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## INFLUENZA AND THE CONCEPT OF INFECTION: REFLECTIONS ON BODILY BOUNDARIES

**Abstract:** In 2009 a novel strain of the influenza virus caused the first worldwide flu pandemic in more than 40 years and thereby marked a turning point in the medical history of the flu: Nowadays influenza plays a key role in international attempts of preventing and managing infectious diseases. But while there is much focus in this debate on the epidemiological and biological aspects of pandemic threats, not much specific work has yet been done on the impact of influenza on the conceptualization of the human body and its embeddedness in larger global forces.

Seen from an anthropological point of view, the spread of the influenza virus could only occur if certain sociotechnical practices, environments and connections were in place: On-going globalization processes show an accelerated effect on the development and spread of the influenza virus, as empirical research has shown. Taking these complex transnational flows and pathways, influenza must be analysed as a mobile, transgressive and non-territorial phenomenon, challenging traditional limited concepts of the human body, of space, culture and prevention. Post-Foucault, it can be assumed that biotechnologies, preventive discourses and practices are constitutive of the construction of subjectivities, the human body and social order in general. It is in this context that bodily boundaries are not static, however. They may vary with medical treatment, age or disease. Interestingly enough, the influenza virus functions as a transgressive agent with material potential, representing the threatening other, blurring the boundaries between self and non-self, bringing together concepts and technologies of prevention, human bodies, pigs, vaccines and discourses on biosecurity.

In my paper, I wish to emphasize the fundamental important role that influenza may play in processes of maintaining health and preventing infectious disease under the specific conditions brought about by globalization processes and its impact on the biopolitical management of the human body. Specifically, I suggest taking account of current concepts of prevention which go hand in hand with emerging effects of power and new forms of governance.

**Keywords:** Influenza, bodily boundaries, vaccination, globalization, prevention

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In Steven Soderbergh's 2011 Science Fiction Thriller "Contagion", a lethal airborne and flu-like virus spreads around the globe and causes a worldwide outbreak, threatening to kill millions of people in a devastating epidemic. The starting point of the movie is businesswoman Beth Emhoff, returning from a business trip to Hong Kong, who suddenly falls ill from some incurable, mysterious disease and dies within a couple of hours. After detection of this first case, an increasing number of patients (not only from Minneapolis, but also from Chicago, Hong Kong and other metropolitan areas) start to suffer from similar flu-like symptoms, and after their samples are examined, it soon becomes clear to the audience and the public health experts themselves, however, that a new and yet unknown virus is on its way to spread inexorably in space and time.

While the audience is confronted with the public health officials' struggle to contain the epidemic, more and more details on its global embeddedness are revealed: Riding a bus, touching a handrail, sharing a glass with friends – seemingly harmless activities contribute to the spread of the deadly disease, and faced with the global dimensions of the infection we learn that problems halfway around the globe have become our problems, too (see also Brundlandt 2003, 417). By reconstructing Beth Emhoff's business trip, the origin of the mysterious disease can be traced back to China where – as a virologist working on the molecular biology of the virus puts it – "the wrong pig met up with the wrong bat" and thereby caused the emergence of a new viral agent.

Soderbergh's movie does not only represent a disaster scenario wherein transnational interconnectivity contributes to the destruction of modern civilization, but it addresses two aspects of a global epidemic that are central to our understanding of infectious disease: First, the virus is scary just because (unlike other monsters featured by Hollywood's blockbusting productions) it is invisible to the human eye, and second, our body is materially interconnected with other bodies, be them human or not. This observation may serve as a starting point for a critical analysis of bodily boundaries from the perspective of cultural anthropology. My essay will discuss the entanglements of the human body and the microbes we are surrounded by exploring questions of border transgressions and global circulations as they have been raised during the 2009 "swine flu" pandemic.

#### **Pandemic flu and global nightmares**

"Pandemics of influenza have swept the world from time to time throughout history, three times in the last century. They caused widespread illness, large numbers of death, including among children and young adults,

and huge societal disruption, concentrated in just a few weeks. There is currently rising concern that a new influenza virus with pandemic potential will emerge and spread, and a further pandemic can be expected. When that will be is not known, but the consequences, when it does, will be serious. Around a quarter of the population could be affected..." (UK Health Departments 2005, 4)

In view of SARS, avian and swine flu, Ebola, Tuberculosis and HIV, it has been commonly recognized that microbes (other than vaccines) live in a borderless world. It is in this context that the year 2009 marked a turning point in the medical history of the flu: The emergence of a new viral subtype called H1N1 (often referred to as the "swine flu") caused the first worldwide influenza pandemic since the Hong Kong flu in 1968, attracting intense attention from public health officials and the media. That influenza nowadays plays a key role in international prevention programs and global surveillance systems can doubtlessly be attributed to the fact that the Spanish flu in 1918 killed an estimated 50 million people and thereby even exceeded the death toll from World War 1.

