MEDICAL ANTHROPOLOGY
2016, VOL. 35, NO. 5, 419–432
http://dx.doi.org/10.1080/01459740.2016.1167055

Routledge
Taylor & Francis Group

Ambiguous Capture: Collaborative Capitalism and the Meningitis Vaccine Project

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ABSTRACT

The primary health care approach advanced at Alma Ata to address social determinants of health was replaced by selective health care a year later at Bellagio. Subsequently, immunization was endorsed as a cost-effective technical intervention to combat targeted infectious diseases. Multilateral efforts to collaborate on immunization as a universal public health good ambiguously capture the interests of the world's governments as well as private, public, and not-for-profit institutions. Global assemblages of scientists, governments, industry and nongovernmental organizations now work in public-private partnerships to develop and make essential vaccines accessible, with vaccines marketed as single fix solutions for global health. Drawing from ethnographic fieldwork in France and Burkina Faso that followed the development, regulation, and implementation of the group A meningococcal conjugate vaccine for sub-Saharan Africa, in this article I describe events during and after the development of MenAfriVac. A technological success narrative steeped in collaborative capitalist rhetoric disguises neglected health care systems.

KEYWORDS

Burkina Faso; public-private partnership; regulatory capture; technology transfer; vaccine development

In 2006, two vaccines targeting different populations were reviewed at the annual meeting of the World Health Organization's (WHO) Expert Advisory Committee on Biological Standardization. The human papilloma virus (HPV) vaccine, fast-tracked through a remarkable marketing campaign, would sell for US $400 as a cancer preventive (Lippman et al. 2007; Tomljenovi and Shaw 2012). In contrast, an experimental Meningococcal serogroup A conjugate vaccine developed for endemic outbreaks in sub-Saharan Africa and projected to cost US 40¢ a dose received significantly less critical scholarly attention over the next few years. There are double the number of bacterial meningitis cases every year (1.2 million) compared to an estimated 610,000 cancers attributed to HPV infection (Center for Disease Control and Prevention 2011; Forman et al. 2012), yet efficiencies of regulatory capture gained the HPV vaccine record breaking licensing approval and the adoption of the vaccine worldwide. While decisions concerning the HPV types to be included in the vaccine revolved around epidemiology, costs, and marketing (Graham and Mishra 2011; Mishra and Graham 2012), the decision to target only one meningococcal serogroup (MenA) as the 'appropriate' technology for MenAfriVac® was driven by its affordability.

Each vaccine characterizes a different set of circumstances, geographies, and collaborative capitalist opportunities and challenges for global vaccine development and regulation. Pitching a multilateral humanitarian effort in response to local priorities while building country capacity for disease surveillance, the Meningitis Vaccine Project promised better health, equity, and health system capacity building. In this article, I examine ambiguities in representation, the appropriateness of the technology chosen, and the extent that its promise was accomplished.

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Methods

Drawing from anthropology, health technology assessment, science studies, and bioethics, this project is part of a longitudinal ethnography of regulatory practices for emerging health biotechnologies that began in 2000 (Graham 2008). While observing Canadian health regulators during the 2006 WHO Biological Standardization expert advisory meeting, I met several scientists involved in the MenA vaccine development. Dr. Marc LaForce, a seasoned international health physician and Director of the Meningitis Vaccine Project (MVP) (Jódar et al. 2003; Tiffay et al. 2015) invited me in February 2007 to visit the project headquarters in Ferney-Voltaire, France. I engaged in daily ethnographic participant-observation, attending meetings, interviewing, and talking with a core group of 15 scientists, clinical trial researchers, technology transfer experts, and policy and communications personnel at the WHO/PATH (Program in Appropriate Technologies in Health) MVP headquarters. In October 2007, I attended the WHO African Vaccine Regulatory Forum meeting in Ouagadougou, Burkina Faso, where the MVP was presented to around 50 participants. Having experienced a MenA epidemic earlier that year, Burkina Faso officials were receptive to countrywide implementation once the vaccine achieved regulatory preauthorization, although Burkinabé health officials, scientists, and clinical researchers seemed less enthusiastic than those at the MVP about the vaccine's potential to control meningitis. I subsequently obtained funding to hold two workshops, in Burkina Faso (February 2009) and Canada (April 2009), attended by a total of 54 researchers and knowledge users to explore conceptual and methodological issues related to African decision-making frameworks for vaccines. From 2010 to 2014, I engaged in annual two to three week fieldtrips to Burkina. Taking an ethnographic approach, the methods of participant-observation, field notes, document analysis, and formal and informal interviews were employed. Structured and informal interviews were conducted with 68 clinicians, scientists, government officials, health workers, and community members in the district of Nouna and in Ouagadougou over those five years. Data were scrutinized in search of identifiable patterns, clustered, and sorted until distinct and comprehensive themes were generated. They were used to describe, organize, further explore, and interpret the activities, experiences, and understandings about MenAfriVac's development and implementation.

