

## Extending the boundaries of ‘urban society’: The urban political ecologies and pathologies of Ebola virus disease in West Africa

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If urban political ecology (UPE) is, at its core, about urban life, infectious disease, its origin, trajectory, and the response to it must be among its prime occupations.<sup>1</sup> After all, cities and infectious disease have a joint history which is shaped and characterised by the relationships between human and non-human nature in and around urban settlement. Zoonoses – the leap of diseases from animal to human reservoirs – the spread of disease vectors such as mosquitoes and ticks in the outskirts of growing cities, and the mobility of bodies through an increasingly urbanised space are aspects of those relationships. Those are not separate from other physical and social articulations of what is commonly referred to as ‘city’ and ‘nature’; disease spread is related to metabolic exchange which is the signature concept of UPE. Both urbanisation and the production of nature have changed in recent decades as we have seen more extended forms of urbanisation around the world (Connolly et al., 2020; Tzaninis et al., 2021). Accordingly, this chapter will examine the histories and geographies of the relationships of cities and infectious disease as a problem of the political ecology of extended urbanisation in a moment of intensified climate emergency.

As the world continues to flirt with unprecedented climate change and species extinction, it appears humans are claiming ever-more space and putting more and exceedingly damaging pressure on natural systems; yet at the same time, massive urbanisation also remakes those natural conditions, some would even speak of influence on evolutionary change (popular discussions in this context include those on the Anthropocene and on ‘human-induced rapid evolutionary change’; see Quammen, 2018). More than 3 billion people are projected to be added to the 7 billion that already inhabit the planet before the world population is projected to plateau. It is likely that most of these new earthlings will live in some form of extended, sub-urban environment. This settlement pattern cuts into existing agricultural

land and drives urbanisation into feral and previously uninhabited regions of the world. This involves the loss of prime forest areas which has been connected to the spread of disease (Olivero et al., 2017; Pontes, 2020). The consequences of this massive expansion in human settlement add up to a redefinition of what urban life, or life generally, will mean for humans on the suburban planet. These consequences test the conditions of our collective existence in ways we have not seen since the emergence of the 'bacteriological city' (Gandy, 2006) a century ago, and they challenge the socio-technological networks we have introduced to live in what Lefebvre (2003) calls 'urban society'.

While the hygienic city of the twentieth century in many parts of the world created infrastructures and public health institutions that contributed to the containment of outbreaks which had plagued urban life in previous centuries, recent decades have seen a (re)emergence of infectious disease in cities. This emergent phenomenon coincides with what has been referred to as planetary urbanisation/suburbanisation and the formation of 'urban society' or 'the prodigious extension of the urban to the entire planet' (Lefebvre, 2003: 169). While noting the possible 'rupture' caused by this development for 'industry and finance', Lefebvre is explicit about the fact that industrial society 'simply ravages nature and everything associated with "naturalism"'. Lefebvre (2016: 149) is concerned about how 'Mastery over nature, associated with technology and the growth of productive forces, and subject solely to the demands of profit (surplus value), culminates in the destruction of nature', but he also holds out the possibility that urban society brings forth new forms of 'nature' and new modes of management of scarcities related to that emergent nature (2003: 25–7).

Somewhere in there, urban society also needs to find new ways to live up to the challenges of human physical nature, including the management of health and disease (left, as we know, to the methods and devices of the industrial city in the past). One obvious point of entry into this discussion is the recognition of public health as part of the development of 'social needs' which Lefebvre says '*defines socialism*' (2016: 131, emphasis in original). Lefebvre explicitly exposes the fallacy of equating the city with disease – although he carefully explicates Engels's early writings on the deprivations of the working-class quarters (Lefebvre, 2016, 1: 3–18). He critiques the tendency in some of the twentieth century's revolutionary efforts to assume that 'the large city is nothing but vice, pollution, and disease (mental, moral, social)' (2003: 92). Instead, he proposes a dialectical model that notoriously argues that the urban revolution is predicated on the end of the city and its replacement by urban society (2003). Taking up Lefebvre's dialectical method that builds on the contradiction of general urbanisation and the end of the city, this chapter looks at the ways in which a 'spatialized

political ecology' (Connolly et al., 2020) can help understand the challenges a generalised urban will encounter and how it can contribute to mitigating the impact of disease outbreaks that appear to be endemic to emerging urban society.

