#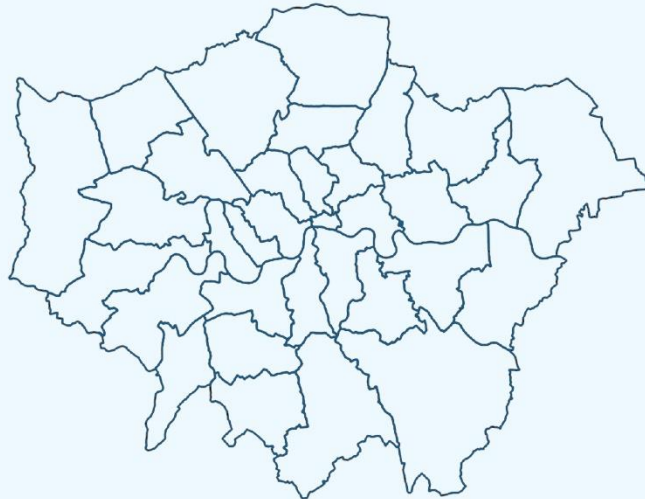 Historic Pandemic Influences on the Development of Urban Space Design Transformations in London: Cholera, HIV/AIDS, and Covid-19.

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5907292

Contents 1

Abstract:

As a means of reducing the severity and preventing the spread of pandemics, vaccines have long been acknowledged as the gold standard. But before they were found, this process was carried out using a number of strategies and solutions, some of which were related to city life. This study examines the impact of past epidemics on the development of London's public spaces design. One of the study's findings is the development of a summary framework that investigates the primary causes, severely affected metropolitan regions, mitigation techniques as well as their social impact, and ultimate urban implications used to control disease transmission. The concept of 'Historic pandemic impacts on the evolution of London's urban public space architecture' framework is based on findings from pre-existing research on the Cholera, HIV/AIDS, and COVID-19 pandemics. Creating this framework will allow us to record the changing face of urban public space design over time and utilise that information to inform future municipal strategies aimed at preventing and controlling epidemics.

Key words: Historic pandemics, Cholera, HIV/AIDS, Covid-19, public space design, Covid-19, London

1. Introduction

Designers have been making use of built environments in cities to promote physical and mental wellness for quite some time. However, pandemics serve as a catalyst for reaffirming the significance of urban design (Roe & McCay, 2021). Nowadays, the aims of urban reforms are being adjusted to make cities safer, healthier, and more human-centred.

'Oxford dictionary' defines 'pandemic' as a disease that spreads over the whole country or the whole world (Oxford dictionaries, n.d.). The global rural population is predicted to peak in 2021, with all primary concentration in cities. Many, if not all, pandemics are caused by global urbanisation, land-use change, and increased connectedness. One research found that ecosystem deterioration and the elimination of large species cause natural regions to become home to disease-carrying rats, bats, and others (Gibb et. al., 2020). Animals are responsible for more than 60% of newly developing infectious diseases. As urbanisation and commercial agriculture spread, wild areas become increasingly vulnerable to emerging illnesses against which people have no protection. Pandemics are widespread in today's globe, killing around 14 million people every year (Thompson et. al., 2019). However, history shows that such crisis can act as a catalyst for safer surroundings (Nieuwenhuijsen et. al., 2018). Every pandemic is a chance to make public places safer and healthier by incorporating more resilient standards into urban planning and transforming short-term solutions into long-term improvements (Thompson, 2020).

The relationship between public health and urban transitions has been tightly intertwined throughout history. Modern urban growth emerged in the 19th century as a reaction to issues such as insufficient water supply, poor sanitation, and polluted air in unhealthy and congested industrial centres (Verbeek, 2014). Due to their substantial population density and status as the most prosperous regions, metropolises have frequently been the area's worst hit by epidemics. Even the most industrialised places are not immune to these health hazards, as each new pandemic creates new targets and challenges in urban public space design. Many of the strategies utilised in urban planning today stem from similar efforts taken throughout history to preserve city dwellers' comfort, hygiene, and health. With the recent COVID-19 Pandemic, which is regarded as a key disastrous occurrence in the history of outbreaks, it is becoming increasingly important to go beyond traditional settings. The COVID-19 pandemic has once again highlighted the importance of taking human health into account when developing future cities to make them safe to live in and battle potential pandemic threats.

With this background, the study delves into the role of public spaces in cities in halting the spread of pandemics and how it has shaped urban development. London, apart from being one of the UK's most populous and largest cities, was also one of the most severely affected cities during the COVID-19 epidemic. As a result, we see a lot of scholars and planners investigating and developing new courses for designing healthy public spaces, but to fully understand future reforms, it is necessary to look back at the history of urban transformations and study how public health played a role in determining them. This thesis looks at the role of public health in the history of city design and development. It investigates and seeks to answer the question of study: How did historical pandemic scenarios affect London's urban public space design transformations?

To further comprehend these developments, the thesis elaborates on historical events such as the Cholera pandemic, the HIV/AIDS pandemic, and the COVID-19 epidemic, as well as the changes incorporated into London's urban fabric to protect against these issues. Time frames, vectors of transmission, and viral kinds are some ways in which the chosen pandemics vary. Nevertheless, their selection is based on meeting the criteria of a sharp increase in mortality rates, the implementation of disease containment methods with an urban dimension, and the effectiveness of remedies and measures employed to limit the spread of the pandemic. The pandemics are studied using maps,

historical illustrations, statistics data and pictures to depict the alterations. Case studies from London are also explored to better depict the efforts made to address pandemic situations. The chapters discussing the impact of public health on urban change use timeline technique, with each chapter unfolding chronologically from its occurrence. The case study findings served as the foundation for debate and analysis regarding to the research's goal, which was to define a 'Framework of Historic Pandemic Influences on the Development of Urban Space Design Transformations in London'. Finally, the thesis's major goal is to provide a summary framework examining urban public space design development motivated by the requirement for a pandemic response, covering essential features of the urban environment that contribute to pandemic mitigation efforts.

The following figure illustrates the method used to accomplish the aims of the thesis.

CHAPTER 1: INTRODUCTION

CHAPTER 2: CHOLERA IMPACT ON PUBLIC SPACE

CHAPTER 3: HIV/AIDS IMPACT ON PUBLIC SPACE

CHAPTER 4: COVID-19 IMPACT ON PUBLIC SPACE

CHAPTER 5: CONCLUSION

OBJECTIVE 1: To justify the need for research into historic urban public space design development driven by the need for pandemic response.

OBJECTIVE 2: Review of historical pandemic response based on pre-existing literature, maps, historic illustrations, statistics data, pictures, and case studies from London to understand primary causes, affected urban areas, mitigation strategies as well as their social impact, and final urban implications as result of these efforts.