Developing the Meningitis A conjugate vaccine for sub-Saharan Africa: MenAfriVac

The "African meningitis belt" stretches from Senegal to Ethiopia (Lapeyssonie 1963). Meningitis outbreaks typically start in late December when the hot dry harmattan winds generate dust and sand that invade nasopharyngeal mucosa, while cooler nights and the annual pilgrimage to Mecca bring people together in small, enclosed areas. Rains in May and June mark the end of the dry meningitis season and the beginning of the wet malaria season. In 1996 a particularly devastating epidemic, mostly meningitis group A, killed approximately 25,000 people (WHO 1997). The WHO (1999) brought together 26 representatives of African ministries of health to a meeting in Ouagadougou. As the story is told by MVP, "countries were calling for a solution." The solution offered at the meeting was "to shift their strategy from epidemic response to epidemic preparedness" (Aguado et al. 2015: S392). Building on MenC conjugate vaccine development, WHO's Immunization, Vaccines, and Biologics department supported a combined MenA/C conjugate vaccine. By the late 1990s, however, there was a rising MenC infection rate in the United Kingdom, with a thousand deaths during the decade. Vaccine manufacturers pooled resources for the MenA/C conjugate vaccine to develop a monovalent MenC vaccine to meet that emergency (Rappuoli 2003). In sub-Saharan Africa during the same period, 700,000 people were infected by meningitis, 100,000 died, and 20% to 30% of survivors were left with life-long disabilities (Jódar et al. 2003). The immunization needs of the United Kingdom trumped those of Africa—MenA "was not considered a market driver" (Aguado et al. 2015:S392). No manufacturer was interested in developing a vaccine for 300 million people too

poor to purchase it. WHO formalized the Epidemic Meningitis Vaccines for Africa project to address the inequity (Aguado et al. 2015).

Significantly, no alternatives to address social and economic determinants of poor health were on the table. Nonvaccine solutions never made it to the WHO meeting in Burkina Faso, one of the world's poorest countries, where female and male literacy is approximately 16% and 36%, respectively (World Bank 2013). With 11 million inhabitants in 1996 (18.5 million by 2015) from 60 different ethnic groups, almost half the population of Burkina Faso are younger than 15 years. Those younger than 5 years in low income countries have particularly high mortality rates, picked off by opportunistic infections exasperated by malnutrition, lack of clean water, and sanitation (Sié 2013). Vulnerability to periodic drought and desertification severely affects agricultural activities, population mobility, and the economy. Formal health services for the rural population are limited to small health centers staffed by a nurse and midwife. Most of the population cannot afford medications or the poor quality health care services (Sié 2013:18).

