Understanding "Contagious Health" in Kentucky, Kenya, and Jordan:

A Case Study of Microclinic International (MCI)

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BACKGROUND: MICROCLINIC INTERNATIONAL

MCI's Inception and Founding Principles

Founder Daniel Zoughbie explains the impetus for the founding of Microclinic International.

> My diabetic grandmother died trying to get from Bethlehem to the hospital; there were no ambulances, and she had developed fatal complications due to poor diabetic education, restrictions on movement, and the stressful political situation. Diabetes is one of the leading contributors to disability and death in Palestine. I am intent on doing something about this (UC Berkeley, 2005).

Thus, in 2005, Zoughbie created MCI in order to meet a market need to revolutionize how deadly diseases are prevented and managed worldwide. If negative behaviors such as smoking, unsafe sex, and overeating can be contagious, then so can positive, healthy behaviors (Lipman Family Prize, 2013). This is what MCI calls "contagious health." At the core of their transferable business model is the emphasis on passing healthy behaviors from person to person. The initial MCI pilot was conducted in the Middle East, and upon its success, MCI expanded to Africa, South Asia, and North America (MCI, 2013).

Global Health Today

In today's interconnected world, global health is paramount. According to the U.S. Institute of Medicine (2009), global health specifically deals with "improving health for all people in all nations by promoting wellness and eliminating avoidable diseases, disabilities, and deaths." Invariably, global health initiatives focus on larger population health as opposed to specific individual based health. In recent years, global health has been a key player on the international development world stage. In 2000, the United Nations drafted eight Millennium Development Goals (MDG) in order to reduce extreme poverty, hunger, and disease. Three MDGs were explicitly related to improving health across the globe: reducing child mortality by two thirds, reducing maternal mortality by three quarters, and combating HIV/AIDS, Malaria and other diseases (United Nations, 2013).

The global burden of disease and leading cause of death differs from country to country, and is influenced by a number of contrasting social, economic, political, geographic, genetic and cultural factors. Contrary to widely held beliefs, chronic disease is not simply limited to the world's developed countries. Developing nations suffer their share of high levels of public health problems caused by chronic disease. According to the World Health Organization (WHO, 2013), "in five out of the six regions of WHO, deaths caused by chronic diseases dominate the mortality statistics." Additionally, while HIV/AIDS, malaria, tuberculosis, and other infectious disease will continue to dominate in sub-Saharan Africa, the WHO estimates that "79% of all deaths worldwide that are attributable to chronic diseases are already occurring in developing countries," (World Health Organization, 2013).[2]

[2] Please see Appendix C for more information on the state of chronic disease in global health.

Contagious Behavior: Social Networking

In recent years, research exploring the link between social networks and health has been prevalent. In the 1970s, Cassel, Cobb, Berkman, and Syme set the precedent for studying how social groupings affected mortality rates (Smith et al, 2008). More recently, Christakis and Fowler (2007) indicated that social networks heavily influence people's emotions, relationships, wellbeing, politics, and health. Their revolutionary social paradigm laid much of the groundwork for understanding individual health behavior within the context of a group or community. Social networks, like the ones on which MCI relies, have been shown to affect health in five manners: through social support (in actual and perceived modes), social involvement, person-to-person contagion, access to resources (information, financial), and social influence. MCI employs the idea that social relationships are part and parcel of the accruing of social capital that can be leveraged for productive means that are health related, just as financial resources or political power could be.

Contagious Health: The MC Model

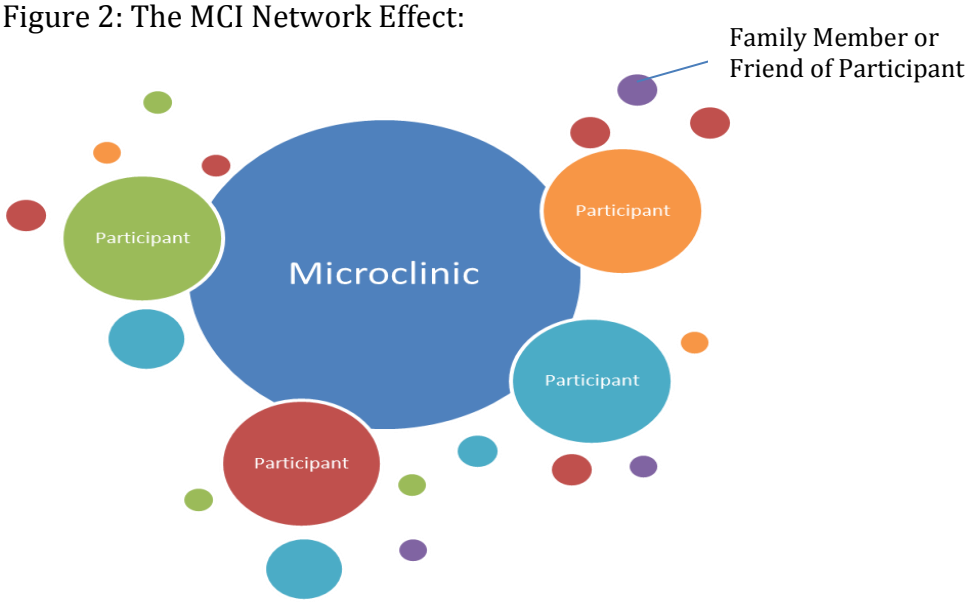
To the casual observer, the state of global healthcare might seem particularly bleak, especially considering that diabetes, high blood pressure, heart disease, and other dietary and activity-based illnesses have reached epidemic proportions in Africa and the Middle East, as well as in the United States (International Diabetes Federation, 2012). However, MCI exemplifies the essence of entrepreneurial thinking within the public health milieu, turning this potentially bleak moment into an opportunity.