OBJECTIVE 3: Creation of a summary table combining results from Chapters 2, 3, and 4 to delineate final framework for 'Historic pandemic impacts on the evolution of London's urban public space architecture'.
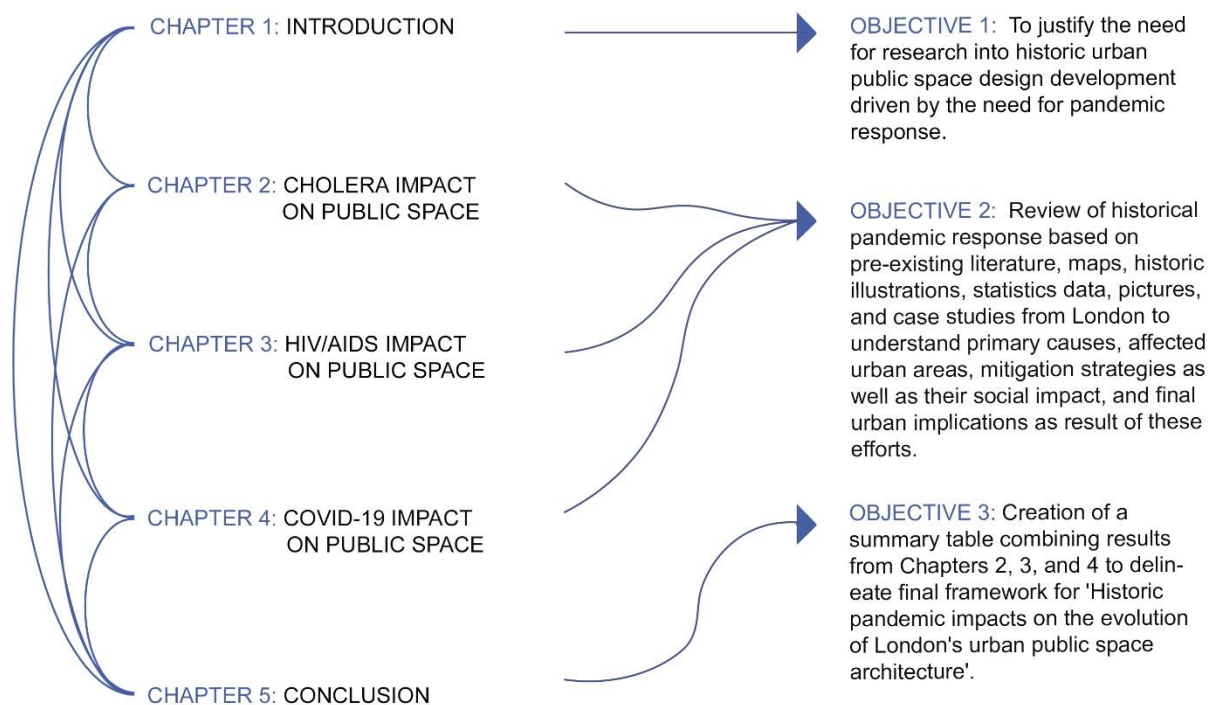
Figure 1.1: Thesis format

2. Cholera pandemic and urban public space development

2.1 Cholera Context Study

The urban public scene of mid-nineteenth-century London differed significantly from the one today. Great Britain underwent industrialization, which resulted in London being the world's greatest metropolis due to rapid urbanisation (Saunders, 2021). London's population increased from 1 million in 1801 to 6 million in 1901 (Jackson, 2014). The increase in population, with a significant portion residing in densely populated slums, posed unprecedented difficulties for waste disposal and human waste management in the city. This situation further exacerbated the prevalence of infectious diseases, which were further intensified by the prevailing living and urban conditions (Science Museum, 2019).

Cholera was a global pandemic that began in the Indian subcontinent and quickly proceeded to European cities (Martínez & Short, 2021). Even though cholera was not the worst illness in the UK, endemic diseases such as tuberculosis and influenza killed many more people than cholera, and the disease's frequent visitation elevated it to a particularly horrifying level. Cholera was portrayed as a new plague, taking almost 120,000 British lives during four devastating outbreaks in 1831-32, 1848-49, 1853-54, and 1866-67 (Smeele, 2016).

According to the World Health Organisation (WHO), cholera is non-discriminatory, infecting or killing both infants and adults within hours of symptoms appearing after ingesting contaminated food or water (Azman et al., 2013). The geographical distribution of ill people in a given area can show where the disease originated. According to this spatial perspective, an epidemic of infected people in one region creates the environment's symptom of a local health crisis (Caplan et al., 2020).

Infectious illnesses, such as Cholera, were significantly more widespread during that period, owing to conditions in urban settings as well as a lack of understanding about how these diseases passed on (Saunders, 2021). The transmission mechanism of the illness was unknown, and a remedy was not available (see Figure 2.1). As per the findings of the Science Museum (2019), the expeditious emergence of indicators such as diarrhoea, nausea, and vomiting, leading to dehydration caused by fluid depletion, sunken eyes and shrivelled skin exhibiting a bluish hue, were unprecedented during that particular era (Science Museum, 2019).

Figure 2.1: "A London Board of Health hunting after cases like Cholera" (Hackney History, 2019).

2.2 Victorian Urban Context

''London was the heart of the greatest empire ever know; a financial and mercantile hub for the world; but it was also infamously filthy'' (Jackson, 2014).

Figure 2.1: In 1890, horses drove traffic along London's Oxford Street. According to historian Lee Jackson, during the 1890s, the city's horses generated around 1,000 tonnes of excrement each day (Jackson, 2014).

In the past, pandemics such as plague, smallpox, cholera, and influenza disproportionately impacted Victorian London's poorest and most marginalised communities. With so many people crowded into more confined areas and unequal access to basic urban hygiene amenities required for such vast populations, filthy air caused by insufficient urban sanitation became associated with urban life, as did infectious illnesses (Smeele, 2016). The introduction of obligatory registration of births, marriages, and deaths in 1836 gave the first quantitative statistics on public health in Britain. The figures indicated an unequal burden of the disease, and it was argued that the poor were to blame for it owing to inadequate hygiene. These opinions have some validity when seen in the context of their period, since diseases were supposed to be caused by miasmas, a widely accepted notion attributing illnesses to a toxic vapour in the air conveying decaying matter particles and characterised by bad aromas. Due to the city's ever-increasing population, rubbish accumulated in courtyards and eventually made its way into rivers and gutters (Figure 2.2; Science Museum, 2019).
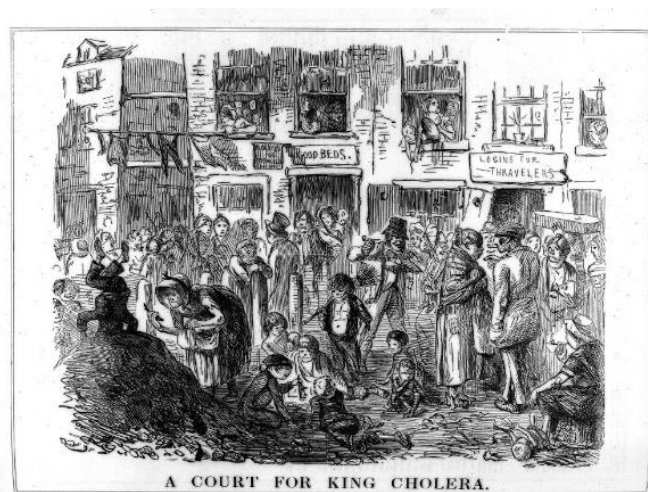

Figure 2.2: 'A court for king Cholera' (Moser, Malzieu, & Petkova,2020).