Where people were in need of food, jobs, arable land, education, and health care, conditions that compromise immune systems, vaccines alone were presented as a solution. As Blume, Jani, and Raolkvam stated, "[t]echnological approaches to complex health problems appeal to policy-makers … furthest removed from cultural and social practices" (2013:23). In 2000, fueled by a feasibility study of existing intellectual property and an economic analysis supporting a MenA vaccine, WHO again convened scientific experts and representatives from African ministries of health to endorse their plan. In 2001, the Bill and Melinda Gates Foundation seeded $70 million for technology transfer to the partnership between WHO and the Seattle based PATH to develop a monovalent MenA vaccine as a humanitarian appeal to global inequity in disease response (Jódar et al. 2003). The WHO/PATH/MVP consortium advanced a strategy to eliminate epidemic meningitis through the development, testing, licensure, and introduction of vaccines. According to an informant, the CEO of PATH, Chris Elias, "wanted to just get the vaccine and leave … though he wouldn't say that now." Previous experience leading a UNICEF task force, however, had taught the Director of MVP that public health strategies depend on "technology and development, external donor assistance, politics and government, organizational structure and operations" (UNICEF 1996:xv). Community participation, commitment, and mobilization are integral tools in creating an essential demand for vaccines. Country capacity building for surveillance, monitoring, communication, and vaccine safety reporting would complement the MVP.

A vaccine, however, needed materials and a manufacturer. LaForce orchestrated the negotiation of intellectual property rights and business investment models for the technology transfer among a series of public and private actors. While an established vaccine manufacturer was the preferred partner required of Gates' projects, after almost two years of negotiations during an era of blockbuster pharmaceutical industry profits and despite the humanitarian appeal, the large vaccine companies could not be persuaded (personal communication).

The Serum Institute of India, Ltd. (SIIL), a family-owned biotechnology manufacturer located in Pune, was burdened by neither a Board nor shareholders. Government scientists at the US Food and Drug Administration's Center for Biologics Evaluation and Research (FDA-CBER) had already developed a conjugation method. MVP worked with the US National Institutes of Health to obtain the technology for SIIL "at a very low cost" (personal communication). SynCo Bio Partners, a biopharmaceutical Good Manufacturing Practice Contract Manufacturing Organization based in the Netherlands, supplied the antigen, meningitis A polysaccharide (MenA PS), while SIIL provided the protein tetanus toxoid (TT) to which the antigen would be conjugated—the binding together of these two materials generates the enhanced immunity of conjugate technology for PsA-TT MenAfriVac.

Working with leading conjugate vaccine scientists, by 2004 SIIL had a vaccine for preclinical studies. Human clinical safety trials began in 2005 in India (Phase 1), Mali, Ghana and the Gambia (Phase 2, 2006-9), and in Mali, Senegal and the Gambia (Phase 2/3) in 2007. To manage rumors, "an integrated communications strategy ensured the active cooperation of stakeholders" throughout the clinical trials and introduction (Berlier et al. 2015:S451; Idoko et al. 2015). MVP concentrated

primarily on building technical capacity for surveillance at the Multi Disease Surveillance Center (MDSC) in Ouagadougou. As a reference center for surveillance and response, MDSC became a fully equipped microbiology and DNA laboratory providing support for 13 sub-Saharan African countries (WHO 2009). Equipped with new in-country capacity and reinforced by seconded staff from the US Center for Disease Control and Prevention (CDC), detailed analyzes could be done to evaluate meningitis trends and bacteriology. By April 2007, the Burkina Faso Ministry of Health had reported 22,255 suspected cases of meningitis including 1490 deaths and 34 districts, surpassing epidemic threshold. The Intercountry Support Team (IST) was now in a position to support public health salaries, epidemiological surveillance, and laboratory activities across the meningitis belt, and on September 4, 2008, health ministers from the belt signed the Yaoundé Declaration on Elimination of Meningococcal Meningitis type A Epidemics as a Public Health Problem in Africa (WHO 2008).

MenAfriVac was approved on January 22, 2010 by the Drugs Controller General of India, who received regulatory support from Health Canada. SIIL scaled up production to more than 300 million doses after the vaccine met WHO's prequalification procedure for international standards of safety, quality, and efficacy on June 23, 2010. WHO/MVP provided training for national regulatory authorities to fine-tune their strategies for the vaccine's introduction. WHO/AFRO and national Ministries of Health were to be integral to the positioning of the MenA vaccine into the Expanded Program on Immunization (EPI) within five years of its initial introduction,[1] and in tracking activities related to changes in serogroup prevalence and incidence after the vaccine's introduction.

