Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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ScienceDirect

Transportation Research Procedia 60 (2022) 259–265

Transportation Research Procedia

www.elsevier.com/locate/procedia

XXV International Conference Living and Walking in Cities - New scenarios for safe mobility in urban areas (LWC 2021), 9-10 September 2021, Brescia, Italy

Two viruses, one prescription: slow down

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Abstract

The COVID-19 pandemic has devastated communities throughout the world. However, the negative impacts of another pandemic, affecting cities worldwide, arguably rival those of COVID. This destructive global health problem, which we have largely ignored, has been described as the "hurry virus" – the culture of speed that dominates modern lives and cities, causing us to constantly strive to 'go faster'. This hurry virus has comprehensively infected our city transport systems from the early 20th century. Since then, as speed became a more important goal in city planning than liveability, sustainability and walkability, the consequences for health – human, environmental and economic – have been profoundly damaging. This paper argues that to respond effectively to the hurry virus in city transport, a policy of creating 'slow cities' is required. This involves the simultaneous application of two synergistic strategies: slowing the speed of existing motor vehicle traffic; and encouraging greater use of the 'slower' active modes. Examples of where such policies have been introduced are discussed. The core of the paper shows how – serendipitously – the world-wide response to the COVID-19 virus in cities has produced policies, strategies and tactics that also provide an antidote to the 'virus of hurry'. For example, we discuss how cities have rapidly added new or widened bike lanes and sidewalks, and opened streets for people by restricting, slowing or banning motorised traffic. In addition to the intended anti-COVID outcome of providing safer, socially distanced space in neighbourhoods, such policies deliver co-benefits of local healthy living and movement in less-polluted, 'slower cities', as well as help combat global heating by reducing CO2 emissions. The paper outlines urban design and operational principles that would promote both pandemic-resistance as well as slower, more local and healthier lives. We show how, in future pandemics, robust plans for rapid, effective action will be required to shut down inter-district connections and implement social distancing to ride out any outbreaks without lasting damage to the city. We discuss one promising strategy that involves relatively self-sufficient and independent precincts, such as 20-minute neighbourhoods that are internally accessible by foot, bike or scooter, that enable people to meet most of their daily needs within an 800 metre (20-minute) return trip from home. If a virus outbreak occurs in one neighbourhood, it can be temporarily closed and isolated from other neighbourhoods, while allowing them to function. The key point is that these responses to combat the COVID virus will produce co-benefits which combat another virus, that of 'hurry'. The 20-minute COVID-protected city will, by definition, be a hurry-protected, slow city – and what is more – it will be a key component of combatting the overarching existential threat of climate breakdown. We conclude that achieving such co-benefits in cities that remain (or return to being)

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Peer-review under responsibility of the scientific committee of the Living and Walking in Cities
10.1016/j.trpro.2021.12.034

'fast' would be far more challenging, if indeed possible at all. The pandemics of our time may allow us to reshape the behaviours, values and cultures both of urban residents and policy makers. The paper concludes that we have an unprecedented opportunity to reject the old normal and to re-imagine a new normal of cities that are slower, closer and healthier.

Keywords: Slow cities; health; speed; pandemic; COVID-19; climate emergency; walking; cycling; urban planning; leadership

1. Introduction

The Coronavirus (COVID-19) pandemic is affecting us all, in devastating ways for many people. But another pandemic, hidden in plain sight, has negative impacts that arguably rival those of COVID. We can identify this as the "hurry virus" – the culture of speed that dominates modern lives and cities, causing us to constantly strive to 'go faster'. Infection by the hurry virus has caused serious negative impacts over several decades. When speed becomes a more important goal than walkability, liveability, sustainability, child-friendliness, health and economic vitality, the hurry virus does immense damage.