2.3 Sanitation Reforms

"It takes decades for people to accept that the state perhaps has a role in how they manage their household, how they manage their rubbish, their toilet facilities even" (Jackson, 2014).

During the Black Death, previous disease-management and containment strategies such as quarantine of infected houses and strangers prohibited from entering towns proved insufficient, resulting in the beginning of modern public health — the realisation that sickness and contagions had important social and environmental dimensions.

At the time, two primary theories were supported: the miasma hypothesis and the contagious theory. The first attributed the sickness to foul odours from rotting trash, while the second blamed it on disease transmission from person to person. At the time, mitigation tactics were put into place to address both theories. Miasma theory advocated for increased cleanliness and the elimination of odorous sources of miasmas, such as rotting waste. Contagionist theory advocated for stricter regulations to prevent direct contact with potentially infected individuals, such as isolation and limitations on mobility (UN-Habitat, 2021).

There are links between sickness, the development of urban planning concepts, and the improvement of medical research. Even in the 1830s and 1840s, when innovative efforts such as the Sanitary Movement gained popularity, addressing cholera was seen as reliant on the ability to dispel miasmas, with all the smells of decay, stagnant water, dirt, and death in urban public space (Davis,2022). In 1831, the initial occurrence of cholera was succeeded by outbreaks of influenza and typhoid, prompting the government to choose Edwin Chadwick, a barrister and advocate for social change, to conduct an inquiry into sanitation. Chadwick came to realise that poverty might have a direct correlation with sickness. In 1842, he released his work 'Report on the Sanitary Condition of the Labouring Population of Great Britain', which initially was referred to as a 'fever investigation' due to the recurrent cholera outbreaks endured by the working class. He led a team of commissioners who travelled around the country to study the lives of the poor, and he utilised quantitative methods to produce a report that demonstrated a clear relationship between poor urban environments, disease, and life expectancy (Figure 2.3) (Science Museum, 2019).

Despite his scientific approach to studying the living conditions of the lower classes, which was inspired by the dominant miasma theory of disease propagation and its direct relationship to widespread urbanisation, Chadwick advocated for several improvements in urban public health conditions (Davis,2022). He was convinced that active measures such as rapid waste removal, street sanitation (Figure 2.4), improved drainage, and frequent ventilation of enclosed spaces would improve people's health and reduce their reliance on welfare. He felt that teaching the public about the relationship between cleanliness and health would motivate people to adopt healthier habits. Slum clearance and resettlement reforms were also discussed (Davis, 2022). These advancements began with the first British Public Health Act in 1848 (UN-Habitat,2021), and in 1848, The Times recognised cholera as 'the finest of all hygienic reformers' (Science Museum, 2019).

Figure 2.3: Chadwick's 1838 Bethnal Green parish map, showing mortality from the four illnesses (Science Source Images).

Figure 2.4: Washing streets of London London with antiseptic during Cholera pandemic, 1890s (Getty Images, 2020).

William Heath's parody from 1828, titled "Monster Soup, commonly known as Thames Water, serves as an accurate depiction of the valuable substance bestowed upon us!" (Figure 2.5) anticipated the 1850s critique of London's water supply and the 1880s germ theory. In "Monster Soup," the Victorian woman is terrified when she sees a microscopic image of a drop of Thames water. The top border text reads: "Microcosm dedicated to the London Water Companies. Brought forth all monstrous and prodigious things, Hydras, Gorgons, and terrible Chimaeras". This "microcosm" has horrible microorganisms with distorted, alien bodies and terrifying teeth. The shocked woman drops her tea, which may have been infused with Thames water. This image is significant because three years before cholera arrived in Britain, before sanitation reforms polluted the Thames, and before John Snow identified water as the vector of cholera, popular illustrations predicted the central role that water, particularly waterborne microorganisms, would play in transforming London (Smeele, 2016).

Figure 2.5: Wiliam Heath, "Monster Soup", ca. 1828 (Smeele, 2016).

2.4 Broad Street Investigation

"In less than six days ... the most afflicted streets were deserted by more than three-quarters of their inhabitants" (MATRIX, n.d.).

When cholera attacked London during the third pandemic in 1854, efforts to improve impoverished people's living circumstances were intensified. In just 10 days, cholera killed around 500 persons in the region of London's Golden Square and Broad Street, Soho (MATRIX, n.d.). The epidemic's intensity was unparalleled, and Snow conducted study on it during its course (UN-Habitat, 2021). Snow discovered that the bulk of cholera deaths in the neighbourhood were localised around one public water pump on Broad Street (Figures 2.6 and 2.7). He also discovered that brewery workers and poorhouse inhabitants in the neighbourhood, both of whom relied on local wells, were spared by the pandemic (MATRIX, n.d.). Snow's research revealed that those who had access to uncontaminated water were shielded from contracting cholera, whereas those who relied on the Broad Street pump were susceptible to infection (Figure 2.8). When the pump's handle was removed (Figures 2.9, 2.10 and 2.11), seven days after the outbreak began (UN-Habitat, 2021), the already declining pandemic vanished in a matter of days. Researchers eventually discovered that the pump had been dug within 3 feet of a cesspit that had begun to leak, polluting the water and causing the epidemic (Science Museum, 2019).
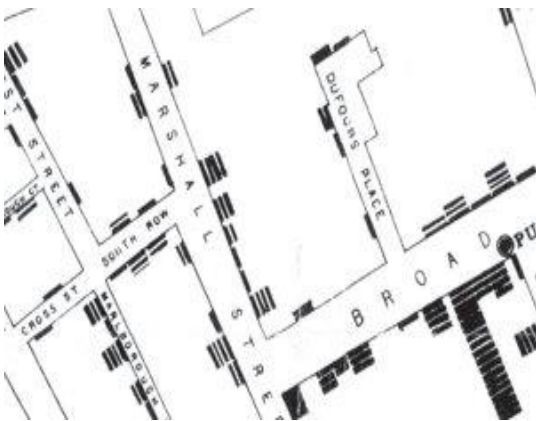

Figure 2.6: A detail of John Snow's map of cholera during the Broad Street epidemic in 1854. Each bar represents one fatality in a topography that sought to correlate the water source (the pump) with a series of cases in the neighbourhood epidemic. (Koch & Denike, 2004).