The swine flu pandemic started in April 2009 when some cases of atypical pneumonia among young adults were detected in Mexico. It took the new influenza virus several weeks to spread within 62 countries and to infect around 18000 individuals. Early indications first seemed to suggest an unusually high mortality rate, keeping the world in suspense for many months, but this appeared to be an error. Influenza is transmitted by droplet infection and direct contact as in coughing, sneezing, kissing or shaking hands. The infection – leading to an acute, febrile and highly contagious respiratory disease – is caused by three different types of influenza viruses, and the flu symptoms develop after an incubation period of 24 to 48 hours, including fever, cough, chills, fatigue, muscle aches and runny nose. While the infection may affect people of all age groups and usually causes mild to severe illness, it may even lead to death among those individuals (like children, elderly people, pregnant women or those with certain chronic medical conditions) who are at risk for developing severe flu complications.

In retrospect, it turned out that the swine flu pandemic was caused by a relatively harmless influenza strain – however, it also demonstrated a need for international cooperation and joint efforts in response to the pandemic threat. But whereas there is much focus in this debate on the epidemiological, biomedical, economic and virological aspects of pandemic threats, not much specific work has yet been done on the impact of influenza on the conceptualization of the human body and its embeddedness in larger global forces.

Strikingly – as scholarly debates on cultural differences, on the construction of space and territorial conflicts illustrate (see e.g.

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Gupta/Ferguson 1992) – there is general agreement among anthropologists that the boundaries of culture are difficult to fix, and this is even more true for the culture of microbes. Although microbes have always been mobile, their transnational traffic is currently expanding and quickening. As a consequence of the increasing worldwide mobility, the transnational flows of humans, animals and microbes are intimately linked (Ali/Keil 2008, 5).

Seen from the point of view of cultural anthropology, the spread of the influenza virus (as that of other microbes) could only occur if certain sociotechnical practices and connections were in place: Empirical research has shown that on-going globalization processes show an accelerated effect on the emergence, development and spread of the influenza virus. Taking complex transnational flows of people, animals, technology, food and microbes, influenza must be analysed as a mobile and non-territorial phenomenon, challenging traditional concepts of the human body, of space, culture and prevention. Post-Foucault, it can be assumed that biotechnologies, preventive discourses and practices are constitutive of the construction of subjectivities, the human body and social order in general. It is in this context that bodily boundaries are not static, however, but may vary with medical treatment, age or disease. Against this backdrop, it is hardly surprising that the influenza virus functions as a transgressive agent with material potential which blurs the boundaries between self and non-self (Wolf 2012).

In this article I want to discuss the biocultural dimensions of influenza and its impact on the construction of bodily boundaries from the perspective of cultural anthropology. Central to this inquiry is an analysis of current biomedical conceptions of human bodies and their immune systems. Thereby my initial assumption is that human and viral social worlds are mutually correlated and may even be considered an integral part of human "nature".

Second, I seek to situate these issues into the broader context of a microbial globalization, that is I wish to emphasize the fundamental important role that influenza may play in processes of maintaining health and preventing infectious disease under the specific conditions brought about by globalization processes and the biopolitical management of human and other bodies.

### Biomedicine and the human body

As anthropologists and other social scientists have long pointed out, biomedical knowledge, practice and technologies have an important impact on how we conceptualize and understand the human body (Lupton 2006, Dumit 2004, Lindenbaum/Lock 1993, Helman 2007). For example, in the mid-19<sup>th</sup> century medical experts believed that *miasma* – a poisonous vapour resulting from poor sanitary conditions, air pollution and crowded housing – caused

epidemic diseases like cholera or typhus, ravaging urban areas during the age of Industrial Revolution. In consequence, public health reformers made efforts to improve the sanitation conditions and focused on environmental problems instead of those of personal and individual health. With the invention of microbiology and closely linked to the work of Louis Pasteur and Robert Koch, however, modern medicine abandoned miasmatic explanatory models in favour of the germ theory of disease. It was now taken for granted that the presence of small organisms – *microorganisms* – in the human body caused disease, an explanatory model which still remains valid today for understanding health and illness. The flu for example represents a biomedical model of ill-health and is said to be caused by a virus invading the respiratory epithelium, hence its treatment is chosen accordingly and addresses individual health only (but see Helman 1978 for alternative approaches).