Unexpectedly, the recently-arrived COVID-19 virus is providing an opportunity for change. Attempts to slow cities (to combat the hurry virus) have now been joined by anti-COVID interventions such as adding bike lanes, widening sidewalks, and opening streets for people by restricting, slowing or banning motorised traffic. This paper argues that such COVID-19 responses are delivering unexpected – and welcome – co-benefits, not only promoting local healthy living and movement in 'slower cities', but also articulating the kinds of urban interventions required to combat global heating.

2. The hurry virus and its impact on human, environmental and economic health

While it might seem an exaggeration to call the hurry virus a pandemic, it fits the definition – an infection occurring worldwide and affecting a large number of people. As Carl Honoré, author of *In Praise of Slow* (2004) argues "The virus of hurry has infected every corner of our culture and we are all desperate for a cure". Individuals infected with the hurry virus constantly try to do more things more quickly, only to realise that the faster we go, the less time we have and the less effective and more stressed we become (Tranter, 2014). When city planning, policy making and transport modelling become infected by the hurry virus, this makes "increasing speed" the dominant goal, damaging not only human health, but also environmental and economic health, in very powerful ways (Tranter and Tolley, 2020).

Only since the early 20th century has the hurry virus deeply infected our city transport systems. One hundred years ago cities had efficient and inexpensive forms of movement in walking, cycling and streetcars, sharing street space with people socialising and with children playing. Norton (2011) details how the motoring lobby (or 'motordom') overcame the initial hostility of civic leaders and the public towards the speed of cars in city streets. In a carefully orchestrated campaign, motordom persuaded people in the 1920s to equate the speed of cars with progress and a 'new age'. It influenced the training of transport professionals to focus on facilitating speed in city streets, not on designing cities to be liveable and walkable. Motordom was ultimately effective in instilling the hurry virus into the very centre of our society, our cities, our transport planning and our psyche. Speed was NOT what people wanted in the 1920s, it was what motordom wanted, and got.

For human health, replacing active travel (on foot or by bicycle) with faster motorised modes is a major contributor to the epidemic of physical inactivity, which lies at the heart of much global ill health and disease (Giles-Corti et al. 2016). In many cities fast travel divides communities, disrupts social connections and spreads development. This results in diminished access to health-nurturing opportunities, such as green space, well-paying jobs and friends, leading to declining social, cultural and community 'health' across the city. Road trauma grows dramatically too, as even small increases in vehicle speeds have severe consequences. Deaths from air pollution from fossil fuels, currently estimated to be over 8 million globally per year (Vohra et al. 2021), are increasing as

people switch to mopeds, motorcycles and cars in search of greater speed.

In addition to effects on human health, environmental health is also compromised by speed in cities, with impacts including noise pollution in residential streets, increased city sprawl and climate-related risks (Stone et al. 2010). There are also widespread consequences for economic health. These include: the huge burden of maintaining road infrastructure; the loss of business and intellectual creativity in car-dominated cities; elevated costs for local governments, such as parking provision and traffic congestion; and the economic cost of responding to global heating (Tranter and Tolley, 2020).

The overall outcome of the hurry virus in cities is the high cost for families, children, retailing, businesses, cities themselves and the environment. The addiction to speed leaves almost everybody worse off, in a more inequitable, unhealthy and economically deprived world.

On top of all these health costs, speed does not even save time (Tranter, 2010), which is the overriding goal of transport modelling based on increasing speeds. People in cities with high levels of car driving spend more time per day travelling than those in cities with high levels of walking, cycling and public transport. This is largely because when speeds increase, the city expands and local shops, schools and services close, meaning that we travel further to access the places that used to be within walking distance. Although this travel is faster, any time saving from higher speeds is more than outweighed by the increased distances. In addition, as speeds rise, the costs of transport also rise: speed is not free. Consequently as speeds grow, or as we switch from walking and cycling to 'faster' cars, we devote more and more time to earning the money to pay for speed.