Figure 1: The MC Model

In essence, poor health behaviors such as smoking, over-eating, and illicit drug and alcohol use demonstrate "contagion" effects, meaning that they get "caught" from one person to another within social networks, as the behaviors become acceptable, reinforced, or introduced (National Research Council, 2004). Additionally, research indicates that non-holistic changes to public health epidemics are not financially or socially sustainable, due to several factors such as cost of medicines and medical care (WHO, 2004). However, if poor health behaviors can be "caught," then so can good behaviors. Thus, the MC model leverages social networks to educate populations and spread healthy behaviors. The Microclinic model understands that social networking and positive health are "contagious" and seeks to leverage networks to promote positive health habits (Thorpe, 2012).

At the core of the MC model are Microclinics, the human network of people who work collaboratively to prevent and manage disease in their community. MCI has established over 4,500 Microclinics across Jordan, Kenya, and the US. Currently, MCI serves over 1,000 direct beneficiaries each year and reaches over 1.5 million indirect beneficiaries through the many relationships, connections, and networks that already exist in program communities. For example, in Jordan, MCI and its partner organizations launched a public media campaign that reached well over one million people. In Kenya, MCI staff helped establish a local radio station that gained over 30,000 listeners.

Figure 2: The MCI Network Effect:



Additionally, MCI is committed to rigorously evaluating their projects to enhance their effectiveness and disseminate their findings to other organizations that work to combat chronic disease in under-resourced areas around the world. To ensure this, MCI demonstrates the effectiveness of its model using sophisticated cohort studies and randomized controlled trials (RCT) in partnership with universities such as the Harvard School of Public Health and UCSF. These RCTs highlighted statistically significant improvements in participant health indicators across various chronic diseases. For example, in Jordan and Kentucky, MCI tracked participant improvements through quantitative measurements including weight, Body Mass Index (BMI), and hemoglobin

screening, as well as qualitative indicators related to diabetes, heart disease, and obesity. In Kenya, MCI successfully launched a groundbreaking Microclinic pilot program for HIV/AIDS in collaboration with local partner, Organic Health Response. The ongoing Kenyan study tracks participant progress through indicators such as medication adherence, CD4 count, opportunistic infections, and body mass index.[3] Without a doubt, MCI is committed to determining the success of their model before expanding to new regions. For more information, please refer to Appendix D for a depiction of MCI's strategy.

MC's innovative model has been described as a truly revolutionary concept by leaders, such as A.W. Clausen, former President of The World Bank and Chief Executive Officer of Bank of America (MCI, 2013). In a recently released book detailing how to "do good" well, Daniel Zoughbie and Leila Makarechi, COO of MCI, contributed a chapter on community ownership that was dedicated to Mr. Clausen (Vasan & Przybylo, 2013).[4]

TRANSFERABILITY

Though MCI operates in a myriad of different communities and socio-cultural contexts, the model is truly innovative in that it has been successful across multiple contexts. By engaging with local community members to understand needs, conducting meaningful research to establish a working knowledge of the issues at hand, and being cognizant of cultural relativity by collaborating with government, private, and public sector organizations, MCI has implemented impactful and successful programs across Kenya, Jordan, and the US.[5]

MCI in Kenya[6]

One day, a sickly ten-year-old boy visited the MCI- supported community center in Kenya with one of his older siblings. The staff determined that he suffered from tropical ulcers, and to err on the side of caution, referred him to a nearby hospital where he was tested for HIV. Unfortunately, they determined that the boy was HIV+. Utilizing their Microclinics, the staff was able to follow-up with the boy's family and learned that the mother knew that she was HIV+, but had not sought treatment or tested her children due to the perceived stigma. She was a single mother living with her late husband's family, and she was afraid that her in-laws would react negatively to the news. The mother was also found to be pregnant by a new husband. By getting reengaged in HIV care through the program she was able to prevent the transmission of HIV to her baby. She now has a healthy 12-year old boy, and a healthy 14-month old baby. Local staff worked with this woman and her family to reduce her anxiety, and ultimately, helped her form her own Microclinic with her

[3] Cluster of Differentiation, which measures an HIV-infected person's positive T cells in the blood in order to analyze his or her status. See http://www.thefreedictionary.com/CD4+count.
[4] Daniel Zoughbie is the Founder, CEO, and President of MCI. Leila Makarechi is the COO and Senior Executive VP of Program Management.
[5] Please refer to Appendix E for a visual depiction of the work MCI is doing across geographic contexts.
[6] Chas Salmen, Interview, 2013.

relatives. The microclinic model allowed this mother to confront the stigma by facilitating the conversation, which encouraged her to adhere to her medicine regime and improve the health of her children.