Gates' funding for MenAfriVac included neither vaccine purchase nor implementation (more than ten-fold the cost of vaccine development). As a result, a network of collaborative capitalist relationships were established to fund the introduction. The Global Alliance for Vaccines and Immunization (GAVI), established by the Gates Foundation in 2000 to broker private-public partnerships integral to funding vaccines in poor countries, facilitated the purchase (GAVI 2014). WHO, UNICEF, the World Bank, and the Gates Foundation each hold permanent seats on GAVI's Board.

The strategic unknown of meningitis pathogens and subgroups

The success of the WHO/PATH/MVP SIIL partnership is without precedent (LaForce and Okwo-Bele 2011; Bishai et al. 2011; Sow et al. 2011; Marchetti et al. 2012). During six days in December 2010, MenAfriVac was introduced across Burkina Faso for everyone aged 1 to 29 years. To date, more than 250 million people have been vaccinated across the meningitis belt and Meningitis A appears to have been eliminated in immunized regions. The capricious epidemiology of meningitis disease, however, tells a different story, and the degree that MenAfriVac has resolved meningitis epidemics and succeeded in improving general health systems and economies is not certain.

Bacterial meningitis is caused by three pathogens, Haemophilus influenza, Streptococcus pneumoniae, and Neisseria meningitides (Nm). The monovalent vaccine for Neisseria meningitides A (NmA) tackles only one, albeit the most prominent, of six vaccine preventable subgroups of Nm that threaten sub-Saharan Africa (Men W-135, Y, X, recently C, and potentially B). These lurking subgroups represent what McGoey (2012) might call strategic unknowns; their potential to change with the shifting dynamics and epidemiology of a MenA-free sub-Saharan Africa was largely sidelined by MVP during MenAfriVac development.

Arriving in Burkina Faso in September 2007, I was struck by the skepticism surrounding MenAfriVac of several West African clinical researchers. Their experience with the three pathogens and numerous subtypes of meningitis disease suggested that controlling meningitis would take more than a MenA vaccine. While no one denied that the conjugate vaccine would be superior to its polysaccharide predecessors, many regions were already seeing a rise in Men W135 and X, as well as

Streptococcal pneumonia (Djibo et al. 2003; Traoré et al. 2009). MenA was already in decline in Burkina Faso after the 2007 outbreak, and there were other priorities.

By 2011, these clinicians' concerns were proving justified. Frustrated Senegalese public health workers had no appropriate vaccine to treat outbreaks of Men W135 during that country's MenA vaccine campaign. In Chad, the preponderance of serogroup W and A varied between areas, while MenA immunization continued (Caugant et al. 2012). Short duration meningitis outbreaks followed MenAfriVac immunization in districts of Benin, Burkina Faso and Nigeria, necessitating response, heightened surveillance, case management, and sensitization (Delrieux et al. 2011; WHO 2013). Risks of serogroup replacement reported in the literature (Gagneaux et al. 2002) were largely ignored during the implementation MVP communication-hype. Concerns about reliability and partial surveillance challenged MVP's claims of herd immunity based on decreased carriage rates. Even in post-implementation success stories, bracketed caution warranted continued monitoring for potential replacement strains (Novak et al. 2012; Daugla et al. 2014). While meningitis A is in decline, positive success stories may be premature. Community outbreaks of Streptoccoccus pneumonia, Men X, W135, and most recently Men C (Funk et al. 2014; WHO 2015b) gain concern. The subgroups and pathogens of meningitis disease continue to shift in Africa.