3. How can we respond to the hurry virus at the city level?

To respond effectively to the hurry virus in city transport, Tranter and Tolley (2020) advocate a simultaneous application of the twin strategies of: slowing the speed of existing vehicle traffic; and encouraging greater use of the 'slower' active modes. This achieves synergistic benefits: it is only possible to significantly increase the use of 'slower' modes when motorised traffic is also slowed.

The simplest method of reducing the speed of motorised traffic is to lower posted speed limits (e.g. to 30 km/h or 20 mph or lower). This is often accompanied by physical traffic calming, involving changes to street widths, alignments and design. Temporary respite from speed may be found by closing particular streets to motorised transport for certain periods, such as in play streets and school streets. Many of these ideas are brought together through transformational, integrated 'safe-systems approaches', such as Vision Zero, which have been very successfully implemented in Oslo and Helsinki, for example.

Encouraging greater use of the 'slow modes' requires not only supporting personal motivation, but also the adoption of suitable policies and the provision of conducive environments. To take walking as an example, the International Charter for Walking offers eight principles for creating a walking culture: supportive land use and spatial planning; reduced road danger; less crime and fear of crime; improved integration of networks; well-designed and managed spaces and places for people; increased inclusive mobility; more supportive municipalities; and a culture of walking (Walk21, 2019).

In the case of public transport – included as an 'active' mode because it usually involves some walking or cycling – providing dedicated space in the street is essential. Variations include dedicated transit lanes demarcated by signs and markings; transitways physically separated by vertical elements such as planted medians or kerbs; and transit streets where private vehicles are excluded, and space is shared with people on foot or bicycle.

The 'traditional' active modes are now being joined by various micromobility modes, particularly e-scooters. Their advent as a popular new 'slow mode' is posing unique challenges to traditional ways of sharing streetspace, which may act as a further brake on the speed of motorised traffic.

Achieving significant mode shifts to the slower modes will require restrictions on road capacity for motorised vehicles. At the local or street scale there are many tactical interventions, such as narrowing motorised travel lanes, creating parklets, widening sidewalks, providing bike lanes, and adding mid-block buildouts. At larger scales, filtered permeability allows access for active travellers, while car movement is impeded. The ultimate option is wholesale removal of roadways for high-speed traffic, with the demolition of the Cheonggyecheon expressway in Seoul being a celebrated example.

Many of these interventions provide reserved spaces for people on foot or bike, such as creating cycling networks

and spaces and plazas for walking and sojourning. Some interventions are temporary, such as 'Car-Free days' and 'Open Streets'. Bogotá's Ciclovías (closing streets to cars at weekends and opening them to walkers, cyclists and life in general) provided the model for similar events in cities throughout the world. These interventions change the purpose and the perception of city streets – prioritising people rather than cars travelling at speed – and they expose residents to new ways of thinking about moving in the city.

The culture of speed is embedded in so many of our daily practices that the 'slow city' can only be delivered through changed perceptions about the value of slowness. This will not be achieved easily. Not only have we been inculcated with the idea that 'faster is better', we also have been persuaded that we need ever-increasing levels of mobility (how far we can go in a given amount of time), when what we really want is more accessibility (how much we can get to in that time) (Herriges, 2018).

Elements of slow cities have appeared in cities throughout the world, many with policies that pre-date COVID (e.g. Buenos Aires, New York City and dozens of cities in Western Europe). These are now being joined by hundreds of others, where COVID has initiated or accelerated policy. For example, over 50 US cities have instituted "Slow Streets" to give pedestrians and cyclists more space to practice social distancing while outdoors. Many major European cities – such as Paris, Berlin and Brussels – are rolling out pop-up cycleways (some of which are being made permanent). Britain has a £250m emergency active travel fund for pop-up bike lanes, protected space for cycling, wider pavements, safer junctions and cycle corridors. Barcelona has removed parking from 21km of city streets to make space for cyclists.