In developing our conceptual argument, we bring together two areas of thought that have different origins and histories but are compatible in our current context. One area is Sub/urban Political Pathologies, i.e., the inter-relationship of peripheral urbanisation with the spread of (re-)emerging infectious disease and with new and persistent chronic health conditions (Connolly et al., 2020); and the other area is Sub/urban Political Ecologies, in other words, the political ecologies of extended urbanisation (Tzaninis et al., 2021). Through these lenses, we subject the political *pathologies* and the political *ecologies* of the urban periphery to similar analytical principles: humans are embedded in ecologies of more-than-human environments that are structured by human action while being both enabled and constrained through the conditions of what we refer colloquially as nature.

*Urban political pathology* (UPP) is here understood as the intersection of urbanisation and the governance of health. This is based on David Fidler's use of the term during the SARS crisis when he noted that political pathology 'contains a message that responses to pathogenic microbes are deeply political' (2004: 18). Fidler's notion of political pathology entails an attempt to 'analyze the scientific, medical, and public health challenges [a given infectious disease] creates through a political lens' (2004: 8). The relationships of urbanisation and health/disease have long been the subject of scholarly study (Rossi-Espagnet, 1983). It has been known that patterns of urbanisation can increase the statistical odds that microbes are being spread and have played a key role in the tripling of the total number of disease outbreaks per decade since the 1980s (Keil and Ali, 2007: 848). The 'promiscuity' of urban interaction is seen as key to the spread of infectious disease (Wald, 2008: 14) and the proliferation of urban settlement initiates a new research agenda:

there is something peculiar about urban environments and their impact on human health and this problem is potentially global in scale. This observation presents a problem worthy of more detailed exploration: seen from a theoretical angle, the ways in which urban complexity can be distinguished from other kinds of complexity are still far from clear. What exactly constitutes 'the urban' within the complex assemblages of disease interactions?

(Wolf, 2016: 959)

The most significant global disease outbreaks in recent years have originated in China and Africa, which are also among the most rapidly urbanising countries and where the urban periphery in particular has been a focus

of attention (Ali et al., 2016). But under current conditions of mobility and connectivity, those infections are not contained at the point of origin. Diseases that used to be exclusively isolated and rural phenomena, like the Ebola outbreaks of the past, are now becoming urbanised. The most recent outbreaks of this haemorrhagic fever have typically occurred in the sprawling towns and cities of West and equatorial Africa. And as COVID-19 showed in utmost clarity, the transmission from an urban centre to the entire world can now occur in days and weeks, rather than months and years. The political governance systems in place have not proven to be calibrated to these changes as they continue to be tethered to the 'Westphalian' state system.

The political aspect of UPP does not just mean hierarchical or networked institution-building. Urban society develops in a dialectic of exposure and containment that needs political contestation, negotiation, and decision-making. Politics is therefore critical in any discussion of disease governance and political pathology in urban society. As research on SARS, widely considered the first pathogen of the global era, has shown, past hierarchical and hermetic, nation-state-based regulation needed to be complemented by institutions and actors at the international, sub-national, sub/urban, and community level, especially through civil society-based advocacy and monitoring systems (Ali and Keil, 2008: 50). Consequently, asking how and why suburban or peri-urban areas are conducive to disease outbreaks is an important question to explore (Connolly et al., 2020). During the COVID-19 pandemic, the regulation of social, spatial, and institutional peripheries was thrown into the spotlight in many geographical regions (Biglieri et al., 2020). Comparative political pathologies render important insights on the vulnerability of particular groups in different spatial and socio-economic settings (Kapiriri and Ross, 2020).

*Urban political ecology* (UPE) looks at the urbanisation of nature and investigates urban metabolisms through a material and materialist lens that recognises both physical processes of exchange and societal mediation of such processes. During the current period of urbanisation much attention will be on urban peripheries. We can therefore speak of a *suburban* political ecology, which brings into relief the vast swathes of residential territories where people make their home around the globe but also the 'non-places' where people work, travel, and dispose of their leftovers, like airports, oil fields, and garbage dumps. Instead of seeing these spaces as a mere appendage to the central city, we propose to look at the metabolism of the urban region from the outside inwards (Tzaninis et al., 2021).