How the Microclinic (MC) Model Works

In Kenya, MCI piloted Microclinics to address HIV in regions where the disease is highly endemic, particularly on a remote island in Lake Victoria in Western Kenya. HIV is an infectious disease requiring long-term management, meaning that it affects not only the person infected, but also that individual's social network. The far reaching and chronic nature of HIV makes it a good fit for the MC model. Additionally, 30% of the population is HIV+ in the areas where MCI works, meaning that the disease affects the entire community. The Microclinics in Kenya aim to not only address HIV treatment and prevention, but also the socioeconomic, structural, and environmental issues that contribute to the HIV problem. By facilitating a conversation with local community members to disclose and discuss their illness, MCI increases the likelihood that they will seek and adhere to treatment.

Typically, 5-15 people form a microclinic in Kenya, and all of them are trained together to help the individuals manage their disease over time. Training includes both nutritional and psychosocial components, and engenders involvement from HIV+ and non-HIV+ individuals. Patients have the option to invite others into their microclinic, and MCI works diligently to tap into social groups that already exist, such as church groups, women's organizations, and sports teams. In bringing together existing groups under a singular umbrella, MCI creates a social structure that can also be leveraged by other organizations.

Resources

The main resources required for MCI to function are individuals and their unique social networks. Partnerships are also critical in order to provide medical care and assist MCI in implementing its work. Key partners in Kenya include Organic Health Response and UCSF's Family AIDS Care and Education Services (FACES).

Metrics and Successes

Local microclinic staff enrolled 373 out of 402 patients enrolled in anti-retroviral care at a remote health center into a 18-month cohort study. 354 of these individuals provided hair samples for analysis of medication adherence at baseline, 6-month, and 18-month follow-up. Following baseline collection, the microclinic program was implemented within 6 participating villages, enrolling over 70% of all patients on anti-retrovirals within the catchment area. Hair specimen analysis is being conducted by partnering investigators at UCSF to understand how the program impacts adherence over time.

It is important to note that while proving adherence to HIV medication is an important indicator, MCI is hoping to promote a larger change—one where programs in the region are integrated to increase overall quality of life. For example, they want to build systems that allow community health workers to not only tackle specific diseases like HIV through social networks, but that can also be used to promote agricultural trainings, microfinance opportunities, and widespread communication.

Looking Forward

As MCI looks towards the future, they hope to expand and enrich their program in Kenya. They aspire to create strong care from top to bottom, with a focus on community health workers. Ultimately, they plan to scale up to the national level with a focus on HIV, and then leverage existing clinics for other interventions. Given that future vision, MCI seeks to ensure that initiatives are conceptualized thoughtfully, allowing them to build a strong and successful program in Kenya.

MCI in Jordan

The success of MCI in Jordan amidst its ever-changing and tumultuous socio-political and economic context reflects the strength of the MC model and its transferability. Jordan continues to confront challenges to its economy and health care system, a situation exacerbated by the influx of Iraqi and Syrian refugees. These turbulent conditions are factors in the poverty, unemployment, and health epidemics such as diabetes that prevail in the country. Jordan is widely considered to be an influential Middle Eastern country, thus rendering it a strong model that demonstrates MCI's work to make long-lasting and positive changes to health outcomes in the region.

How the MC Model Works

Despite these challenges, the MCI approach has achieved great success in the country. The success of the MCI pilot in the West Bank led Daniel Zoughbie to a "spread the word" strategy that included numerous presentations, conferences, and introductions by his then-current partners and stakeholders to potential new partners and stakeholders. Concurrently, Daniel met a former British Ambassador to Jordan, who immediately became passionate about MCI and worked diligently to introduce Daniel and the MC model to government officials and prominent medical practitioners.

Daniel describes the key components required for the program to flourish in Jordan as follows: "Identify the big problem that needs to be addressed; then identify that you have strong, capable partners to run the program."[7] Thus, by having capable partners fulfill the visible leadership role in the MC model, Daniel and other team members can work "behind the scenes" to train staff who are knowledgeable in their understanding of the MC model and are able to manage the local project.

In Jordan, the Senior Program Manager is Amal Ireifij. Amal works to recruit participants to the program and to keep them active and focused on achieving their health goals within each Microclinic. According to Amal, "the Jordan program adopts the MCI concept to help the Jordanian community better manage their diabetes, lead a healthier lifestyle, and save the Jordanian Government millions that are spent on diabetes complications."[8] Amal works to educate participants by conducting walk-throughs of local markets and fostering discussions about how to save money in practical ways, such as purchasing whole fruits and vegetables over pre-cut ones. Most importantly, she works to ensure that participants understand that there are ways to eat healthy, even when participants are poor. Amal

[7] Daniel Zoughbie, Interview, March 2013.
[8] Amal Ireifij, Written interview, April 2013.

shared the following story as an example of what keeps her excited and motivated in her work:

> One participant was able to reduce 20 KG of his body weight and stopped all his medications by following MCI's program. He was also able to reduce his FBG[9] from 198 to 92. He attended with his mom and both enjoyed doing activities together and spreading their knowledge to people they know.[10]

Resources

Jordan's Health Ministry has been a key partner to MCI by providing primary healthcare center space, nurses, and medical tests. One of MCI's ultimate goals is to integrate their efforts with policy changes to sustain the program long-term. In moving forward, MCI is effectively building partnerships with multiple health centers across the country to reach more people, raising their awareness and ultimately impacting positive changes to the overall health and lifestyle of Jordanians.[11]