Setting "appropriate" goals to capture success

Success stories about controlling a disease can be seductive, partial accounts concealing complicated histories and unpredictable currents of biologies, seasonalities, and shifting pathogenic and serogroup ecologies. Such narratives mask failures and ignore the social, political, and institutional exigencies that disrupt science (Clemens and Jódar 2005) and collaborative capitalist projects alike. In 1980, Halfan Mahler, then WHO's Director-General, warned that single-disease projects "would divert attention and resources from the structural and economic roots of ill health, and from the commitment to strengthening primary health care" (Blume, Jani, and Roalkvam 2013:7).

Critical to success narratives is the setting of achievable goals. At the start, MVP identified an existing ('appropriate') vaccine technology. In 1983, conjugate technology had been proven safe, effective, and immunogenic while conferring long-term protection in infants with the development of Haemophilus Influenza type b (Hib) vaccine (Hamidi et al. 2014). Acknowledgement of what constitutes the success of some programs, however, can meet resistance. Cuba's innovative public good approach to vaccine biotechnology, for instance, produced the first meningitis B vaccine in 1985, and the first affordable synthetic Hib vaccine in 2003 (Reid-Henry 2010; Thorsteinsdóttir et al. 2004). In much the same manner, FDA-CBER and CDC contributed publicly owned conjugate technology methods to SIIL. The FDA's publicly funded technology transfer eliminated affordability as the major constraint, and SIIL, a private company, was guaranteed a 10-year publicly funded market. Through GAVI support, MVP gained commitments in excess of $500 million from charitable, not-for-profit and nongovernment organizations, to help countries purchase and implement MenAfriVac.

Meanwhile, what constitutes health systems 'strengthening' has gained interest, first from WHO (2007), and more recently from the Gates Foundation with interest in documenting the impact of vaccine interventions on health systems (Hyde et al. 2012; Burchett et al. 2012, 2014; Mounier-Jack, Griffiths et al. 2014; Mounier-Jack, Burchett et al. 2014). Building indicators has proven challenging, however. Complex relationships, numerous interventions, and broad outcomes are neither immediately discernible nor easily counted.

Tallies of MVP success looked only at the vaccine itself. They did not dock points for disrupted routine services (Mounier-Jack, Burchett et al. 2014) nor document the inability of communities to respond to the outbreaks of Men W135, C, and Streptococcus pneumonia after the MenAfriVac campaign. Resourcing local clinics to treat the diseases that replaced MenA was not in the calculation. WHO IST workshops held in Abidjan and Geneva in 2013 aimed instead at technical "collection, conservation, and transportation of biologic substances; and providing training on

standard operating procedures for enhanced surveillance of meningitis, data management, and laboratory confirmation work. … In the end the overarching goal is to promote standardized laboratory practices and to enhance the information for decision making" (MVP 2013:2). In the shadow of the UNICEF report that had recommended balancing the technical, political, and cultural uncertainties of public health, a rhetoric of successful technical vaccine innovation inspired by international partnerships trumped the more unwieldy social determinants of health and pathogen subgroup replacement.

A technical political game trumps health systems strengthening

Marchal, Cavalli, and Kegels (2009) questioned claims made about strengthening health systems in disease-specific initiatives. Such programs leave in their wake duplications, imbalances, and interruptions to existing programs. They impose external goals, neglect national priorities, and community training and resource needs (Mills 2005; Cavalli et al. 2010). Developed to facilitate investments, the "elegance and simplicity" of the WHO (2007) building blocks approach has contributed to its wide adoption and provided "a common language and shared understanding" for health systems strengthening (Mounier-Jack, Griffiths et al. 2014:6). The framework fails, however, to address the complexity between the blocks, or to articulate subtle issues surrounding workforce, governance, and community (Mounier-Jack, Griffiths et al. 2014:5–6).

The MVP was aware of the role communications and social mobilization perform in creating demand for a vaccine; these instruments were used to obtain high vaccine coverage rates (101% in some communities). With success counted as numbers vaccinated and ridding Africa of MenA, there was no need to build sustainable community engagements, health systems, or address social determinants. There are no scorecards for these.