Urbanisation is now the conditioning process through which political ecologies and political pathologies gain shape. It is an engulfing process that is not restricted to specific confined places but creates an overreaching way

of life that is resourced by planetary streams of goods and services and is vulnerable to often unexpected shocks (health emergencies, disasters, economic crises) that can originate anywhere in the system but have consequences beyond that point of origin. Martin Murray has called the ‘distended urban form ... the template for global urbanism’ (2017: 46). To Murray and other urban theorists, the bloated, unbounded form of urbanisation finds its equivalence in the solution of political governance and rational planning. The result is ‘a seemingly random aggregation and spatially discontinuous collection of fragments always in motion’ (2017: 31). Yet, there are differences across the globe that are etched into narratives of progress, stasis, and decay. The creative city discourse that has characterised the urbanism of the West for much of this century was counterposed to the ‘deadening homogeneity – characterized by slums and informality – [in the so-called] prototypical Third World City’ (Murray, 2017: 31). Both extremes and stereotypes have subsided as the creative city has been largely illusory and the city of the Global South has become characterised less by homogeneity than by splintered enclave urbanism.

The distended urbanisation that is now common in the world poses fundamental questions to political ecology and political pathology alike. Thomas Bollyky (2018) has pointed to the ‘paradox of progress’, meaning that ‘the world is getting better in worrisome ways’, in a spiral through which metabolic processes like sanitation, and the establishment of healthier environments are intertwined in rapid urbanisation. Today, the fastest and most extensive forms of urban growth, uneven and convulsive as they are, occur in what Bollyky calls ‘poor world cities’ like Dhaka, New Delhi, Jakarta, Lagos, or Kinshasa. Those cities, with their dramatic socio-economic disparities and socio-ecological deficiencies (no clean water, no sewage disposal, no networked infrastructure generally), one might assume, are also the most vulnerable to emerging infectious disease.

COVID-19, like pandemics before it, exposed the inequalities in and of cities in much the same way as past environmental emergencies (floods, earthquakes, bushfires) highlighted the vulnerabilities of some populations that tend to be subject to economic and social marginalisation even in the best of times (Kapuriri and Ross, 2020). In many cities of the Global North tuberculosis had long made a reappearance among poor and vulnerable populations; in the Global South, where urbanisation has been concentrated over the past decades, many vector-borne infections continue to affect newly urbanised populations, especially in informal settlements. The SARS outbreak of 2003 highlighted the ways in which a global network of cities exacerbated the exposure of the urban world to infectious disease (Ali and Keil, 2008); and the West African Ebola pandemic of 2014/15 revealed the relationships of rapid urbanisation and disease spread (Ali et al., 2022).

In the suburbs of North America, tick-borne disease spreads at the edges of sprawl (Kaup, 2018) and Zika hit the poverty populations in Brazil's cities hard in 2015 (Chang et al., 2016; Imperato, 2016; Lowe et al., 2018). The COVID-19 pandemic has led to a reassessment of (urban) development policy and practice in light of the challenges highlighted by this and other pandemics (Leach et al., 2021). But the results of these outbreaks are not predetermined and their lessons for future pandemic preparedness efforts need to be carefully assessed.

The COVID-19 pandemic led to containment measures that involved an unprecedented quarantine of entire urban regions and highlighted the connectivities of economies and populations in a world of extended urbanisation (Keil et al., 2020). The pandemic has additionally called into question the traditional divisions between the urbanism of networked infrastructures, welfare state institutions, and rational city planning on one side and that of infrastructure deficits, failing institutions, and informality on the other (Bhan et al., 2020). The virus ravaged the depleted institutions of long-term care in the Global North (Biglieri, et al., 2020) while it was held in check by the culture of community-based health care in the Global South (Ali et al., 2022); while access to clean water and spaces that allowed social distancing were assumed as given in the rich urban centres of the Global South such certainties did not readily exist in the informal settlements of the Global South or in austerity-racked metropolises of the Global North (e.g., water crisis in Detroit). Concepts like culture and trust seemed to be as important to survival during the pandemic as access to beds and respirators (Napier and Fischer, 2020).

The breadth and variety of the intersections of political ecologies and political pathologies in the current urbanisation process suggests the importance of close analysis of particular outbreaks and health emergencies to increase our understanding of the interrelationships of the societal relationships with nature and disease in a world of extended urbanisation.