Metrics and Successes

In Jordan, MCI evaluated participants in a four-month program designed to help people manage diabetes. Significant improvements were realized during this period, which were reflected in weight loss and reductions in Body Mass Index BMIs (Lipman Family Prize, 2012). Amal expounds upon the program's success in Jordan by highlighting anecdotal evidence: "One of the participants was shopping in one of the big malls, and at the cash register a person fainted, so she rushed and asked his relative to give him sugar and water as he had signs of hypoglycemia, and [she] saved his life. [Because of her participation in the MCI program] she was able to diagnose the case and react accordingly."[12]

The real passion and dedication of MCI program staff is a strong and common thread. Amal sums it up perfectly: "I truly believe that the dedication of MCI team is the key characteristic that contributes to success of the program, as well as the idea of employing social networks to support and encourage participants."[13]

Looking Forward

Amal envisions a Jordan where, "the big dream is a healthy lifestyle for all of Jordan."[14] In moving forward, MCI hopes to expand their presence from nine health centers to eventually all comprehensive primary care centers across the country (MCI, 2013). MCI's strong partnerships with the Royal Health Awareness Society, the Jordanian Ministry of Health, and the World Diabetes Foundation provide strong evidence that this expansion will be successfully realized. Like other MCI projects, the continued success of efforts in Jordan depends on participants "spreading the word" and influencing their friends and family to make healthier choices, thus promoting contagious health. The fact that the

[9] Fasting Blood Glucose.
[10] Amal Ireifij, Written Interview, April 2013.
[11] Amal Ireifij, Written Interview, April 2013.
[12] Amal Ireifij, Written Interview, April 2013.
[13] Amal Ireifij, Written Interview, April 2013.
[14] Amal Ireifij, Written Interview, April 2013.

program is conceptualized as "fun" is an important part of this message, as is the anecdotal evidence that indicates how community members are managing their health conditions through MCI.[15]

MCI in Kentucky [16]

The 'contagious health' bug has landed in Bell County, Kentucky and its positive effects are spreading across the community. Here, MCI's efforts have a positive impact on not only program participants, but also on their peers. Imagine losing 40-50 pounds because your neighbor's portion control and walking routine influenced your lifestyle. This healthy-by-association effect is exactly what occurred after Mrs. Baker successfully completed the Microclinic program in Bell County. Her neighbor, an introverted elderly lady, began to engage with Mrs. Baker, curious about her new walking routine. The two ladies began to go on brisk walks together. In addition to her walking regimen, Mrs. Baker also shared with her neighbor the healthy eating lessons and recipes she learned through the program. Although not everyone in a community chooses to participate in the MC program, it is likely that the network effect will inevitably prevail as people are impacted through indirect association.

Figure 3: Health Screening in the field

How the MC Model Works

In June 2011, MCI replicated their international model by tackling obesity, heart disease, and diabetes in their domestic market in Bell County, Kentucky. Using a partnership approach, MCI gained financial sponsorship from Humana, a leading health care company. Bell County was selected as the pilot location due to the prevalence of chronic disease and their willingness to try a new approach. According to MCI's Kentucky program manager, Leigh Ann Baker, "Bell County has a high prevalence of chronic diseases attributed to living sedentary lifestyles, consuming high fat food, and a lack of exercise. The community

[15] Amal Ireifij, Written Interview, 2013
[16] Leigh Ann Baker, Interview, March 2013.

opened up their arms to this program."

MCI coordinated small teams of 2-4 members utilizing existing personal relationships such as friendships, work relationships, and family relationships. Participants committed to attending workshops, establishing healthy diet and exercise goals, and following through with their commitments to participate and support others. According to Baker, the key was the focus on goal-setting, educating the community on healthy habits, and creating an encouraging and participatory environment.

Resources

In Kentucky, staff members agree that the program requires engagement from various parties through the formation of public-private partnerships. The public sector entities involved include the U.S. Department of Health and Human Services (HHS) and the Center for Disease Control and Prevention (CDC), while the leading private sector partner is Humana. However, there are several other entities involved, including the community, existing groups, local food vendors, and other local leaders.

Metrics and Successes

MCI has standardized the health screens that they use to quantitatively measure changes in participant's weight, cholesterol, and hemoglobin. However, equally as important as this hard data is obtaining the "soft proof" from signs of sustainable change within the community. One such indicator is the behavioral change observed when citizens take interest in preventative health rather than merely relying on medication. Baker indicated, "I'm a big believer that insurance companies, actually all health organizations, are going to save money by doing prevention and education rather than just encouraging patients to take prescriptions and medications." Considering MCI's partnership with Humana, the Microclinic model is providing a much-needed public-private partnership in the health and wellness sector.

Looking Forward

In the spirit of contagiousness, Leslie Lang, Senior V.P. of Strategic Development, was eager to announce that MCI, "will be expanding out to eight other counties based on a CDC grant…our vision is to bring this program to more people." Using lessons learned in the pilot program in Bell County, MCI will grow into the surrounding counties in the Cumberland Valley whose residents face similar health concerns.

