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TuftScope

The Interdisciplinary Journal of Health, Ethics, and Policy

Should Employers Ban Smokers?

FDA Approves Graphic Cigarette Warnings

Understanding Health Reform and the Constitution

Interview with Dr. Devra Davis

A Publication of TuftScope, the Student Bioethics Organization of Tufts University

TuftScope

The Interdisciplinary Journal of Health, Ethics, and Policy

JOURNAL HISTORY

Since 2001 *TuftScope: The Interdisciplinary Journal of Health, Ethics, & Policy*, has provided an academic forum for discussion of pertinent healthcare and biosocial issues in today's world. The journal addresses different aspects of healthcare, bioethics, public health, policy, and active citizenship. It is operated and edited by undergraduate students of Tufts University and is advised by an Editorial Board composed of Tufts undergraduates and faculty. Today the journal is one of the few peer reviewed undergraduate published journals in the country.

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Cover Image: In this issue *TuftScope* explores the intricacies of smoking in American culture: from FDA warnings to no-hire bans. Cover image courtesy of Geierunited sndWikimedia Commons.

LETTER FROM THE EDITOR

TuftScope Expands Production

Dear Reader,

TuftScope has received a great amount of support from you, our readers. Both within the Tufts Community and from our outside subscribers, we have seen an increase in submissions, website visits and student interest. Because of this increased interest, we have decided to expand our publication cycle and become a tri-annual publication. We are pleased to present to you the first evidence of our new, tri-annual status: the **Winter Edition**. We hope that you enjoy this new addition and look forward to the Spring edition which is just around the corner.

One of *TuftScope's* greatest resources is the members of the surrounding communities of Medford and Somerville. Earlier this semester, *TuftScope* was privileged to host Joseph Curtatone, the Mayor of Somerville, MA and Tufts President Lawrence Bacow at an event to discuss initiatives to combat childhood obesity. A discussion with Mayor Curtatone appeared in the Fall 2010 issue of *TuftScope*, and the event was coordinated to correspond with the release of that issue. Mayor Curtatone and President Bacow shared their unique and valued perspectives on both Somerville's lauded Shape Up Somerville initiative, and on the underlying issues of childhood obesity in general. We hope to bring more events like this to the Tufts community in the future, and believe it is an important way for TuftScope to connect with the Tufts community besides the seasonal publication of issues.

With the expansion of our publication cycle and simultaneous hosting of campus events, *TuftScope* has also expanded its internal infrastructure. We have gained a co-Editor-in-Chief in the form of Mark Leiserson and a new Managing Editor in David Gennert.

This issue of *TuftScope* is especially notable in that it has a number of articles on both obesity and cigarette use. We believe this selection of articles reflects part of ongoing debate within the public health community about the nature and stature of the health challenges facing America in the 21st century. Cigarette use has consistently been a major focus of health programs for the last fifty years. However, this focus has diminished due in part to these programs' success–20.6% of Americans are smokers today, compared to ~42% 50 years ago–as well as the increasing prevalence and cost of obesity. While this issue does not make a point of examining how the differential use of resources to combat cigarettes and obesity could affect health in America, it does explore a number of issues and initiatives taking place within these two health challenges. These include Laura Corlin's examination of the new FDA-mandated cigarette packaging, Virginia Saurman and Priya Larson's debate over smoking by health care workers as well as Namratha Rao's history of dieting and Awesta Yaqubi's review of childhood obesity in the U.S.

We would also like to thank the TuftScope Editorial Board, our advisors for all of their supports, particularly Harry Bernheim, Mayor Curtatone of Somerville, President Larry Bacow, the TCU Senate, our staff and of course, our readers.

Sincerely,

Lauren-Elizabeth Palmer & Mark Leiserson

EDITORIAL

FDA Changes Cigarette Packaging

Laura Corlin

Food and Drug Administration

Despite increasing knowledge about the dangers of smoking both to the smoker and to others through second-hand smoke, requirements for tobacco warnings have not changed in the past 25 years. This stagnation is due largely to the millions of dollars the tobacco industry spends daily on advertising and lobbying, an intense marketing campaign that continues to turn 1000 children a day into smokers. However, both the government and individual organizations, such as universities, are taking steps to lower this number. On June 22, 2009, President Obama signed the Family Smoking Prevention and Tobacco Control Act. This act gives the U.S. Food and Drug Administration (FDA) the power to regulate, though not ban, tobacco products. On November 10, 2010, the Department of Health and Human Services and the FDA announced that by October 22, 2012, no manufacturers will be able to sell cigarettes in the United States unless they show graphic health warnings. In June the FDA will select the final nine designs to be displayed based on extensive research and public comments. This requirement is part of a national effort to reduce the number of deaths and the amount of disease caused by smoking, a movement that Tufts could do well to consider joining.

The new labels each have a message explicitly written on the package label warning about the adverse health effects and addictive nature of smoking, and informing users that quitting smoking improves health. The color images associated with each of these messages vary from a man who has had an autopsy to a child with an oxygen mask to a person smoking while cigarette smoke is exhaled from the tracheotomy hole in the smoker's neck due to an operation for throat cancer. The federal government has also helped people access preventive programs as part of their health plans, invested $225 million for tobacco control and Quitline programs, passed an act to stop the illegal sale of tobacco products online, banned specific flavors of cigarettes that typically appeal to young users, and raised the federal cigarette tax by 62 cents per pack. Other restrictions on tobacco marketing specifically towards youth include prohibiting cigarette companies from sponsoring athletic or cultural events, requiring packages to have at least 20 cigarettes so that venders cannot sell cheap individual cigarettes to teens to get them addicted, and prohibiting the sale of clothing that has cigarette company brands or logos.

While each of these measures is evidence-based, some of these interventions, such as increasing the cigarette tax and thus making smoking less affordable, hold more promise than others at actually decreasing the number of young new smokers. The labels may not prove especially effective in preventing new smokers since the messages that will be on the packages do not relate to the short-term consequences, such as bad breath, that have been shown to help deter young people from smoking. In a Dutch study of how the graphic labels required by the European Union since 2004 affected current smokers, only 10.3% said they actually smoked less because of the warnings, though 17.9% said the warnings made them want to quit smoking. A more effective strategy is to change community attitudes towards smoking.

Other studies suggest that a fairly effective strategy at reducing the demand for cigarettes by one third is a workplace and educational establishment ban on smoking. Most states have followed the research and passed laws about indoor smoking. For example, Massachusetts General Law ch. 270, § 22 (2004) states that smoking is prohibited in essentially all public spaces including workplaces, classrooms, medical facilities, restaurants, bars, schools, universities, child care centers, and on public transportation. At Tufts, smoking is also discouraged within 20 feet of residence halls. Many universities have decided that the health risks posed by smokers are unacceptable. According to American Nonsmokers' Rights Foundation, there are 466 college and university campuses that are completely smoke-free.

The statement by university communities that smoking is not tolerated on campuses is a positive one and in line with federal and state regulations–a campus should be a healthy and safe place to learn, research, and live. Cigarette smoke is known to cause cancer, respiratory problems, and heart disease. It reflects poorly on the school when visitors see students smoking and throwing their cigarette butts on the ground, as often happens near the library. Tufts should join in the national effort to combat the adverse health effects of smoking by considering ending our community's smoking culture.

References for this editorial can be found at TuftScopeJournal.org

Laura Corlin is a staff writer for TuftScope.

ORIGINAL ARTICLE

Family Planning versus Population Control in Mexico

Emily Chapman

Responding to growing concerns over the inhumanity of population control policies, especially in developing countries, the 1994 International Conference on Population and Development (ICPD) drafted the "Program of Action," which recognized the right of women to exercise autonomy over their reproductive health. This global shift in development priorities has heavily influenced the reproductive healthcare system in Mexico. Its government-run Progresa-Oportunidades program – in which women receive money for family expenses if they attend regular health check-ups– has been praised by the international community for promoting individual freedom. At the same time, a recent anthropological study has found that indigenous Mexican women participating in the program feel pressured to adopt certain family planning methods. This contrast is the result of various social, ethno-cultural, economic and political factors. Ultimately, the key to creating and implementing healthcare programs that truly guarantee a woman's autonomy is to alter the global top-down reproductive health paradigm.

At the turn of the 21st century, the global attitude towards women's reproductive rights made a considerable shift. Previously, reproductive health had been synonymous with population control, as various transnational institutions sought to halt explosive population growth through contraception and sterilization. Responding to growing concerns over the inhumanity of such policies to mothers, especially in developing countries, in 1994 179 nations convened at Cairo for the International Conference on Population and Development (ICPD).1 The "Program of Action" was drafted at this conference and signed by all countries present. Deriving inspiration from the United Nations' Millennium Development Goals (MDGs), it recognized the right of women to exercise autonomy over their reproductive health. It also called for greater inclusion of the mother's needs in all aspects of healthcare.[1]

"It recognized the right of women to exercise autonomy over their reproductive health."

This significant new strategy has shaped subsequent reproductive health programs, implemented by transnational policymakers such as the United Nations and funded by international foundations and financial institutions such as the World Bank. Numerous initiatives – such as midwife training in Uganda[1] and establishment of a universal 'sex education curriculum' in Denmark[1] - have reflected greater attention to mothers' care in particular and reproductive rights in general. Many programs have focused on the non-clinical factors that can influence a women's reproductive health, including lack of education and chronic poverty. In addition to providing better access to information about reproductive health, keeping young women in school has become a top priority of many developmental initiatives. A strong educational background is important for economic self-sufficiency, which will in turn afford women greater autonomy.[2]

The global shift in program priorities has heavily influenced the reproductive healthcare system in Mexico. Since signing the "Program of Action," the Mexican government has formed a strong relationship with international policymakers, serving as the liaison to civilians.[3] The government has permitted external evaluation of its programs, and has turned to the United Nations for assistance in the logistics of implementation.[4] Impressed by these transparent negotiations and clear communication of program modus operandi, international institutions – especially the World Bank[4] – have commended the government for championing women's rights.[3] Mexico has enjoyed a positive international reputation as a model of gender equality.[4] Yet Mexico has received the most praise for its successful Progresa-Oportunidades program. Initiated by the government in 1997, this 'conditional cash transfer program'[5] has become "the largest single poverty alleviation program in Mexico's history"(Levy, 2006: 25). Women receive money to pay for family expenses if they visit health clinics for regular check-ups and send their children to school.[5]

Santiago Levy (2006: 75-76), an economist and former general director of the Mexican Social Security Institute,[3] evaluates the impact of Progresa-Oportunidades on Mexicans' education and health by collecting data from schools, local offices, health clinics and communities. While the program has made little progress in some areas – primary school enrollment has only increased by one percentage point for both girls and boys[3]– Levy (2006: 77) concludes that Progresa is an overall success. The program has consolidated the "dispersed set of generalized and targeted food subsidy programs and isolated health, nutrition, and education interventions that were in place up to the mid-1990s"(Levy, 2006: 77). It has had a large effect on poverty by allocating a portion of the GDP to households in the lowest income brackets.[3] Progresa has also made schools more available to children, especially among those from low-education households.[3] And it has made significant progress in civilian

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healthcare, lowering the infant mortality rate by 11 percent [3] and increasing the percentage of women receiving Pap tests by 61 percent. [3]

Levy attributes the continuing success of the program to its responsiveness to 'operational evaluations,' which have identified design flaws early on. Modifications that have been made include changes in nutritional supplement distribution practices and prolongment of school scholarships.[3] In addition, Progresa provides poor women with cash grants rather than in-kind donations.[3] By 'increasing households' net income'[3] and otherwise stabilizing household finances, the program encourages women's self-sufficiency.

Most importantly, Progresa has preserved individual 'freedom of choice' – so highly promoted by the UN – for women to accept or reject family planning methods.[6] The program supplies women with important economic, educational and healthcare-related tools, but does not impose a foreign reproductive health agenda. Instead, it enables the women themselves to determine the futures of their families.

CONDITIONS ON THE GROUND

Official reports have thus portrayed Progresa-Oportunidades in a positive light. Yet most economic, educational and public health analyses, especially those conducted by the World Bank, rarely incorporate the views of civilians affected by the program. In a recent anthropological study, Vania Smith-Oka (2009: 2073-2075) interviews poor women of the indigenous Nahua group who have participated in Progresa. The beneficiaries express several complaints about their experiences at health clinics. In particular, they state that they feel pressured by doctors and other personnel to obey directions and recommended procedures. Indeed, more than 30% of interviewed women claimed that they felt forced when interacting one-on-one with healthcare providers. [5]

Smith-Oka (2009: 2073) refers to the forceful undertone of these patient-doctor interactions as 'coercion.' While there have been no accounts of outright violence towards women, Smith-Oka reminds the reader that the term can also refer to 'manipulation and implied threat.' Indeed, as many women's accounts reveal, there is a 'culture of force' that characterizes the clinical environment (emphasis added). [5] While doctors do not perform surgeries against the woman's will, they certainly promote their own medical agenda and pay little attention to the needs and desires of their patients.

The indigenous women in Smith-Oka's study claim to feel especially pressured to adopt certain family planning methods. Many women are told that a family with more than two children is too big, and that they should undergo sterilization or use an intra-uterine device (IUD). Again, doctors do not physically force these measures on their patients. Yet most women find that they must continually resist this 'endless haranguing.' [5] One woman states that clinic staff tried to convince her to be sterilized three times. Although she persevered in her resistance and ultimately did not undergo surgery, many patients are not as resilient. Most women's resistance gradually wears down, ultimately roping them into a reproductive health measure that they themselves do not want. [5]

While most indigenous women are manipulated into adopting family planning policies by doctors and clinic personnel, they do not see how they could benefit from smaller families. [5] They are coerced into adopting limitation methods that will drastically change the future of their families – a grave violation of their 'social freedom.'[7] Told from the indigenous women's perspective then, the Progresa program does not preserve individual 'freedom of choice.' As mentioned earlier, the most important component of Progresa's success is its preservation of women's autonomy over their reproductive health. Based on reports on the ground, the program is a failure.

EXPLAINING THE DISCREPANCY

Evaluations incorporating indigenous experiences and assessments made by government institutions thus provide conflicting perspectives on the Progresa-Oportunidades program. As discussed earlier, policymakers predicate the formulation of healthcare standards on an equal balance of power between caregivers and beneficiaries. As the following analyses will indicate, this is rarely true in the health clinics of rural Mexico. We now articulate the many causes for the compromise of patient autonomy under the Progresa program. The subordination of supposed "beneficiaries" – and of poor indigenous women in particular – is particularly relevant to reproductive healthcare, as inequality in doctors' and women's power leads to infringements of reproductive rights. These violations occur in specific social, ethno-cultural, economic and political environments.

Social Factors: Patient-Doctor Interactions

As mentioned previously, doctors working for Progresa foster a coercive health clinic environment by imposing family planning agendas on their patients, pressuring them to reduce family sizes through sterilization or use of IUDs. Apart from direct insistence that women use contraceptive methods, Smith-Oka (2009: 2075) observes that many doctors also joke with their patients about their various medical needs. This includes teasing women about 'their weight [or] dietary habits.' The purpose of this levity is not to lighten the mood during examinations so much as it is an alternative method for forcing 'patient compliance.' Threat tactics are often thinly veiled as jokes about terminating program grants or forced sterilization. [5] Furthermore, the joking is completely one-sided, as most women do not respond to doctors' jibes. Many misconstrue the jokes as truth, convinced that the doctors are telling them the 'grim reality.'[5]

Indigenous women thus feel pressured to adopt family planning methods by their social interactions with doctors. Again, doctors do not physically force their patients to undergo sterilization and other procedures. Yet women feel victimized by the doctors' jokes, which, while seemingly innocuous, nevertheless cause them great mental and emotional stress. Indeed, the social dynamics place the women in a subordinate position. As a result, they are compelled to comply with their doctors' orders, thereby compromising their resistance to family planning methods.

Ethno-cultural Factors: Mestizo and Indigenous Power Dynamics

Many indigenous women are also compelled to accept and follow orders because they feel racially and culturally inferior to the doctors. [5] All doctors and personnel studied by Smith-Oka are mestizo. This is both an ethnic and a cultural identification: mestizo refers to both a Mexican of mixed European and indigenous ancestry and one who, "has lost or eschewed indigenous cultural traits for the mainstream Mexican ethos"(Smith-Oka, 2009: 2074). In fact, mestizos occupy an unusual position in Mexican society, for they must simultaneously fulfill two roles. As champions of nationalism in the post-Revolutionary era, they supposedly represent the Mexican people so long oppressed by European imperialists. At the same time, as political leaders wanting to 'claim' the country as their own, mestizos must partially adopt the 'conqueror' mentality of their predecessors.[8]

This effort to establish legitimacy in their political authority compels mestizos to elevate themselves above non-mestizos through their language and actions. Embracing these cultural norms, most clinic personnel studied by Smith-Oka maintain a distinct 'cultural distance' from their patients. In particular, interviews with nurses reveal that they feel it their duty to enlighten ignorant indigenous patients who are helpless to halt rapid family growth. As part of a societal elite, these nurses and other mestizos promote a reproductive health agenda focused on family planning. And because of their perceived superiority (and by using 'joking' tactics, as described earlier), they are frequently successful in obtaining patient compliance. Often, doctors suggest contraception to a woman even when the purpose of her visit is unrelated to reproductive health.[5] And should the patient fail to comply, nurses often 'scold' her for disobeying. [5]

Economic Factors: Trapped in Poverty

Female patients unwilling to follow doctors' orders often cease to attend regular clinic checkups. These women are at risk of losing their government financial aid because of the original stipulations of the program. Many nurses tell non-compliant women not to, "'complain if they take away your [monetary] support'"(Smith-Oka, 2009: 2075). Such threats are superficially passive in nature; many nurses also tell women that they alone can decide whether or not they will continue to receive support from the government. However, to dismiss these warnings as inconsequential and therefore harmless is to fail to recognize the underlying economic considerations that plague many indigenous women. [5]

"Forced to choose between their reproductive rights and a vital source of finance, indigenous women will inevitably choose the latter."

