitor: Are any of your additional reports in the works focused on Pat Buffler?

Heath: Not at the moment.

Epi Monitor: Thank you for your candor in responding to our questions. If readers respond, I hope you will continue to be available to comment on what our readers think. ■

"It is unfortunate when an individual chooses to err ethically; it is unforgivable when an institution chooses to do so."

-Ruff continued from page 9

California Berkeley knew that Buffler sat on the Board of Directors of FMC Corp., a major pesticide and herbicide company. The university, however, happily submitted to NIH Buffler's applications for funding for research connected to pesticides and herbicides. Her university turned a blind eye to the fact that she did not declare her conflict of interest and condoned and supported her in this ethical misconduct.

The university says it was up to researchers to decide whether their financial ties posed a conflict. The university directly received more than $28 million from NIH for Buffler's research. It was certainly advantageous for the university to choose to wash its hands of any responsibility for upholding conflict of interest standards. It was also a betrayal of ethics by UC Berkeley, by which it contributed to the contamination of scientific research. I believe that they deserve stronger blame than does Buffler. It is unfortunate when an individual chooses to err ethically; it is unforgivable when an institution chooses to do so.

UC Berkeley has published panegyrics of Buffler, praising her outstanding leadership in protecting the health of children. Buffler deserves praise for the positive contributions she made, but the university omits information on the role Buffler played in distorting the scientific evidence and denying harm of products, such as lead-containing paint, chrysotile asbestos, agricultural pesticides and herbicides and Agent Orange, produced by companies with whom she had a financial relationship.

Science does not allow the cover-up of inconvenient facts. Ethical standards require that all the critical facts be put forward. The justice system requires that witnesses tell the whole truth.

UC Berkeley is betraying science, academia and ethics by putting forward partial and slanted information, which constitutes dishonesty. By covering up the serious misconduct of Buffler, the university is condoning and encouraging such conduct.

-Ruff continues on page 17

-Ruff continued from page 16

Epi Monitor: What is your reaction to the revelations about Paolo Boffetta's activities as reported in Le Monde in December**?**

Ruff: Paolo Boffetta is another example of a prestigious scientist who betrays science, by choosing to set up a lucrative consulting company and hire himself out to toxic industries, publishing findings that distort the scientific evidence and deny harm caused by the industries' products.

The individual is not the issue. The question is whether the scientific community chooses to condone work that fails to meet scientific and ethical standards. Boffetta's conduct, in putting forward slanted surveys of the scientific literature, favourable to the industry paying for the survey, and covering up conflict of interest, would not be acceptable in a first year science student. Yet Boffetta is presently the only candidate being considered to head France's top epidemiology centre. This sends a clear message that scientific and ethical integrity are not considered necessary qualifications for the position.

As long as the scientific community and scientific institutions turn a blind eye to conduct by scientists that distorts the scientific literature in order to come up with conclusions that favour the industry that financed the work, we will see an increase in such conduct.

Epi Monitor: How would you describe your expectations about scientists in these matters?

Ruff: Science, like ethics, is a hard taskmaster. Both require that the number one priority must be respect for the evidence, without fear or favour. It would be disingenuous to deny that there is, however, pressure on scientists, as on others in society, to tailor their work to please those who wield great financial, political and academic power.

This pressure has increased in an era when public funding for universities and research has diminished and academic dependence on and links to industries with billion dollar budgets has increased. More and more university departments and research are financed by industries, whose interests are affected by the research.

The Canadian Association of University Teachers recently released a report on collaborations between post-secondary institutions and industry. It follows a similar report conducted by the Center for American Progress detailing 10 pacts between energy companies and major U.S. Universities. Titled "Open for Business: On What Terms?", the report found that 10 out of the 12 Canadian university-industry partnerships reviewed violate standards for academic integrity.

I believe that scientists have a responsibility to defend the integrity of their field. I believe they should take action to ensure that universities, research institutions and scientific associations establish and enforce clear conflict of interest requirements.

-Ruff continues on page 18

"Science, like ethics, is a hard taskmaster."

"The question is whether the scientific community chooses to condone work that fails to meet scientific and ethical standards."

-Ruff continued from page 17

Epi Monitor: Do you believe scientists can work ethically and productively for industry? If not, why not?

Ruff: Yes, indeed.

Epi Monitor: What suggestions do you have for remedies for potential conflicts of interest since it is not practical to sever all relationships between scientists and industry, nor would we want to discourage good scientists from doing good science in the private sector.