### **Ebola virus disease in an urbanising West Africa**

In the remainder of this chapter we discuss the political ecologies and the political pathologies of urbanisation in West Africa – Guinea, Liberia, and Sierra Leone to be specific – where an outbreak of Ebola virus disease (EVD) affected more than 30,000 in 2014/15, 10,000 of whom died. The disease, which had never before existed in this part of Africa, emerged in the urbanising hinterlands and at a crossroads of mobilities in the rural southwest of Guinea, where trading and travel routes connect to Sierra Leone and Liberia. Paul Richards (2016: 21–2) notes that at the time '[i]nsufficient attention was paid to the intensive cross-border networking that catapulted

the disease in the direction of adjacent, crowded, capital cities on the coast'. There were concerns that an 'epidemic in city environments, with crowded slums, was uncharted terrain, and a degree of panic ensued' (Richards, 2016: 22). Still, while 'Freetown and its peri-urban fringe' (Richards, 2016: 24) and the large Monrovia informal settlement of West Point with its 70,000 inhabitants became hotspots of the outbreak, they also became centres of political and community intervention that helped stem the outbreak eventually. In fact, Richards (2016: 40) reports that '[r]esponding was in some ways easier in urban environments since so much in Ebola prevention hinges on logistics' and '[u]rban community structures proved to be not noticeably less effective than their rural counterparts in supporting activities requiring citizen support, such as case-finding and quarantine'.

Though the epidemic was eventually contained, the outbreak revealed deeply entrenched weaknesses in the early response by government officials and the international community. The narratives that dominated early understandings of the disease and informed policy in the region tended to focus on West Africans' cultural practices, extensive social networks, and non-compliance with public health directives. However, the reality was being dictated by a much more complex socio-political landscape; one shaped by a nexus of imperial and colonial rule, civil war, political strife and corruption, and exploitative economic arrangements. For decades, these factors have shaped the region's socio-economic developmental trajectories and have helped define patterns of mobility and settlement. Today, Guinea, Liberia, and Sierra Leone rank among the poorest countries in the world with rising levels of rural impoverishment and rapid population growth heavily concentrated in urban informal settlements that are highly susceptible to disease spread (Howard, 2017; Wilkinson, 2020a, 2020b). It is unsurprising that decades of political strife and plundering of the region's natural resources by multinational corporations and local ruling elites have led to the severe underdevelopment of social, physical, and health infrastructures, the fragility of which became exposed once the pandemic hit. These arrangements also contributed to widespread distrust of government and even seemingly benign foreign NGOs that further exacerbated challenges in effectively responding to the outbreak.

### **Regional political ecologies and extended urbanisation**

It is now well established that the spread of EVD in West Africa followed a regional trajectory, moving from the remote, forested hinterlands of the border region to the heavily interconnected capital cities of Monrovia, Freetown, and Conakry. According to Howard (2017), Guinea, Liberia, and



Sierra Leone have historically been, and still are today, integrated by complex social, economic, and cultural networks. The three countries ‘constitute a single region with complementary ecologies, which has been integrated from the nineteenth century onwards by socio-cultural commonalities, flows of people and ideas, and commercial and social exchanges’ (Abdullah and Rashid, 2017: 4). Though the movement of people and goods grew out of earlier pre-colonial routes of commerce (Howard, 2017), patterns of mobility and settlement have been augmented in significant ways as a result of the region’s colonial history and present-day socio-political arrangements.

The Ebola outbreak in West Africa is often considered exceptional for the simple reason that EVD had never before entered the fully urbanised context of Africa’s major cities. Shortly after the first case was identified, EVD spread rapidly to several villages in Guinea before making its way to the densely populated capital cities of Conakry and Monrovia. As Green (forthcoming) and others have argued, we should not presume the urbanisation of Ebola lay in an inherent ability for the virus to mutate, but rather in the ways human networks created amplified pathways for its spread and how these networks were mediated by social, economic, and political factors. Centralisation of economic and political activity in the capital cities also accelerated Ebola’s spread from villages and smaller towns to the cities, as many migrated to cities in search of employment (Azétsop et al., 2020: 170). Also, movement from the rural areas to urban informal settlements was not exclusively unidirectional as there was periodic back-and-forth travel between these locations, which contributed to the rapid spread of the epidemic not only in Liberia but in West Africa more generally (see Richards et al., 2015).