For women living in poverty, Progresa's bimonthly stipend of US$35 is an important financial resource; among rural households, the grant is equivalent to approximately 25 percent of average family income without the program. [3] The program's 'cash transfer' is a significant incentive, and doctors therefore hold great power in their patient interactions. Furthermore, the loss of money is a tangible threat to the women, and one whose consequences are much more immediate than the loss of autonomy. Forced to choose between their reproductive rights and a vital source of finance, indigenous women will inevitably choose the latter. [5] By necessitating this cost-benefit analysis, Progresa impedes women's 'freedom of choice.'

Political Factors: Anomalies in the International Healthcare System

At the same time, the conditional cash transfer system does not explicitly violate the women's rights. Surgeries are performed and contraceptive methods are implemented only with the consent of the patient. The issue of patient consent is central to the legal framing of reproductive rights: a humanitarian relationship between policymakers and beneficiaries is predicated upon it. And the absence of consent establishes two distinct parties: the 'violators' and the 'violated.'

While many women officially agree to participate in family planning programs, their consent is given only after considering the consequences of refusing it. This 'consent by default' is not an exercise of reproductive rights, because circumstances predetermine the available options and the ultimate decision. In Overmyer-Velazquez's report (2003: 20), Consejo Guerrerrense, a Mexican coalition representing indigenous women's rights, states that the consent-based relationship is difficult to articulate under poverty-stricken circumstances. As Amartya Sen, a world-renowned welfare economist and an expert on society's impact on individual identity, [9] states in Beutelspacher, Martelo & Garcia's article (2003: 16), a woman's perception of herself and of her capacities is heavily influenced by her circumstances and options. The social, ethno-cultural and economic environment heavily influences a woman's decision to adopt or resist Progresa's family planning programs.

The legal framework of reproductive rights thus does not account for these external pressures on indigenous women. And it is these very environmental factors that ultimately lead to the violation of their rights. The failure of the program to protect individual autonomy, as well as Mexico's history of state-run sterilization campaigns, have compelled Consejo to dismiss even the possibility of consent for indigenous women. Under these circumstances, 'freedom of choice' for indigenous women seems absurd. [4]

As we have seen, lack of autonomy for indigenous women is not a novel phenomenon. Indeed, it is not unusual in international law as a whole, which inherently places indigenous populations in an 'ambiguous position.' [4] The reason for this

inability to clearly identify indigenous people in an international political context lies in the 'fundamental state-based privilege' that is the cornerstone of the UN and other major transnational organizations. [4] It is an international paradigm that is based on the Westphalian concept of state sovereignty – the ability of a state to exercise its 'domestic power' without fear of external pressures. As the defining unit of international politics, the 'state' can be further expanded to derive the 'nation-state.' The 'nation-state' is bound by the territorial borders of the state but is also characterized by population homogeneity. [4] In the context of the Peace of Westphalia, the characterization of this homogenous population is highly specific: European and Christian. Self-proclaimed 'civilized nation-states,' an exclusive 'club' of Westernized countries, created the foundations of international law which continue to influence global politics today. [4]

Labeled by Hobbes and other political theorists as 'savage people,' indigenous populations were an important foil to the 'civilized nation-state.' Excluded from the collective community of the 'nation-state,' indigenous people do not enjoy the rights to which citizens are entitled.[4] These 'individual freedoms' of 'sovereignty and legitimacy'[4] include the 'right to self-determination.'[4]

In this way, the individual rights of indigenous people are compromised by the global political paradigm. As outsiders to the state-based hierarchy of sovereignty, they do not benefit from the autonomy guaranteed by the Hobbesian 'social contract.' Furthermore, the scope of individual sovereignty is purely political. Applied to the global health policy, it fails to incorporate the social, ethno-cultural and economic conditions that influence the rights of indigenous women so heavily. Ultimately, the international state-based healthcare system falls short of addressing the needs of indigenous women, leaving them with no choice but to continue to suffer violations of their reproductive rights.

Conclusion

Until recently, there has been little international concern for these shortcomings in the healthcare bureaucracy. In fact, most national governments have been extremely reluctant to concede rights of self-determination to indigenous populations. In 1993, the Working Group on Indigenous Populations at the UN drafted a Declaration on the Rights of Indigenous Peoples. Despite the efforts of a special committee consisting of indigenous groups, state representatives and non-governmental organizations (NGOs), the Declaration has yet to be approved. [4] Overmyer-Velazquez (2003:16) notes that the rejection of the Declaration is surprising, given that it is 'not legally binding.' The lack of support for the document is most likely because of its potential to 'set future precedent' in the global status of indigenous people.'[4]

The aversion of national politicians to transforming the international policy paradigm reflects a deeply ingrained arrogance towards the plight of indigenous populations. Many political elites believe that indigenous and impoverished people should not have autonomy, claiming that lack of education and other resources renders them incapable of leading their own lives. In a reproductive health context, this condescending attitude translates into the portrayal of poor mothers as uncontrollable birthing machines. Policymakers must implement extensive family planning methods, therefore, for this is 'what is good for them.' [10]

At the same time, recent transnational discussions about the future of global reproductive health have sought to replace this top-down reproductive health paradigm. At a Foundation Roundtable held at the Woodrow Wilson International Center for Scholars in 2009, both government officials and organization leaders emphasized the need for 'open debate' and 'community-based approaches' in an effort to extend reproductive rights to the poor. In particular, Bert Koenders, the Minister for Development Cooperation for The Netherlands, cites the private sector as an important source of finance and policy insight. Most importantly, the speakers at the Roundtable agree on the need for a division of labor that is distributed equally among different sectors. Scott Radloff, a director in the U.S. Agency for International Development, assigns the following roles: the public sector should aid people who cannot afford to pay for their healthcare, the private sector should serve those who can, and NGOs should direct external advocacy campaigns. Rather than relying solely on a powerful government body whose policies would reach beneficiaries through 'trickle-down,' this proposed system utilizes the strengths and expertise of many different sectors to ensure that individuals will ultimately be able to exercise their reproductive rights. [11]

The struggle to guarantee the reproductive rights of women will doubtless consume great amounts of effort, time and money. Yet there is also new hope that all women – regardless of social, ethno-cultural and economic background – will one day be able to decide their own futures and the futures of their families.

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The remainder of the references for this article may be found online at TuftScopeJournal.org

EDITORIAL

Cholera Cripples Haiti

Parsa Shahbodaghi

The effects of last year's earthquake have been absolutely devastating to Haitian society. It is estimated to have killed 230,000 people and destroyed 250,000 buildings, including a nursing school, one of the country's few sources of healthcare workers. However, this isn't the only problem afflicting the land.[1]

Haiti is now in the midst of a cholera epidemic, one that has the potential to introduce both short- and long- term challenges to the country. From October to November there have been 72,000 cases of the disease and 1,721 resulting deaths.[1] The numbers themselves seem fairly serious, but they belie the severity of the issue.

It is necessary to have some background on the disease in order to have an understanding of how dire the situation in Haiti is. Cholera is a disease of the poor; it is virtually nonexistent in the developed world. It surfaces in nations that have poor sanitation systems where human waste is mixed in with drinking water. There have been seven pandemics attributed to cholera, documented periodically from the early 1800s to the present day. It is one of the deadliest diseases in human history, spanning the globe and killing millions.[2]

But what is the mechanism by which this disease is able to kill so many people in such a short period of time? Cholera is an intestinal infection that afflicts individuals who ingest water or food contaminated with the bacterium Vibrio cholerae.[3] This bacterium produces a toxin that causes intense diarrhea and severe dehydration, a potentially fatal condition if left untreated.[3] Fortunately, the disease can be easily dealt with: rehydration therapy and antibiotic regimens can effectively treat most of those affected by the disease.[4] This is one of the major reasons that cholera is a disease of only the poor; it is easily controlled when sufficient resources are available.

In addition to rehydration therapy and antibiotic regimens, there are other evidence-based interventions that should be carried out to alleviate this crisis. The Haitian government and other organizations could set up water treatment centers where people could bring their drinking water for decontamination. Furthermore, these institutions could issue chlorine tablets or tell people to boil their water before drinking it in order to kill the bacterium before ingestion.

Fortunately, aid organizations are already carrying out these interventions in Haiti. Partners In Health has set up treatment centers where the severely ill can receive intravenous therapy and antibiotics.[4] Oxfam has set up public latrines so that people do not defecate in areas where their contaminated feces could spread into the water supply.5 They have also provided 300 million liters of chlorinated drinking water and 120,000 personal hygiene kits to reduce the likelihood of individuals encountering the bacterium. Doctors Without Borders and several other aid groups have taken up similar interventions.[6]

However, resources for these interventions are lacking and the response has been too slow, according to Dr. David Walton of Partners in Health.[4] He states that the infrastructure is in place, but the funds are insufficient for implementation. What is more troubling is that a few cases of the ailment are already appearing in the population-dense capital of Port au Prince. It would be disastrous from a public health perspective if cholera gets a foothold there because it could spread far more rapidly than it already has.4 It could entrench itself in the country's water supply, making it more difficult to treat on a larger scale. Consequently, cholera would be killing people in Haiti for years to come. Money has been the limiting factor for all the aid groups trying to help in Haiti. Most if not all of their treatment and prevention efforts are made possible by donations.

By donating money towards this cause, you could prevent a potential disaster that might affect Haiti for years to come. The earthquake itself was a fleeting event, whose devastation will have a lasting impact. Cholera, on the other hand, could be a permanent aspect of Haitian life, continuing to kill individuals for years to come. Therefore, it is vital that aid organizations receive the funds necessary to prevent a potential public health catastrophe.

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Parsa Shahbodaghi is a staff writer for TuftScope

Suggested Reading List

1 *The Immortal Life of Henrietta Lacks*, by Rebecca Skloot

2 *Stiff: The Curious Lives of Human Cadavers*, by Mary Roach

3 *Elephants on Acid and Other Bizarre Experiments,* by Alex Boese

4 *Health Care Reform and American Politics*, by Lawrence Jacobs and Theda Skocpol

5 *Flu: The Story of the Great Influenza Pandemic*, by Gina Kolata

6 *Tell Them Who I Am: The Lives of Homeless Women,* by Elliot Liebow

7 *When the Air Hits Your Brain: Tales from Neurosurgery*, by Frank Vertosick Jr.

8 *How Doctors Think*, by Jerome Groopman

9 *Fit to Be Tied: Sterilization and Reproductive Rights in America, 1950-1980*, by Rebecca Kluchin

10 *Stuffed and Starved: The Hidden Battle for the World Food System,* by Raj Patel

Reviewed Book Information

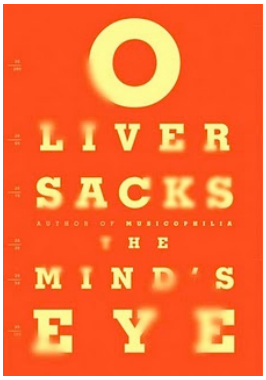
The Mind's Eye, Oliver Sacks, Alfred A. Knopfe Press, 274 pages

The Emperor of All Maladies, Siddhartha Mukherjee, Simon and Schuster Press, 573 pages

Fat Politics: The Real Story Behind America's Obesity Epidemic J. Eric Oliver. Oxford University Press. 240 pages

The Mind's Eye

Book by Oliver Sacks; Reviewed by Jessica Seaver



Those who are familiar with Oliver Sacks will recall some of the more extreme conditions that he has witnessed in his time as a neurologist. From the man who could not distinguish between his wife and his own hat, to the painter who lost the ability to perceive color, Sack's anecdotes have provided the audience with interesting yet informative entertainment. In his most recent book, Oliver Sacks brings us once again into the world of neurological anomalies, this time with a focus on our ability to navigate and communicate within society.

While his previous works contained case studies spanning a wide variety of conditions, *The Mind's Eye* examines a specific subset of disorders, those of visual perception and language. This book can be distinguished from other works by Sacks in that it resonates on a more personal level for the author. As a sufferer of mild prosopagnosia, or a decreased ability to identify/distinguish between faces, Sacks is able to include his own stories amidst those of his patients. In addition to prosopagnosia, the author was recently diagnosed with a tumor in his eye. Having experienced total loss of vision on the right side, he has had to adjust to living life half-blind. As Sacks explains, one major consequence of such loss is the absence of stereoscopic vision, something that most of us probably take for granted. In his world, three-dimensionality is a thing of the past. Through Sacks' descriptions of how such an experience has altered everything down to his furniture arrangements, the reader is given an intimate look into the life of the perceptually-disabled. In addition to an extensive account of his own case, Sacks also incorporates those of previous patients, following the standard format that we have all grown accustomed to in his books.

The reader is first introduced to Lilian, a gifted pianist who has lost the ability to read. While this may seem only slightly unusual, the truly striking aspect of Lillian's condition is that she not only lost the ability to read text, but also music. As with many of the cases in *The Mind's Eye*, Lilian's disorder affects one of the most prominent aspects of her life. This is seen in the case of Howard, a novelist who awoke one day to find that, while he could still write, he could no longer read what he had written. What sets this book apart from previous works is Sacks' focus on what each patient can

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do. Though each story tells of loss, there is also an emphasis on the process of recovery and compensation. Although Lilian could no longer read sheet music, she experienced an enhanced ability to remember tunes and thus replicate them. Through this, she has discovered a passion for composition. And Howard, unable to read his own work, simply has an assistant read aloud what he's written. Such examples serve to demonstrate the plasticity of the brain and our ability to adjust to new conditions.

As with most of Sacks' work, these stories leave the reader with a renewed awe of the intricacies of the human brain. Sacks finds the perfect balance between science, medicine and the human experience. This book can be enjoyed and understood by the readers of all backgrounds.

The Emperor of All Maladies

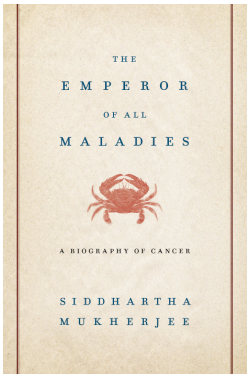
Book by S. Mukherjee ; Reviewed by Brian Wolf

In *The Emperor of All Maladies*, Dr. Mukherjee, a specialist in cancer medicine, discusses how cancer dates back to ancient Egypt and yet still remains a part of modern life. Since the first mention of cancer in 2500 B.C., the disease has been linked with our need to prolong life and prevent illness. The term "oncologist" relates to the Greek word onkos, which means "mass" or "burden." As Mukherjee writes, "Cancer is... the leaden counterweight to our aspirations for immortality." The study of cancer has vastly improved since ancient times, yet we are still fighting a battle with this indomitable opponent.

A grasp of the mechanisms by which cancer acts is helpful in understanding the destructive path that cancer creates. Cancer occurs when a single cell, among the trillions in which make up a human body, starts to grow out of control. A simple mutation in one cell can lead to various cancers such as lymphomas, malignant melanomas, leukemia, and sarcomas. Without cell growth, living would not be possible, since a continual supply of cells is required to adapt and repair our bodies. Yet cancer cells use growth to rebel against the body's normal cells. As scientists discover more about the mechanisms of cancer, we learn that its goals to grow and multiply resemble our own. Cancer, however, does not know how to stop. Mukherjee states, "Cancer cells are hyperactive, survival-endowed, scrappy, fecund, inventive copies of ourselves." The cancer cell has been deemed a worthy opponent by numerous researchers who both admire and want to destroy this disease.

Some scientists have called cancer a "modern disease" not only because we understand it in radically new ways, but also because of the rise of various cancers not seen before modern times. In the beginning of 1900s, the life expectancy at birth in America was 47.3 years. In the 1850s, the life expectancy was less than forty. Now, the median age at diagnosis for breast cancer in the United States is 61 and for prostate cancer is 67. Additionally, about fifty percent of men and about a third of women will contract cancer in the U.S. in their lifetime. Cancer is the second leading cause of death. As humans begin to live longer lives, we become more susceptible to diseases ,such as cancer that usually express themselves at older ages.