However, no large city has yet become 'slow' across its entire area: that will take time, though further waves of COVID will make it more likely. For example, Milan, epicentre of the COVID outbreak in Europe, not only has its Strade Aperte ("Open Roads") plan, for cycling and walking provisions, including a 30 km/h speed limit and whole streets given over to pedestrians and cyclists, but it also has a new philosophy. As Janette Sadik-Khan (former transportation commissioner for New York City) observes, "The Milan plan … lays out a good playbook for how you can reset your cities now. It's a once-in-a-lifetime opportunity to take a fresh look at your streets and make sure that they are set to achieve the outcomes that we want to achieve: not just moving cars as fast as possible from point A to point B, but making it possible for everyone to get around safely" (Laker, 2020).

To help accomplish shifts in thinking and practice throughout society, Tranter and Tolley (2020) created a statement of principles and a declaration of intent in the form of a 'Manifesto for 21st Century Slow Cities' (https://slowcitiesmanifesto.com). Implementing this manifesto requires visionary and courageous leadership. One of the best examples can be found in the Spanish city of Pontevedra. In 1999 when Mayor Lores took office, Pontevedra was paralysed by motor car traffic, blighted by noise and air pollution, traffic danger and cars parked on sidewalks. Under Lores' leadership, car access to the city centre was restricted, speed limits throughout the city set to 20 to 30 km/h, and space for walking doubled. Despite high car ownership, 70 per cent of all trips are now by walking or bicycle and over 80 per cent of children walk to school. The streets are safe: there were no road traffic deaths between 2009 and 2019. Demonstrating that a slow city is a good economic environment, whilst other towns in the region are declining, Pontevedra is growing and small businesses survived Spain's long economic crisis. Pontevedra is a model for future 'slow cities'.

The experience of Pontevedra shows that a focus on individual behaviour change will be insufficient to create 'slow cities'. Instead, a shift is needed in the cultural and institutional context of city transport, in visions, knowledge, professional skills, resources, co-operation and partnerships. Such a shift requires leadership that focuses on conquering our collective addiction to speed.

4. Covid and the city: potential scenarios

Reactions to COVID-19 will shape cities for decades, creating a 'new age' of healthier, slower cities. What responses to COVID might be adopted by cities? From the very uncertain perspective of April 2021, as the virus continues its global spread, we tentatively speculate on three future scenarios and the implications of COVID for the achievement of 'slow cities'.

4.1. Scenario 1: stimulating suburbanisation to seek protection through distance

In this scenario people try to escape from the city, producing more sprawled suburbs in which residents leave their homes only by car. Such a response would be ineffective in preparing for a future pandemic, because the security of isolation dissolves when people need to go to work or the supermarket or hardware store. These 'congregation hubs' encourage the rapid spread of a virus. Early studies have shown that many low-density, car-orientated neighbourhoods have higher COVID death rates than subway-dependent inner areas (Furth, 2020).

Although dense cities may face higher exposure to initial transmission, they are also the foci of essential public health and communication infrastructure – both key resources in fighting a pandemic. Dense places are walkable and cyclable and the resulting slow, active transport improves people's health in general, reduces susceptibility to disease, and increases resistance if infected. They also create the social capital that is vital when we need to help each other. As a result, the safest place to be during a pandemic is not isolated in a car-dependent sprawled suburb, but in a walk-up building in an urban neighbourhood, with walkable and cyclable access to services and activities, and with social connections that provide support and security.

4.2. Scenario 2: 'getting back to normal'

Many cities have been unable to resist pressure to 'return to normal' 'when the pandemic is over', meaning a return to streets dominated by cars, which once again prioritises speed over health, liveability and sustainability. However, that old 'normal', based on our addiction to speed, has produced environmental destruction, and population ill-health through crashes, physical inactivity, polluted air and social isolation. Taken together, these deleterious impacts of speed are hardly a strong recommendation to re-create the old order.