The gaming of metrics to show success is not new. It proves particularly challenging with the scarcity of independent appraisers in collaborative capitalist ventures in global health. An international call for open access for independent critical appraisal of clinical trial methodologies and data in recent years raises concerns about such gaming (British Medical Journal 2016; Open Trials 2016). Undermining claims for the efficacy and safety of health products, evidence grows of institutional corruption that compromises transparency and accountability in clinical research, and in the selection of methodologies used to measure success (Light, Lexchin, and Darrow 2013). Conflicts of interest play a significant role in regulatory decision making (Abraham 1995; Nik-Khah 2014; Dunn et al. 2014; Pham-Kanter 2014). Global health has its own set of players.

In *Far-Fetched Facts*, Richard Rottenburg (2009:88, 177) described how attention to externally driven technical facts renders invisible the cultural and political aspects of development. At the country level, disease eradication campaigns distract attention and resources from regular immunization programs and remove essential human resources from primary health care services. Producing meaningful metrics to account for people, their relationships, and geographies requires infrastructure and human resources against a backdrop of unrestricted education available equally for all.

The opportunity for such a vision was lost in 1979. The year before, at the 1978 Alma Ata conference, WHO had advocated for socioeconomic development and community participation in health care. In response, delegates at a Rockefeller sponsored Bellagio Conference in 1979 parsed primary health into measurable selective primary health care targets for malnutrition, oral rehydration, breastfeeding, and immunization. Structural adjustment policies by the World Bank and International Monetary Fund from Organization of the Petroleum Exporting Countries oil revenues of rich countries were invested in targeted development loans to low income countries. As interest rates shot up in the 1980s, these countries could not afford to repay these loans and the programs floundered. To address resource and supply inequities, the 1987 Bamako Initiative recommended increasing access to essential medicines to decentralize primary health care decision making to the local level, expecting communities to finance the purchase, delivery, and monitoring of medicines through revenue from sales (van Olmen et al. 2012). The United States decreased its financial

contributions in protest over WHO's Essential Drug Programme, which was seen to oppose the pharmaceutical industry: "By 1990, the Bank's loans for health surpassed WHO's total budget" (Brown, Cueto, and Fee 2006:68). Initiatives advancing systems approaches, where countries might set their own priorities and where vaccines are but one mechanism to achieve their overall goals, have received relatively short shrift by the international financial consortia that replaced WHO (Storeng 2014). As Marc-André Gagnon (2011) described the global pharmaceutical industry operating as a cartel, so too these consortia do not adhere to capitalist laws of value creation in a free and open market. Economic analyses are offered without access to raw data and the full inventory of health determinants. Old and new arguments alike reinforce the claim that vaccines prevent costly disruptions to health delivery and that, administered through regular schedules, they contribute to a healthier economy (Hardon 1990; Colombini et al. 2011). Yet, for a range of reasons —a failure to maintain vaccine coverage, an inadequate management or procurement strategy, the lack of food or health care—the burden of disease is not reduced. According to Rottenburg (2009), the determination of variables that go into the calculation of disrupted routine health care or emergency response is a 'technical game.' Löwy and Zylberman remind us, however, that in another century, "[e]ven RF [Rockefeller Foundation] officers were obliged to acknowledge that poverty generates disease, not the other way round" (2000:378).

In Burkina Faso, the MDSC emerged as a technoscientific 'center of calculation' (Latour 1987) that collected and analyzed technical facts about meningitis disease. While Burkinabé clinical researchers were optimistic about the lives saved from MenA by MenAfriVac, they called attention to the persistent challenges (and higher prevalence) of malaria, respiratory infections, and diarrheal disease. In Burkina Faso, poor quality, fee for service health infrastructures did not improve, and the inclusion of the monovalent MenA vaccine into the routine immunization program sat uneasily with the rising incidence of other vaccine preventable meningitis diseases.