In the summer of 2003, the author, Dr. Mukherjee, began writing this book while a resident in oncology at the Dana-Farber Cancer Institute in Boston. He begins the book with one of his patients, Carla, tracing and exploring her journey with cancer. When Carla finds herself constantly visiting the hospital for treatments, she says, "Cancer is my new normal." As a clinician, Mukherjee always appears to be suspiciously optimistic about this patient and the various patients he encounters. While Dr. Mukherjee has seen many patients succumb to this disease, he has always seen patients fight back vigorously and return victoriously from their battles. For most patients, cancer becoming a manageable chronic condition is success.



One of the main focuses of this book involves the relationship between a cancer researcher and a philanthropic socialite who, together, brought cancer to the forefront of science in the 1940s. Mary Lasker needed a philanthropic cause, and found one in harnessing the tremendous power of medical research to cure all manner of disease. Sidney Farber, a cancer researcher, desperately needed funds to support his research in methods such as chemotherapy. Farber believed that, for example, radical mastectomies were not necessary in many situations and other treatments should be utilized. However, Farber needed the funds to discover these other methods and Lasker would be the person to provide him and other researchers with the necessary funds.

During this period of time ,there was a conflict between whether cancer medicine should focus on finding cures or taking care of patients. A balance between these fundamental needs was required to help treat cancer patients with the knowledge and treatments that were available during that time. Sidney Farber focused mainly on the idea of the "War on Cancer" and the increasing need for present care. Despite Farber's desire to have patient care at the forefront of this war, the mechanisms behind cancer needed to be studied before treatments could be constructed and implemented. Farber believed that cancer could possibly be cured without the ability of physicians to specify the mechanisms of curative action, similar to how aspirin could be used to cure headaches without knowledge of why and how this occurs. With a limited knowledge of fundamental mechanisms, cancer medicine in the 1960s and 1970s pushed the patients' bodies to the brink of death in order to rid them of cancerous cells.

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Important foci of the book are the divergent communities of cancer therapy and cancer science, belonging to separate worlds until the last few decades. Those who studied the causes of cancer in the laboratories and those who treated it in the clinics were not always in sync. Mukherjee writes, "The two conversations seemed to be occurring in sealed and separate universes." The laboratories focused mainly on the role that genetics plays in cancer and how cancer migrates in the body. In the hospital, cancer was seen from its often slow and horrible course of action. Currently, these two worlds are now working together to understand and cure this disease.

Throughout the book, Dr. Mukherjee provides attempts to describe this mind-boggeling disease. He describes one patient's fight with cancer as a chess game that appears to never end. Most importantly, he emphasizes in the book that the patterns in cancer research repeat themselves over the course of history. In order to defeat cancer, we must learn from our past mistakes and believe that we can win.

Fat Politics

Book by J. Eric Oliver; Reviewed by Mark Leiserson

In *Fat Politics: The Real Story Behind America's Obesity Epidemic*, Dr. J. Eric Oliver challenges the most basic of health assumptions: that to be "overweight" or "obese" is to be unhealthy. In order to convince the reader of this perspective, Oliver analyzes obesity in America as economist, biologist, political scientist, and sociologist. By examining obesity through these different lenses, Oliver makes a strong and easily understood case of why and how obesity has not become the "epidemic" that is purportedly threatening the health and fiscal well-being of the entire country. Instead, Oliver illustrates that the strong focus on weight–both in terms of physical well-being and appearance–belies the real 21st-century health challenges Americans face.

Fat Politics begins with an examination of the clinical definition of overweight and obesity, and how the changes to this definition in the early 1990s sparked media coverage that quickly dubbed the rising weight of Americans an "obesity epidemic." Then, in Chapters Three and Four, Oliver delves into the anthropology and sociology of fat. He explores America's cultural animosity to fat people–the last socially-acceptable means of discrimination–while providing a history of Americans' attitudes towards fatness in order to address "fatism's" underlying causes. Finally, Oliver examines how the American capitalist system makes progressive weight gain nearly a foregone conclusion.

Oliver defies assumptions about obesity and health with exhaustive research of American food consumption and exercise trends. Oliver challenges the notions that Americans eat more at meals, and are continuing to gain weight because of fast food and an increasingly sedentary culture. In addition, he confronts one of the tenets of modern day health care policy, arguing that confronting children's health challenges at their schools is ignoring the evidence that parents have the greatest influence on the health of their children, citing a statistic that the best indicator of a child being at a healthy weight is whether or not the child brushed his/her teeth. By challenging so many conventional notions of healthy living, Oliver is able to capture the readers' strict attention and illustrate his point that when it comes to obesity, even the most basic assumptions are often wrong.

Oliver does not write from the perspective of a physician or biologist; he is a political scientist by trade. Consequently, his expertise lies in social science methods and the political system, and he is clearly more comfortable writing about the role of interest groups in health policy than in addressing the genetic aspect of obesity. However, Oliver's exhaustive research within both medicine and genetics allows him to effectively analyze health data. As a result, while Oliver does not produce his own clinical data (he did conduct massive social science surveys), he presents his own broad reviews of obesity statistics that he has compiled. The conclusions he draws from reexamining these statistics are the most compelling and powerful of the book, and force the reader to question some of the underlying assumptions one has about what it is to live healthily.

The main area in which *Fat Politics* is lacking is in how to actually make Americans healthier. Oliver half-heartedly offers guidance on best health practices. However, they sound eerily similar to many of the current initiatives to combat obesity, such as reducing intake of refined carbohydrates and eat more vegetables. The reason for the book's dearth of solutions is that Oliver is unable to reconcile his claim that America's focus on obesity is misguided with the reality that many of the initiatives to reduce obesity also combat America's real health problems, such as diabetes and heart disease. This is because while being overweight or obese (as currently defined) has never been shown to cause significant health problems, it is strongly correlated with many of them. Consequently, initiatives to reduce diabetes or heart disease will result in a corresponding reduction in obesity, and vice versa. The book argues that rather than focus on obesity, health experts, politicians, and the public must look beyond this superficiality in order to truly make America healthier.

The ultimate purpose of *Fat Politics*, therefore, is not to prescribe a specific lifestyle change or to exonerate Americans' for their progressively increasing weight. Instead, the book is a remarkable demonstration of how health policy is made in the U.S., and how special interests and the media can obscure underlying health issues.

Mark Leiserson is an Editor-in-Chief of TuftScope.

ORIGINAL ARTICLE

Childhood Obesity in the U.S.

Awesta Yaqubi

An estimated 17 percent of children in the U.S. ages 2-19 years old are obese. In terms of Body Mass Index (BMI), a measure of weight in relation to height, children with a BMI at or above the 95th percentile for others of the same age and sex are considered obese. The population of obese children in the U.S. can be categorized, albeit broadly, by age and geographical location. Moreover, further examination of the population of children who face obesity shows that there are significant disparities regarding race and ethnicity. Additional disparities among those who suffer can be attributed to differences in socioeconomic status. Childhood obesity is greatly influenced by genetic, behavioral, and environmental factors. While some genetic disorders are known to result in obesity, lack of physical activity and consumption of fatty foods are also known to have an affect on weight. Finally environmental factors, many of which can be categorized as social determinants of health, also influence obesity.

Many outside agencies and university teams are researching various intervention programs in the hopes discovering the characteristics of those that are successful at reducing the prevalence of childhood obesity. Careful analysis of the peer-reviewed articles depicting their findings shows that the most successful interventions are age-specific. Amid younger children, family-based intervention programs that educate parents on the components of a healthy lifestyle are most effective. Meanwhile, school-based programs that promote physical activity are among the most successful forms of intervention with respect to older children.

The prevalence of childhood obesity in the United States has more than tripled over the past thirty years[1]. Rising obesity rates throughout the U.S. have introduced an increasing number of children to both diseases that once only affected adults, and the social consequences that often accompany obesity. Although recent intervention programs aimed at reducing the prevalence of childhood obesity are as diverse as the amount of children who struggle with obesity nationwide, the most successful interventions are age-specific. Amid younger children, family-based intervention programs that educate parents on the components of a healthy lifestyle are most effective. Meanwhile, school-based programs that promote physical activity are among the most successful forms of intervention with respect to older children.

"The population of obese children in the U.S. can be categorized... by age and geographical location."

Obesity is the result of a caloric imbalance meaning the amount of calories consumed by an individual is not effectively countered by the amount of calories expended. Body Mass Index (BMI) assesses an individual's weight in relation to his or her height, and may be used a method of measuring obesity. It is important to note, however, that even though a BMI measurement may effectively serve as a person's weight status, it is not a direct measure of body fatness.[2] In terms of BMI, the CDC categorizes a child whose BMI is at or above the 95th percentile for children of the same age and sex as obese.

Suffering from childhood obesity can lead to many negative health effects, both physical and psychological. For one, obese children have a greater chance of developing bone and joint problems. They are also more likely to develop risk factors for cardiovascular disease, such as high cholesterol and high blood pressure. In a population-based sample of obese children ages five to seventeen years old, 70% had at least one risk factor for cardiovascular disease.[2] Children who struggle with obesity are also more likely to suffer the social consequences, some of which include low self-esteem and depression.

The population of obese children in the U.S. can be categorized, albeit broadly, by age and geographical location. In 2008, the Pediatric Nutrition Surveillance Survey[3] revealed that 12.4% of children ages two to five in the U.S. were suffering from obesity. That same year, the National Health and Nutrition Examination Survey[1] showed that 19.6% of children ages six to eleven and 18.1% of adolescents ages twelve to nineteen years old were also considered obese. The prevalence of obesity among children also depends on geographical region. According to the National Longitudinal Survey of Youth, 40.32% of obese youth live in the southern region of the U.S. Meanwhile 14.1%, 25.5%, and 20.3% reside in the northeast, Central, and western parts of the nation, respectively.[4]

Further examination of the population of children who face obesity shows that there are significant disparities regarding race and ethnicity. The results of the 1999-2000 NHANES [5] showed that among adolescent boys ages twelve to nineteen, 23.6% of non-Hispanic blacks and 23.4% of Mexican Americans suffered from obesity compared to only 12.7% of non-Hispanic white adolescent boys the same age. Similarly, the survey showed significant disparities in the prevalence of obesity among adolescent girls. For instance, only 10.0%

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of non-Hispanic white adolescent girls were obese, whereas double that amount of non-Hispanic black and 16.0% of Mexican-American adolescent girls faced the same epidemic. Comparable differences regarding the prevalence of obesity among infants from birth to 23 months old were also addressed in the survey; however, significance could not formally be declared since not enough children in this age group were tested. Today, the prevalence of obesity is highest among American Indian or Alaska Native children at 22.2%.[6]

Differences in socioeconomic status create more disparities among children suffering from obesity. For example between the years 2003-2006, 22.0% of obese children ages six to eleven lived below the poverty line. Meanwhile, only 13.5% resided in households earning twice the poverty line amount.[7] This imbalance is also apparent among low-income preschoolers, as one out of every seven of them is obese.[6] In addition to household income, the amount of education a mother has received also correlates with whether or not her child is obese. The National Longitudinal Survey of Youth states that 14.3% of children ages three to eleven whose mothers' work less than thirty-five hours per week, and do not hold a high school degree, are obese. Among children of the same age whose mothers work the same range of hours but have some form of college education, the prevalence of obesity drops down to 7.3%.[8] The effect of socioeconomic disparities on childhood obesity is clear. There are, however, additional factors some of which are influenced by socioeconomic status that also have an effect on the health of a child.

FACTORS AFFECTING CHILDHOOD OBESITY

Childhood obesity is greatly affected by genetic, behavioral, and environmental factors. There are genetic disorders, such as Prader-Willi syndrome, that trigger obesity; however, genetic factors alone are not enough to significantly affect weight.[2] A combination of genetic susceptibilities and either behavioral or environmental factors is more likely to have contributed to increasing childhood obesity rates throughout the nation, in addition to the effect that behavioral factors and environmental factors have on their own.[2]

Behavioral factors that affect a child's weight involve energy intake and amount of physical activity received.[2] For instance, consuming large amounts of fatty foods and sugary sodas that are high in calories is known to contribute to obesity. Likewise, lack of physical activity and sedentary tendencies are examples of other behaviors that when employed add to the childhood obesity epidemic. Less than one-third of high school students currently meet recommended levels of physical activity despite the fact that physical activity has been linked to helping decrease blood pressure among children suffering from obesity. The types of food a child consumes as well as the amount of physical activity he or she engages in are examples of behavioral factors that affect childhood obesity. Healthy habits created by children during childhood are likely to persist with them through adulthood.[2]

Environmental factors, many of which are social determinants of health, also influence childhood obesity. For example, low-income neighborhoods have reduced access to recreational facilities and higher crime rates. This, in turn, limits the amount of time a child is able to spend outside engaging in physical activity. People living in minority neighborhoods are also at a disadvantage regarding food choice since quality foods can be more expensive and less accessible to those living in economically deprived neighborhoods.[9] Thus, children living in either a low-income or minority neighborhood are more likely to struggle with obesity as a result of the environment in which they reside.

FAMILY-BASED INTERVENTIONS

Many outside agencies and university teams are researching various intervention programs in the hopes of finding one that is successful at reducing the prevalence of childhood obesity. Julia Wolman and her colleagues[10] researched an intervention program by the name of Fighting Fit Tots. This program, targeted at obese preschool aged children in Lambeth, South London, consisted of eleven weekly meetings during which parents and their unhealthy children met in a local venue within the community. Each meeting lasted two hours, the first forty-five minutes of which parents and children spent together, engaging in physical activity. With a fitness instructor present, they jumped, hopped, skipped, and danced together to a variety of popular children's music. Afterwards there was a fifteen-minute break before parents alone attended a healthy lifestyle workshop given by a nutritionist. They did not have to worry about watching their children as free babysitting was provided. Over the course of the eleven-week program a new topic was discussed each week, examples of which included: "Reading food labels," "Helping fussy eaters," and "Keeping good habits going".[10]

At the end of the eleven weeks, parents reported that their children showed an increased willingness to drink water and try new foods at home, especially fruits and vegetables. Also, they noted that their children spent less time watching television and displayed increased levels of confidence. Thus, Wolman and her colleagues concluded that health professionals should implement similar family-based obesity prevention programs when targeting preschool aged children. They also established that a successful intervention designed to reduce the prevalence of obesity among young children should be open to all children and families who are interested in becoming healthier. Doing so created an ambiance conducive to drawing in the target parents and children—that is those who were recommended by a health professional to join the Fighting Fit Tots program nearest to them.[10]

Research conducted by Lydian Veldhuis and his colleagues[11] further demonstrates the effectiveness of family-based prevention programs. The program they studied, referred to only as the "prevention protocol," obtained BMIs and waist circumferences from random samples of five-year-old children throughout the Netherlands. After discovering which children were by definition obese, their respective parents were personally contacted and invited to three lifestyle counseling sessions, the first of which was to take place one month after the original health check, somewhere within the community in which they resided. Four behavior changes: being physically active, having breakfast, drinking sweet

beverages, and watching television/playing computer games known to affect the health of children were the main focuses of these sessions, however, parents were also given personal advice on how to lead healthy lifestyles with respect to themselves and their children. Although plenty of note taking was involved outside of the program (as parents were required to keep a log of the net caloric intake of their children) the personal aspect of the sessions kept them motivated.

Because this intervention is still going on, a formal conclusion cannot be made yet. It is however hypothesized based on current progress that after two years of follow up, the children in the intervention group whose parents attended the counseling sessions will have lower BMIs and waist circumferences. Likewise, it is predicted that they will spend more time being physically active, consume less sweet beverages, and watch less television than the obese children in the control group. Thus, the research conducted on this study by Veldhuis and his colleagues provides more proof in favor of the notion that family-based intervention programs are most effective for young children.[11]

With respect to older children, family-based intervention programs are not as effective. Rather, interventions in the form of school-based programs that promote physical activity have proven to be the most successful. Geraldine Budd and Stella Volpe[12] researched multiple school-based obesity prevention programs, one of which was a program by the name of "Planet Health," implemented in grades six to eight of 10 randomly selected schools in Boston. As part of this program, lessons intended to decrease television viewing and computer time to no more than 2 hours/day as well as increase the overall moderate to vigorous physical activity (MVPA) of young boys and girls, were incorporated into math, science, English, social studies, and physical education classes. Likewise, lessons designed to reduce the intake of fatty foods, and increase the overall amount of fruits and vegetables consumed among middle school aged children were also incorporated into everyday school subjects. The intervention program met Massachusetts' state curriculum standards and lasted for two years.

After two years, the overweight prevalence for girls participating in the intervention decreased from 23.6% to 20.3%, although no significant reduction in BMI was found for boys. Also, the dietary patterns of girls participating in the intervention improved, and the amount of time both boys and girls spent watching television decreased.[12]

TARGETING OLDER CHILDREN

Budd and Volpe also researched a healthy heart initiative in Stanford that similarly promoted physical activity in schools and received positive results. This study took place in Northern California, where tenth graders from two high schools in the same district received three, fifty minute classes a week for seven weeks on healthy heart nutrition, stress reduction, how to avoid smoking, and ways to engage in fun physical activity. Once the intervention program concluded, the average BMI for boys involved only increased by 0.1, compared to 0.4 for those in the control group. Also, the average BMI for girls involved in the intervention decreased by 0.3, whereas it stayed the same for those in the control group. Overall, the general physical activity habits of everyone in the intervention group improved.