In light of the germ theory of disease, what does biomedicine with its focus on biochemical, cellular and molecular levels of reality have to offer to an anthropologically informed understanding of influenza? And how is a biomedical body characterized? The human body, as modern biomedicine has constructed it, does not extend beyond its epidermis, but is equipped with secure and autonomous bodily boundaries – as medical anthropologist Cecil G. Helman makes clear, the healthy body is a body which is independent and in full control of its functions (Helman 2007, 27). The underlying and genuinely modern assumption is that the individual is bounded by its epidermis; as an external boundary the skin divides the subject from other subjects as well as from objects, environments or pathogens (Grosz 1994, 115). But these individual boundaries may also extend beyond the border of the epidermis: Clothing, hair, cosmetics as well as the border of an apartment, a city or a nation state can be experienced as a "symbolic skin" – as these borders are potentially fragile and in permanent need of maintenance, protective systems such as the immune system, airports or border posts are of key importance to the preservation of individual, urban, public or national health. For social scientist Deborah Lupton, abstract concepts of bodily boundaries are representative of the way people place themselves as parts of a natural and social world and express concerns "about the integrity of the body in an age in which potential contaminants are invisible, and where epidemics such as HIV/AIDS have served to heighten fears about the maintenance of body boundaries" (Lupton 2006, 38-39). As both a physical-material and a sociocultural reality, the human body is a critical locus of biopolitical contestation, and biomedical concepts (such as the concept of infection and the germ theory of disease) are relevant for how people experience their bodies and selves, their relation to other bodies and selves, for how they intervene in the geopolitical order of biological life. According to Sebastian Abrahamsson and Paul Simpson, bodily boundaries in the most general sense

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can be understood "as that which separates inside from outside; as a skin or a membrane that separates organism from environment; as a boundary between categories". (Abrahamsson/Simpson 2011, 332; see also Longhurst 2001) Once the epidermis ceases to establish a stable material-symbolical border between the human body and its environments, the resulting infection reflects the dissolution of these boundaries: Contagion materializes the interconnectedness of human and other biological beings.

### **The concept of infection**

In post-modern societies, our relationship to germs, dirt and grime is somewhat ambivalent. In view of the fact that small children customarily pick things up from the ground and put them in their mouths, folk belief says – to take on well-known example – that "a little dirt is good for you", referring to the belief that early childhood exposure to microbes spurs the development of a healthy immune system. On the other hand, germs are often considered the "bad guys: foreign, unnegotiable, dangerous" (Patton 1986, 51), an attitude which is reflected by the wide-spread use of hand sanitizer, disinfecting home cleaners or antibiotics.

Whether threatening invaders or useful companions, the human-viral relationship and the concept of infection demand a closer analytical look. What is considered dirt or cleanliness, hygienic or unhygienic will vary from one time period to another and shifts with cultural norms (Douglas 2002, Amato 2000, Scanlan 2005). For British geographers Ben Campkin and Rosie Cox, theories of dirt and the perception of dirtiness are "useful tools for understanding and confronting inequality and marginality" (Campkin/Cox 2007, 5), since social status goes hand in hand with a certain distance to dirt and – vice versa – people of lower social status are more likely to be forced to carry out a cleaning job or domestic labour, be it paid or unpaid. They argue that the way we currently think about dirt and contagion goes back to the emergence of bacterial explanations which produced the idea of "invisible dirt" in terms of germ theory – and coproduced cleaning practices, standards and spatialities of dirt and cleanliness.