The introduction of EVD in the rapidly growing and overcrowded informal settlements provided a concentrated mass of host populations and breeding ground for the virus. Here, underdeveloped, fragmented, or otherwise inaccessible health systems left many ill-prepared to deal with an outbreak of the magnitude of the one that ravaged West Africa. West Africa’s capital cities of Freetown, Conakry, and Monrovia have more than quadrupled in size since the 1960s (Howard, 2017), with much of this growth concentrated in informal settlements. Today, nearly three quarters of Sierra Leone’s urban population lives in slum conditions, with 68 informal settlements in Freetown alone (Conteh et al., 2020; Sanderson, 2020). It is here where viral transmission exploded due to high population densities as well as poor access to water and sanitation, and health care (see Wilkinson, 2020a, 2020b). Indeed, informal settlements typically have ten times the density of adjacent areas in the same city with overcrowding common in single dwellings, making physical distancing and quarantine challenging (Muggah and Florida, 2020). While urban infrastructures ‘act as conduits, circuits and



sites for processes of socio-natural transformation' (Silver, 2016: 986), their disruptions can create major barriers for containing spread. The fragmented and splintered nature of infrastructural development meant that few inhabitants in West Africa's informal settlements had access to clean water, with others forced to rely on polluted sources for drinking and sanitation. This is particularly problematic for populations suffering from food insecurity, as nutritional deficiencies can heighten susceptibility to infection.

Yet, the swiftness with which Ebola spread through informal settlements is not merely a result of their physical forms, nominal densities, or availability of infrastructures, but of a complex web of historical, economic, political, and spatial relationships. In particular, the extraction-based political economy, a prominent feature of racial capitalist economic relations across the continent (Rodney, 1972), had important implications for the spatialised aspect of the EVD spread. In Liberia, for example, the concentration of employment opportunities in the capital city of Monrovia served as a magnet for impoverished rural inhabitants who settled primarily in overcrowded informal settlements. This was closely related to the fact that Americo-Liberian elites who largely located in Monrovia, tended to neglect the needs of those in the rural/peripheral areas while benefiting from their labour and catering to the needs of foreign investors. Those in rural areas never had any real representation and were not even considered as counties until 1964 (Howard, 2017). This led to certain level of distrust and tension between the urban elite and the rural dwellers that was further accentuated by civil wars that led to massive displacements. Escaping the violence, many fled to informal settlements situated on the periphery of the more developed urban cores. As Howard (2017) notes, during this era cities grew massively while social resources shrunk, making urban populations especially vulnerable to contagious disease. The rapid spread of Ebola through deeply impoverished urban informal settlements led Liberia to have the highest caseloads of the three affected Mano River Union Countries.

### **Deforestation, extractive industry, and the contested zoonotic origins of the West African Ebola outbreak**

Despite countless investigations of exactly how the Ebola virus came to spread so rapidly across the region, the origins of the outbreak and the particulars of the index case of the disease remain unclear. According to the commonly accepted narrative adopted, for example, by the World Health Organization (WHO), the outbreak is presumed to have originated in the remote forest region of Guinea where a young boy in the village of Méliandou was believed to be infected while playing near a roosting place for free-tail bats

(WHO, 2020; see also Wallace and Wallace, 2016). It is thought that the virus spread from there through extensively connected and intensively used travel routes that connected small and large urban areas in the West African countries that were hit by EVD. The assumed trajectory of the virus is closely related to the idea that urban landscapes are embedded within a ‘series of interconnected heterogeneous (human and non-human) and dynamic but contested and contestable processes of continuous quantitative and qualitative transformations that re-arranges humans and non-humans in new and often unexpected ways’ (Swyngedouw, 2006: 106). Here, socio-spatial and socio-natural processes are grounded in metabolic exchanges and circulation of various physical, chemical, and biological components that can be disrupted, augmented, or transformed to form new urban ‘natures’. In the case of emerging diseases, urbanisation as a process of socio-ecological change produces numerous pathways for new human–non-human interactions and relationships that may enable microbes to exploit new ecological niches. This is particularly true of extended forms of urbanisation such as those that produce spaces of resource extraction, known to routinely breach and disrupt ecosystems on the urban fringe (Arboleda, 2015). It is, however, not sufficient to speak about environmental impact or ecological disturbances by merely referencing the various mining areas, logging camps, or monoculture plantations that dot the extended urban landscape. Rather we must consider the wider operational landscapes that result from and facilitate urban agglomeration (Brenner, 2014). These include roads, highways, power lines, satellite towns, and other infrastructures that connect spaces of extraction to the wider global urban fabric and fundamentally alter nature in an effort to produce ‘frictionless’, homogenised spaces for the circulation of raw materials. It is here where the possibilities of zoonoses might be amplified due to encroachment by humans of nature, displacement of wildlife, destruction of natural habitats and biodiversity, and disruption of natural buffering systems that reduce the chances of ‘spillover’ events – that is, the transmission of a pathogen from wildlife reservoirs to humans.