In both of the interventions that Budd and Volpe studied, older children, ranging in age from 12-15 years old, were positively affected. Budd figured that a major difference between older and younger children in relation to which type of intervention suited them best was that older children were more likely to possess the inner-strength and will power necessary to maintain behavior change. Thus, they were more likely to engage in physical activity on their own after learning about it in school, through programs such as "Planet Health".[12]

"The unsuccessful interventions fail to approach the issue of childhood obesity in an innovative way to engage the attention of either parents or children."

Unfortunately, the number of unsuccessful intervention programs outweighs the number of successful ones. The unsuccessful intervention programs fail to approach the issue of childhood obesity in an innovative way and engage the attention of either parents or children. For example, many school-based obesity prevention programs have bombed because they failed to promote, say, physical activity or the banning of an unhealthy food in an interesting way.[13] The effect of breastfeeding on obesity was tested in Belarus by Michael Kramer and his colleagues.[14] Their research, a cluster-randomized trial of a breast-feeding promotion intervention based on the WHO/UNICEF Baby-Friendly Hospital Initiative, ultimately showed that even after a significant increase in the amount of Belarusian babies breastfed throughout infancy, there was no significant change in the prevalence of obesity among them six and a half years later.

CONCLUSION

A model, evidence-based program designed to combat childhood obesity should be age-specific. In order to reduce the prevalence of obesity among younger, preschool aged children, the best form of intervention is family-based as was shown in research done by Wolman and her colleagues on the eleven-week long program, "Fighting Fit Tots." Family-based interventions ensure that the parents of a child suffering from obesity learn about the components of a healthy lifestyle by attending, with their child, weekly workshops set up somewhere within the community. These workshops should welcome any and all parent-child pairs so long as the parents are genuinely interested in improving the health of their children. Preschool aged children do not yet have the will power required of intervention programs that rely on education, whereas middle and high school aged children

do. Thus model, evidence-based programs for older children should take place during school and promote physical activity through education, as was the case with "Planet Health" and the healthy heart initiative in Stanford.

As of now, no magic solution to the childhood obesity epidemic exists. Greatly influenced by genetic, behavioral, and environmental factors, a malady of this caliber will require that any attempt at a solution address more than just the scientific aspects of the problem. The qualities of a successful intervention program are clear. It is now time to act on what has been discovered in order to reduce the prevalence of childhood obesity in the United States.

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CA Obesity Prevention Program Results

By Brian Wolf

The rising level of childhood obesity is a major public health concern that requires a concerted effort among parents, educators, politicians, schools, the government, and, most importantly, children to reverse the trend. The Central California Regional Obesity Prevention program, a 3-year, $10 million regional initiative, was implemented in eight Central California countries in collaboration of various public health department directors to curtail the rising level of obesity. The goals of the program are to promote safe places for physical activity in places such as parks and to increase the access to fresh fruits and vegetables. The central strategy for the program utilizes community resident engagement to change various built environments that range from parks to schools. As an example, the program helped to create farmers markets that accept food stamps. Through the utilization of food stamps, individuals who may not be able to afford fresh produce have the opportunity to obtain affordable fruits and vegetables. To promote physical activity in a community, the program also created maps for walking trails and park spaces in the area. Ensuring successful advocacy to prevent closure of clinics, along with continued funding, provided individuals to seek medical care if needed. It is hoped that individuals would be more aware of their environment and will take advantage of what the region offers. The results of this program suggest that individuals, as well as community institutions (e.g., schools and hospitals), must work together to prevent childhood obesity.

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A Discussion with Dr. Devra Davis, Author of *Disconnect: The Truth About Cell Phone Radiation*

Lauren-Elizabeth Palmer

Dr. Devra Davis (Ph.D., MPH) has been designated a National Book Award Finalist for her insights on the environmental link with illness in *When Smoke Ran Like Water.* As an epidemiologist, Dr. Davis lectures at Georgetown, Harvard and the London School of Hygiene. She has also served as the Senior Advisor to the Assistant Secretary for Health and Human Services. In 2007, she founded the Environmental Health Trust, an organization which strives to educate the public about manageable environmental risks and potential policy solutions to address those risks. Her latest book, Disconnect, discusses the impact cell-phone radiation has on our bodies and on our lives.

Dr. Devra Davis

What is the problem at hand?

The problem is that, believe it or not, cell phones are dangerous. They emit radiation and, unfortunately, we hold them up to our brains. Its not really a very good idea. The current standards for radiation exposure are way too low; however, a lot of the phones we use today even exceed those low standards.

How should we approach the problem of cell phone radiation?

I want you to understand that I don't expect people to stop using cell phones, I use one myself, but you have to be smarter about how you use these tools. Cell phone use and our approach needs to be more like our approach to cars than to tobacco. We don't expect people to stop using cars. In many ways motor transport has revolutionized the world, but if you use them improperly cars can cause harm and even kill you. And I think the same thing is true for cell phones. They have revolutionized the world , the way we do commerce ,the way we respond to emergency , but we've got to be smarter right now. I'm really concerned about how we use iPhones and even iPads as toys for kids. I mean it is very scary stuff.

What do you say to those who point out that cell phone radiation doesn't damage DNA?

Cell phone radiation is non-ionizing and too weak to break ionic bonds that hold together DNA. That is clear and there is no debate about it, but what the physics community will tell you is that it is nonsense to suggest that cell phone radiation can harm you or cause cancer because cell phone radiation is too weak to break ionic bonds. Well, it is too weak to break ionic bonds; however, it is not true that it doesn't damage DNA in other ways. It is certainly not the case that you have to have DNA damage in order get cancer and work has been done showing that you can get cancer without DNA damage. We don't know all of the answers, but I became convinced about 6 years ago that my assumption, which was that it is impossible for cell phones to be damaging, was wrong. Scientists don't like to be wrong and we don't like to acknowledge that they follow fads.

What spurred your interest in this topic?

Well to be quite frank someone came up to me and said, "how come you're using your cell phone like that- don't you know it is dangerous?" and I thought that this person must be crazy. This person said "look, you have to understand, look at what they did in England". And so I looked and I came across a report done by Sir William Stuart which identified cell phones as potentially dangerous. Even then I thought well, it's the British and they're kind of eccentric. I was flabbergasted when I found out about Sir William Stuart. Sir William Stuart was the Director of Britain's Chemical and Biological Warfare Program. He was a top secret military researcher and a highly respected physician researcher. This was the equivalent of someone who worked for the British Defense Establishment, coming out and saying that he thought they had a problem. This all started when I was finishing my book, The Secret History of the War on Cancer, and I was floored to see there was a pattern here, just like the pattern that I had documented in my other book. The same problem that denied that tobacco could be a problem or asbestos could be a problem was operating here. Then frankly my first grandchild was born and I got really concerned.

What research has been done on this topic?

In the InterPhone study just released by WHO, people who used a phone an average of 30 minutes a day for ten years have double the risk of brain cancer. Remember, this necessitated ten years of use on the older phones so the newer phones may be less problematic, but the reality is that the latency period is

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ten years. That is why I'm so pleased that you are interested in this as most people in your generation have not been using a cell phone heavily for ten years, but most of them are using phones heavily now and that's why it is so important that this information reaches younger generations.

What results can we draw from the InterPhone study

Keep in mind that the phones were different too. The InterPhone studied brain tumors that occurred in people between 2002 and 2004 and we know that the latency for brain cancer is at least ten years and very few environmental carcinogens show a detectable increase in the population risk in ten years. The fact that you are finding a risk after ten years is worrisome.

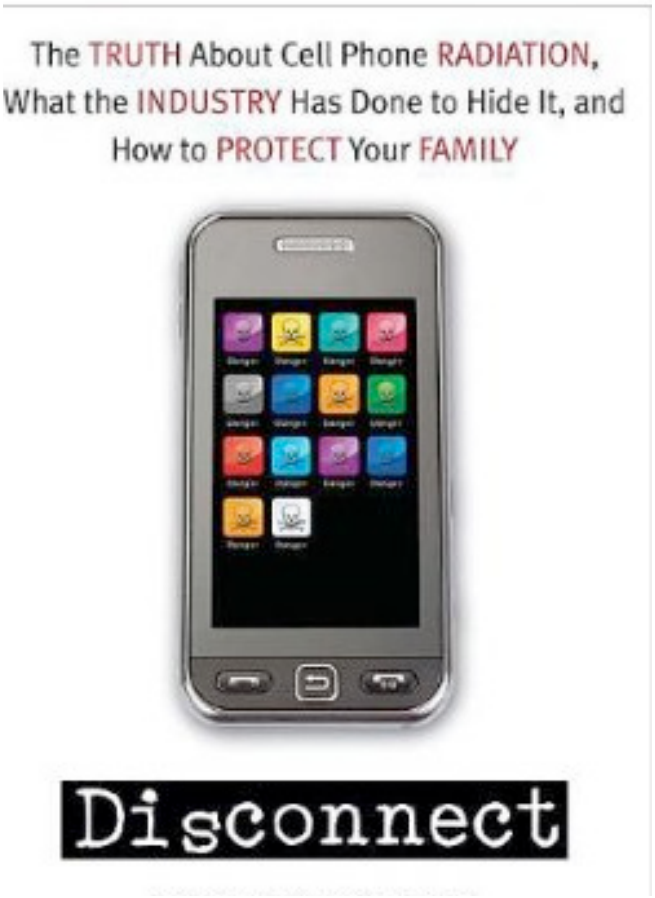
We should not be putting microwave radios next to our brains and most people do not know that cell phones are two-way microwave radio. They are the same frequency but the power is quite different. A microwave oven uses 1,000 watts and a cell phone uses less than 1 watt, usually about 200-400 millivolts. So the power is much weaker and that's why people thought they had to be harmless, but in fact the biological work that has been done indicates that they are not harmless.

If this is the case, then why haven't we been put on high-alert by the government?

Well, the industry is and has been trying to keep this underwraps in part by conducting their own studies which tend to sya cell phones are safe. Their studies seem to conflict with the results of other studies which have found cell phones to be dangerous, but you hae to look closer. Often, you can have studies that appear to replicate that don't. Allan Frey showed that in 1970s that if you exposed the animals to the digital signals and then exposed the animals to the dye, the brain would turn blue, this showed that poration is occurring, the membrane is getting weakened. In an attempt to replicate that work, scientists were paid to replicate that study by injecting the dye into the stomach. In this study, the dye didn't go through the blood-brain barriet because it was never injected into the blood stream- it was injected into the stomach. So the color wouldn't replicate. There has been that type of pseudo-replication. So that mot studies have been negative when looking at the biological impact and Henry Li has shown that most of these studies have been negative and most have been funded by industry. When you try and predict if a study will be negative or positive, its funding status, industry or non, will be an important factor which is an indication that this is not a level playing field.

How might we combat these effects?

The data that has come out of our opportunities to study people who were exposed to pollutants when they were children has taught us a great deal. If your exposure starts as a child, you tend to have a shorter latency and a stronger effect. For example, girls who were pre-teenagers at the Hiroshima and Nagasaki bombing will develop breast cancer at a higher rate and women who were in their 50s when the bombs fell do not develop breast cancer at all. So timing and exposure



can be more important than the dose. Very few people in the U.S. have been using cell phones heavily for ten years, unfortunately you have a growing number of people who do not even have a land line. Therefore, you must be smarter about how you are using cell phones.

Why doesn't the industry regulate itself?

There have been a couple of companies that are getting close to it and I think frankly that there is no absolutely safe cell phones just as there are no absolutely safe cars. The safest car would be the one that emits no green house gases and kills nobody ever. I don't think that exists, you can lower the green house gases and you can make them safer but there is a certain amount of risk that society has decided to accept and I think we could be in the same situation with cell phones. There is something else very radical people could do about cell phones and they could turn them off.

I struggled with this question, " is my book really a history or is still going on" and it is now obvious that this is still going on. Whenever scientists produce findings that are threatening to economic enterprises, whether those enterprises are steel manufacturing, cars or cell phones, they are not greeted with great applause. What happened to Sir William Stuart was very illustrative. He issued his report ten years ago and he chaired a committee, the Royal College of Physicians, to advise on cell phones so I think it was assumed that he was going to be saying, "don't worry about this, everything is fine". Instead, identified areas where there was not enough information and areas of concern, specifically involving exposure of the young to cell

phone radiation. Cell phone standards are out of date and were set to a very large man with a very big head who didn't talk very much. These standards were based on the temperature in his head, with the assumption that heat was a good measure of damage. So our current regulations are based on acute effects on a big guy and thus not really relevant to most people.

Could you elaborate on those standards?

Sure, the FCC sets the rates of safe radiation using the SAR, or the Specific Absorption Rate, in watts per kilogram and they say that a safe amount would be 1.6 watts per kilogram. But this measurement doesn't really measure how much radiation you are receiving, but rather how much you have to be exposed to before your ear heats up, or gets hot to the touch. So the first problem with this is that its based on temperature and we know that temperature and well, acute effects, and we don't really think temperature is such a good measurement. The second problem is that the SAR is measured on SAM, the semi-anthropomorphic man who weighs about 200 pounds and has an 11 pound skull. Well, we know that skull thickness can play a role and most of us don't have such big heads, especially children. These regulations were also set using the older phones, these regulations are about 17 years old now, and so we can't really expect them to be so relevant anymore.

How would you like to see new standards measured?

I think you have to set the standard for the smallest and most vulnerable group and you have to say that cell phones should not be used by young children. I think the developing brain needs to be protected. We have laws about seat belts and bike helmets because it is important that we protect our kids. Yet, we are exposing their brains to a sea of radio frequency radiation that didn't exist five years ago. Cell phone companies know that something is up and thus have begun to include warnings on their packaging. For example iPhone 4 [packaging] now says that if you put your iPhone 4 in your pocket you can exceed the FCC exposure guidelines.

Why are cell-phone companies including these warnings?

A journalist named Obrien, from the San Jose Mercury news, got a quote from someone in the industry which said that said, "well, our lawyers are telling us to do this". What does that mean it means somebody will be sued for health damages and they can say well we warned you. There are guidelines for safer use which say you can use a headset or a speaker phone .These warnings can be found on government websites and they are prefaced with the phrase, "if you are concerned about radiation", but they don't tell you that you should be concerned. These guidelines include using headsets and keeping cell phones out of pockets. Other countries have publicized these guidelines and even launched public service campaigns to raise awareness. The Israeli Dental Association has issued a report about cell phones and children. They report that in the past five years, one in five cases of malignant perotit gland tumors, a very rare tumor of the cheek which normally occurs in older people, has been found in someone under the age of 20.

Guidelines for Safer Cell-Phone Use

1. USE A HEAD SET

Using a speaker, hands-free device, or earphones when speaking on a cell phone distances it from the body and head and minimizes your exposure to radiation.

2. DON'T CARRY A CELL PHONE ON THE BODY

Even when a cell phone is not in use, it emits radiation.

3. BEWARE OF A WEAK SIGNAL

When a cell phone is in standby mode or when the signal strength is weak or blocked, exposure to radiation increases. Limit your use at this time.

4. KEEP IT AWAY FROM CHILDREN

Studies consistently show that children are especially vulnerable to the effects of cell phone radiation. Generally, the younger the child, the more at risk they are.

5. DON'T LEAVE A CELL PHONE ON YOUR NIGHTSTAND

You may be sleeping, but your cell phone Is busy at work emitting radiation.

How can we obtain safer guidelines for use?

We do need to have more surveillance studies, but we know enough to take some precautions now. Cell Phone companies are putting these warnings out for some reason, namely to protect themselves from liability. We want to recognize that we have lost our control groups at the same time there are things that can be done and I think some of the most stunning work has been done with human sperm. If you take sperm samples from a man and split them into two different test tubes and one is exposed to cell phone radiation and the other is not, the exposed group will die three times faster and have more markers of death. This has been done in several different laboratories around the world so that is sufficient proof that cell phone radiation has a biological effect.

References for studies and quotes cited in this article can be found online at www.disconnectbook.com

EDITORIAL

Student Health Insurance

Laura Corlin

While health insurance has been required for all students in Massachusetts since 1989, thousands of students are not offered plans that provide enough coverage at fair prices compared to other groups of people in Massachusetts. Several years ago, a group of Tufts students who would later form Student Health Organizing Coalition (SHOC) heard about several situations where students became sick and their insurance coverage was inadequate to cover the costs. After collecting and presenting this student testimony to the Massachusetts State Division of Health Care Finance & Policy (DHCFP), SHOC requested a baseline report. This 2009 report was the first evaluation of health insurance plans offered to college students since the 1989 student health insurance law went into effect and the first time students were at the decision table.