SPOTLIGHT ON SOCIAL CONTAGION IN ACTION: KENTUCKY[17]

To provide more depth and context into MCI's work, the Lipman Fellows gathered qualitative data during a site visit to Bell County, KY. From May 20-23, 2013, the Fellows observed Microclinics in action, toured the area, and spoke with MC participants, public health workers, and other local community members. Throughout the visit, three specific

[17] All data retrieved from interviews with Bell County, KY Residents, in 2013.

themes that stood out as exemplary aspects of MCI's success: community, access, and culture.

Community

Perhaps one of MCI's greatest successes is its ability to integrate healthy habits in a community-based approach. Initial efforts to attract community members included health fairs, community centers, newspaper ads, and the aid of local physicians. However, MCI experienced real success by relying on their participants' overwhelming enthusiasm and willingness to share the program.

Participants indicated that by joining Team Up 4 Health (the MC program in KY), they felt more obligated and motivated to participate because they were working within groups. These groups engender a culture of support amongst individuals and instill confidence, meaning that participation is seen as less burdensome and more fun. Individuals create group names and have friendly point systems to track progress and to push each other to be better. Within groups, individuals support one another by checking in between sessions, sharing recipes, and helping each other through difficult times. Participants even meet to exercise together and check each other's baskets in the grocery store to ensure everyone buys healthy foods. Many participants had used several different types of dieting methods prior to joining, often to no avail. However, by working together with other interested members, participants realized that becoming healthy involves a much larger lifestyle change, rather than short term dieting. Thus, through the MC program, participants indicate that they grasp a higher level of understanding of what it means to have and be in good health.

"[I] just wanted to go into a little box because of all of my health problems, but this program, it brings me out."
-MCI Cycle 1 and 3 Participant

"It feels good to be in control of what you eat…now, if I eat one bite I shouldn't eat, well, maybe I won't [eat] 2 bites."
-MCI Cycle 2 Participant

Overall, members report that being in solidarity with others who have the same goals and take their participation seriously helps them stay motivated in the program.

Access

In this community in rural Kentucky, access is a crucial component of the program, especially as news of its success spreads. In this context, access refers to: access to the Microclinic sessions; access to transportation; access to sidewalks; access to affordable high-quality produce and other healthy food choices; and access to the support structures around which the social contagion idea is built. Therefore, for MCI and their partners, issues of access are of the upmost importance.

MCI and their partners have taken several steps to increase access for local residents. In March 2012, they opened a community garden in Middlesboro, KY. The garden, located on

land donated by the city, is open to anyone who wants to join, free-of-charge, and offers an opportunity to not only grow food but also learn about healthy eating from the local master-gardener. Additionally, in response to a suggestion made by a Microclinic participant, the community built outdoor free fitness parks in three locations throughout the county so that residents could exercise. Local staff even offered the MC program in a more rural area by setting up in a local community center in Frakes, a location that was more convenient for the more isolated rural residents.

Despite the many efforts to increase access to healthy living for Bell County residents, some barriers still remain. Many of these challenges are the result of the unique geographic and economic conditions in Kentucky. Recommendations on how to improve access and augment MCI's impact in this community will be detailed in the moving forward section. In the end, MCI and its local partners have taken important steps to increase access for the residents in Bell County. The increased access has allowed for a rise in participation – in fact, they have had to create a wait list for the program because there was so much demand.

Figure 4: MCI participants and health staff

Culture

Culture is contagious in many ways. The culture of Bell County is strong and community members have close-knit bonds. In fact, all of the participants and the vast majority of other stakeholders have lived in the immediate area for their entire lives. The community is proud of its close-knit nature, food, rich history, and tradition of Southern hospitality. However, the community is equally concerned about how some of its negative characteristics, such as high rates of drug use, unemployment, and reliance on public assistance, affect the perception of the community.

Given that each community and culture is unique and mediates MCI's programming in different ways, MCI allows its programs to be shaped by communities themselves. As MCI staff began work with public health staff to create the Kentucky program, it deferred to local residents to understand how to best modify the program for participants.

Cultural adaptations are also reflected in the curriculum and its implementation in the local program because food "habits" are embedded in the culture of all long-standing communities and cultures. The introduction and consumption of fast foods aside, every community has its own food preparation methods and uses ingredients that are indigenous to the area. These recipes and practices are passed down from generation to generation. For example, in Kentucky, lard (collected from bacon grease) is an essential ingredient in many dishes. However, as lifestyles have changed within the culture of the communities, so too have health outcomes. In Team Up 4 Health, participants are reminded that, while countless generations before them cooked and ate the same way they have been taught throughout their lives, those generations were different in significant ways. Most poignantly, past generations ate unprocessed and more organic foods, worked all day on their farms, and maintained much higher levels of activity than most people today, who live sedentary lives and eat larger portions of processed foods.

Given this cultural context, the local public health staff works closely with Team Up 4 Health participants to adapt old recipes to reflect healthier habits. For example, replacing lard with olive oil or other healthy oils in recipes reduces the cooking time for vegetables. When foods are prepared in new ways such as this, word spreads, and so do recipes. New foods are being introduced to the culture as well. A class of participants recently tried hummus, and reports back to health department staff were positive.

