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PEOPLE, PRACTICES AND POLICIES

Designing and Implementing Effective Multisectoral, Trans-disciplinary Interventions to Reduce Risk and Mitigate the Negative Impact of Infectious Diseases under One Health

MODERATOR

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BACKGROUND

The risks of disease emergence, transmission and spread is increasing and being driven by complex factors. Globalization, increased urbanization, demand for and trade in animals and animal products, and increased need for land, food and natural resources is creating an environment for disease emergence and is spreading disease faster and wider. Environmental exploitation and degradation, poor environmental management and increased interaction between wildlife, domestic animals and people provide the ideal opportunity for pathogens and their vectors to potentially mutate into more formidable forms. Poverty, overcrowding, population displacement, weak health systems with limited capacity for timely identification and response to epidemics, inadequate access to safe water and sanitation, and the underlying health conditions of populations all provide the right environments for the proliferation of infectious diseases.

It is clear that mitigating endemic disease and preventing and managing emerging infectious diseases is highly complex and challenging and human behavior is at the core of many of these issues. The traditional approach has been to either focus on "changing" the behaviours of individuals to make better choices or addressing the environmental, policy or legal context in which individuals make decisions and take action. What is clear is that investments in prevention, preparedness and response strategies need to move beyond a reliance on bio-medical models combined with one-way information dissemination approaches. Increasing importance is being given to the strategic and considered design and implementation of multilevel and multisectoral actions that address the underlying causes of disease emergence and intensifies collaboration between wildlife, domestic animals and human health sectors.

This session will focus on understanding the role human behavior plays within the dynamics of endemic as well as newly emergent diseases and why it has been so difficult to address by any single intervention. It will explore current deeply-held paradigms and assumptions that underpin many "behavioral and social change programs" that render them ineffective and will explore how these assumptions goes against much of what science is telling us about the way we need to think about ourselves and about our relationships to each other and the world around us. It will consider what the range of approaches and interventions needed to address human behavior need to include and will suggest how these can be effectively harnessed within One Health.

OBJECTIVES

The objective of this session is to provide an opportunity to share the latest scientific evidence and discoveries concerning human behavior and to debate the policy and programmatic implications for behavioral and social change programs relevant to infectious disease emergence, transmission and spread.

SPEAKERS

- **Bill Smith**, CEO, MakingChange4u, USA
- **Daniel Siegel**, Executive Director, Mindsight Institute, USA
- **Duc J. Vugia**, Clinical Professor,University of California San Francisco, School of Medicine, USA
- **Petra Dickmann**, Research Fellow, London School of Economics, United Kingdom
- **John Parrish-Sprowl**, Co-Director, Global Health Communication Center, Professor, Communication Studies, Indiana University Purdue University Indianapolis, USA
- **Asiya Odugleh-Kolev**, Team Leader, Behavioural and Social Interventions, World Health Organization, Switzerland

Petra Dickmann is a risk communication expert with a strong background in humanities and medicine. She holds an MA in communication and completed her PhD in cultural and political sciences (HU Berlin & ETH Zurich) with an interdisciplinary research on biosecurity; she is also a medical doctor by training and did her medical doctoral research (MD) in the field of CBRN threats and their impact on public perception (King's College London & University Hospital Frankfurt). She is currently a Research Fellow at the London School of Economics and Political Science (LSE) conducting research on international health policy and global health security. Before joining LSE worked for the Centre for Biological Security at the Robert Koch Institute (the German federal institute for infectious diseases and prevention) and at the University Hospital Frankfurt (Department for Infectious Diseases) and developed risk communication strategies for highly infectious diseases and high containment laboratories. She has founded and is the director of strategic risk communication consultancy offering advice to global industry, international institutions and governments.

Petra is a member of the WHO virtual advisory board on Mass Gatherings and has worked in the framework of the Global Health Security Initiative (GHSI). She has developed risk communication training for the European Centres for Diseases and Infection Control (ECDC) and is working on risk communication projects for WHO.