The report revealed that plans did not meet established minimal credible coverage standards - many did not cover routine doctors' visits, gave inadequate coverage for prescription drugs, and forced students to pay much out-of-pocket. Moreover, there was a 69% medical loss ratio average for Massachusetts schools, meaning that only 69 cents out of every dollar spent by insurance companies actually went to cover medical expenses[1]. The results of the baseline report led to increased visibility in the press. At this point, Governor Deval Patrick pressured DHCFP to take immediate action. SHOC was able to help draft revisions to Massachusetts State Senate Bill 609 to improve student health insurance practices. SHOC members have since met with several dozen legislators including the majority of the members of DHCFP and local representatives Carl Sciortino and Pat Jehlen regarding the proposed bill.

DHCFP put together a steering committee that pooled community and state college students into one tiered plan that has fairer profit margins. One of the key features of the plan is that the different tiers–community college students, state college students, and University of Massachusetts students–are offered quite different plans. The tiers were designed to ensure that students would not have to pay more than they could afford and as such made assumptions about what kinds of health care needs different students would need based on past records from schools' insurance plans. In the future, it would be beneficial to many students if they had the option to buy into a higher tier of the plan to provide more comprehensive coverage.

A major benefit of the new plan is that it enables the costs to be spread over a larger population of students, lowering the costs for any individual student and allowing insurers to know they have the funds to cover necessary expenses. Under this insurance system, state college students will be able to buy all of the prescription drugs they need and these expenses will be covered. There is also a set limit on the maximum amount any student at a state college will have to pay in a given calendar year on medical expenses. UMass students will be in the highest tier with the best coverage when they join the plan this year. However, students enrolled in community college are in the lowest tier and still do not have any prescription drug coverage. The price of health insurance went up only marginally ($40 for community college students) despite officials' fear that an adequate plan would be too expensive for students to afford. The price of health insurance for UMass students is still half of what Tufts students pay yearly and contains better benefits.

Currently, SHOC is trying to enable private colleges to join the public schools' health plan to provide the remaining 70,000 Massachusetts college students with cheaper and more comprehensive coverage by working with key stakeholders across the state. From conversations with private school administrators around Massachusetts, there is concern that prices will increase disproportionately when they are renegotiated in following years. SHOC is still working on getting prescription drug coverage for community college students. Additionally, SHOC would like to work with the Steering Committee that ultimately shapes the state connector plans and other key decision-makers. At Tufts, SHOC continues to work closely with Michelle Bowdler and other administrators on the undergraduate health insurance plan. Based on SHOC's work last year, the maximum benefit that can be paid increased to $250K from $100K and prescription drug coverage increased from $1500 to $2000.

If you are interested in participating in SHOC's efforts to create more comprehensive and fair insurance policies for Massachusetts's college students or have a story about difficulty with student health insurance to share, please contact Laura Corlin at laura.corlin@tufts.edu.

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Laura Corlin is a staff writer for TuftScope.

What You Need to Know About the Affordable Health Care Act of 2010

Mark Leiserson and Lauren-Elizabeth Palmer

Changes Which Have Been Implemented

2010

*** Small Businesses are eligible for tax credits which help them provide health insurance to their employees (Jan. 1).**

*** States receive federal funding for covering certain individuals through Medicaid who were not previously covered (Jun. 1)**

*** The Coverage gap is now closed**

*** New resources and procedures are available to reduce fraud in Medicare, Medicaid and CHIP**

*** A fund provides insurance for retirees between ages 55 and 65 until the Exchanges are opened (Jun. 1).**

*** All of those with a preexisting condition who are either 19 and under or have been without insurance for 6 months now qualify for coverage under an abbreviated version of Guaranteed issue.(Jul. 1).**

*** Young adults who are not offered insurance at work are allowed to remain on their parent's plan until they turn 26 years old. (Sept. 23).**

*** New plans must offer certain preventative coverage without charging a deductible or co-pay (Sept. 23).**

*** Insurance Companies are no longer able to rescind coverage (Sept 23).**

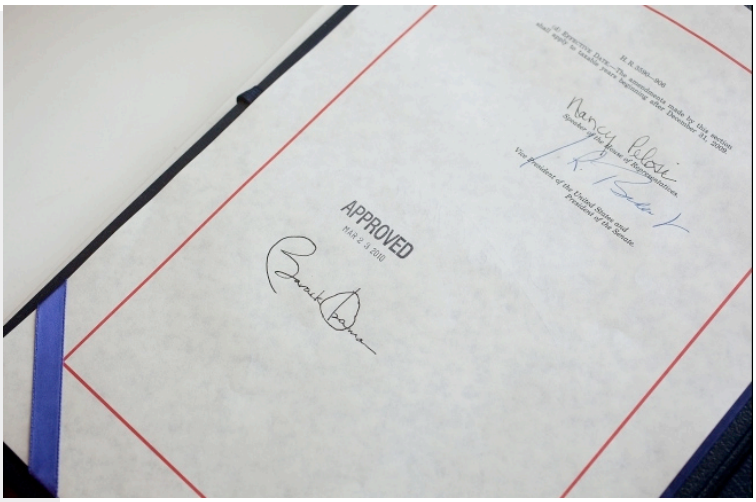
*** Lifetime spending limits on essential benefits are prohibited (Sept. 23).**

*** States which require insurance companies to justify their premium increases are eligible for $250 million in grants**

*** Financial incentives are provided for clinicians who work in primary care or in rural areas**

*** A $15 billion Prevention and Public Health Fund invests in proven prevention and public health programs**

Lauren-Elizabeth Palmer and Mark Leiserson are the Editors-in-Chief of TuftScope



Chuck Kennedy

On March 23, 2010 the Patient Protection and Affordable Care Act was signed into law. On March 30,2010 the Health Care and Education Reconciliation Act of 2010 was signed into law as an amendment to the PPACA. Many provisions of the Affordable Care Act had immediate impacts throughout the country. The changes affected all age groups, from children who were now offered insurance regardless of preexisting conditions, to college students who were allowed to remain on their parent's insurance plans, to early retirees who no longer have to battle the individual insurance market, to seniors who no longer fall in the infamous and now extinct coverage gap or donut hole of Medicare Part D. Many of the provisions of this new law are outlined here.

The types of provisions outlined in the ACA can be thought of as falling into one of two categories: efforts to provide better coverage and efforts to finance better coverage. The ACA offers resources for reducing waste and fraud, an effort that returned $2.5 billion in FY 2009. The bill focuses on preventative care and accountable care in an attempt to reduce waste and demand for more expensive services.

The ACA also imposes greater regulations of health insurance companies. These companies will no longer be allowed to discriminate on the basis of sex or pre-existing condition, to impose spending limits for essential services, to rescind coverage or to preferentially and unclearly set premiums.

The ACA creates an environment in which insurance companies have to start working for the consumers and doctors get to focus on patient care instead of patient's ability to pay.

References for this article can be found online at tuftscopejournal.org.

2011

*** Insurance companies will be required to spend at least 80% of individual and small business insurance premiums on providing heath care services, and at least 85% of large-employer insurance premiums (Jan. 1)**

*** The Center for Medicare & Medicaid is established. The Center will focus on developing and identifying novel ways of providing more efficient and higher quality health care to patients. (Jan. 1)**

*** Seniors within the coverage gap will receive a 50% discount on Medicare Part D prescription drugs (Jan. 1)**

*** Home- and community-based services can be offered through Medicaid, diminishing the role of nursing homes and other institutional services**

2012

*** Incentives begin to encourage doctors to form "Accountable Care Organizations." These organizations' purpose is to allow doctors to better coordinate their efforts in providing quality health care. (Jan. 1)**

*** Federal health care programs are required to track and report racial, ethnic, and language statistics. These statistics will putatively be used to reduce health care-related disparities. (March 1st)**

*** Health care records begin their transition from paper to electronic (Oct 1).**

*** Hospitals performance becomes public data. This will allow for a better understanding between (and a stronger relationship) between costs and outcomes**

2013

*** States' preventative programs receive additional Medicaid funding to expand coverage and reduce costs (Jan 1).**

*** States' are required to pay 100% of Medicare payments for primary care services. These funds will be provided by the federal government (Jan 1).**

*** CHIP is extended for 2 years, funded by the federal government (Oct 1).**

2014

*** Health insurance exchanges open for business (Jan 1).**

*** Those who can afford health insurance are required to obtain health insurance, or pay a tax (Jan 1).**

*** Individuals can opt out of their employee coverage and take the funds the employer would have spent on health insurance to the Exchange (Jan. 1).**

*** Medicaid is expanded to all individuals under 133% of the poverty line, fully funded by the federal government for the first 3 years (Jan 1).**

*** Tax credits are provided for those between 100-400% of the poverty line in order to make health insurance more affordable (Jan 1).**

*** Limits on the annual payouts of insurance coverage are revoked (Jan 1)**

*** Insurers cannot deny coverage based on gender or pre-existing conditions (Jan 1)**

2015

*** Physicians are paid based on the outcomes of the care they provide, rather than the volume (Jan 1).**

TERMS DEFINED

Accountable Care Organizations: a model which will provide financial incentives to those who rovide good, quality care and Medicare beneficiaries

CHIP: The Children's Health Insurance Program which provides assistance to all uninsured children and teenagers who do not qualify for Medicaid, regardless of parent's income level.

Coverage Gap: the gap in coverage which exists in the Medicare Part D program, currently participants do not pay for the first few thousand dollars of prescription drugs, but do resume paying once they exceed this sum. The consumer pays 100% of prescription drug costs until they reach the catastrophic coverage level, in which case Medicare Part D resumes.

Health Insurance Exchanges: a set of state regulated and standard health insurance programs which is available to individuals.

POLICY REPORT

The Individual Mandate and the Constitution

Lauren-Elizabeth Palmer

The Individual Mandate is the provision in the Patient Protection and Affordable Care Act which mandates that all individuals who can afford to do so purchase some minimally comprehensive health insurance. The individuals who are deemed capable of affording to do so are those who are above the poverty line and for whom the minimum coverage will not cost more than 8% of their monthly income.[1] For those who cannot afford to purchase health insurance according to these standards, there exist federal subsidies so that they too can be covered.

WHY WE NEED THE INDIVIDUAL MANDATE

The Individual Mandate can be seen as the glue which stabilizes the rest of the Affordable Care Act.[2] It is an essential component of a health insurance market reform. In the existing market structure, individuals who can afford health insurance premiums, yet choose not to purchase insurance, place an undue burden on the rest of society when they become ill. The ACA ensures that all individuals have the opportunity to access health insurance. One way in which this is done is by prohibiting the insurance industry from doing three important things which it has traditionally done.

1. **Experience rating**: the industry has recently offered lower premiums for groups of low risk individuals which entices those individuals to purchase that specific insurance plan, while simultaneously shifting a greater cost on higher risk groups, which most often include vulnerable populations. The new regulations dictate changing to community rating which means that everyone pays the same premiums for the same plans.[1]
2. **Rescission**: in the past , health insurance companies have been able to retroactively rescind coverage of individuals, thus leaving those who have been utilizing the insurance with huge bills to be paid.[1]
3. **Guaranteed Issue**: health insurance companies can no longer discriminate based on sex, race or pre-existing condition, etc. For decades, small businesses have enjoyed guaranteed issue, meaning that they could not be turned down for health insurance simply because they had expensive employees. Guaranteed issue will now extend to individuals as well, meaning that women and those with pre-existing conditions who found it challenging to impossible to acquire health insurance in the past will now have access to plans.[1]

All of these changes represent successes for both individuals who need coverage and for society as a whole; however, they all rely on the individual mandate. Without the individual mandate, an unhealthy person could wait until they were quite sick before buying insurance at the last possible moment. Because of community rating, they would pay the same premium as everyone else. Because of guarantee issue, their illness-no matter how expensive-would not preclude them from getting insurance coverage. While this may seem like a cynical approach, even a small percentage of the population operating this way could completely destabilize and potentially bankrupt the entire system. Bankrupting the system would mean that those paying in would lose coverage. For these reasons, the individual mandate is an integral part of reform and is inextricable from the Affordable Care Act.

Opponents of the individual mandate present it as an attack on individual freedom. They argue that the individual mandate is requring forced participation in a market, a requirement which is said to violate one's personal liberties and qualify as unconstitutional. We will look at the individual mandate from three different angles. We will evaluate the individual mandate not as 'mandate', but as what it really is : a tax. We will explore the Commerce Clause of the Constitution, which is the basis of law for the ACA. And finally we will explore some of the arguments against the Constitutionality of the mandate, which have been successful in courts of law in Virginia and in Florida.

A TAX

The individual mandate was placed into law in order to ensure stabilization of the health insurance industry so that it will now offer better plans at cheaper premiums to more consumers. It was not included as an attempt to infringe on personal liberties. This becomes abundantly clear when one looks at the repercussions for not having health insurance. Beginning in 2016, the IRS will collect a fine equally $695 or 2.5% of income, whichever is greater.[2] The Affordable Care Act explicitly indicates that no criminal actions may be pursued and no liens may be placed on individuals who do not pay this fine. This essentially means that, on a fundamental level, the government will not do much to enforce this law so choosing to disobey on principal will not lead to punishment or burden. One journalists points out, correctly, that the most economical choice would be to not pay for health insurance and simply pay the fine (which is less than a typical premium) until one gets sick.[2] It is of course doubtful that many will opt for this path. The individual mandate can be viewed as a tax because you either pay a premium and help yourself while also stabilizing the system or you pay the IRS. When positioned this way, the Constitutionality of the individual mandate seems unquestionable as it is clearly and explicitly within the rights of Congress to legislate taxes on

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the American people.

THE COMMERCE CLAUSE

Fundamentally, the Affordable Care Act is a market based reform. The power of reform of any market is given to Congress under the Commerce Clause of the U.S. Constitution. Article I, Section 8, Clause 3 of the U.S. Constitution states that Congress shall be empowered

"To regulate commerce with foreign Nations, and among the several States, and with the Indian Tribes".[3]

The Constitution gives Congress the power to make laws regulating commerce through the Necessary and Proper Clause in Article I, Section 8, Clause 18 which states that,

" Congress shall have power…to make laws which shall be necessary and proper for carrying into Exchange the foregoing powers and all other powers vested by the Constitution".[3]

The Commerce Clause was paired with the Necessary and Proper Clause many times in order to affect change. Social Security, the New Deal, Welfare programs and many other core programs in American history were introduced into law under the auspices of these combined clauses. The individual mandate, in this respect, is neither novel nor unclear. It is merely a 'necessary and proper' ingredient in the reform of the health insurance market, a reform that Congress has every power to oversee.[5]

THE INACTIVITY ARGUMENT

It cannot be overlooked, of course, that arguments against the Constitutionality of the individual mandate and of the Affordable Care Act as a whole have gained momentum and have even been successfully argued in the court of law. To date, four cases involving the Constitutionality of the individual mandate have been tried. Eleven additional cases have been thrown out. All four cases have been tried on the state level and have yielded conflicting results, suggesting that we can expect the individual mandate to eventually make its way to the Supreme Court.[4] Two of the four cases ruled that the individual mandate was Constitutional and should be upheld. A Virginia judge ruled that the individual mandate was unconstitutional. A Florida judge also ruled that the individual mandate was unconstitutional; however, he also ruled that, because the individual mandate is such an integral part of the Affordable Care Act, the entire law was unconstitutional.[4]

What has been convincing these judges? Opponents have argued that the Commerce Clause grants Congress the power to regulate commercial and economic activity, not inactivity. They argue that mandating someone to participate in the health care market is a form of regulating an individual's inactivity. In comparison, any person who buys a car is also mandated to buy auto insurance. The opponents of the individual mandate point to the fact that, while this may be true, no one is forced to buy the car initially and thus to participate in the fist place.[5] Traditionally, the Commerce Clause has functioned on an "if…then" model: IF you play the game, THEN you must follow the rules. Opponents argue that the individual mandate is the equivalent of forcing someone to play the game.

The Obama administration and many others have countered this argument by pointing to the fact that everyone is already playing the game. By virtue of being alive, we have health needs. They argue that it is impossible for anyone to opt out of the health care industry in any meaningful way. Even if a person were to refuse medical treatment for personal or religious reasons, they might still become a participant in the system in the event of an emergency or their own loss of competency. Because no one can truly opt out of the health care economy, everyone should assume themselves a part of that economy and be open to regulation concerning this point. Additionally, the commerce clause gives Congress the power to regulate any activty which substantially affects commerce. Health care is undoubtably a commercial transaction so it would seem that the individual mandate falls within this scope.

Conclusion

The individual mandate will most likely go to the Supreme Court; however, we should not expect the Supreme Court juges to be swayed by the "inactivity argument" or divide among party lines in a strict 5:4 vote.[6] The argument against the Constitutionality of the individual mandate is too weak. Even traditionally conservative justices such as Justice Anthony Scalia, have ruled in favor of regulation, broadening the power granted to Congress under the commerce clause.[6]The invalidation of the individual mandate would allow one to argue that we must, on the grounds of unconstitutionality, allow people to opt out of Social Security and repeal such fundamental institutions as the income tax. It seems quite obvious that the individual mandate is Constitutional, yet it remains to be seen how the Supreme Court will rule.