With GAVI-facilitated financing, the WHO/PATH/MVP consortium set technically achievable outcomes with no platform for basic health care. According to Muraskin (2005:237), "For the dedicated cadre that enables the GAVI to function, and which constitutes its indispensable human infrastructure, the primacy of immunization is nonnegotiable." Using mechanisms that lack transparency, guaranteed markets are negotiated for select vaccine manufacturers, indemnifying them from risk and relegating vaccine development to the largest companies capable of meeting the 'standards' of required criteria. Multilateral approaches absorb all potential actors as collaborators in a common initiative, leaving few detractors to critique claims of success (Light 2009). Stories of technical success ignore the distraction of politics and social realities; they disregard the challenges of international trade agreements that disrupt country markets. Local market failures need not be associated with global financial markets in these partial accounts.

When vaccines stand in for general health systems

The development of MenAfriVac contains at least three paradoxes. First, publicly funded resources (scientists, regulators, public health officials, donors, and citizens) were captured within an ideology that vaccines are the only solution, and that they must be developed through the private sector as an industrialized science (Blume and Geesink 2000; Blume 2008). Second, general health systems were neglected while a multilateral program was prioritized. And third, it targeted a single disease subgroup across an entire continent despite long-term epidemiological evidence of community outbreaks of different subgroups over time. While MenA was the most common, other types existed and would move in where a gap could be found, as Burkinabé clinical scientists told to me in 2007.

Vaccines are transnational commodities developed through multilateral negotiations (i.e., product development partnership funding mechanisms) involving scientists, governments, industry, and their cultural brokers. They are undeniable techno-social-scientific innovations (Lakoff 2005; Petryna, Kleinman, and Lakoff 2006; Petryna 2009; Closser 2010; Huzair, Borda-Rodriguez, and Upton 2011). Networks of scientists choreograph chemistry, bacteriology, microbiology, and

cytology with epidemiological surveillance, disease burden, seroprevalence, and antigen protection to produce vaccines that boost individual and population response to foreign invasion. Much persuasion has gone into capturing scientists, regulators, and citizens into believing that vaccines have primacy over health systems and that they must be developed through a private sector. Funded by a complicated, not always transparent constellation of suprastate agencies, nations, and donors, vaccines as public health goods are swept up in neoliberal negotiations surrounding trade secrets, patents, intellectual property, and procurement mechanisms.

Public health authorities continue to battle the derailment of immunization programs without questioning the challenge to public confidence in vaccines from rumors, industry conflicts of interest, deception, and manipulation of evidence (Renne 2006, Leach and Fairhead 2007; Kaler 2009; Deer 2011; Godlee, Smith, and Marcovitch 2011; Larson and Schulz 2015). Threatened by public misinformation campaigns, distrust and failing to understand the sources of discontent through legitimate engagement of local community priorities, public health vaccine advocates often forget the principles of scientific skepticism. Instead, they vilify their detractors, and expect compliance in evidence vacuums. Clinical scientists arguing for better vaccines in better health systems (Osterholm et al. 2012) get charged with "heresy in the public health world" (Caryn-Rabin 2012:D5), even when their concerns gain wider acceptance (Cohen Marill 2015).

Characterized as valuable public goods when polio campaigns and smallpox eradication were seen to serve society, different vaccines in world systems with profound health care inequities can give the appearance of value extraction (Mazzucato 2013). The rent-seeking behaviors and "corrosive capture" (Carpenter 2013:152–172) of a flawed free market model sidelines public health services for economic commodities.

Conclusion

I have examined ambiguities in the representation and appropriateness of the technology chosen, and shown how MenA came to stand metonymically for meningitis in Africa. Daniel Carpenter (2013:63) posited three markers for evidence of regulatory capture by influential special interest groups, which I suggest correspond to the ambiguous collaborative approach of MVP. A*n interested public* (African leaders) were gathered to endorse the WHO/PATH/MVP plan three times in this account (Carpenter's first marker); MVP showed *action and intent* (second element) in developing an affordable vaccine and building country surveillance capacity, but only partially completed each task—MenA did not rid the belt of meningitis, and capacity building for country surveillance was not extended to community surveillance (Graham et al. 2012). Finally, the vaccine *diverted the public interest* (Carpenter's third element) regarding general health systems strengthening.