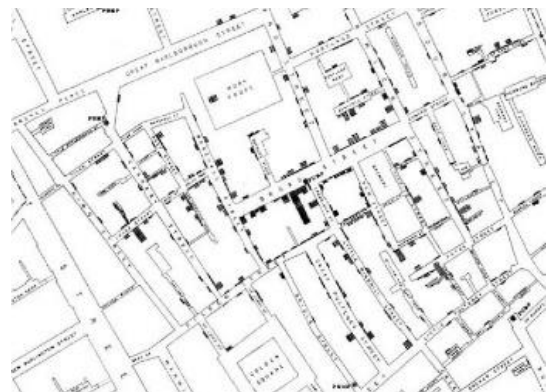**Figure 2.7:** John Snow's renowned graphic of the 1854 Broad Street pandemic tried to connect illness intensity with proximity to a particular water source: the Broad Street well and pump (Koch & Denike, 2004).
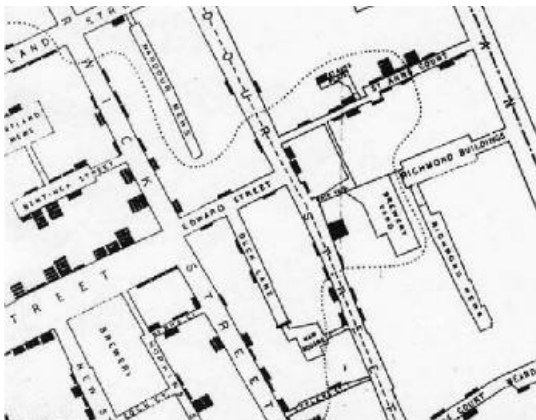

Figure 2.8: In a map developed for a local parish investigation committee, Snow used walking distance to identify a subgroup of cholera deaths near the Broad Street pump (Koch & Denike, 2004).

Figure 2.9: George Pinwell, 'Death's Dispensary,' published in Fun Magazine, London, 1866 (Bavel et.al., 2020).
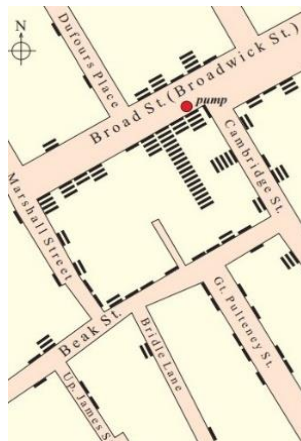

Figure 2.10: Broad Street pump location (Caplan, Kennedy & Neudecker, 2020).

Figure 2.11: Broad Street pump located beside John Snow Memorial (Tulchinsky, 2018).

John Snow investigated cholera in London homes served by two water supply systems (Figure 2.12), and in 1857, Snow demonstrated that the number of cholera deaths among customers of the Southwark Water Company was six times greater than among customers of the Lambeth water company. He rightly ascribed the discrepancy to the Lambeth company's source of water, which was free of sewage in the tideway, whereas Southwark's consumers got water from the river's most contaminated stretch. Snow assessed the cholera rates over 7 weeks in households supplied by each of the two, resulting in arguably the most renowned epidemiological presentation table (Table 2.1). It is important to note that water delivery firms followed Edwin Chadwick's previously stated rules. This demonstration strengthened the aims of the sanitation movement, which created sewage drainage and water purification systems in cities and towns during the next few decades, significantly lowering the threat of cholera, typhoid, and many other waterborne illnesses (Tulchinsky, 2018).

Water Supply Company	Number of Houses	Deaths From Cholera	Cholera Deaths per 10,000 Houses
Southwark and Vauxhall	40,046	1,263	315
Lambeth	26,107	98	37
Rest of London	256,423	1,422	59

Table 2.1: Deaths caused by the cholera epidemic in the districts of London serviced by two water companies during a period of 7 weeks in 1854 (Tulchinsky, 2018). Figure 2.12: The 1851 Census includes building outlines and deaths from Cholera epidemic in Soho, Central London (Walford, 2020).
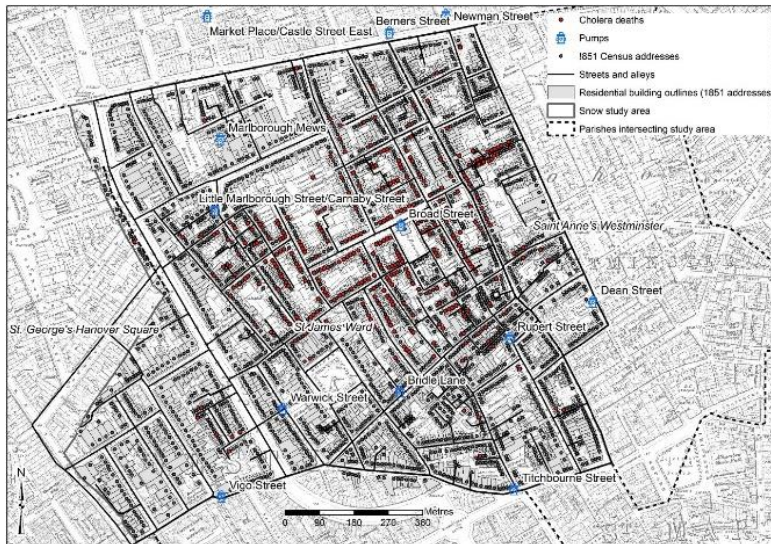
Figure 2.12: The 1851 Census includes building outlines and deaths from Cholera epidemic in Soho, Central London (Walford, 2020).

Up until Snow's passing in 1858, few people believed his notion to be true. Punch appears to have been more informed yet again. The cartoon "Your money or your life" (Figure 2.13) depicts sickness as "The silent highwayman," rowing on the dirty Thames while MPs debated the cost of sewage removal. Similar to the 1828 "Monster Soup" image, the 1850 Punch's cartoon "A Drop of London Water" (Figure 2.14) shows a big water drop surrounded by various creatures. Some humanoids are completely whole, while others are shattered, with floating heads, disembodied arms, or torsos that lack feet. This graphic acknowledges the role of people in the transmission of cholera, despite popular belief that it was transmitted by sewage-contaminated water from humans. Water is here regarded as a potentially life-threatening liquid, and the involvement of people in cholera transmission is increasingly recognised, if not in the social and medical realms, then at least in the artistic sphere (Smeele, 2016).

Figure 13: "The silent highwayman", ca.1850 (Smeele, 2016).
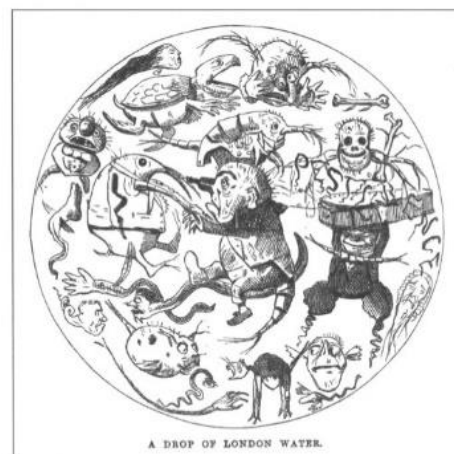
Figure 14: "A Drop of London Water", ca.1850 (Sutherland, 2002).