PETRA DICKMANN

Research Fellow

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Kama Garrison is a Senior Public Health Advisor for the United States Agency for International Development (USAID). Ms. Garrison manages all Behavior Change Communication activities for USAID's Pandemic Influenza and Other Emerging Threats program focusing on how mitigate the risks associated with emerging diseases. Ms. Garrison has worked globally in the area of human capacity development (HCD), human behavior and monitoring and evaluation. Ms. Garrison joined USAID 7 years ago to manage the anti-microbial resistance and pharmaceutical activities for USAIDs programs in tuberculosis, malaria, child health, and HIV/AIDS. Prior to joining USAID Ms. Garrison was the Performance Improvement Advisor for JHPIEGO, a Johns Hopkins University Affiliate.

Ms. Garrison holds a Masters Degree in Public Health from Tulane University, and has over 15 years of experience in the International Health field with an emphasis on capacity building, behavior change, quality of care and service delivery issues. She has managed programs in many of USAID's priority countries.

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Ms Asiya Odugleh-Kolev is Team Leader, Behavioural and Social Interventions, which includes WHO's risk communication capacity building activities under the International Health Regulations (IHR) in WHO Headquarters and social mobilization in outbreak response. She joined WHO in 2001 to work on WHO's Communication-for-Behavioural-Impact (COMBI) methodology and has applied the framework to a range of health challenges including: avian influenza, dengue, Ebola, leprosy, lymphatic filariasis, pandemic influenza and polio. In addition to being the focal point for COMBI in WHO, over the last 4 years, her work has concentrated on developing approaches, tools and guidance which integrate behavioural interventions into readiness and response to epidemics and emerging diseases. She has been part of WHO multidisciplinary outbreak response teams and has trained international and national rapid response teams through the WHO Global Outbreak Alert and Response Network (GOARN) at Headquarters and in collaboration with WHO Regional Offices. Prior to joining WHO, she worked for UNICEF Somalia in Programme Communication and Social Mobilization.

Ms Odugleh-Kolev qualified as a Registered General Nurse from the Sheffield School of Nursing; she has a BA (Hons) in Third World Studies with Anthropology from the University of East London; a Postgraduate Diploma in Print Journalism from the University of Westminster, London; and a Masters in Public Health from the London School of Hygiene and Tropical Medicine. Her professional training and experience covers, adult learning, community development, health communication, journalism, risk communication and social mobilization.

ASIYA
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Team Leader - Behavioural
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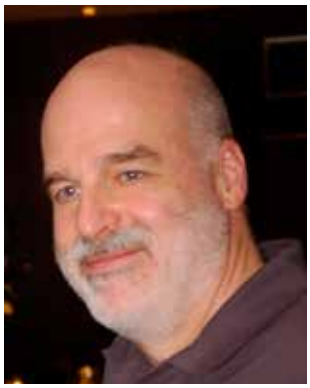

John Parrish-Sprowl PhD, currently serves as the Co-Director of the Global Health Communication Center (GHCC) of the Indiana University School of Liberal Arts. Prior to this position, he was the Chair of the Department of Communication Studies. In addition to being a Professor of Communication Studies, he is also a member of both the University College and the Russian and Eastern Europe Institute faculties of Indiana University.

He has been a member of the legislative Assembly of the National Communication Association, twice Chair of the Applied Communication Division, and past chair of the theory and methodology as well as the applied divisions of the Eastern Communication Association. In addition, he is a reviewer and editorial board member for a number of Communication journals. He is known for his international applied communication research and project consultancies, focusing on issues of health, economic development, and education. His work has resulted in improved performance for a number of organizations. He has lectured, conducted research and consulted with universities, businesses, and NGOs in a number of countries, including Belarus, France, Ghana, Indonesia, Kenya, Netherlands, Macedonia, Poland, Russia, Thailand, and Vietnam. He has been honored with awards from his current and past universities as well as universities in both Macedonia and Poland for his work.