Quadrivalent meningitis and Streptococcus pneumonia vaccines were available but unaffordable to most Africans. When no major vaccine manufacturer would produce the vaccine, the MVP consortium provided a push incentive to build SIIL's capacity for vaccine development. Advance purchase contracts offered a guaranteed market pull. The MVP supported SIIL in becoming Asia's largest vaccine manufacturer, positioned to be a major supplier to the global south. When public private partnerships are 'essential' to develop vaccines for the world's poorest, evidence of their real world effectiveness should be required (Barr 2007; Atun, Bennett, and Duran 2008; Mounier-Jack, Griffiths et al. 2014). Real value added innovations in vaccine development and health systems strengthening should do more than de-risk private investment (Mazzucato 2013).

While publicly funded organizations lend vital expertise to global health, philanthro-capitalists determine the agenda and specify the goals (Storeng 2014; McGoey 2014). The declining capacity of WHO in global health policy and governance, along with the weakening of public health as the World Bank eschewed policies that advanced a global social contract was criticized by Kickbusch and Payne (2004:11–12) as "a scandal of global health governance that WHO member states … would allow a situation to arise in which private philanthropy, the Gates Foundation, has more money to

spend on global health than the regular budget of their own organization, the World Health Organization." This only accelerated in the ensuing years.

Meningitis A certainly appears to be under control. But Men B, C, W-135, X, Y, and Streptococcus pneumonia have filled the gap created by the control of MenA. In Ouagadougou, capacity building for MDSC surveillance failed to extend to communities where outbreaks occur. Procedural rules required by centers of calculation "reduce localized, complex realities" (Rottenburg 2009:190) which remained in the margin. I heard much speculation about "why they introduced Men A when they knew it was already under control" in Burkina Faso, where scientists and clinicians expressed an array of concerns and skepticism surrounding the project although they welcomed the few resources available from the activities surrounding the campaign. As one researcher said, "They targeted Men A when they knew it was already under control. When you want to appear to control the wind, you wait until the wind is low and already in control."

MenAfriVac's development exemplifies collaborative capitalism that does not quite achieve what should have been the goal—better health within a sustainable health system developed through local priorities. In purporting to address north-south health inequities, it embodied free market tenets, priorities from a top down vertical program, and staked claims for intellectual property while guaranteeing a large market for a small return on investment. There was never any risk involved, but uncertain risks to come.

Notes

1. The Expanded Programme on Immunization (EPI) was established in 1974 through a World Health Assembly resolution to provide universal access to all relevant vaccines. The goal of EPI is to control disease and achieve better health for all. It has become an essential public health service in low income countries, especially regarding their immunization needs. Adding a vaccine to the standard EPI can take 10 to 15 years. Seven countries (Burkina Faso, Cameroon, Chad, Ghana, Mali, Niger, Nigeria) were scheduled to introduce MenAfriVac into their routine EPI by the fourth quarter of 2015 (WHO 2015a).

Acknowledgments

This project was approved by the Burkina Faso Ministry of Health Research Ethics Committee, by the Nouna District Secretariat General to the President of the Research Ethics Committee and by Research Ethics, Dalhousie University.

I wish to thank Elwyn Griffiths, David Wood, Marc LaForce and the MVP team, Gilles Bibeau, Hélène Broutin, Oumy Thiongane, Ali Sié, Bocar Kouyaté, Boubakar Coulibaly, Maurice Yé, Aboubakary Sanou, Helene Sawadogo and the many others who made time to talk with me.

Funding

This project was funded entirely by the Canadian Institutes of Health Research through various grants, including North-South workshop for an African decision-making framework for vaccines CIHR-88301; Regulatory challenges to the development of new vaccines: Mapping emergent relations between science, evidence and policy CRC-99978, Articulating Standards: translating the practices of standardizing health technologies CIHR OGH-111402, and my Canada Research Chair in Bioethics (2002-12).

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