LOOKING FORWARD: OBSERVATIONS AND RECOMMENDATIONS

As MCI scales up its program across eight rural Kentucky counties, the organization, its partners, and key stakeholders will reflect on the many lessons MCI has learned in its work, not only in Bell County but in Jordan and Kenya as well. MCI will also develop creative new strategies to address some of the challenges unique to the Kentucky expansion, such as barriers to access related to transportation, scheduling, and proximity.[18] MCI could tackle some of these issues by continuing its innovative work engendering a multitude of public-private partnerships with key stakeholders in the area.

In terms of increasing its long term impact, MCI could explore the possibility of providing program 'graduates' with access to continued support after the official program ends. MCI could consider a post-enrollment alumni program that would ensure that participants have access to a network of supportive peers, increasing their adherence to healthy habits.

Additionally, the contagious health model has demonstrated the importance of "infecting" family, including children, who are not eligible for the program (the minimum age for participation is eighteen). As this case study indicates, successful parents, grandparents, and other adult participants undoubtedly affect their children by participating in MC

[18] For a more detailed analysis of challenges that the MCI program has faced in KY, please see Appendix F.

programs. However, considering that the rates of childhood obesity in KY are extremely high, MCI may want to consider pursuing new strategies targeted directly towards children as they continue to move forward. Further, in order to address co-morbidity issues such as smoking, drug use, and cancer that plague Kentucky, MCI may want to consider ways to pursue partnerships that would allow for both a strong referral network and various existing service providers to collaborate on holistic health.

CONCLUSION

The Lipman Family Prize commends the dynamic and innovative work of Microclinic International. Through its global reach, rigorous commitment to measuring impact, and proven model of transferability, this organization has demonstrated that it is truly unique and valuable. By leveraging existing social capital within networks to create novel and effective ways to foment health within and through communities, Microclinic International holds a unique position within the global public health sphere. It espouses a vision to impact communities through a systemic approach that recognizes the interconnectedness of various factors that influence health. Their idea of using healthy behaviors to promote 'contagious health' is one that has been proven to be both successful and meaningful. By collaborating with governmental, non-governmental, and private sector organizations, it has been able to engage in meaningful partnerships and garner support from existing bodies to further their mission in marginalized communities. Working to address the debilitating infectious and non-infectious diseases that are rampant in so many communities, Microclinic International has successfully filled a gap in providing a more sustainable, transferable, and holistic approach to wellness across the globe.

Looking forward, Daniel and Leila seek to continue to glean lessons from MCI's current work as it expands to new communities and countries. In particular, both Daniel and Leila point to their observations about MCI's program directors, who have experienced incredible empowerment and professional growth.[19] People like Leigh Ann and Amal, neither of who are physicians, have become recognized community leaders and are considered local experts in population health. This example is indicative that the fallout from the "contagion" effect is widespread and warrants continued study. Among other positive contagions, like an increase in self-esteem, it is plausible that the emotional and cultural health and relationships within families and communities may be improving as well. In any case, the possibilities for the myriad effects of contagious health are clearly endless.

[19] Daniel Zoughbie and Leila Makarechi, Interview, March 2013.

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Appendix A: Research Team and Lipman Family Prize

Bhargavi Ammu is a 2013 undergraduate candidate in the School of Arts and Sciences from East Brunswick, NJ. Upon graduation, Bhargavi hopes to work within the public health field both domestically and abroad. In addition to her commitment as a Lipman Prize Fellow, she is involved in the Dance Arts Council, PENNssch, the Student Health Insurance Advisory Committee, and serves as a Resident Advisor at Fisher-Hassenfeld College House.

Sofia Cunha is a 2013 Wharton MBA candidate and the Prize Fellow Coordinator. She hails from Miami, FL, and completed her undergraduate studies at Purdue University. Before coming to Wharton, Sofia worked in strategy and business development. After graduation, she will engage in strategy consulting at Accenture. Her research interests include social impact and entrepreneurship.

Renata Cobbs Fischer is a 2013 MSCE candidate in Social Policy and Practice and NGO Leadership, MSCE Candidate 2013 from San Francisco, CA. She completed her B.A. at Spelman College. After graduation, Renata will continue working as the Assistant General Secretary for Integration and Impact at the American Friends Service Committee.

The inaugural *Barry & Marie Lipman Family Prize* was awarded in April 2012. Administered by the University of Pennsylvania housed at the Wharton School, this annual global prize celebrates leadership and innovation among organizations creating positive social impact. Prize finalists are selected based on their proven impact and valuable, transferable elements found in their model. To meet its educational mission, the Prize also engages student fellows from various schools at Penn in the prize selection process, supporting them with a curriculum designed to hone their technical skills and support their leadership development.

Appendix B: Research Instruments

MCI Questions: Management – Lipman Family Prize Fellows Case Study Project
For Amal in Jordan
MCI Questions: Management (as of 3.27.13)
General mission/program work

1. In your own words, how would you describe the overall mission of MCI?
2. How does the program you operate relate to that mission? Are there differences you see in your program and the other MCI programs?

Model and impact

1. In your own words, could you describe what you believe to be the key characteristics of MCI and its Jordan program?
2. In your opinion, what are they key metrics that define success in your program?
3. Are there other ways that you believe success could be more precisely measured?

Examples/illustrations

1. Do you have a story to tell or share visually that you believe best captures the essence of your/MCI's work in Jordan and its implementation on the ground?