2.5 "The Great Stink"

While night soil men were originally in charge of London's sanitation, their job was to empty privy cesspools and recycle the waste as agricultural fertiliser, changes in the manure trade, the water closet system and the quality of human waste quickly drove the night soil trade out of business. As London's cesspools filled and overflowed into the streets, new legislation was passed to standardise

cleanliness throughout the city. Guided by Chadwick's suggestions for sewage and drainage system all cesspools were linked to London's old and spilling underground sewage system, which was then improved and directed to empty the waste into the river Thames, where the sewage re-entered London's system through drinking water (Smeele, 2016). At that time, Snow's theory was still considered irrelevant.

Throughout the decades, the Thames had essentially become the largest open sewer in London. Londoners did not decide to address the city's sanitation crisis until the summer of 1858, when the Thames, carrying metropolitan sewage, was reduced to a level referred to as the "Great Stink" by the Times (Figure 2.15) (Science Museum, 2019).

Figure 2.15: George Cruikshank satirical image of the filthy River Thames in 1832 (Science Museum, 2019).

The Punch's publication of "Thames Introducing His Offspring to the Fair City of London"(Figure 2.16) recognises the function of the Thames's water in fostering sickness. In this picture, the terrible figure of Father Thames emerges from the dirty river water. His three offspring are arranged around him, from left to right: Diphtheria, Scrofula, and Cholera. Father Thames is presenting his children to England, symbolised by a traditionally dressed woman clutching a shield bearing St. George's Cross. What distinguishes this depiction is that the infected youngsters rise immediately from the water rather than from the air. Indeed, Cholera remains partially submerged in the corpse-filled river. With the River Thames in the front and centre ground of this image, water is portrayed as the disease vector(Smeele, 2016).

FATHER THAMES INTRODUCING HIS OFFSPRING TO THE FAIR CITY OF LONDON.

Figure 2.16:"Father Thames Introducing His Offspring to the Fair City of London," Punch, 1858 (Smeele, 2016).

2.6 A New Sewer Network for London

The "Great Stink" prompted parliament to evacuate due to the horrible smell rising from the River Thames and, after several delays, to approve plans for a comprehensive sewerage system (Davis,2022). Joseph Bazalgette, Chief Engineer of the Metropolitan Board of Works, planned and built the system that captured and redirected London's sewage away from its water supply. Bazalgette advocated for the construction of expansive egg-shaped sewage tunnels with brick walls, as opposed to the smaller pipes first selected by Chadwick. This design choice was intended to accommodate the increasing quantities of waste generated (see Figure 2.17). The upgraded sewers had a substantial impact on the well-being of the residents of London, and the majority of the system remains operational to this day. The implemented procedures also resulted in physical modifications to the riverbank of London. Cholera struck again a year after the new sewage were installed, but this time the disease only spread to parts of London that hadn't yet been linked to the sewers. Slum dwellers had no choice but to drink polluted water since they had nowhere else to turn. The financing of Bazalgette's sewers was justified by the recent outbreak, which also served as more evidence of cholera transmission through water (Science Museum, 2019).
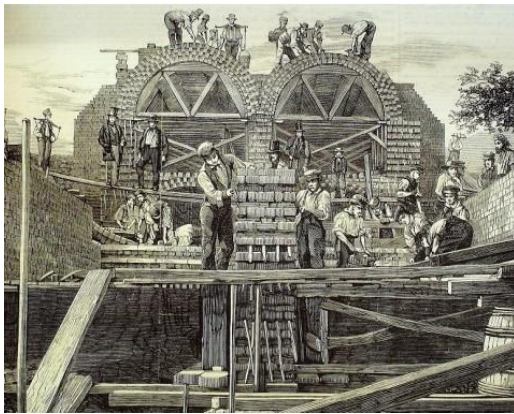

Figure 2.17: The new sewer network for London (Scales, 2019).

London was the first city to establish a comprehensive civic administration capable of coordinating contemporary urban services ranging from public sewage to housing, clean water, and education. London's County Council was recognised as the world's most advanced metropolitan administration (Science Museum, 2019).

2.7 Cholera Pandemic Summery

The cholera outbreak had a tremendous impact on the development of urban public spaces, as well as public urban health and inequality in London, leaving an indelible imprint on the city's urban and social landscape. The pandemic has raised awareness that there are significant social and environmental components to sickness and contagions. As a result, "public health became a societal goal and protecting health a public activity" (UN-Habitat,2021). Mitigation strategies based on miasma and contagious ideas have also had a significant impact on urban public spaces, including sanitation, quarantine, and mobility limitations that prevent sick persons from entering public areas. By catalysing increased awareness and initiatives to address the city's sanitation concerns, a greater understanding of the intersection of urban development, public health, and socioeconomic inequality was obtained, paving the path for improved urban public spaces. The primary control strategies used to restrict the sickness were focused on adequate human waste disposal and drinking water purification. To achieve this, narrow streets were widened, meandering streets were straightened, underground sewage systems were constructed, sewage treatment plants were established, streets were rehabilitated, and water purification plants were developed, resulting in a new urban public space pattern in London.

To summarise, the mid-nineteenth-century cholera pandemic sparked dramatic changes in London's urban layout, public health infrastructure, and social policies. By tackling the linked concerns of sanitation, water supply, and urban inequality, the cholera response radically changed the city's public urban space landscape and established the framework for current public health services. As a result, London has emerged as a global leader in urban development and public health governance, paving the way for cities throughout the globe to prioritise their residents' well-being via careful urban planning and fair access to critical services.

3. HIV/AIDS pandemic and urban public space development

3.1 HIV/AIDS Context Study

Acquired immunodeficiency syndrome (AIDS) is caused by the human immunodeficiency virus (HIV). When an individual becomes infected, the virus weakens their immune system, placing them in danger of developing life-threatening illnesses and malignancies. When this occurs, the sickness is known as AIDS. The virus remains in a person's body for the rest of their life. Symptoms of an acute HIV infection include fever, muscular discomfort, headache, sore throat, nocturnal sweats, and diarrhoea. The infection develops from a few weeks to months, eventually becoming chronic or asymptomatic. During this time, the individual may be unaware that they have HIV, increasing the risk of transmitting it to others (Penn Medicine, 2022). HIV transmission in humans is assumed to have started via contact with infected chimpanzee blood during poaching in Central Africa in the latter part of the 1800s. Over decades, HIV spread slowly across Africa and then to other areas of the world (CDC, 2022).