As discussed above, the concept of infection is indeed closely linked to the invention of modern microbiology in the mid-19<sup>th</sup> century; put simply, it refers to the entry and multiplication of an infectious agent (such as viruses, bacteria, fungi or parasites) in the body of a human, an animal or a plant. Usually infections are conceptualized as a negative process – it is obvious of course that they are associated with a variety of serious diseases (ranging from AIDS and Ebola to cancer and Hepatitis), suffering and death. But the problem of viral fears is surely much more deep rooted and touches the very

foundation of human subjectivity. In order to understand the process of infection, however, it is essential to differentiate between at least two ontologically diverging actors: the virus (or any other germ) – usually understood as the invader – and its host (be it human, animal or plant), both of which are considered to belong to a different species. In case of a viral infection, the germ invades the inner body space of its host by travelling through entry points like wounds, retina, mucus membranes, urinary or intestinal tracts. After having entered the body, the virus inserts viral genetic material into a specific host cell, thereby forcing it to produce copies of itself (since viruses can't multiply on their own). As a consequence, the infection results in a blurring of traditional boundaries between self and non-self, subject and object.

But, as philosopher of science Donna Haraway fittingly observes, the concept of an organism (and its borders) does not rely on a given "natural" landscape of species, but rather is something that has a need for maintenance and preservation (Haraway 1993) – it can be assumed that the construction of bodily boundaries usually serves a certain purpose, be it material, socio-cultural or biopolitical (Abrahamsson/Simpson 2011, 336). In her work on the cultural construction of the immune system – which is commonly depicted as a hierarchical system of control and cooperation –, Haraway aptly illustrates how the invention of immunological knowledge triggered biopolitical concerns about how "to construct and maintain the boundaries for what may count as self and other in the crucial realms of the normal and pathological" (Haraway 1993, 366; on inter-species relationships see also Haraway 2008, Franklin 2007). While discourses on infections (such as HIV, hepatitis or influenza) frequently engage in identifying those individuals who might be affected most, they can never be seen as mere reflections of "objective" scientific knowledge. Rather, they concern representations of difference and sameness.

As the empirical cases of SARS, HIV/AIDS and avian flu have documented, individuals who were identified to be potential spreaders of the epidemic experienced social stigma, manifesting itself for example as discrimination at the workplace, blaming, social isolation and open resentments (Kleinman/Lee 2006, Martin 1999, Singer 2009). On the basis of the swine flu pandemic, medical anthropologist Merrill Singers reports on "geographies of blame" which resulted from the detection of first influenza cases in Mexico: This information found a resonance not only in concerns about "illegal" Mexican immigrants, but even in the banning of pork imports from Mexico or the quarantine of (healthy) Mexican travellers. Implicit here is the claim that the influenza virus – representing the 'Other' – affects (Western) social order and security and infiltrates (Western) bodies. Contact and contamination, both in their symbolic *and* material dimension, are very

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closely related (Mayer/Weingart 2004, 25). Thereby, the incident of infection contests the very idea of being bounded against otherness.

With that said, infections must be understood as the reflection of a hierarchized world order rather than an accidental, but essentially natural event. To go further on this topic, the invention of scientific categorizing systems, dividing the world into macro- and micro-organisms, has lately attracted criticism for neglecting microbial contributions to human social worlds and human-microbial interactions as such (see e.g. Paxson 2008, Kirksey/Helmreich 2010). The situation is further aggravated by the fact that viruses are likewise closely linked to human practices, artefacts, routines, technologies and bodies and may even be considered an integral part of human life and human "nature" itself: Germs are an inseparable part of everyday life – and of the human genetic blueprint. What points to far-reaching human-viral co-evolutionary processes is the fact that (retro-)viruses seem to have played a crucial role in the development of the human genome: A close look at our genome (and that of other mammals) reveals that the remarkable amount of up to eight per cent of it consists of viral material, stemming from so called fossil viruses which have colonised the human genome in ancient times.

This *endogenization* process takes place as follows: As a virus enters a human or mammalian host cell (after having penetrated the cell membrane), it inserts its RNA into the host cell genome and allows its genetic information to be permanently integrated into the host's DNA (Donovan 2010). The infected cells are now forced to produce proteins needed to assemble more viruses. In case the retroviral infection takes place in a germ cell, the virus then replicates as an integrated part of its host's sexual reproduction and is passed on to future generations of the host's offspring which will have a copy of the virus in every single cell. Subsequently this involves a permanent association between the host and the virus (Arnaud et al. 2007). To take one well-known example, we all carry a significant amount of (fossil) Herpes virus-DNA with us. As a consequence for the host's physiology, however, endogenization processes can produce beneficial side effects: Some scholars suggest that retroviral fragments have endowed the host with new capacities such as to provide protection against the infection with exogenous retroviruses (Arnaud 2007, Villarreal and Witzany 2010). Others by contrast establish a connection between viral endogenization and a wide range of diseases, including autoimmune diseases, cancer or neurological disorders (Ruprecht et al. 2008, Donovan 2010).