Resources and Looking Forward

1. What are the main resources you need in order to accomplish your work?
2. What are MCI's future goals?
3. How do you see MCI's work in context to the public health field more generally, including other potential innovations for improving public health outcomes in communities across the world?
4. Is there any other information that you'd like to share with us?

MCI Questions- Lipman Family Prize Fellows Case Study Project
For Leigh Ann in KY
General mission/program work

1. In your own words, how would you describe the overall mission of MCI?
2. How does your particular program's work relate to that?

Model and impact

1. In your own words, could you describe what you believe to be the key characteristics of your
   model?
2. How did the small teams form in KY? Mainly coworkers, husbands and wives, neighbors.
3. In your opinion, what are they key metrics that define success in your program?
4. How do you personally define impact for your country program?
5. Are there other ways that you believe success could be more precisely measured?

6. How is your model cost effective compared to other organizations working in the same space?

Examples/illustrations

1. Do you have a story to tell or share visually that you believe best captures the essence of your model and its implementation on the ground?
2. Did neighbor sign up?

Resources and Looking Forward

1. What are the main resources you need in order to accomplish your work?
2. What are the future goals of your country program and how do you think they align with MCI as a whole?
3. How do you see MCI's work in context to the public health field more generally, including other potential innovations for improving public health outcomes in communities across the world?
4. Is there any other information that you'd like to share with us?

Appendix C: Additional Information on Global Health

Chronic Disease and Global Health Today

The most prevalent diseases in low-income countries are: diarrhea, HIV/AIDS, heart disease, malaria, tuberculosis, prematurity and low birth weight, neonatal infections, and tropical diseases. In middle-income countries, heart disease, cerebrovascular disease, road traffic incidents, diabetes and hypertensive heart disease all play a significant role in mortality. In high-income countries, heart disease, lung cancer, Alzheimer's, lower respiratory infections, diabetes, breast cancer, colon cancer, and heart disease are known to be some of the major causes of mortality (Henry J. Kaiser Foundation, 2013). While this is a general characterization, it should be noted that each nation has its own set of individual and specific circumstances that dictate health.

Chronic diseases (i.e., cardiovascular diseases, diabetes, obesity, cancer, chronic obstructive pulmonary disease (COPD), visual impairment, and asthma) are the leading cause of death, accounting for 63% of all deaths in 2008 (WHO, 2013). There were 12 million cases of tuberculosis and 219 million cases of malaria recorded in 2011. Two billion people are at risk for neglected tropical diseases (Henry J. Kaiser Foundation, 2013). Additionally, family planning, reproductive health issues, food insecurity, access to clean water, and proper sanitation are all part of the larger fabric of public global health issues being addressed today.

The international response to global health challenges has been overwhelming positive. Multilateral and international organizations such as the Global Fund, UN agencies like the World Health Organization and UNAIDS, and organizations like the GAVI Alliance all have large scale global health agendas and are responsible for setting priorities and standards for global health. Additionally, governments, non-profits, foundations like the Bill and Melinda Gates Foundation and the Clinton Foundation play an important role organizing and promoting global health programs across the world.

Contagious Behavior: Social Networking and MC Model

As Deloitte's Center for Health Solutions notes in its 2010 *Social Networks in Health Care* brief, "Social networks enable access to and sharing of information that is essential to the U.S. health care system...[and are] likely to have a significant impact on the future of U.S. health care." Typically, social network analyses have centered on egocentric networks, where one person is studied in relation to all of his/her surrounding network partners, or socio-centric networks, in which as many linkages between members of a network are displayed and studied. Beyond this dualistic framework, networks have been studied from a lower level of dyads (spousal, sibling, parent-child relationships) and move up to supradyadic networks, which aim to map whole networks to understand how behaviors

travel on a larger scale. It is noted, "beyond obesity, numerous other health behaviors might also spread within social networks, such as smoking, eating, exercise, alcohol consumption, or drug use. Further health-related behaviors that might spread within social networks include the propensity to access health screenings, visit doctors, comply with doctors' recommendations, or even visit particular hospitals or providers," (Smith et al, 2008). In constructing its model, MCI has paid specific attention to that very point, and is pushing to leverage the social networks that already exist to reap health benefits within communities.

For MCI, this "moment" is one born out of the health epidemics that have taken hold in an era of, as Daniel describes it, "rapid change on the global level."[20] These epidemics are largely related to food insecurity that is affecting communities in both the U.S. and several other countries. In places like Palestine, Jordan, and Kenya, both climate and political changes have reduced access to natural resources. The combination of less physical activity and greater availability of processed food greatly altered the health and wellness of recent generations. This translated into an unfortunate and ultimately financially and socially expensive global reliance on fast foods and their unhealthy components (i.e. refined sugar, flour, saturated fats, etc.). These changes are also related to an increasing health emphasis in the United States, with new demands for accountability placed on fast food companies. Emerging markets abroad offer these companies new opportunities to sell unhealthy food without the same constraints faced in the U.S. The two global fast food giants, McDonalds, and Yum! Brands Inc. (which owns KFC, Taco Bell, and Pizza Hut), are leading industry growth, with 32,000 locations in 117 countries and 38,000 restaurants in 110 countries, respectively (CDC, 2011).