He has numerous papers and publications, including a recent chapter on applied research and globalization in the Handbook of Applied Communication Research and one just out on the role of new media in the transformation of post-socialist Europe. Currently he is contributing to the Community Health Engagement Program (CHEP) of the Clinical Translational Sciences Institute of Indiana (CTSI) and collaborating with WHO to work with Ministries of Health in multiple countries to create better health (including risk and crisis) communication capabilities, leading to improved health care access and indices.

JOHN PARRISH-SPROWL

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DANIEL SIEGEL

Executive Director

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Daniel J. Siegel, M.D. received his medical degree from Harvard University and completed his postgraduate medical education at UCLA with training in pediatrics and child, adolescent and adult psychiatry. He served as a National Institute of Mental Health Research Fellow at UCLA, studying family interactions with an emphasis on how attachment experiences influence emotions, behavior, autobiographical memory and narrative.

Dr. Siegel is currently clinical professor of psychiatry at the UCLA School of Medicine where he is on the faculty of the Center for Culture, Brain, and Development and the Co-Director of the Mindful Awareness Research Center. An award-winning educator, he is a Distinguished Fellow of the American Psychiatric Association and recipient of several honorary fellowships. Dr. Siegel is also the Executive Director of the Mindsight Institute, an educational organization, which offers online learning and in-person lectures that focus on how the development of mindsight in individuals, families and communities can be enhanced by examining the interface of human relationships and basic biological processes. His psychotherapy practice includes children, adolescents, adults, couples, and families. He serves as the Medical Director of the LifeSpan Learning Institute and on the Advisory Board of the Blue School in New York City, which has built its curriculum around Dr. Siegel's Mindsight approach.

Dr. Siegel has published extensively for the professional audience. He is the author of numerous articles, chapters, and the internationally acclaimed text, The Developing Mind: How Relationships and the Brain Interact to Shape Who We Are (Guilford, 1999). This book introduces the field of interpersonal neurobiology, and has been utilized by a number of clinical and research organizations worldwide, including the U.S. Department of Justice, The Vatican's Pontifical Council for the Family, Microsoft and Google. The Developing Mind, Second Edition was published in 2012. Dr. Siegel serves as the Founding Editor for the Norton Professional Series on Interpersonal Neurobiology which contains over two dozen textbooks. The Mindful Brain: Reflection and Attunement in the Cultivation of Well-Being (Norton, 2007) explores the nature of mindful awareness as a process that harnesses the social

circuitry of the brain as it promotes mental, physical, and relational health. The Mindful Therapist: A Clinician's Guide to Mindsight and Neural Integration (Norton, 2010), explores the application of focusing techniques for the clinician's own development, as well as their clients' development of mindsight and neural integration. Dr. Siegel's latest book is Pocket Guide to Interpersonal Neurobiology: An Integrative Handbook of the Mind (Norton, 2012).

Dr. Siegel's book, Mindsight: The New Science of Personal Transformation (Bantam, 2010), offers the general reader an in-depth exploration of the power of the mind to integrate the brain and promote well-being. He has written two parenting books, Parenting from the Inside Out: How a Deeper Self-Understanding Can Help You Raise Children Who Thrive (Tarcher/Penguin, 2003) with Mary Hartzell, M.Ed. and The Whole-Brain Child: 12 Revolutionary Strategies to Nurture Your Child's Developing Mind (Random House, 2011) with Tina Payne Bryson, Ph.D., both of which explore the application of the mindsight approach to parenting.

Dr. Siegel's unique ability to make complicated scientific concepts exciting has led him to be invited to address diverse local, national and international groups of mental health professionals, neuroscientists, corporate leaders, educators, parents, public administrators, healthcare providers, policy-makers, mediators, judges, and clergy. He has lectured for the King of Thailand, Pope John Paul II, His Holiness the Dalai Lama, Google University, London's Royal Society of Arts (RSA), and TEDx. For more information, please visit: www.DrDanSiegel.com.