However, some suggest that zoonosis might only explain the index case rather than the entirety of the pandemic, the severity of which might be better explained by human-to-human transmission (Richards et al., 2015). Other scholars question the link of deforestation and disease outbreak as ‘people and bats have long co-habited in this ancient, anthropogenic forest landscape with its mosaic of forest, bush, and savannah, shaped by settlement and farming, war and trade, and everyday social and ecological life’ and such a theory might lay ‘the blame for the epidemic at the feet of the rural people now suffering from it’ (Wilkinson and Leach, 2015: 145).

Several African scholars too have argued that despite hundreds of publications on the subject, there is still ‘no clear scientific evidence or

indisputable explanation of how EBOV [Ebola virus] moved from wild animals to humans in the Mano River Union sub-region' (Abdullah and Rashid, 2017: 3). In a critical analysis of the zoonotic narrative, Bah (2017) argued that the scientific team credited with authenticating the bush meat thesis did so on the basis of circumstantial evidence, having found no conclusive proof of the virus in the surrounding animal population in the Southern Guinean region. Others suggest a need to consider alternative hypotheses, including examining a broader spectrum of ecological, social, and politico-economic factors (Howard, 2017; Leendertz, 2016). Despite contestation over its origins, what we might be more certain about is that beyond the index case, the rapid spread of the disease was amplified by a number of political, social, and spatial relations. Indeed, as Bausch and Schwarz (2014: 3) argue: 'Biological and ecological factors may drive emergence of the virus from the forest, but clearly the sociopolitical landscape dictates where it goes from there.'

### Conclusion

This chapter argued that during our current period of urbanisation, the intensified activities occurring at the urban peripheries must be given greater attention. As accelerating climate crises and emerging infectious diseases pose catastrophic risks to human and non-human life, we must be cognisant that these phenomena are intricately connected to one another through unprecedented urban transformations, including the extended urban fabric of dense forested regions and hinterlands of emerging cities. New urban-industrial agricultural and mining frontiers as well as new centres of agglomerations characterised by urban informality constitute some of the emerging nodes in this polycentric urban system. Applying an urban political ecology perspective helps underscore that as capitalist relations of production are extended into the furthest reaches of the urban landscape and test new ecological limits, they inevitably transform socio-cultural and material flows in ways that increase possibilities for emergence and spread of infectious disease. Whether it is through the pushing of urban boundaries into previously undisturbed ecological niches, the disruption of natural ecosystem homeostasis that keeps pathogens in check, or the expanding networks and geographies of mobility that accelerate the spread of infectious disease, an urban political ecology lens helps us understand the various urban metabolisms that link together country and city. Moreover, emerging infectious disease and its intimate connections with ecological disruptions and climate change is as much political as it is ecological. Indeed, one cannot fully reconcile the severity of the West African Ebola outbreak, its weak public health response, and its unevenly distributed impacts without

explicating the (post)colonial nature of urbanisation and the racial capitalist system that underpins it.

If, finally, Lefebvre was concerned with ‘the prodigious extension of the urban to the entire planet’ (2003: 169), Ebola and other deadly infectious diseases at the frontier of this ‘prodigious extension’ should warn us of the potential perils of ignoring ecological degradation. As we emerge from the COVID-19 pandemic, ‘urban society’ must confront not only the threat of irreversible climate change, but also global, existential risks posed by yet-to-be discovered deadly pathogens.

### Note

- 1 This is an abridged version of an argument we are making at greater length in Treffers et al. (2021).

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