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ORIGINAL ARTICLE

Transgender Perspectives on Medical Care

Julie A. Sayre

In 1999, the American Public Health Association issued Public Policy 9933, stating the need for increased acknowledgement of transgender individuals and their "distinct health needs."[1] The policy encouraged healthcare providers to be sensitive to the needs of transgender individuals and to treat them with respect. Ten years later, the transgender community, as well as the rest of the LGBT community, continues to experience some of the greatest disparities the United States healthcare system, even in some of the most progressive states. In a study in 2009 conducted by the Massachusetts Department of Public Health, the health of transgender population was found to be "somewhat worse" than heterosexual and non-transgender counterparts, with "worse outcomes with respect to self-reported health, disability status, depression, anxiety, suicide ideation, and lifetime violence victimization."[2] Though societal acceptance of homosexuality and gender nonconformity has increased in the last several decades, studies have shown that varying degrees of homophobia and heterosexism in healthcare negatively impacts the quality of care received by lesbian, gay, bi and transgender individuals.[3]

Within the LGBT community, the transgender population is perhaps the most understudied and misunderstood by society. Often when people think of a transgender person, they think of a transvestite or a drag queen. In fact, the term "transgender" covers transsexuals, cross-dressers, drag kings/queens, bigender, and androgynous individuals.[4] According to definitions provided by a Columbia study, transsexual individuals desire to "fulfill their lives as members of the opposite gender" and often seek medical treatment such as hormone therapy or surgery.[5] A transgenderist might desire to live part-time as another gender, whereas transvestite may dress in the clothing of the opposite gender for "emotional satisfaction or erotic pleasure." Gender performers such as drag kings or queens cross-dress for entertainment purposes, for fun, or to challenge stereotypes.

Two final categories include androgynous individuals who might portray both sexes or neither, and intersex or hermaphrodite individuals who have medically established traits of both genders.[5]

Trans people endure the same challenges when it comes to receiving quality healthcare as much of the gay community, which might include enduring stigma, economic barriers, trouble obtaining insurance and visitation rights, and more. However, transgender individuals may face the additional barriers of increased stigmatization, having their desire to transition treated as pathological, difficulty obtaining coverage for treatment relating to transitioning, and increased economic barriers. Some of these factors, in addition to often being stigmatized by both homosexual and heterosexual communities alike, may explain the high incidence of depression, anxiety, and suicide.[5 (p.38)] The higher incidence of health problems has also been attributed to many "cultural stressors," in addition to simple fear of prejudice and discrimination at the doctor's office. Several of these stressors include rejection by family members, harassment (particularly if a transgender man or woman does not "pass" as the gender they desire to portray), as well as job discrimination leading to unemployment, poverty and homelessness.[5 (p. 38 – 39)] All these factors often lead to both an increased propensity towards health problems combined with an inability to cover medical costs, which is often compounded by denial by insurance companies for certain medical treatments.

As previously mentioned, many of the health disparities experienced by trans people are the result of lack of cultural competency on the part of healthcare providers, ranging from benevolent ignorance to overt transphobia. Often gender nonconformity is viewed in the healthcare industry as pathological, much like homosexuality before the mid-1970s when the American Psychiatric Association deleted it from the Diagnostic and Statistical Manual of Mental Disorders. The Columbia University study cited the problem of pathologizing gender non-conformity as "one of the most significant barriers" to adequate transgender healthcare. Due to all these factors, transgender individuals often neglect to seek out medical care due to fear of being misunderstood or discriminated against. These individuals may resort to black market acquisition of hormones, may undergo gender reassignment surgeries by illegitimate or unlicensed providers, or might resort to trading sex for services.[5 (p. 37 – 39)]

For many transgender people, their health issues often revolve around the process of transitioning, or adopting the physical characteristics of the sex they identify with. This is usually achieved through either hormone therapy or surgery, or both. Sexual reassignment surgery (SRS), also referred to as gender affirmation surgery, is a procedure sought by many transgender individuals in order to obtain these physical characteristics. This surgery sits at the crux of a unique merging of mental health diagnoses and medical treatment, and has been demonstrated in studies to increase the well-being of the recipient as well as effectively treat gender dysphoria and Gender Identity Disorder (GID).[6] This expensive surgery—which is rarely covered by health insurance in the United States—normally requires adherence to the WPATH Standards of Care, which contains a detailed set of guidelines followed by surgeons and mental health professionals outlining various

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prerequisites for obtaining the surgery, which can include months of therapy and letters of recommendation from both therapists and other health professionals.

Many people take issue with the diagnosis of GID itself, which requires that the individual experience "clinically significant distress" as a result of their gender.[7] Some GID reform advocates feel that depicting transgenderism as a mental illness is disparaging and/or heterosexist. Others find that the criterion of "clinically significant distress" can be vague and subject to the whim of the clinician, making them into gatekeepers. Since this diagnosis is often necessary in order to obtain hormone therapy or surgery, some transgender individuals who want to transition but may not be experiencing "clinically significant distress" may not qualify for treatment.[8] Individuals who are diagnosed with the disorder experience difficulty of obtaining medical care with the diagnosis of GID on their record. Since most insurers do not cover treatments related to transgenderism, the diagnosis of GID can be problematic in that it could provide a way for insurance companies to deny coverage for any treatment they determine to be related to the disorder.[8]

In conclusion, transgender individuals face many unique barriers in obtaining good healthcare. Increased awareness on the part of doctors—and society as a whole—would likely accelerate further reform in favor of these individuals as well as improve overall healthcare quality.

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Qualifications on Lap-Band Weight Loss Procedure Adjusted

Eriene-Heidi Sidhom

The FDA has recently approved less stringent qualifications for those seeking the weight loss surgery of Allergen's Lap-Band. The devise is a ring that is placed around the upper part of the stomach and limits the amount a person eats and makes them feel fuller faster. Previously, this procedure was only approved for individuals who had a Body Mass Index (BMI) greater than forty, or those with a BMI of thirty-five with a related health condition. The lower limit has now been moved to a BMI of thirty for someone with a related health condition. This adjustment more than doubles the number of American candidates for the surgery to twenty-six million. Experts predict that the adjusted qualifications will drive more moderately obese Americans to consider weight loss surgery.

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New York City Now Offers MRIs on Street Corners

Lauren-Elizabeth Palmer

Last year, New York City gained attention for their roaming organ donation mobile. This year, the City is getting attention for their MRI trailer. The Brain Tumor Foundation, a private foundation that has received discretionary funding from the City, offers MRI scans of the brain on street corners. The goal of the program is to detect tumors in the brains of otherwise healthy, asymptomatic people-people who would not usually qualify for this diagnostic tool under current guidelines. There is little scientific evidence supporting this sort of screening process. MRIs are expensive and do expose patients to radiation. The president of the foundation, a retired neurosurgeon, has been quoted as saying this screening process " just makes sense". Still, many in the medical community disagree as MRIs carry their own risks, such as the risk of false positives, which can lead to unnecessary medical treatment.

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OPPOSING VIEWPOINTS

Should Employers Place a No-Hire Ban on Smokers?

***Priya Larson** argues that companies have the right not to hire smokers and that doing so will creater a better working environment. **Virginia Saurman** counters, suggesting that this move could set a dangerous precedent.*

YES

In late 2010, Anna Jaques Hospital in Newburyport, Massachusetts stopped hiring smokers. While many companies encourage their employees to participate in smoking cessation programs, Anna Jaques has taken this concept one step further. Citing a desire to create a healthier working environment, by implementing this policy the hospital has joined a growing trend based on improving the workplace environment and decreasing health insurance costs.

Police and fire departments in MA have implemented this policy of hiring no smokers as part of their pension rules since 1997, rightly claiming that smokers might be incompetent for such physically demanding jobs (Don't Puff, Don't Tell). A spokeswoman for Anna Jaques specified that the hospital has a right to eliminate smoke from its campus and employees, especially if it promotes healthy people and a healthy environment. Current Anna Jaques employees can also volunteer to pass annual health screenings including a nicotine test in exchange for a $500 deposit to their health saver account.[1]

The Massachusetts Hospital Association (MHA) also stopped hiring smokers this year. The CEO, Lynn Nicholas, backs her policy with a desire to decrease tobacco use as well as to lessen health care costs and to act as a role model for other companies.

While the new policy could decrease costs and workplace hazards, critics bemoan the loss of behavioral freedom. If this

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NO

In late 2010, the Massachusetts Hospital Association adopted a policy of refusing to hire smokers. It is one of several hospital associations in the nation that have decided to stop hiring smokers. The policy does not affect current employees, only future hires. Unsurprisingly, it has caused some controversy. Under the well-intentioned guise of making the hospital a safer place for patients and workers, the reality is that this is a cost saving measure with significant drawbacks that outweigh any possible financial gains. The potential negative affects of this policy are numerous.

One of the public reasons behind this no hire policy is the issue of third-hand smoke. Essentially, the possessions and homes of smokers are coated with the toxins such as hydrogen cyanide, butane (a lighter fluid), toluene (found in paint thinners), arsenic, lead, and carbon monoxide. These substances linger on possessions long after the smoke has cleared the room. These chemicals are pervasive enough to last for days. The study conducted by researchers at Massachusetts General Hospital claims that the greatest danger is for those who are in constant contact with these chemicals especially children and infants. However, with regards to the hospital environment, health care workers would not be in such close proximity to patients, and for not nearly as long a time as children of smokers would be at home. Hospitals are already smoke-free environments, so refusing to hire smokers (thus drastically reducing the presence of third hand smoke) could only be a minor benefit.

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trend continues, we must consider if it is truly fair for a business to trade employee freedom for lower costs. Smoking causes chronic disease and high health care costs. In a struggling economy, perhaps the policy is a fair way for a business to lower costs, attract clients, and be more competitive overall.

If a business's policy can encourage people to not smoke, both the business and society benefit. Lung cancer, mostly attributed to smoking, is the leading type of death-causing cancer.[2] Treatments for smoking-related health problems cost almost $100 billion per year, and almost the same sum is forgone in lost productivity due to smoking-related premature death.[3] The MHA's Lynn Nicholas believes limiting places where people can be smokers will lead to a future decrease in smoking.[4] If this policy is widely implemented, it will be less convenient to be a smoker when looking for jobs.

Insurance companies charge higher premiums to smokers for a reason: smoking causes chronic disease. Premiums can double if a person smokes a pack of cigarettes daily, compared to not smoking. Avoiding paying for smokers' extra health care costs is a fair business objective, especially if employees are hired for the long run. Smokers take more sick days than non-smokers, leading to higher costs for their employers.[5] Implementing this policy could be a form of financial aid for businesses searching to cut costs and increase productivity.

Hiring a smoker can harm a business in more that just financial ways. A hospital does not want to surround its patients with health care providers that smell like smoke. Even if an employee does not smoke on hospital grounds, he can still bring in carcinogens on his hair and clothes. A study led by Dr. Jonathan P. Winickoff of Harvard Medical School calls this hazard "third-hand smoke," referring to toxins from cigarette smoke that are emitted from a person or a room long after the cigarette has been extinguished. The research stressed that these toxins, which include cyanide, arsenic, and the radioactive polonium-210 are especially dangerous to infants and young children, who have faster respiration rates than adults.[6] The carcinogens can, of course, harm adults, so it is understandable for any company to avoid exposing employees to smoke residue.

The policy of not hiring smokers might seem like an unwarranted form of behavior control. Some people ask if companies will try to reduce insurance payments by imposing a hiring ban on obese people or those who like to tan. Limiting smoking, however, is different from limiting other lifestyle choices.

A greater problem arises when one looks at the effects of this policy on the potential hiring pool: it shrinks the hiring pool. Around 18% of nurses say they smoke, the highest percentage in the health care field.[1] One could assume that the percentage in aspiring nurses is the same if not higher. There is already a nursing shortage in America, and by disqualifying an entire 18% of the potential nursing population, the nursing deficit will only continue. Additionally, this policy has the potential to discourage people from becoming nurses who wish to work where this policy is active.

In addition to limiting possible nurses, an essential part of any hospital system, this policy would shrink the hiring pool in other important ways. A higher portion of young women and people of color smoke cigarettes. This policy has the potential to unfairly affect these populations. The policy will harm the hospital, as talented and skilled employees may be missed simply because they choose to smoke.

Most smokers are addicted to the nicotine inside cigarettes. Nurses and other healthcare workers come from all socioeconomic backgrounds, some of which don't emphasize the danger of smoking. Either because they come from lower socioeconomic backgrounds or due to cultural influence, not every aspiring healthcare worker has the same opportunities to be educated on the dangers of smoking. A ban on hiring smokers potentially deprives hospitals of highly skilled workers solely because they smoke.

So what would be the alternative to an issue such as this? Instead of refusing to hire smokers, money should be spent trying to encourage them to stop smoking. As stated before, the nicotine addiction makes quitting even more difficult, so quitting assistance services should be made available to health care workers who do smoke but want to quit. The potential for lost time and resources due to smoker illness will be outweighed by the higher patient volumes the hospital is able to treat with more hospital workers.

What's even more concerning is the precedent this sets. On the surface, refusing to hire smokers to work in a hospital seems logical. After all, smoking is a stigmatized activity in America. It is the perfect lifestyle choice to weed out in the world of healthcare. Being overweight and/or obese is also a widespread health issue in America. These conditions have all sorts of deleterious effects on a person's health, including increased risk for heart failure, diabetes, etc. The costs of insuring such people are high. Pregnancy also increases risk of death for the mother, and thus the insurance cost. If it is so easy to refuse to hire smokers

YES

Smoking can affect the comfort and well being of smoke-sensitive coworkers, patients or clients directly and immediately. While obese or artificially tanned people might develop chronic disease and therefore high health care costs, refusing to hire them is less justifiable. A well-tanned receptionist is fairly innocuous. A receptionist wafting smoke at you is unprofessional, bothersome, and even harmful. The no-smokers policy will probably not escalate to a ban on hiring just anyone likely to have an expensive health condition, unless the condition in question presents a more pressing concern.

The American Civil Liberties Union disapproves of the policy, calling it "lifestyle discrimination".[1] In fact, thirty states have anti-discrimination laws that protect employees' rights to legal activities such as smoking, drinking, and overeating while not at work. Massachusetts joins the remaining states in not "protecting" smokers. Civil rights laws protect employees from religious, racial, ethnic, age, gender and disability discrimination, but not from smoking bans.

Companies instituting this policy should be careful to ensure they aren't doing themselves a disservice. Plenty of qualified workers are smokers. President Obama smokes. Even some doctors smoke. A high proportion of young women and people of color smoke. The policy might shut out certain socioeconomic groups from gaining jobs, and it could certainly shut out well qualified candidates. A company must decide how to keep its best interests in mind. What is more valuable—hiring an expert who happens to smoke, or sticking to a policy that creates a healthier and cost-saving environment?

While America's forefathers did not want to restrict freedom, our society could stand to make a few exceptions in order to save money on health care and insurance costs. It's time to accept drastic changes, and it's well past time to add an incentive.

NO

(and thus not having to insure them), then it is only a short step to refuse to hire people who are clinically overweight and/or obese, pregnant, or other common, "risky" health conditions.

These are the paramount issues with the policy of refusing to hire smokers. If the goal of this policy is to save money, then there are other ways to cut costs (which will not be discussed here as multiple volumes of books could be written on that subject). If the goal is changing people's behavior, then the use of programs encouraging/facilitating quitting would be more effective and less damning. The current economic climate and nursing shortage does not permit such a potentially damaging policy like refusing to hire smokers from being enacted. Hopefully, other hospital groups realize this and continue to hire smokers while simultaneously trying other methods to convince them to quit.

References for Opposing Viewpoints can be found online at TuftScopeJournal.org

ORIGINAL ARTICLE

Sexual Health and Gender Equity Reform

Tzu-Ying Lii

Many Asian societies have become known for a notorious unwillingness to discuss sexual health, sexual education or gender equity in public. This has led to increasing personal and public health problems for many Asian and Asian-American people, including higher rates of abortion and elevated risk of cancer due to lack of early diagnosis, and conflicts with Western styles of medical treatment. However, a case study of Taiwan's recent gender equity and sexual health education reforms reveals that conservative, traditional Asian societies may still be open to policy change that is influenced through such channels as Western media and increased Western immigration. It is likely that Taiwanese public policies have shifted toward liberalization due to growing interconnectivity with the Western world, providing a useful model for other Asian societies and for Western doctors through which to provide culturally-sensitive medicine.