After entering phased retirement in 2009 Dr. Smith continues to serve as Co-Editor of the Social Marketing Quarterly and as consultant to various foundations and agencies. For the last two years he has worked as Senior Communications Consultant to the PEW Foundation on the development of their Community Water Fluoridation Initiative; consultant to PAHO on salt reduction strategies, and various state and local governments on tobacco cessation, HIV/AIDS, and obesity. He has served on two Institute of Medicine panels, including the co-authorship of the IOM's Health Literacy Report. He continues an active a career of public speaking on the application of integrated behavior change to widely diverse health and environmental challenges.

As Executive Vice President (1981-2008) at the Academy for Educational Development, Dr. Smith supervised a worldwide staff of more than 1900 employees, serving people in all 50 U.S. states and more than 150 countries. He directed multi-national behavior change programs directed at oral rehydration, mass immunization, HIV/AIDS prevention, environmental protection, and maternal child nutrition.

Dr. Smith is recognized for his multi-disciplinary application of behavior change strategies to social change organized around integrated marketing theory. He is a co-founder of the Institute for Social Marketing. He publishes a regular column in Social Marketing quarterly and serves as editor on that Journal as well as The Journal of Communication: International Perspective and the Applied Environmental Education and Communication: An International Journal. He received the Alan Andreasen Award for excellence in Social Marketing in 2004 and the Phillip Kotler Award for Leadership in 2010. His major publications include three books, as well as the Chapter on Communication, Marketing and Behavior Change for the 4th and 5th Editions of Sexually Transmitted Diseases, one of America's premier medical textbooks.

His Ed/D is from the University of Massachusetts and the Honorary Ph.D. from the University of South Florida. He is fluent in Spanish; lived in Latin America for more than 10 years; and completing his Ed.D at the University of Massachusetts and served in the U>S> Peace Corps in Colombia, SA.

BILL SMITH

CEO

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Dr. Duc Vugia has more than 20 years of experience as an infectious disease public health practitioner and medical epidemiologist in the United States, primarily in the State of California. He received his medical training and Doctor of Medicine at the University of California San Francisco and Master of Public Health in Epidemiology at the University of California Berkeley. He completed an Internal Medicine residency and Infectious Disease Fellowship at the University of California Irvine Medical Center. He was a U.S. Public Health Service officer in the Epidemic Intelligence Service of the U.S. Centers for Disease Control and Prevention, before returning to California.

As an infectious disease epidemiologist and public health administrator, Dr. Vugia has worked extensively with various local, state, and federal partners and academic collaborators to investigate and manage numerous outbreaks of foodborne disease, waterborne disease, vectorborne disease, and emerging infections. He has authored or co-authored over 100 peer-reviewed articles on a variety of infectious diseases.

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THE SIGNIFICANCE OF COHERENCE IN COMPLEX SYSTEMS:

an Example from WHO's Experiences in Building Risk Communication Capacity to Prepare for and Respond to Infectious Diseases

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This presentation will explore how recent scientific advances and research,as described by co-panelists, are suggesting shifts in the way we design and implement public health interventions to take into account relational and systemic approaches. This shift has major implications for any interventions that require some adaptation (whether temporary or long term) of individual, organizational, social, and cultural practices and norms.

Prevention, preparedness and response strategies targeting endemic and emerging infectious diseases that cross environmental, animal and human health require multilevel and trans-sectoral actions over time. Mitigating endemic infectious diseases and preventing and managing emerging infectious diseases is therefore highly complex. Human behavior is a common denominator that underlies the factors that contribute to the problems associated with infectious diseases, in turn;it also contributes to finding necessarysolutions. However, human behaviour has also been the most challenging to influence.

Drawing upon experiences and lessons learnt from WHO in applying systemic and relational approaches to building risk communication capacity under the International Health Regulations (IHR 2005), the presentation will offer new ways of thinking about "behaviour change" that can significantly contribute to better and faster results and which move beyond typical information dissemination, messaging and community mobilization approaches. That, in fact, sustainable and appropriate behavioral outcomes are an inevitable and natural consequence when we pay attention to structuring a substantive transformative process that promotes meaningful conversation and dialogue within and between connected systems that contribute to a common goal.