A disproportionate share of the global HIV load is concentrated in urban areas, despite the fact that over 50% of the global population now resides in urban areas. Compared to rural regions, urban centres often have a greater HIV incidence, and living in an urban setting can make one more susceptible to contracting the virus (Bossetti et al., 2019). Roughly 200 cities are home to about 25% of the world's HIV-positive population. United NationsAIDS (2016) reports that more than 90% of new HIV infections occur in just 156 cities across 30 countries. Squalid and congested urban living circumstances, along with relatively high levels of social interaction, made cities ideal for the transmission of infectious illnesses. London makes no exception, with the most deprived districts having the greatest HIV prevalence (Figure 3.1)(Forde J & Crook P., 2013).
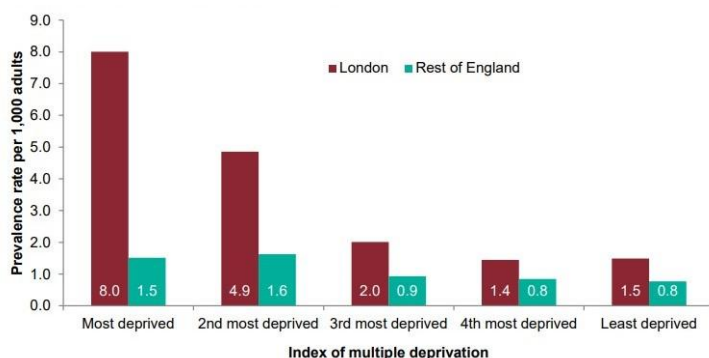
Figure 3.1: HIV infection prevalence by residential deprivation (Forde & Crook, 2013).

HIV is a severe public health concern in London, with over 2,600 new HIV infections recorded in 2011, representing an 11% increase from 2000. HIV infections in London account for nearly half (46%) of all new diagnoses in England (Figure 3.3). At the time, 17.6% of persons became infected from intravenous drug usage (Figure 3.4) (Forde & Crook, 2013).
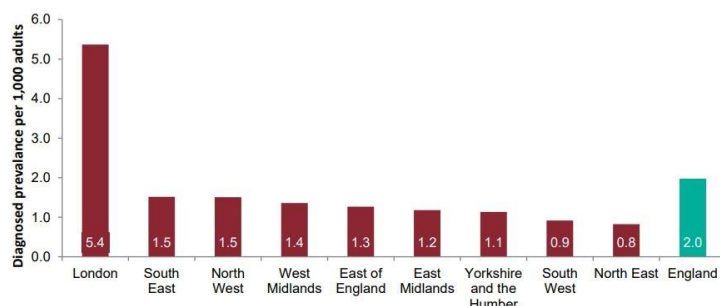
Figure 3.3: HIV diagnosis prevalence by region (Forde & Crook, 2013).
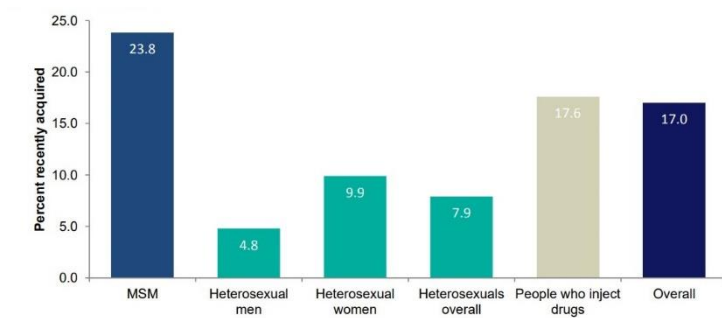
Figure 3.4: Recently acquired HIV infections by exposure groups (Forde & Crook, 2013).

In addition to the increasing number of HIV diagnoses in London, the United Kingdom is also witnessing a public health crisis of drug-related mortality (Shorter et al., 2022). London's drug poisoning fatality rate has reached its highest level in more than 30 years, with 4,907 deaths reported in 2021 (Chantler-Hicks, Burrell, & Fox, 2023). That data indicates the possibility of an increase in HIV transmission through drug injection in future.

3.2 Urban Space Influencing Criminal Activity

Urban settings, social behaviours, and communities have all influenced the origin and location of epidemic outbreaks like HIV/AIDS. The evolution of city planning and urban design over time has had a wide-ranging impact on our communities' well-being and safety. A connection can be found between urban design and criminality (namely drug addiction) in public settings. Crime and drug addiction are common issues, and while they are plainly beyond their control, urban designers can help to reduce crime rates and anti-social behaviour patterns in public areas. This adheres to various design principles, including increasing visibility, reducing seclusion and isolation, and providing natural monitoring (Oueidat, 2021).

Secluded and remote spots in public settings are either perceived as intimate or threatening by some, drawing a variety of users. The solitude feature might lead to undesirable scenarios in which people abuse these areas for unlawful activities like drug dealing and drug injection (Oueidat, 2021). The illusion of invisibility may create a sense of 'safety' for the drug user in the context of the speed and urgency of crowded public places. This 'rush' of scoring, injecting, and disposing of evidence in public places can result in dangerous practices like as needle sharing. The rush to inject is also motivated by the need to alleviate the illness of people who have formed a habit (Dovey, Fitzgerald, & Choi, 2001). As a result, attempts to limit public injection have significant consequences for urban architecture and our concept of civic life in public space.

Urban surroundings provide less social control and greater obscurity, allowing drug traffickers and criminals to conduct their illegal activities wherever in the city, particularly in bigger public places with several hiding locations. Indeed, studies of crime distribution patterns in towns have revealed that a lack of natural surveillance acts as a variable influencing the occurrence of specific forms of crime in areas with high motivation and opportunity (Oueidat, 2021).

The public realm serves as the heart of each community. Historically, the wealthier Londoners have had access to the city's many parks, squares, and forecourts, while the city's poorest residents have lived in overcrowded tenements without access to sufficient public places. As more Londoners reside in higher-density apartment blocks, the need for open space grows (Forde and Crook, 2013). These elements of rising demand and a lack of public place provision may cause crowing in existing undeveloped public spaces, increasing the likelihood of drug abuse.

Deleuze Guattari (1987) proposes the terms 'smooth' and 'striated' public spaces, with 'striated' capturing the etymological links to the 'strict' and 'stringent', and 'smooth' implying a slipperiness in which one moves seamlessly from one location to the next. Striated space is when identity has been stabilised by territorial roots. Smooth space is related to 'rhizomatic' forms that flourish across the fractures and interstices of a greater order; smooth space is associated with the refugee and nomadic migration. The phenomenology of striated space emphasises the visual above other senses, with a focus on optical perspective and the gaze. Smooth space harnesses the potential force of camouflage inside the authoritative striations that act as masks (Dovey, Fitzgerald, & Choi, 2001).

These terms appear to be appropriate for the creation and administration of London's public spaces, both private and public. These inherent tensions and conflicts can be exacerbated in privately owned public spaces, which often function under more intense or stringent management and security regimes than publicly owned public spaces. To study these relationships, two case studies (one public, one privately owned) are chosen to demonstrate effective instances of how metropolitan public spaces could provide a welcoming, safe, and entertaining atmosphere while enforcing regulations about misbehaviour and drug consumption.

3.3 Case Studies

Granary Square in King's Cross, London

The Kings Cross Central Limited Partnership developed the privately held public space known as the Public Cross with the intention of turning it into a "place for people" where temporary attractions and public events may be set up. The developer's goal in designing the plaza was to make it a welcoming and active public area where "everyone can find something to do, and no one can be told they can't do what they want" (Bossetti et al., 2019).