Sharing the MCI work through Writings and Publications

MCI staff has been invited to present their work to a wide variety of institutions and organizations, and is even featured in a chapter in the recently published book, "Do Good Well."[21] Other examples include an abstract published in the American Heart Association's flagship journal, *Circulation*.[22] Speaking engagements include appearances at TED, PopTech, AHA annual conference, Opportunity Collaboration, and the World Economic Forum Global Shapers,[23] and a European Commission special session for commission member States to discuss "Diaobesity."[24]

[20] Daniel Zoughbie, Interview, March 2013.
[21] Daniel Zoughbie, Interview, March 2013.
[22] American Heart Association. (2013). Retrieved from: http://circ.ahajournals.org/cgi/content/meeting_abstract/127/12_MeetingAbstracts/A009.
[23] World Economic Forum. (2013). Globe Shapers. Retrieved from: http://www.weforum.org/community/global-shapers.
[24] Daniel Zoughbie and Leila Makarechi, Interview, 2013.

Appendix D: MCI Strategy

Before rapid expansion, MCI is committed to testing and proving their concept and finding the right local partners.

Appendix E: MC's Model Applied

MC's model is unique in its transferability. The MC model has worked in Kenya, Jordan, and Kentucky across a wide range of health challenges including HIV, Diabetes, Obesity, and Cardiovascular Disease.

Kenya: Focus on HIV

Community • Stigma around having HIV still prevalent in community • HIV requires long-term management, meaning in impacts entire community	MCI forms microclinics with both HIV positive and negative individuals to educate everyone on disease & combat stigma
Access • Cannot separate HIV from larger socioeconomic and environmental factors—residents need access to a holistic approach to a healthier lifestyle	MCI working with community to build systems to tackle more than just health care (ie. agriculture training)
Culture	MCI works with local partners to ensure a greater cultural fit and operates out of a solar-power community center

Kentucky: Focus on Diabetes, Obesity, Cardiovascular Disease

 **Community** • Support—exercise together and check up on each other • Able to spread healthy behaviors to others	MCI encourages residents to use community bonds for support
 **Access** • Need healthy food and exercise options to change lifestyle • Transportation, proximity, time a challenge	MCI & partners launched fitness parks, community gardens, and went to rural communities to reach more people
 **Culture** • Close-knit community, proud • Skeptical of outsiders • Long history of unhealthy cooking	MCI found local partners and worked to empower the community not impose

Appendix F: More Information on Barriers to Access in KY

Most Microclinic sessions in KY are held in the most populous areas of the county. This means a relatively easy drive for many, but it also means that people living in more remote areas of the county have to drive more than 45 minutes each way to attend a session. Additionally, due to the economic constraints experienced by the community, some of the residents near a Microclinic session cannot attend due to their inability to afford a car or gas. These transportation and proximity challenges affect residents' ability to not only attend Microclinic sessions but also to utilize the fitness parks, the community garden, and participate in group exercise.

Like transportation and proximity, timing is a challenge. It is important to note that the Microclinic sessions were offered at the times that the local community requested, with both mid-morning and early evening classes, but unfortunately, no time is going to work for everyone. Additionally, because the community garden is housed on public land, the garden is only open to residents between the hours of 7am and 4pm Monday through Friday, which also limits access. The local master gardener who runs the community garden estimates that she would be able to double the number of people who had access to the community garden if participants had access at night or on weekends. Currently, she estimates that the garden serves about 80-90 people.

The main components of MCI's work in Kentucky revolve around helping people change their habits when it comes to nutrition and exercise. Therefore, it is crucial for people to have access to healthy food items and exercise opportunities. However, finding healthy foods is a challenge—both because produce can be more expensive and because many residents tend to buy food in bulk to minimize trips to the grocery store. Additionally, most areas in Bell County lack sidewalks and crosswalks, making it difficult for people to go out walking. Therefore, local public health workers discussed the need for local corner stores to sell more produce and more sidewalks.

MCI's follow-up data indicates that 80% of all improvements achieved by participants were maintained six months after the program ended. However, some participants interviewed mentioned that although they plan to continue with the lifestyle changes MCI helped them to make, it is easier to do so while enrolled in the program because of the support network it provides. Some participants have even advocated to be allowed to join the program of a second time, and just recently, MCI found a way to let former participants re-enroll.

Getting local residents to Team Up 4 Health sites and to invaluable complimentary services such as the garden where they can learn to grow vegetables and reduce food budgets, or even to markets where they can purchase fresh produce present major opportunities for MCI moving forward.

Additionally, even for those participants and extended networks of family, co-workers, and friends who are committed to engaging in exercise on a frequent and consistent basis, the rural nature of the eight Kentucky counties in which MCI operates presents limited infrastructural options. For many residents, sidewalks are not installed in most neighborhoods, nor are bike paths, rendering walking impossible in some areas.

Finally, while not as frequently cited as other urban settings facing the same disparity, Kentucky's counties are food deserts. Moving forward, MCI and its partners could explore possible avenues to affect change in policies, culture, and practices that might result in expanded use of existing community gardens by Kentucky's poorest residents. These efforts could also emphasize the creation and use of new community gardens. In doing so, MCI would be assisting communities in making a transition from food deserts to healthy communities that have access to less expensive produce through community garden initiatives. Thus, they will strengthen their amazing and life-changing work in Kentucky.