It will conclude that most challenging part about behaviour change programmes is not about changing the behaviours of communities and populations – but are about changing the behaviours of public health practitioners, policy makers and institutions to bridge their knowledge-practice gap and design effective and meaningful policies and programmes.

INTEGRATING SYSTEMS:
One Health and the Human Mind

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and Development Mindful Awareness Research Center

In this presentation, the scientific understanding of the nature of complex systems will be discussed as it pertains to multiple layers of interacting elements relevant to One Health. Drawing on the synthetic, multi-disciplinary view of interpersonal neurobiology, this talk will explore how the human mind can be viewed as a self-organizing emergent property of both the human nervous system and the social system. Ways of harnessing this view of the mind as an embodied and relational process that regulates energy and information flow will be explored, and principles of health will be offered that examine the process of integration, defined as the linkage of differentiated parts, as a potential core mechanism at the heart of well-being. Empowering individuals to use the mind to integrate the brain and relationships— the connections we have with other people, other animals, and the physical environment—offers one approach to psychological and behavioral strategies that can be used to link animal systems and ecosystems with human systems in the unfolding of infectious disease processes. These principles are offered to encourage discussion and a focus on potential practical applications for the individual, families, and communities in approaching global challenges.

THE SOCIAL MARKETING PROCESS
of Integrated Behavior Change

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Social marketing is a form of large-scale behavior change. It is often contrasted with two other broad approaches to behavior change:

- **EDUCATION**: People change because they know something. (AIDS kills)
- **REGULATION**: People change because they wish to avoid punishment. (Parking tickets).
- **MARKETING**: People change because they get something they want more than the existing behavior. (Energy Star light bulbs).

Social marketing is guided by three broad principles.

- **EXCHANGE**: people do things in exchange for benefits they receive.
- **SEMGENTATION**: people value a wide range of benefits under different circumstances; including, but not limited to, financial gain, the respect of others, and altruism.
- **COMPETITION**: people have choices, therefore, any new behavior competes with the benefits people are already receiving.

Given this perspective the social marketer job's is to select a specific segment of the population, determine what benefits they want and provide those benefits.

All this sounds a bit dry. Here's an example:

Hispanic women newly arrived in America are resistant to using car seats for their children. Officials assumed the problem was the cost of car seats and provided car seats free. Use of car seats increased only 5%. Discussing with these women why they did not use car seats, the women answered that they did not trust technology and that God determined if their child would die in a car crash, car seat or no car seat. The program had priests bless car seat and car seat use increased to over 60%.

- Exchange was offering a car seat "protected by a Priest's blessing"
- Segment was those women who believed God controlled their child's destiny.
- Competition was the arms of the mother.

One way to understand social marketing is to understand the kind of questions social marketers ask in developing a large scale program.

BASIC 5 SOCIAL MARKETING QUESTIONS

There are many versions of these, but they are pretty well accepted now.

- What do I as a social marketer want to achieve?
- What does my customer want?
- How do I really know that's what they want?
- What am I competing against?
- What am I going to do to satisfy our customer and compete successfully?

The problem with writing and numbering these questions is that writing demands that something comes first. Thinking doesn't make that demand. You can think about the answers to all these questions at the same time. It's a lot like playing chess, in which you think of multiple possibilities before moving the chess piece.

THE SOCIAL MARKETING MANAGEMENT PROCESS.

Here's how the management process I am going to suggest works.

- You tell your staff you are interested in the answers to these questions and you will check within as the process goes along. Discuss the questions with the team. Customize your own list.
- Give them the full set of questions. You're not trying to trick them into making mistakes. You're helping them to avoid mistakes.
- As they complete each part of the process, have them discuss their answers with you and the full team.
- Tell them when did they good. Tell them when you're confused. And Tell them when they went off track.
- This process only works if you give the staff the questions before they do the work. You are not trying to trick them….you want them to know what you think is important.

THE SOCIAL MARKETING MANAGEMENT QUESTIONS

What Do We Want to achieve?