The public space is a huge hard-surfaced square with an uncluttered design that provides ample open space. Eight broad seats are positioned centrally to enclose four rectangular, synchronised fountains that may be turned off for scheduled events. The square's broad boundaries and minimum street furniture provide people with a wide field of view (Figure 3.5).

The landowners of the site have offices overlooking the area, providing soft monitoring. People who are addicted to drugs, who sleep rough, or who beg are directed to nearby hostels for the night by the security team as "engagement" and "respect" are considered key elements of the space. A cleaning staff is on duty 24 hours a day to handle the plaza, providing a clean and well-maintained appearance to the space. A subcontracted security force is also on-site 24 hours a day and four CCTV cameras are placed around the square (Bossetti et al., 2019).

A questionnaire conducted on-site showed that respondents reported feeling either safe or very comfortable in the environment (Figure 3.4). Some responders reported being stopped from drinking or taking professional photography pictures. Most respondents said that they would be impacted if the space disappeared (Bossetti et al. 2019).

Figure 3.5: Location plan and images of Granary Square in King's Cross (Bossetti et. al., 2019).

Perceptions (All respondant reactions recorded below).
● reactions neutral and above
○ reactions below neutral

Maintenance
●●●●●●●●●●●●●●●●

Welcoming
●●●●●●●●●●●●●●●●

Safety
●●●●●●●●●●●●●●●

Most common words to describe the space:
Relaxing, open, interesting

Figure 3.4: Questionnaire responses from Granary Square in King's Cross (Bossetti et. al., 2019).

Gillett Square in Dalston, London

The square is a publicly owned public area constructed as part of the "100 Public Spaces" initiative. The location is defined as a "creative quarter" and has hosted a variety of events, including a jazz festival, a skateboarding festival, and a funfair celebration, all of which benefit "the cultural, creative, and community sector". The market pods are essential components that provide vitality to the square (Bossetti et al. 2019).

The square is a paved rectangular area surrounded by ten market pods and a jazz club. While there is minimal formal public sitting, a huge, decked area with four pine trees offers both shade and casual seating (Figure 3.5) (Bossetti et al. 2019).

Within the square's 10 market pods and jazz club sit a paved rectangular space. Although there isn't much in the way of designated public seats, there is a large decking area shaded by trees where people can relax. As seen in Figure 3.5, the steps leading up to the market booths can double as chairs (Bossetti et al. 2019).

It was noted that certain individuals using the square were susceptible as a result of mental health issues or substance addiction. That these people "are as much a part of the square's community as anyone else" is HCD's reasoning for wanting to involve them in the place's design and upkeep. Along with that, they concede that "people who would like the space to be clear of street drinking, and those who think it is a great space in need of preservation". are at odds with one another as stated in the 2019 study by Bossetti et al.

According to the open space regulations of the London Borough of Hackney, it is forbidden to play or perform sports or music anywhere other than designated areas or with the approval of the Council. They go on to say that nobody has the right to "interfere with, obstruct, or annoy" anybody else who is following the rules to the letter. In the event that someone is being disruptive or poses a threat in Gillett Square, the police have the authority to confiscate alcohol or prevent its use due to a borough-wide Controlled Drinking Zone (Bossetti et al., 2019).However, Gillett Square's high degree of self-management is a result of the space's community-led nature and a tribute to the "high level of communication among the different users" (Bossetti et. al., 2019). One user put it this way: "It's a communal space where everyone looks after each other"; another user said, "We manage the space here, we police it because it's ours, so we have to take care of it" (Bossetti et. al., 2019).

Both site administrators and users of the area view informal curtilage by market pod occupants as crucial to the area's management since it energises the area and allows for passive observation. According to HCD, "the public frequently turns to us when there is an issue, such as anti-social behaviour." A sweeping video camera connected to the Metropolitan Police watches the location, but there is no special security personnel patrolling it. On top of that, the public area is guarded by a community safety team three or four times weekly (Bossetti et. al., 2019).

Some of the recorded comments of users of the space state: "We need these little spaces, [they're] a dying species"; "It's the best square in London. The only outdoor hangout area that's not a park". The majority of the respondents rates the space as safe and welcoming (Figure 3.5) (Bossetti et. al., 2019).
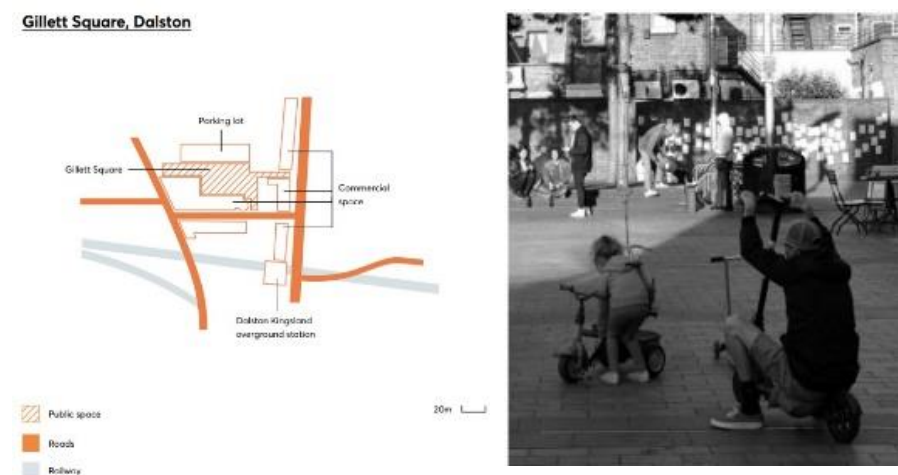

Figure 3.5: Location plan and image of Gillett Square in Dalston (Bossetti et. al., 2019).

Perceptions (All respondant reactions recorded below).

● reactions neutral and above
○ reactions below neutral

Maintenance
●●●●●●●●●●●●●○○○○○○

Welcoming
●●●●●●●●●●●●●●●●●○

Safety
●●●●●●●●●●●●●●●●●●●

Most common words to describe the space:
Easy-going, multicultural, fun

Figure 3.5: Questionnaire responses from Gillett Square in Dalston (Bossetti et. al., 2019).

How these areas are regulated is the main differentiator between the case studies. A more stringent enforcement of regulations forbidding drug consumption, begging and rough sleeping is observed in privately owned public places. Bylaws provide for the limitation of usage of publicly owned spaces, therefore the space given by public sector landlords is not entirely unregulated. To some extent, the presence of attractions meant that the more "restrictive" areas nevertheless managed to attract people and keep their activity levels high. There is a risk that vulnerable users, such as those with mental health difficulties who sleep rough or drink alcohol on the street, would be unintentionally targeted by restrictions placed on public space usage. To provide a response for that occurring, a borough-wide decree prohibits "possession and misuse of novel psychoactive substances (NPS)" (Bossetti et al. 2019).