Cultural conservatism surrounding and preventing effective sexual education in Taiwan is not a new issue. As a public health matter, sexual education and gender equity are crucial components of healthy populations, having been credited with decreasing sexually-transmitted disease infection rates, lowering pregnancy and abortion rates and improving chances of cervical and breast cancer survival by encouraging and allowing for early diagnosis. Sexual health has been an issue since the 1900s in the West and has surfaced periodically in the East (including Taiwan and other nations) as well. Studies in Taiwan dating as far back as 1986 report general concern among Taiwanese adolescents and teenagers on the lack of useful, relevant education regarding sexuality and sexual health,[1] and the rate of teenage pregnancy in Taiwan is the single highest in Asia.[2] However, until recently, the Taiwanese government and educational system had done little to rectify the situation.

CHANGING POLITICS

But, since the beginning of the 21st century, drastic changes in overall gender politics and sexual education regulations have been suggested and implemented at an unusually high rate compared to past Taiwanese history. Alongside gender equity laws, the development of new, more relevant sexual education programs for students is fast emerging as a major, contentious issue in Taiwan. With the implementation of mandatory sex education programs in schools and the development of national sex education textbooks, sexual health and gender equity has become a national hot topic. This suggests a significant turning point in the public health history of Taiwan in which the once-glacial pace of gender and sexual health reform has suddenly increased at an exponential rate. What caused this recent liberal development in a society widely known to be conservative? Investigation of the current primary sources that are tracking this new and very contemporary issue reveals that it has been impacted by many of the same trends that are affecting other countries around the world: those of increased exposure to the media, Westernization, and immigration. Not only have these been the major sources of influence, but they are all traceable to the 1980s, when Taiwan began to liberalize – not only lifting martial law in 1987, but also loosening immigration laws and strengthening diplomatic international relations. These socio-political forces, building up power gradually, have initiated the beginnings of a powerful reform movement in the public health policies of Taiwan.

Tradition in Chinese Culture

The seeds of this development are discernible in the over- arching historiography of the issue when read closely for overall trends. Three decades and a generation ago, historians focused mainly on Chinese[3] and other Asian-American sex education and sexual health statuses as an area of worry, problematized by historical immigration patterns and conservative cultural values. As Charlotte Furth observed in a series of oral histories obtained in 1986, ancient Chinese texts and practices encouraged Taiwanese women to be modest, self-sacrificing and unwilling to speak of "indecent" subjects, including their own sexual health.[4] As longstanding, unchallenged cultural values, they exhibit themselves even today in Asian women's reluctance to discuss private health or undergo sexual health exams for the embarrassing fear of being seen as immodest and loose.[5] These values have been blamed for putting Asian and Asian-American women at higher risk for undiagnosed cervical and breast cancer, and indeed for complications of undiagnosed sexually-related diseases in general.[6]

These cultural traditions were maintained through the result of historically giant waves of immigration that resulted in particular social conditions. Bertha Mo's 1992 article "Modesty, Sexuality, and Breast Health in Chinese-American Women" made specific note of the tight-knit Chinese communities, known as Chinatowns, formed by Chinese immigrants to the United States, which gave them the opportunity to keep their cultural values extant and untainted by Western ideas.[5] This assertion is further supported by Dr. Linda Tom's analysis of Chinatowns as "cultural enclaves," in which it would have been quite possible for new immigrants to retain all their old customs, visit their own doctors and maintain their own beliefs.[7] Not only did these patterns of immigration apply to Chinese, but to other Asian groups as well, as written

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by Barbara Yee: as a result of massive waves of immigration from Vietnam, Laos and Cambodia in the 1970s, certain "geographic locations... became magnets for Southeast Asian refugees" because of pre-established social infrastructure such as family relatives, Asian supermarkets and the availability of work to non-English speakers.[8] Such conditions gave Asian immigrants, and especially Chinese immigrants, the opportunity to keep alive their own cultural values.

New Liberalism

But in viewing the larger historiographical trends on the topic, one major pattern appears: that of the move toward liberalism. Thirty to forty years ago, when studies of Chinese and Asian sexual education and sexual health first began to appear, the rendered focus was on problematic cultural values and histories, as just described. However, gradually, historians have come to focus two very important changes: not only the younger, newer generation that has appeared in the last two decades, but on a growing impetus for reform and social, grassroots-oriented restructuring. Where once the steady conservatism of Chinese and other Asian-American populations was in the spotlight, it is now the younger and more liberal populations that have taken center stage. Additionally, this generation is not content to maintain the status quo, but has decided to call for social change, achieving at least a notable degree of success. The study of this development in public health has important implications, answering questions such as, how can cultural obstacles be overcome in providing public health and medical treatment? How can cultural sensitivity be maintained while these obstacles are being overcome? And what are the most effective ways of overcoming these obstacles?

"American television shows such as *Friends* and *Sex and the City* have become the new 'primers on relationships and sex'"

Setting itself apart

Because the United States is a country of immigrants, the answers to these questions have significant value for public health and medical professionals. While many immigrant groups have been absorbed into mainstream practices of health and medicine, Chinese and Asian-American groups continue to present somewhat of an issue in terms of adequate sexual health, screenings and comprehensive sexual education, despite the appearance of a newer, reform-oriented generation. After all, centuries of conservative culture are not so easy to wash away. Thus, it is obvious why the case of Taiwanese public health and sexual education reform is so intriguing: why and how, in a traditional state still governed by a huge bureaucracy of conservative Asians, has reform come about? This paper seeks to answer that question by addressing the impact of Taiwan's political leanings toward America and the West, the influx of foreign media and of immigration.

Public health and sexual education reforms in Taiwan are especially interesting because they are tied directly to Western and American public health infrastructure. In Taiwan's growing bid for independence and to cut historical and political ties with Mainland China, it has sought to redefine its politics and educational system apart from China, basing its policies on Western strategies. In a report entitled "Nation-Building and Curriculum Reform in Hong Kong and Taiwan," researchers Christopher Hughes and Robert Stone from the London School of Economics remarked that there is a very close relationship between educational policies and national image. Prior to the 1980s, before the major split in Sino-Formosan relations, Taiwan had focused on pro-Chinese "morality, culture [and] national consciousness." However, the establishment of the pro-independence Democratic Progression Party and increasing pro-independence social agitation in the late 1980s forced a great degree of change in Taiwanese educational attitudes, which began progressively to move away from ties to China and toward Western practices.[9] The nine years of education required by the Ministry of Education for each Taiwanese child provides a great length of time in which to shape his or her beliefs. Therefore, the gradual liberalization of Taiwanese curriculum to include sex and gender education is highly revealing of general trends in Taiwanese society and legislature, evincing the information that is deemed "important to society" at any point in time.

Ties to Western ideology

More and more, such important information has come to be based on American and Western ideology as Taiwan becomes a part of the world economy. The Ministry of Education's website publishes a set of guidelines each year for its administrative goals, and recent guidelines prove extremely indicative of such a trend. One new goal for 2009 reads, "Launch gender equality education to ensure respect for life,"[10] while other objectives discuss international cooperation and licensing and the preparation of Taiwanese students to become competitive players on the international stage. Clearly, Taiwan is seeking to establish itself in the global arena, which must, if China is excluded for its field of vision, be established mainly in the West. This drive to Westernize its educational strategies is seen not only in reforms such as holistic college admissions processes (a recent change from a purely standardized-testing based system) but also in the introduction of more modern, radical sexual education policies.

REFORM

The introduction of the Gender Equality Education Act in 2004 not only serves as a good example of reform, but is reflective of the thesis of this paper – that there was a sudden change of social attitudes in Taiwan in the early 21st century due to Western influence. The law was the result of agitation that had begun as early as the 1980s by feminist groups, but was not drawn up as formal legislation until 2000, and is most commonly associated with the women's rights movements: not only for provisions that protect women against

sexual assault and harassment, but also legislate gender equity training in schools that must include sex education.[11] It was formally passed in the Legislative Yuan in 2004, only after careful study of Western social structures by the Taiwan Gender Equity Education Association, which had been founded in 2002 for the specific purpose of developing such gender equity programming.[12] The TGEEA took several trips to study Western countries that included Sweden and Canada and participated in an international conference on women's rights before drafting a national set of sexual education teaching materials for Taiwanese teachers to use in schools. Thus, the influence and impact of Western countries on Taiwanese sexual health education policies is evident.

Referencing American Programs

In fact, American social programs are among those specifically referenced as model systems by the Ministry of Education. In 2005, a press conference held by the Legislative Yuan on sex education policies in Taiwan argued for policy reform, the Ministry used the American experience as one of its major argumentative points. Legislative leaders specifically "refer[red] to the United States' experience" and the US government's estab- lished allocation of more than $50 million a year to usher in a new type of sexual health education that would encourage "responsible and cautious attitudes towards relationship and sex."[13] The motion sponsored by the press conference was passed. Even when opposition to sexual education programs is the issue at hand, American and Western legislation is often brought into the argument: Li-hua Pan, the vice president of the Millennium Cultural and Educational Foundation, in denouncing a certain explicit illustration suggested for use in national sexual education programs, stated, "It doesn't fit in, in our country"[14] – thus using the West as a canonical figure in sexual education policies which can be used as a backboard for all new ideas. The very nature of Pan's argument makes clear that, in legislative debate, Western, and in particular, American, public health programs are considered respect- able in Taiwan, and may be used as an authoritative reference point. By divorcing itself from China and seeking political guidance from the West, Taiwan has allowed its policies to gradually become more and more liberal, leading to recent reforms in sexual education and gender equity.

OTHER INFLUENCING FACTORS

But Western legislation and policy are not the only factors that have influenced Taiwanese public health policy. Who brought in these foreign influences to begin with, and what has caused them to have such an enormous and lasting impact? This has been the role of the media, and of immigration – the other two factors in the shift of Taiwanese sexual health education and gender equity health policies. As globalization has progressed and the transmission of information steadily continues to increase in speed and volume, more American ideas have been allowed to enter Taiwanese society, contributing largely to this liberal shift.

Role of the Media

In an article published in mainland China, Xiaoji Zhang, who founded a sexual education center in Beijing, spoke of American media as being the major influence on adolescents' ideas about sex. Not only the "sex scandal of Clinton splashed across newspaper headlines," but also American television shows such as *Friends* and *Sex and the City*, have become the new "primers on relationships and sex," according to Zhang.

"94% of adolescents learn about sex solely through various forms of media including television, the internet and books"

One of the surveys run by Zhang's center evinced the fact that 94% of adolescents learn about sex solely through various forms of media, including television, the internet and books, and not from school sexual education programs or parental discussion.[15] Statistics in China cannot be exactly extrapolated to fit the society of Taiwan, but the fact that China, with its infamous firewalls and notoriously tight censorship, is experiencing a notable degree of Western media's influence on its youth, is extremely significant, and has implications on the amount that is reaching other Asian countries.

Indeed, Western media has been seen as having a discernible and perhaps worrying effect on Taiwanese adolescents. Its all-pervasive power and increasing liberalization have effectively come to play a powerful role in shaping Taiwanese societal attitudes and needs, emphasizing the urgent and crucial lack of gender equity and sexual education. In 2007, it was reported that 15% of elementary school students had watched pornography (a thoroughly Western type of media), compared to 39% by high school and 79% by college;[14] the very fact that such a study was deemed necessary is revealing of the increasing concern felt by Taiwanese culture on liberal media impact. Additionally, the Garden of Hope foundation set up in Taiwan to provide help and information to pregnant teenagers reported that more "teenagers were turning to the [foundation's telephone] hotline or the web"[16] as a source of information, instead of to their parents, as such resources became more widely available, evincing the sway and availability of informational resources in the 21st century.

Utilizing the Media

Media has proven to be so all-encompassing that sex educators have attempted to utilize it in their favor rather than to try to work against it. In a TGEEA press conference held in 2005, advocates called for teachers to "turn gender news into teachings materials and [thus] provide better sex education."One of its studies found that, in every single week of the year prior, at least one news story was relevant to sex education, providing evidence of the omnipresence of sexual health issues in Taiwanese society.[17]

Legal Changes Influence the System

But while media has always been credited as having great

social impact, the lifting of Taiwanese martial law in 1987 and concomitant leniency in allowance of Western influences, as well as the introduction of the internet in the 1990s, has done much to aid the introduction of foreign media in Taiwan. Song-jing Gau, director of one of the new sexual health education curricula developed by the Ministry of Education, described sexuality as "more complicated than 'monkey see, monkey do,' as children already know a lot about sex through media."[14] With this foreign media, as in China, has come early sexual precociousness, probably much earlier than that seen in any previous generations, and therefore an urgent need to adjust sexual education programs and gender equity politics in order to address this younger "coming of age." Clearly media impact, especially that coming from America and the West, has had a powerful influence on Taiwan, opening society up to more liberal ideas and options for reform.

Perhaps one reason the media is so pervasive and seems to send such a radical message is that it is no longer targeted directly at a conservative, wholly-Asian population, but rather at a highly migratory, mutable and changing population of immigrants, aliens and American-born Taiwanese. This audience is used to a much more liberal media message, which in turn has begun to influence the traditional Taiwanese population as well.

"in every single week of the year prior, at least one news story was relevant to sex education, providing evidence of the omnipresence of sexual health"

THE ROLE OF IMMIGRATION

From where does this new foreign audience come? Taiwan's president, Ying-jeou Ma, has written of the recent great wave of immigration that began in the 1980s, when Taiwan allowed foreign immigrants, spouses and workers to its shores, seeking to redefine itself independently after existing in China's shadow during the Cold War.[18] This immigration has had a clear and present impact on educational and public health policies, because it affords the Taiwanese a vast new horizon of ideas and options. No longer are the Taiwanese restricted to traditional, conservative ideals; instead, they are surrounded by foreigners who have brought with them the ideology of the West. One example of the burgeoning American population in Taiwan is evident through analysis of student enrollment at Taipei American School, which was instituted as a school for American diplomats and employees in Taiwan. According to the school's website, in the 1980s, which "witnessed Taiwan's birth as a dynamic democracy full of economic opportunities," enrollment has steadily increased, from less than 1,000, to 2,215 students as of the 2008-2009 school year.[19] This increase is surely commensurate with the influx of foreign and American nationals who have moved to Taiwan to take advantage of career and diplomatic opportunities, and have brought foreign and American liberalism with them. This international effect is also reflected in recent guidelines of the Ministry of Education, which specifically mention the preparation of students for international competition, foreign exchange and global participation[10] – all of which involve the education of students in a curricula with an international (and therefore Western) focus.

The impact of immigration has been felt in other areas relating to public health – the high percentage of foreign immigrant spouses that has moved to Taiwan since the 1980s caused the Immigration Act to be "revised [in 2007] in response to concerns about domestic violence," protecting female immigrants' rights to stay in Taiwan in cases of domestic abuse. Female immigrant spouses are thus more enabled to protect themselves when in the past they had to suffer in silence or fear deportation. The increased ease and availability of applying for immigration visas has also presented many women with the option of leaving Taiwan for America, as noted by Gina Lee, the director of the Office of Social Work for Modern Women's Foundation. Lee said that it is widely known that America is the land where women's rights movements originated, and is seen as a country where "people show women more respect."[20] The option of emigration has thus given Taiwanese women greater options and freedom for their sexual health, forcing Taiwanese society in general to pay closer attention to its shortcomings in gender equity and turn an eye toward reform.

CONCLUSION

In consideration of all of these factors, the recent drastic changes in Taiwanese sexual health curriculum and gender equity laws, as part of wide-ranging public health policies to improve women's health, are perhaps not so inexplicable after all. The dramatic change in Taiwanese foreign policy and governmental structure that occurred in the 1980s pro- vided enough room for such liberal changes to begin to agi- tate. They were spurred by technological advances that both introduced vast amounts of liberal foreign media and waves of foreign immigrants looking for work to the island, which, in the early 21st century, were finally solidified in legislation by the Gender Equity Education Act. From this act, which proposed mandatory sex education, has come the opportu- nity to create massive social change in Taiwan, reform sexual education, and provide ever-increasing gender equity to the Taiwanese. A complex mixture of political and social factors which included a split from China, but also, as has been the focus of this paper, an increasing reliance on Western and American public health policies and strategies, has enabled and catalyzed this change to take place. Without American and Western preexisting public health structures and policies, the Taiwanese system could not have reached its current state of greater liberalization. Therefore, the impacts of American and Western public health infrastructure, media, and immi- gration have played a large role in helping Taiwan to establish its own new system of the 21st century. The growing interconnectivity of the world

has forced Taiwan to finally address an old issue, and to rely on preexisting Western policies to overcome and solve these questions of sexual education and gender equity reform. In the larger scheme of global public health, although they have not been discussed here, the strat- egies that Taiwan has used to implement liberal sexual issue reform can be studied and utilized to improve cultural sensi- tivity and provide appropriate medical and public health care to Asian populations throughout the West. Thus, the cultural exchange will have come full circle.