Ruff: The examples of Buffler and Boffetta are ones in which scientists, who have worked in the field of public health for many years and have won trust and respect, betray that trust and respect by accepting industry financing and then coming up with scientifically flawed and biased findings that serve the industry's interests.

I believe it would be preferable for research into public health issues to be financed by public funds, not by industries, who usually have a vested interest in the outcome of the research.

As Dr. Allan M. Brandt reported in his paper, Inventing Conflicts of Interest: A History of Tobacco Industry Tactics, "the steps the industry took as it fashioned a new relationship with the scientific enterprise have become a powerful and influential model for the exertion of commercial interests within science and medicine since that time. As a result, industrial influence on scientific research and outcome has been a powerful legacy of the tobacco story."[1]

I do not have enough information to be able to comment on the role played by scientists who work internally for the private sector.

"I believe it would be preferable for research into public health issues to be financed by public funds,"

"...industrial influence on scientific research and outcome has been a powerful legacy of the tobacco story."

. [1] Brandt, Allan M., (2012), American Journal of Public Health, Vol 102, No. 1 , Consequences of Industry Relationships, p. 63 ■

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Tony (AJ) McMichael, MBBS, PhD
Emeritus Professor of Population Health at the Australian National University (ANU)

FEATURED PLENARY

Paula Braveman, MD, MPH
Professor of Family and Community Medicine and Director of the Center on Social Disparities in Health at the University of California, San Francisco (UCSF)

Eric Fombonne, MD, FRCP
Professor of Psychiatry at McGill University and head of the Division of child Psychiatry

Andrew Karanja Githeko, Ph.D.,
Pioneer scientist of the Kenya Medical Research Institute

Miguel Hernan, MD, ScM, DrPH
Professor, Departments of Epidemiology and Biostatistics, Harvard School of Public Health

Richard J Jackson, MD, MPH
Professor of Environmental Health Sciences at UCLA School of Public Health and elected member of the National Academy of Sciences Institute of Medicine

FEATURED PLENARY

Nancy Krieger, PhD
Professor of Social Epidemiology, Department of Social and Behavioral Sciences, at the Harvard School of Public Health

Shekhar Saxena, MD
World Health Organization

Kue Young, MD, PhD
Dean of the School of Public Health, University of Alberta, Edmonton, Canada,

Dr. Carlos Coimbra
Health Disparities, Ethics of Human Rights, and Social Justice

Dr. Sandra Eades
Health Disparities, Ethics of Human Rights, and Social Justice

Dr. Joachim Hallmayer
Hot Topics in Epidemiology

Dr. Quarraisha Karim
Infectious Diseases

Dr. Orin Levine
Infectious Diseases

Dr. Kirk Smith
Circumpolar Health

Dr. Andrew Sporle
Health Disparities, Ethics of Human Rights, and Social Justice

Dr. Jan Vandenbroucke
Innovations in Epidemiologic Methods

FEATURED SYMPOSIA

Kawango Agot, PhD, MPH

Aluísio J. D. Barros, PhD
Dept. of Social Medicine, Federal University of Pelotas, Brazil

Patricia Longley Cochran
Executive Director, Alaska Native Science Commission

John Lynch Ph.D., M.P.H.
Professor of Public Health in the School of Population Health, University of Adelaide, South Australia

Ahmed Mandil, MBChB, MSc, DrPH
Professor of Epidemiology and Supervisor, Community Medicine Unit, College of Medicine, King Saud University, Riyadh, Saudi Arabia

Karin Michels, MPH, PhD, ScD
Associate Professor at Harvard Medical School in Boston, USA

FEATURED SYMPOSIA

Vikram Patel, PhD
Professor of International Mental Health and Wellcome Trust Senior Research Fellow in Clinical Science, London School of Hygiene & Tropical Medicine (UK)

George Davey Smith, Ph.D., M.P.H
Professor of Clinical Epidemiology at the University of Bristol

Dr. Jim Allen
Mental Behavioral Health & Suicide

Dr. Alex Broadbent
Public Engagement & Translation

Dr. Roger Bernier
Public Engagement & Translation

Dr. Andrea Baccarelli
Epigenetic Epidemiology

Dr. Elias Durry
Eradication of Polio

Dr. David Hemenway
Gun Violence & Prevention

Dr. Hamid Jafari
Eradication of Polio

Dr. Joop de Jong
Health / Mental Health & Civil Conflicts

Dr. Mika Ala Korpela
Metabolomics

Dr. Caroline Relton
Epigenetic Epidemiology

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The University of Georgia

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