- What will be different after this program?
- What will people being doing after that they are not doing now?
- Is there good science that supports this behavior? Any concerns?
- Will this get us what we want to achieve?
- Are other things needed besides what we are able to do?
- What do we do best, and does this built on that experience?
- Are we sure this idea works? Where are the complications in the science?
- What could go wrong?
- Do we have to start with awareness? How can we get directly at change?
- Do we have the resources to achieve this level of success?
- How do I sell this to my Board, our donors, my boss?
- Are there other ways to get where we want to be? Let's talk about them a minute?
- Are we taking a true marketing perspective? How are we going to look for new products or services that we could offer – understand access and pricing issues, and not go directly for message strategies?

What does my customer want?

In deciding on what we want to accomplish, there is often an implied audience; a customer, maybe many customers. Our fundamental marketing assumption about customers is that they want solutions:

- to problems they already know about.
- that are possible to do, easy to find, and they make them feel better.
- And that impress their friends.

The management questions at this stage focus on who the customer is and what they want. You team is likely to come in having done a lot of thinking about this and this is your time to do some serious checking.

- Do we really have the right segment? Are we trying to reach too many different kinds of people?
- What has worked with these folks before- any examples of successes with them specifically? What did you learn from these successes?
- What kinds of products and services do they use now? I don't want to get caught in the message only trap.
- What benefits do they really want? Not just the obvious, things that surprised you.
- What do you know about their journey in solving this problem? Where will they start… what are the key decision points…how do they rewarded?
- What are the barriers that stop them from doing it. NO, not just what they complain about- what's actually interferes with their doing what we want from them?
- Where's the fun in it for them? Yes, fun. They have a right to some fun too.

How do we really know that's what they want?

Great social marketing research goes both deep and wide. It uses a variety of tactics to understand the customer. Qualitative stuff is susceptible to our prejudices. Surveys are susceptible to asking the wrong questions and observations are often amateurish. Doing some of all improves the quality of the analysis and conclusions.

- Are you watching and listening to the right people?
- You did not focus only on early adopters and the hardest to reach did you?
- How did you triangulate data from multiple sources?
- Show me your prototyping results. What did they create when you gave them a chance?
- Did you find anything that surprised you? What were your own prejudices in going into this?
- Did you find anything you did not believe was true?
- What do you think really matters to them? Why did this stand out?
- Are their alternative answers to this question?
- What's the direct line between these findings and your plan.

This last question can be important, because this is a common place where a programs gets de-railed. Someone gets excited about a finding and forgets what the program is supposed to accomplish.

What are we competing against?

The competition is a complex set of products, services, and perceptions. It is what the customer is doing instead of what we hope they will do. It is the solution he has found to a problem. Sometime we have to reframe the solution and therefore reframe the problem. Understanding the competition means looking for new opportunities for attack; new openings for our behavior.

- What are people doing already? What do they like about it?
- Why do they complain about it?
- What are our competitors' strong point?
- How are we going to do better, not just compete, but offer something better?
- Are you sure this is the only competitor?
- Could we reframe the problem to take on a weaker competitor?

What are we going to do
to satisfy our customer and compete successfully?

- What changed since we last talked?
- What did you test in this plan? What went wrong?
- What did you not test and how important is it?
- How are we making this easier for people?
- Where's the fun? They think this is fun?
- Are the allies on board? What did we offer them?
- Timing- how do these things relate? Do we have the right order of events?
- The message strategy is all about the problem. Where's the solution?
- Now, are you sure this behavior is going to work under these new conditions?
- How will we know we're having an effect on health- don't tell me about awareness, I want to know how we get behavior change and how that is going to have a health benefit?
- What are you worried about? Tell me.

These are not all the right questions by any means. But they are a start. The management process is about being clear from the beginning about what you want and then checking for it as you go along.

You are not trying to show your staff you are smarter than they are, but help them be smarter than you are.