4.3. Scenario 3: the slow city as the preferred urban form

The need for physical distancing has exposed the inequitable distribution of public space. Typically, sidewalks and bike lanes are too narrow to maintain a two-metre personal bubble away from others without deviating into space reserved for motorised traffic. Fortunately, and coincidentally, making increased space for slow mode users was facilitated by the dramatic decline of city driving during lockdowns and the freeing up of travel and parking lanes (at least in the first phase of COVID). Hundreds of cities and communities around the world reacted by tactically and rapidly applying many road space reallocation techniques, which opened streets for people and restricted or removed motorised traffic.

The lockdowns produced startling, unforeseen consequences that could point the way towards a more resilient future. They allowed billions of people around the world to experience elements of what a 'slow city' has to offer: quieter streets; space for people walking and cycling; children and families playing in local streets and meeting neighbours; cleaner air and the return of birdlife. Now that city residents have seen the transformation with their own eyes, heard it with their own ears and breathed it with their own lungs, they can appreciate more personally what they have lost from a lifetime's pursuit of speed in the city.

For many, the change to their city is a foretaste of a future they know they need and want. No longer can slowness be regarded as some far-fetched theory of what could happen in a future utopia. As Arundhati Roy – a Booker prizewinning novelist – suggests, COVID is a portal, a gateway into another world that allows us to "rethink the doomsday machine we have built for ourselves" (Roy, 2020).

5. Slow cities: reaping multiple benefits for pandemic resistance, the hurry virus and the climate emergency

The world-wide response to COVID-19 in cities has – inadvertently – created many of the conditions that would characterise 'slow cities' of the future. How might cities fare in future pandemics if they remain (or return to being) 'fast'? How might slow cities provide resilience against disease, the damaging impacts of speed and the potential devastation of the climate crisis?

While COVID encouraged a shift towards the 'slower' modes of transport, it has not produced lower speeds in the remaining motorised traffic. In the USA for example, traffic fell significantly early in the pandemic, but speeds and fatal crash rates rose sharply in many states. The pedestrian fatality rate per billion vehicle miles travelled in the USA rose by 20 per cent for the first half of 2020 compared with the first half of 2019 (Governors Highway Safety

Association, 2021). The increase in fatal crashes is likely at least partly due to the availability of emptier driving lanes that encourage high speed driving, and this is likely to continue without deliberate re-allocation of space available to the various modes.

Giving an equitable share of street space to people on foot, bike, scooter and public transport as part of a 'slow city' policy will necessarily dramatically reduce the space currently enticing speeding drivers. Without such intervention, a continuation of this trend toward higher speed driving on empty streets would undermine many of the potential benefits of a post-pandemic reduction in motorised traffic. As was stressed earlier, it is only possible to significantly increase the use of 'slower' modes when motorised traffic is also slowed.

COVID is discriminatory in that it has the most serious effects on those with underlying health conditions. This affects residents of fast cities disproportionately, given their high levels of physical inactivity and associated health conditions, such as obesity, heart disease and type-2 diabetes. This was clearly seen in the 2020 coronavirus outbreak (which attacked the lungs) as it caused more deaths in cities where NO2 and PM2.5 levels (linked to lung disease) were most elevated by motorised traffic in pre-pandemic years (Liang et al. 2020).

Moreover, there are intra-city spatial differentials in infection rates, linked to poverty and disadvantage. Fast cities display strong variations in health equity between neighbourhoods, with some districts subject to elevated levels of air pollution, noise and road trauma as a result of high volumes of fast-moving through traffic. People in such segregated neighbourhoods lose access to health-enhancing nutritious food, parks and jobs, which in turn makes them more susceptible to COVID infection and more likely to suffer serious illness or death.

More speed leads to greater economic disadvantage and poorer health, which increases COVID susceptibility and in turn produces greater disadvantage and even poorer health. The conclusion is clear. Slow cities are more resistant to ill-health engendered both by the hurry virus **and** by the COVID virus.