Seen from a co-evolutionary perspective, these findings do not only trouble assumptions that the virus could be an intruder or "alien" to the human body, but they highlight the plasticity of our biological body, seen as a

composite of many species – or, as Haraway makes clear, individuals "neither stop nor start at the skin" (Haraway 1993, 381).

### Microbial geographies

"... superspreaders and worldwide interdependence turned the simplest interactions potentially fatal on a global scale." (Wald 2008, 5)

Given the processes of endogenization discussed above, it is not surprising, then, that human and viral social worlds are mutually correlated rather than independent, and that they belong to the realm of the biocultural. The matter of bodily boundaries is further complicated by the fact that the human body is constantly re- and decomposed through its relations with the world around (see Abrahamsson/Simpson 2011, 337), and that its materiality is always messy and deeply coupled with its environments. In a globalizing context, diverging actors (be them human or not), places and materialities are connected by a multitude of material and non-material flows. Recently – triggered by the empirical cases of SARS, avian and swine flu – the concept of a microbial globalization hit the headlines: All is in flux, and everything relates to everything else, as the saying goes (see Martin 1999, 250).

Research on influenza raises questions about the effects on-going urbanization and globalization processes have on the emergence and development of emerging infections: It can be regarded as certain that the spread of the influenza virus (and other germs) is triggered by *human* practices. Clinical hygiene, for example, contributes to the development of multi-resistant pathogens, as does the excessive use of agricultural antibiotics which exerts a selective pressure on microbial agents. However, as air routes, bird migration and certain consumption patterns do have similar supporting effects, they won't be discussed in detail here (but see e.g. Sauerborn 2006, Sun/Yang 2008, Leibler et al. 2009).

The emergence of SARS in 2003, however, shed light on the problem of certain agricultural practices: Poultry and factory farming as well as live bird markets – and a close proximity of different species – seem to provide a comfortable medium for the emergence of new influenza subtypes (and other viral agents) which do not recognize species boundaries (birds, pigs, humans and other mammals are susceptible to influenza viruses). Problematic about these agricultural "high-risk" practices is the fact that they are commonly attributed to a "pre-modern elsewhere", against which the British geographers Steve Hinchliffe and Nick Bingham caution in their work (Hinchliffe/Bingham 2008, 214). In current epidemiological and biomedical writings (United Nations Association in Canada 2006, Wilber 2006), it is assumed that the influenza virus has become endemic in Southeast Asia where

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it has established an ecological niche in domestic poultry and ducks, providing opportunities for both human and avian flu pandemics. But, as critical scholars aptly illustrate (Hinchliffe/Bingham 2008, Ali 2008, Braun 2008), modern world cities and their rural hinterlands are organized within the same network of interaction and disease transmission, rather than being distinctive spaces of either modernity or traditionalism: "SARS was 'only the latest reminder of how powerful [the new global] connections can be', and danger was only one expression of that power. Displacing the problem of poverty onto the danger of 'primitive practices' allowed these accounts to offer modernization as a promised solution to, rather than part of the problem of, emerging infections. In the process, they turned the duck farms of Guangzhou into relics of an antiquated past rather than spaces of global modernity." (Wald 2008, 8).

Being connected through global networks, cities (which participate in the organization and distribution of people, animals and viruses) interact intensively with their rural hinterlands and agricultures – it is worthy of note that these networks serve as an extension of bodily boundaries and thereby reconfigure the relation between the biological lives of humans, animals and microbes, living in small villages or large cities all around the world. To summarize it briefly: Influenza is complex in its diffusion; it sits at the very juncture of natural and sociocultural conditions and reorganizes the linkage between urban and rural environments, between the human body and a multitude of other biological beings. Hence, in order to analyse this assemblage, it is necessary to take into consideration different levels of reality: the virus as well as the individual body, society as well as bird migration, the nation state as well as climate changes.