COMMUNICATION COMPLEX:
Achieving Improved Public Health Through Greater Coordination and Collaboration

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Despite many advances in scientific theory and research related to human communication in general, and social and behavioral change in particular, many programs still function in the 21st century based on a 20th century model of communication. Growing awareness that new approaches to communication are needed have been noted by many, including some from WHO (2009) and ECDC (2010), along with a number of communication scholars (Barge and Craig, 2009, Parrish-Sprowl, 2012, In Press, Pearce, 1989, 2007). Given the growing complexity of public health issues, especially with the global rise of non-communicable diseases such as diabetes, along with an increasing awareness of mental health issues as a major public health concern, we must develop improved processes of cross sector and organizational collaboration with the aim of engaging the public in more effective approaches good health. Moving from a communication simple to a Communication Complex approach opens our thinking to strategic and programmatic possibilities that place public health professionals in a better position to meet the challenges faced around the world.

Most public health NGOs, agencies, and Ministries construct their communication efforts in the image of a basic Source, Message, Channel, and Receiver (SMCR) model, such as that proposed by Shannon and Weaver and elaborated by Berlo (1960). This overly mechanistic and linear framing of communication tends to under value communication issues, often leaving it as an after thought with little budget and expectations (Inagaki, 2007). The SMCR model has been the focus of much analysis and criticism by communication scholars for its utter inadequacy in either modeling communication or leading us to better performance in the critical episodes of our lives (Craig, 1999). One response to the challenge of moving beyond the simple has been the development of an approach to communication known as the Coordinated Management of Meaning (CMM) (Pearce, 1989, 2007).

Just as we might consider the idea that Newtonian physics is a statistical approximation of quantum mechanics, we begin with the notion that the transmission model of communication holds the same relationship to CMM. It is not that it

is wrong; simply that it is such a limited way to understand the primary process by which we construct our social worlds. Rather than a Sender, Message, Channel, Receiver conceptualization of communication, Pearce offers the following:

The communication perspective sees all forms of human activity as a recurring, reflexive process in which resources are expressed as practices and in which practices (re) construct resources. In this sense, "practices" consist in actions such as building a bridge, playing bridge, and seeking to bridge misunderstandings. "Resources" comprise the stories, images, symbols, and institutions that persons use to make their world meaningful. (Pearce, 1989, p 23)

If we shift from an SMCR model to a communication perspective, such as that posited by Pearce (1989) in Communication and the Human Condition, our assessment of given circumstances becomes not only something different, but also more complex and much less amenable to simple diagrams and the simplistic prescriptive approaches that are invariably rooted in the transmission approach to improvement, which is to offer prescriptions of either more talk, better talk, or to label the situation hopeless (Parrish-Sprowl, In Press). In turn, CMM has been engaged by a number of practitioners in various contexts to make advances in environments where communication framed as SMCR is simply not up to the task (Creede, Fischer-Yoshida, and Gallegos, 2012, Parrish-Sprowl, 2003, 2006).

CMM suggests that communication is a process, one that often develops into patterns, and it is the patterns that should capture our attention, not simply the messages that we want to offer to others (Parrish-Sprowl, 2000). If we want to create change we must perturb those patterns in ways that lead to sustainable change. Both illuminating and augmenting CMM is the work of Siegel in the development of interpersonal neurobiology (IPNB) (Siegel, 2010, 2012). Building on a growing body of scientific literature, Siegel suggests a fundamental understanding of human activity that is predicated on three primes of brain, mind, and relationships (2010). In The Developing Mind (2012), he details the science that underpins IPNB. CMM and IPNB nicely complement each other. Much of the work of Siegel elaborates the connection between mind and brain while CMM elaborates the process of communication. When taken together they form the approach I label Communication Complex.

COMMUNICATION COMPLEX

In public health we should consider communication not to be an activity, but as a process. Consider the difference between conversation and conversational episodes. Conversations are topics discussed across time, space, and people. For example, in many countries people have been talking about malaria for centuries. Each culture has its own way of talking about what it is, how it is transmitted, and what could or should be done about it. This conversation has gone on for a long time and will continue to do so. A conversational episode, takes place among specific people at a specific time. It is but one part of the whole conversation. Too often, when we think of communication simple we only focus on the episode and our analysis does not take into account that it is but one small

part of a larger conversation. This can skew our assessment and lead to unproductive solution to organizational issues.