Given that further pandemics are inevitable, what urban design and operational principles would support slow movement and be pandemic-resistant? Robust plans for rapid, effective action will be required to shut down inter-district connections and implement social distancing to ride out the threat without lasting damage to the city. This implies conceptualising cities as constellations of relatively self-sufficient and independent precincts, such as 20-minute neighbourhoods that are internally accessible by foot, bike or e-scooter, so that people can meet most of their daily needs within an 800 metre (20-minute) return trip from home. If a virus outbreak occurs in one neighbourhood, it can be temporarily closed and isolated from other neighbourhoods, while allowing them to function. Such neighbourhoods will need to be able to operate under lock-down conditions, with designed-in social distancing that avoids dense groups of people in elevators or waiting to cross streets. Public transport would remain essential for inter-district movement, though there are unresolved issues of system financing.

COVID-19 is both a stimulus and a justification for city re-shaping. Networks of 20-minute neighbourhoods would create the pre-conditions for a rapid move to 'slow city' principles. As Janette Sadik-Khan explains, "Cities that seize this moment to reallocate space on their streets to make it easier for people to walk, bike and take public transport will prosper after this pandemic and not simply recover from it" (Machemer, 2020).

Though this paper focuses on the health depredations of the twin viruses of COVID-19 and 'Hurry', we should note that these will play out against a looming climate crisis, with its own set of catastrophic health impacts. Emissions from transport are a significant and rapidly growing contributor to global heating, and high-speed car travel encourages suburban sprawl. Sprawl exacerbates global heating by increasing: urban travel and total energy used in transport; heat island impacts of hard surfaces such as concrete and asphalt; infrastructure requirements; and energy consumption in making and using household luxuries such as ride-on mowers and recreational vehicles. It also reduces carbon capture through reduction in forest area and increases food miles from loss of peripheral farmland.

All these activities accelerate climate breakdown, illustrating the strong connection between fast cities and the climate emergency. In contrast, 'slower cities' can play a critical role in reducing global greenhouse gas levels, as they significantly reduce the fossil-fuel energy consumed.

Slowing the city provides relief from the viruses of both 'Hurry' and COVID-19. A 'return to normal' after COVID-19 will do the opposite. In addition, a 'return to normal' would exacerbate the climate emergency, which would likely lead to many more deaths than COVID, and may destroy life for humankind. As Farrelly (2020) observed, "There's not much point in building our way out of pandemic if it drives us over the cliff of climate change". Only rejecting the old normal and replacing it with a new normal of 'slow', will facilitate resistance to the

twin viruses of ‘Hurry’ and COVID, as well as to the overarching existential threat of climate breakdown.

6. Conclusion

To summarise:

1. The hurry virus is a devastating, global health problem that we have largely ignored.
2. Responding effectively to COVID-19 will create – almost incidentally – the conditions for cities to deal with the hurry virus by prioritising walking, cycling and micromobility modes.
3. Fortuitously, that will also be an essential part of developing resilience to the climate emergency.
4. The pandemics of our time are an opportunity to reshape the behaviours, values and cultures both of urban residents and policy makers, and to re-imagine a new normal of cities that are slower, closer and healthier.

The example of motordom’s successful campaign in the 1920s for more speed in the city is powerful evidence that rapid and widespread change in values and behaviour is achievable. The coronavirus crisis has provided an immediate revelation of what a changed world could look like, with lower speeds, shorter active trips, reduced CO2 emissions and much cleaner air. COVID-19 has shown us what we can do when we make health, rather than speed, a priority – that a new reality of slowness is achievable.

A central requirement in an effective response to COVID **and** to the hurry virus **and** to the climate emergency is to accept a fundamental truth that we have largely failed to recognise. This is that more speed is not the solution to our city transport problems that we have been led to believe: it is the problem. Perhaps surprisingly for many city planners, the way out of many of the problems in our cities is very simple: “slow down”. It may be no exaggeration to say that if the city itself is to survive, all future cities must be ‘slow cities’.

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