### Conclusion

While Soderbergh's "Contagion" leads to the successful development of a vaccine, the story of influenza is far from being over and raises essential questions about human-viral co-evolutionary processes, emerging effects of power, new forms of governance and biosecurity. Influenza does not only reflect common anxieties about the proper maintenance of bodily boundaries, but it suggests that "practices of nature-culture are microbial as well as human" (Paxson 2008, 39).

As a result, the relationship between influenza and the human body cannot be reduced to a single logic, but must be understood in terms of flexibility and change. Anthropological research on human-viral co-evolutionary processes forces engagement with epidemiological and biomedical theory and must be able to track emerging biomedical knowledge and technologies to large scale

social forces. In this view, research on influenza needs to focus on the globalized and globalizing context of infectious disease and the embeddedness of pandemic preparedness into global networks of monitoring and surveillance techniques (Weir/Mykhalovskiy 2010). Preparedness strategies – conceptualizing influenza as generic, on-going and encompassing (Lakoff 2008) – are of key importance to the reframing of infectious disease control, on a local, national and global scale. Geographer Bruce Braun describes biosecurity discourses as an emerging form of sovereign power which "places the actions of the state 'outside' politics, [...] justifying a continuous *state of emergency* at the level of political life by reference to a continuous *state of emergence* at the level of molecular life." (Braun 2007, 23). Public Health strategies are therefore challenged by the globalizing context of infectious diseases since they are no longer able to draw back on local practices and to concern themselves with local bodies. Braun hints to the fact that bodies are far from "self-contained and discrete entities", but always in a process of formation, and that their boundaries are a messy zone of contact, "continuously exchanging properties with other bodies, whether human, animal, plant, or machine." (Braun 2008, 253). Recognition of the linkage of other organisms and other places to the human body suggests that there is a need for a biocultural reconception of influenza and its impact on our understanding of the topology of the body. Against this background, it is crucial to scrutinise whether human health can be predicted and planned along proper categories of biological life – influenza seems to indicate that this is not the case.

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#### **GRIP I KONCEPT INFEKCIJE: REFLEKSIJE O TELESNIM GRANICAMA**

Nova vrsta virusa gripa je 2009. godine, posle više od 40 godina, izazvala prvu svetsku pandemiju gripa i na taj način označila prekretnicu u medicinskoj istoriji gripa: danas grip igra ključnu ulogu u interdisciplinarnim pokušajima prevencije i upravljanja infektivnim bolestima. Ali dok je u ovim raspravama pažnja uglavnom usmerena na biološke i epidemiološke aspekte pandemijske pretnje, još ne postoji mnogo posebnih radova o posledicama gripa na konceptualizaciju ljudskog tela i njegovu uključenost u šire globalne tokove. Posma-

trano s antropološke tačke gledišta, širenje virusa gripa moglo se pojaviti jedino ukoliko su postojale određene sociotehničke prakse, okruženja i veze: tekući procesi globalizacije pokazuju pojačani uticaj na razvoj i širenje virusa gripa, kao što je to pokazalo empirijsko istraživanje. Prelazeći ove složene transnacionalne tokove i puteve, grip mora biti analiziran kao fenomen koji je pokretan, neteritorijalan, i koji prekoračuje granice dovodeći u pitanje tradicionalne ograničene koncepte ljudskog tela, prostora, kulture i prevencije. Nakon Fukoa može se pretpostaviti da su biotehnologije, preventivni diskursi i prakse konstitutivni za konstruisanje subjekta, ljudskog tela, kao i društvenog poretka uopšte. U ovom kontekstu telesne granice nisu statične. One mogu varirati u skladu sa medicinskom negom, godinama ili bolešću. Virus gripa funkcioniše kao agens sa materijalnim potencijalom, koji prekoračuje granice i predstavlja pretećeg drugog, zamagljujući granice između ja i ne-ja, i spajajući koncepte tehnologije i prevencije, ljudskih tela, svinja, vakcina i diskurse o biosigurnosti. U ovom radu želim da naglasim suštinsku ulogu – koju pod specifičnim uslovima do kojih je došlo procesima globalizacije – grip može igrati u procesu održanja zdravlja i prevencije infektivnih bolesti, kao i njegov uticaj na biopolitičko upravljanje ljudskim telom. Posebno sugerišem uzimanje u obzir savremenog koncepta prevencije koji ide ruku pod ruku sa nastajućim efektima moći i novim oblicima upravljanja.

**Ključne reči:** grip, telesne granice, vakcina, globalizacija, prevencija