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Tanning Should Be Illegal for Those Under 18

In February of this year, the American Academy of Pediatrics called for laws banning minors from using tanning beds. The patient Protection and Affordable Care Act of last year mandated that the use of tanning beds come with a 10% tax. This, however, does not seem to be enough to discourage the use by minors. The World Health Organization, the American Medical Association and the American Academy of Dermatology all take a strong stand against the use of tanning beds by minors. Tanning beds operate through the use of UVA rays, which affect the skin at deeper levels, thus preventing the skin from burning. While the skin might not burn as it would after sun exposure, the rays still alter DNA and have been linked to such deadly skin cancers as melanoma. While teenagers have been known to have melanoma, the incidence in people under 20 is relatively low. The nation's physicians are not necessarily suggesting that tanning is more dangerous for minors, but that minors are less capable of making a good decision about the use of tanning beds. Tanning salons sell time in packages, encouraging repeat use, and offer student discounts particularly around prom season. The salons also advertize the good effects of vitamin D, the absorption of which is facilitated by sunlight. There is little evidence to suggest that tanning is a good way to receive vitamin D, experts suggest supplements and small amounts of natural sunlight. The targeted advertisement to teenagers of this dangerous, yet socially acceptable ritual has many demanding an age-limit.

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Social Networking the New Source of Health Information

A recent survey by the National Research Corporation suggests that more patients are getting their health information from social networking sites such as Facebook and Twitter. In a survey of almost 23,000 people, 41% indicated using social networking as a source of health information. The average age of these users was 41 and they were more likely to live in households earning more than $75,000 a year.

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NewsBriefs are compiled by TuftScope staff.

Dieting Since The 1850s

Namratha Rao

Jacqueline Henson, 40, from Huddersfield, England, died due to an overdose of water in December 2008 when she started a meal replacement diet plan called LighterLife. The autopsy revealed that she died from brain swelling. The LighterLife diet plan aims to help people reduce their weight by restricting their consumption to 500 calories a day for 12 weeks.[1] Such an extreme regime might otherwise be indicative of a greater psychological problem, but LighterLife is sold as a product and billed as a diet. Ms. Henson's story prompts the question, "What does it truly mean to be on a diet?" Does it mean eliminating indulgences, increasing healthy foods or not eating at all? Dieting today is generally prompted by one of the two things : you want to lose weight, or you are suffering from a condition such as diabetes which requires you to be on a regulated diet. The Oxford Dictionary defines the diet as "prescribed course of food, restricted in kind or limited in quantity, esp. for medical or penal reasons; regimen."

Today, however, few diets seem to have only a medical rationale. With so many Americans dieting for non-medical reasons, it seems our concept of 'diet' has changed. This paper explores the history of dieting in today's world and its social, economic, and political implications. The weight loss industry makes use of the increasingly predominant desire to be 'skinny' and plays on the misconception that being skinny is being healthy. The issue of dieting is a multifaceted idea that inextricably links government control, business, ethics, and society with health.

Ironically today, both the rate of obesity and the rate of dieting are increasing. One of the strongest driving forces behind this contradictory trend is the billion dollar weight loss industry. People pay large sums of money for diet pills, remedies, and books, with the hope of losing weight permanently. This has not had much of an effect on the obesity rates of this country. Weight loss surgeries accounted for $3.5 billion in 2004 and the 'low-carb diet', eating fewer carbohydrates, became a long-term investment rather than a short-term fad.[2] We have also heard of regimens such as the Atkins diet, the South Beach diet and the Cabbage diet, among others.

Dieting is commonly thought to have evolved around the mid-nineteenth century, during the industrial revolution in America. Keith Waiden and T. J. Jackson Lears are strong proponents of the belief that industrialization, and not socio-economic conditions, helped spur the increase in dieting. Hillel Schwartz echoed these sentiments, suggesting that "each epoch has had different tolerances for weight and for fatness, since the 1880s, those tolerances have grown especially narrow."[3] Other historians offer interesting opinions on the need for diets. Vester argues that diets were introduced as a male-centric concept that related smaller waistlines to power and social privileges. Others such as Naomi Woolf contradict

"Personenwaage", courtesy of Frank C. Muller via WikiCommons

Vester, suggesting that dieting was an integral part of the concept of 'American feminity.'[4] Central to all of theories is the fact that diets have played an important part in society, especially in the lives of women, for several decades.

The increase in dieting can also be seen as the product of the increased need (perceived or otherwise) for women to focus on their body image. Being slim is not only favourable but is also considered to be healthier. It has been scientifically proven that being overweight or obese carries increased health risks, particularly related to cardiac conditions. This medical fact, along with the rise in obesity, has exacerbated the need to remain slim. Curiously enough, weight gain (i.e. the opposite of dieting) was favored until after World War I. However, by the 1920s 'fat' became associated with immigrants and the lower class, while being thin was associated with the white middle and upper class. The anxiety around body image and weight loss began in the 1920s and has remained strong until today.[5]

Apart from the medical awareness of the risks of obesity, the media has helped greatly to perpetuate the 'skinny' image. Celebrities, male and female, rely on their 'hot' skinny bodies to promote their image. While excess fat is proven to be unhealthy, moderate to low amounts of it are not at all harmful. But the prevalent belief relates being thin to being attractive, not to being healthy. A survey conducted by the Nutrisystem Diet Index revealed that 66% of Americans believed they need to lose weight, with the average desired weight loss equaling 23 pounds. Additionally, the survey also revealed that close to 33% of Americans surveyed felt conscious of their body, especially in the height of the swim season where body shape is more visible. [6]

The main stakeholder benefiting from the skinny trend is the weight loss industry itself. While the weight loss industry

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is a billion dollar industry today, it did not even exist 80 years ago. This industry has grown tremendously through the marketing of diverse products including lotions, pills, CDs, diet plans, diet counsellors, and pervading American minds through advertisements placed on television, radio, newspapers and the internet. An estimate of $33 billion to $55 billion is spent annually on such products, and 6-12% of this is spent by weight loss centres.[7]

The clientele of this industry are mainly young adults and the working population. This population has little time to structure their own health routine, and have a relatively larger disposable income, making them the ideal consumers for convenient fitness regimes. The weight loss industry in the US has yet to tap into the aging population. America faces the issue of a large aging population,(the population 65 years old or older)which is increasing more rapidly than the number of people below 18. This population shift is found in many developed countries due to low birth rates and high average life expectancy. The aging population of the US is 12.5%, (1 in every 8 Americans) and this provides massive scope for growth for the weight loss industry.[8] Currently, only 20% of America's health club members are over 55, yet that is a 320% increase within the last 20 years.[9] The industry has employed only a fraction of the aging population, and its popularity, health and fitness will go a long way with those over 65 years of age.

The social influences of obesity and body image have helped the weight loss industry gain tremendous momentum. The government too has been sufficiently alarmed by the obesity epidemic, and has intervened in consumer's food choices for years. Evidence of this is seen in the form of government interventions. For example, in 1941, the Food and Nutrition Board of the US Academy of Sciences released Recommended Dietary Allowances (RDAs) and Daily Values (DVs) that recommended food and portion choices to the American public. In the 1990s, the US government encouraged the consumption of low-fat and no-fat food products. Annemarie Jutel, in her article 'Does Size Really Matter', argues that the US National Institutes of Health places greater importance on weight management than on health management.[10] Jutel also suggests that the government report encourages the 'medical gaze' of the physician on the patient to revolve around physical examinations of measurement such as height and weight, rather than a more comprehensive history of the patient's lifestyle.

Despite the US government's interference with the food and medical industries, it has failed to interfere appropriately in the weight loss industry. Begley, at the University of Texas Health Science Center, makes the case that the "weight loss industry is developed on the basis of the concepts of market failure and potential harm to consumers." Begley asserts that the industry takes advantage of the inadequate knowledge of the consumers on issues of weight loss and health, and consequently, cannot judge the quality of products and services employed. Begley calls for more restrictions on this industry because it can cause irreparable damage to the consumers, as seen in Jacqueline Henson's case.[11]

Despite the high demand for weight loss in the US, there has been little criticism of it. In Jacqueline Henson's case, a verdict of it being an 'accidental case' was recorded and LighterLife was not acquitted on any grounds. In fact, the coroner suggested that LighterLife had given precise directions of how much water to drink but Henson failed to follow the guidelines correctly.[12] This case inevitably raises several questions of how medically sound such acclaimed diet plans are, and of the potential health risks. In addition, it also raises the question of how much risk one is willing to take in order to achieve the perfect body, which is very much desired in today's society.

"the industry takes advantage of the inadequate knowledge of the consumers on issues of weigth loss and health"

While dieting is increasingly visible, few experts such as Jutel and Begley, seem to emphasize the fact that dieting is a large part of American culture today. With modest beginnings in the 1920s, the prevalence of dieting has resulted in a widespread discourse on food, health, and the weight loss industry. However, this trend of dieting has created several implications. The weight loss industry exerts a great influence in the health and well-being of their consumers. With dieting and food control embedded in society, its repercussions need to be evaluated carefully, and body image and health, and the relationship between the two, need to be revisited.

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Right This Way, Mr. Smith. Your New Kidneys Are Ready.

David Gennert

We have all seen the image of the naked lab rat with a human ear growing out of its back at some point in our lives. The Vacanti mouse is iconic and intriguing, sure, but what relevant breakthroughs has this peculiarity led to in recent years?

The field of tissue engineering–the creation of biological tissues outside their normal environments–has seen tremendous advancements lately. Laboratories across the world are investigating the possibilities that lab-grown tissues can offer, both in research for a better understanding of how organs function and in developing treatments for debilitating diseases that wreak havoc on individual organs.

As one of the many such breakthroughs recently, June 2010 saw a team from Harvard Medical School and Children's Hospital Boston publish their results on the development of a system that mimics lung tissue on a one-inch microchip. Their "lung-on-a-chip" model uses cultured human lung cells and capillary tissue on an engineered matrix to recreate human lung tissues with near identical properties, such as chemical permeability and the activation of an immune response in the chip's blood vessels.[1]

The Harvard researchers responsible received a $3.3 million grant in October to develop this system to test drugs that target lung tissue. The hope for this system, and many others in development, is to facilitate the creation of new pharmaceuticals. The organ-on-a-chip opens the door to a method of testing drugs in a way that eliminates the need for animal testing while providing a system that uses real human cells. As Harvard researcher Kevin Parker said, "With this kind of tool, we can do all sorts of toxicity studies on new drugs and move to a… [new] model about how the lung and the heart work together."[2]

What if, though, a patient appears with a condition that has damaged an organ beyond what any amount of drugs can repair? An estimated 20 Americans die every day while waiting for an organ transplant, and this is something researchers in tissue engineering hope to address with the advent of lab-grown organs.[3]

The waiting list for transplantable organs has many downsides–waiting for years for a decent match, receiving "new" organ that has been used for years already, and the deadly risk of organ rejection. Tissue engineers are trying to address all these problems with organs made from the patient's own cells. From the start, an organ created from a patient's own cells will have the molecular signature recognized by the patient's immune system as native tissue, eliminating the chance of rejection. Also, accumulated damage to a donor's organs from years of use will no longer pose a problem, since the implantable tissue will be new and never exposed to damaging factors.

"Tissue engineering is paving the way to patient-specific implantable tissues grown outside the human body."

Doris Taylor of the University of Minnesota describes the future of the clinical implementation of such a breakthrough as becoming another commercial pharmaceutical product. She imagines "manufacturing facilities" that produce organs en masse, customized for specific patients.[3]

The method of creating functional organs outside the body is a very complicated one that only recent research has shown to be a viable, productive process. One challenge facing researchers in the field is the need to create an extracellular matrix where tissue can grow. The human body is not only made of cells, but rather, a large portion of the body is a matrix of proteins whose main function is to connect, anchor, and support every cell in the body. In order to grow functional tissue in vitro, a matrix must be created to mold the growing tissue into the proper structures and cell types.

Joseph Vacanti (the same researcher who developed the "earmouse") of Massachusetts General Hospital and Robert Langser, of the Massachusetts Institute of Technology, have spent a great deal of their research developing artificial extracellular matrix, called a scaffold because it functions as a base on which tissue can be grown. Langser has developed a material called biorubber scaffold that is able to mimic extracellular matrix very efficiently. It is strong, inexpensive, and it also has the ability to be reabsorbed into the body once its function is complete, making it an ideal material to be used as tissue engineering scaffold.[3]

Tissue engineers can take this type of artificial scaffold and "seed" the matrix with a patient's own cells. Within days, all the surfaces of the matrix will be coated in cells specific to the type of matrix and growth conditions, giving the tissue engineers the ability to grow tissues in any shape of virtually

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any tissue type that is ready to be implanted into a patient.

Already, this sort of tissue replacement procedure has been carried out with human patients, and the potential of this method is only recently becoming realized. Claudia Castillo is a resident of Barcelona, Spain, who was one of the pioneering patients in this field of medical research.

In early 2008, a case of tuberculosis devastated her windpipe. It was damaged beyond repair, and doctors knew she needed a transplant. It was then decided that she would be one of the first patients to receive a transplanted organ composed of her own cells. The medical team that treated Ms. Castillo removed the trachea from a cadaver and washed all the donor's cells away. This left the natural extracellular scaffold without cells that could then be reseeded with Ms. Castillo's own cells. Four days after doctors seeded the trachea scaffold with cells taken from her own body, the new trachea was transplanted into Ms. Castillo. Incredibly, after only four days of recovery, she was able to return home. Since the implant was composed of her own cells, there was virtually no danger of autoimmune rejection, something that most transplant recipients must treat with lifelong dependence on immunosuppressant drugs.[3]

This one case highlights an interesting development in the construction of transplantable tissues. Artificial scaffolds take time and resources to create, yet this case shows that the scaffold from a living being can be stripped down and reseeded with another person's cells. Harold Ott, currently at Massachusetts General Hospital, has been leading the field in the creation of cell-free scaffolds derived from organs that have been removed from other individuals.[3]

After much research and trial and error experimenting, Ott came across a chemical solution that was able to dissolve all the cells in an organ while leaving the scaffold perfectly preserved. Stripping away the cells leaves a translucent, white scaffold in the exact shape of the organ, down to tiny channels where blood vessels permeate the tissues. Using a rat heart, Ott was able to strip off all cells of the organ and reseed the scaffold with cells from another rat. Only eight days after reseeding, the heart was visibly beating spontaneously, proving that tissues can be regrown on natural scaffold from a different individual than the donor of the seed cells. Ott has also recreated viable rat lungs using the same technique, and says researchers can now "build literally any organ."[3]

Doris Taylor, now similarly working on the development and implementation of natural scaffolds, explains that the scaffolds do not even need to be from humans in order to create transplantable tissues. Holding the cell-free scaffold of a pig kidney, which is of remarkably similar size and complexity as a human kidney, she says "we can cover this with human cells, and, in theory, build you a kidney."[3]

The complexity and specificity of these therapeutic systems inevitably lead to the question of who will receive access to these revolutionary therapies? A failing set of kidneys may be treated quickly with very high efficacy, but what will the cost be of these patient-specific treatments? When the technology makes lab-grown tissues a commercially viable medical treatment, steps will have to be taken to ensure a fair process that grants access of such a life-saving procedure to those who need it. One can easily imagine a situation when only wealthy individuals can afford to donate cells to a manufacturer who then keeps a stock of various organs on hand for the individual in case of need later in life. These issues may have to be resolved quickly, too, since Taylor speculates, "We're not decades away from building something complicated. We're more like years away."[3]

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Vitamin D: Friend or Foe?

The Institute of Medicine recently held a panel that found that vitamin D supplements were unnecessary for most Americans. This new finding conflicts with what physicians and scientist have been saying for years- that those who consume more vitamin D have better health outcomes. One of the reasons for this current disagreement lies in the types of trials used. Nutritionist and scientist who helped set this standard based their findings on randomized clinical trials. The panel, however, gave priority to clinical studies. The panel, like many physicians, suggest that randomized clinical trials take place in real-world environments, where it is impossible to control for important factors, such as how much vitamin D the placebo group actually receives. So should you continue taking your vitamin D supplements? We may have to wait for the Endocrine Society's official report to learn the answer to this one.

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Low-Cost Medicine and Current Practices

Dr. Sean Palfrey dares physicians to practice "low-cost medicine in a high-tech era". He suggests that too many high-tech solutions eclipse doctor's hard earned clinical skills while simultaneously bankrupting the system. Dr. Palfrey calls for more comparative-effectiveness research, cost-benefit analyses and long-term benefit analyses. He also suggests that new standard-of-practice guidelines need to be implemented which encourage and allow physicians to practice low-cost medicine, and incentivize them to teach low-cost medicine to students. The question of course remains, will patients be open to low-cost medicine or we will continue to think more testing equals better medicine?

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Still No Standards for Diagnostic Tools Using Radiation

According to records, CAT scan patients at the Cabell Huntington Hospital in West Virginia were still overexposed to radiation almost a year after similar incidents caused other hospitals nation wide to adjust or reevaluate their CAT scan protocols. Though the hospital administration refused to comment on how many individuals were over exposed, those that were exposed often suffered effects such as hair loss, nausea, and weakness. Investigators determined that the overdose was likely due to a technician who turned up the power of the machine to generate a clearer picture, and not due to an equipment failure. Nevertheless, this incident reinforces the need to pass new legislation regarding the maximum power of such potentially dangerous machines.

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