Second, although humans are fully capable of inventing anew each time they talk, mostly we interact in patterns. Simple tends to lead us to focus on individuals, analyzing what each person says. Communication complex shifts our attention to the pattern that is created when people talk. The pattern offers a much richer unit of analysis for improving communication. We become more interested in what people are creating together than in what each person is doing. For example, simply telling people about nutrition and hoping that people eat better (a simple approach) is different than considering the conversation and conversational episodes that comprise the story regarding eating in a community. When taking this approach it shifts the focus to patterns of interaction, their impact on the embodied brain, and offers differing notions regarding how we might address the issue.

A perturbation refers to how we choose to intervene in a process, to alter undesirable patterns to promote greater health. Whenever we endeavor to change a community (for better or worse) ultimately what we are doing is perturbing the way people engage each other. This is true whether we are trying to develop better response to outbreak emergencies, reduce obesity, or improve the management of mental health. If we want change we must do something differently. Often people are viewed as resistant to change. While this could be the case, we can think of it in a different way that is more likely to produce the change we want and need. No matter how ineffective a pattern might be, it is familiar. Doing what we are already doing is something we understand and have developed a competence in performing that is comfortable. Perturbing a pattern leads people to do something that at first can be uncomfortable and leave people feeling incompetent. Almost nobody likes to feel incompetent. Thus, we see resistance to change.

In communication complex I refer to this as putting people's resources at risk. Resources are those basic ideas and actions that enable us to do anything, such as start a business, cook a meal, or teach our children. If we directly challenge a person's resources then we can expect pushback. It is better, to work with them first, to develop a sense that the resources are obsolete or by comparison not as effective as a different set of resources. Once convinced of that people are not resistant but motivated to change. This can entail the use of demonstrations, discussion with community members, presentation of data, and coaching. We must then work with them to insure that the new resources, contributing to a new pattern, are mastered. This builds effective change.

Moving from communication simple to Communication Complex requires some learning, both in the area of theory and that of practice. But it can yield better performance. At a fundamental level, the process can begin by choosing to do two things. First, consider process, patterns, and perturbations. Second, lead your analysis with some key questions such as the following:

- When people talk in this community what kind of health indices are they making? (Proper immunizations, good eating habits, exercise, healthy relational patterns, etc.)

- When people disagree are they more interested in being right, or being effective? (Do they seem compelled to stay in unhealthy patterns)
- What are our goals? (If we change, what do we hope to achieve?)
- Who benefits and how from the changes? (Do people get something for their efforts? If so, what?)
- How might the process of change work? (Can we envision the transformation process as opposed to just thinking about what the change will look like when we are done?)

Communication complex requires inquiry and introspection. It also works best when change is based on data rather than supposition.

People already know how to communicate. What they need to do is learn to communicate differently to create change. It is not to say that they are poor communicators, but rather new patterns, new ways of doing things, can create benefits. Actually, it is because people already know how to communicate that we can create effective change. Sometimes the change is easy, sometimes not. It depends in part on how different the pattern needs to be and how prepared people are to do things differently. This is the role of public health officials and community leaders as it is their job to not just run things but to make things better to meet the demands of an ever-changing world.

Communication Complex takes into account the process, patterns, and means of perturbing patterns, within a framework built on neuroscience research that, as one article notes "cognition materializes in interpersonal space" (Hassan, et. al, 2012). By considering the systemic nature of communication and the patterns formed, we are able to construct environments that are more collaborative and more successful in creating meaningful and successful change. As we face the 21st century challenges of growing obesity, diabetes, and mental health issues across the planet, along with maintaining vigilance with respect to communicable disease outbreaks it is important that we develop patterns of policy and practice that offer our most capable means of establishing a healthy population.

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