3.4 Overdose Prevention Sites

Safe injection facilities are becoming increasingly popular, as are public-space programmes to reduce drug use and HIV transmission through needle exchange. While public drug injection cannot be made safe, overdose prevention sites (OPS) provide a temporary solution to reduce the risks (Dovey, Fitzgerald, and Choi, 2001). These facilities offer supervised drug use with sterile injecting equipment and skilled professionals to intervene in overdose scenarios, as well as provision of addiction rehabilitation on demand (Oueidat, 2021). In 2021, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) reported that supervised drug consumption facilities resulted in "safer customer use" and "enhanced public health and order benefits." These include reductions in hazardous behaviour leading to HIV transmission through sharing needles, drug-related mortality, emergency calls for overdoses, and increased drug addiction treatment (Oueidat, 2021; Shorter et al., 2022). According to research, people who inject drugs are highly willing to employ such services. In light of the UK's drug-related fatality epidemic, various professional and political agencies have advised that OPSs be opened in the most impacted regions (ACMD, 2016). However, the government has repeatedly refused suggestions to create overdose prevention programmes under the Misuse of Drugs Act of 1971, claiming that there is no legal foundation for the provision of such facilities (Shorter et al., 2022). Proposals to provide drug treatment services frequently meet local criticism since it is believed that these facilities will stigmatise the region or attract additional drug users (Strike et al., 2004).

3.5 Urban Activation

Several public efforts were launched in London to tackle the HIV pandemic. The city has already made great progress towards reaching the primary United Nations (UN) targets for the Fast-Track Cities initiative. For the first time in London in 2016, all of the UN's 90:90:90 targets were met, with 90% of HIV-positive patients diagnosed, 97% receiving treatment, and 97% virally suppressed. Community

groups, urban initiatives, and high-quality HIV treatment facilities and activities have all contributed significantly to the HIV response (London Councils, 2022).

It is believed that one in every five Londoners with HIV is unaware of their status, highlighting the need of boosting and standardising HIV testing as a strategy for HIV prevention (Figure 3.6) (Shorter et al., 2022). Early diagnosis would enable more people living with HIV to obtain treatment that not only improves their health but also lowers their chance of infecting others. People living with HIV in the UK can expect to enjoy a near-normal life expectancy as a result of antiretroviral medication (Forde. J & Crook P., 2013).
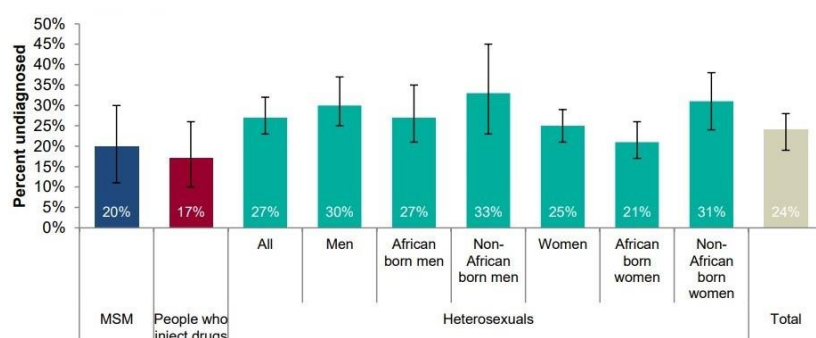

Figure 3.6: Estimated percentage of individuals infected with HIV who are undiagnosed by risk groups (Forde & Crook, 2013).

While the number of people living with HIV has risen steadily over the previous decade, the number of deaths has remained relatively stable, indicating a decreased mortality rate among HIV patients in London (Figure 3.7) (Forde & Crook, 2013). This drop is attributed to the therapy's efficacy, public educational initiatives, access to high-quality health and social services such as HIV anonymous testing, and raising knowledge about the illness as well as eliminating stigma.
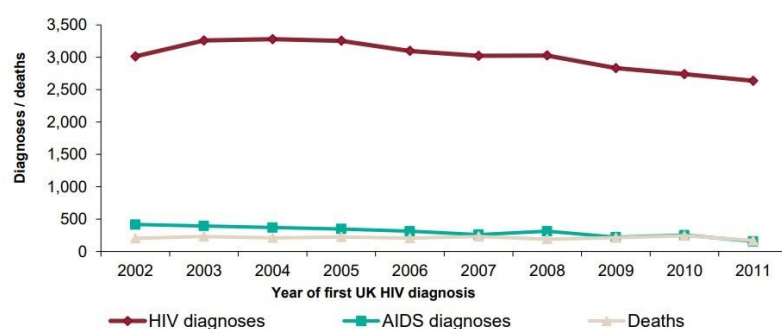

Figure 3.7: HIV and AIDS diagnoses and death recorded in London (Forde & Crook, 2013).

3.6 HIV/AIDS Pandemic Summery

In the context of London, the intersection of drug consumption and HIV transmission poses significant challenges to public health and community well-being. Furthermore, the co-occurrence of drug-related issues exacerbates the situation, as illustrated by the rising rates of drug-related deaths and injection-related HIV transmission in London.

Urban planning plays a crucial role in shaping the dynamics of drug consumption and HIV transmission in public spaces. Design features such as visibility, surveillance, and accessibility influence the use of urban environments for illicit activities, including drug dealing and injection. The case studies of Granary Square and Gillett Square demonstrate how different management

approaches can impact the utilization and regulation of public spaces, with implications for community safety and cohesion.

Addressing drug consumption and HIV transmission in public spaces requires a comprehensive and integrated approach that acknowledges the complex interplay of social and environmental factors. By combining public health initiatives, urban planning strategies, social interventions, and regulatory measures, cities like London create safer, healthier, and more inclusive public environments for all residents. However, sustained efforts and collaborative partnerships are needed to effectively address these persistent challenges and promote the well-being of urban populations.

4. COVID-19 pandemic and urban public space development

4.1 Covid-19 Context Study

The novel coronavirus caused widespread disruption to everyday life throughout the world, and the World Health Organisation (WHO) declared it a global emergency at the end of 2020. The SARS-CoV-2 coronavirus causes the sickness known as COVID-19. It frequently spreads among people in proximity. Symptoms of COVID-19 infection include a high fever, chills, and a sore throat. It's important to note that anybody can become ill or die from COVID-19, yet most patients recover without treatment. People with pre-existing health problems such as chronic heart, lung, liver, or rheumatological diseases, as well as those with HIV, diabetes, or cancer, are at a higher risk when infected with the virus (WHO, 2023).

Global healthcare systems have been overwhelmed by the virus's predicted spread, which has also caused extensive social and economic upheaval (Al-Kindi and Abbood, 2021). One of the best ways to control viruses, according to the new problem, is to use mitigation measures (Ebrahim et al., 2020). As a result of that New York, Rome, and London, cities famous for their street life, appeared ghostly as city dwellers remained at home for the common good, as half of the global population was forced to isolate themselves or limit their movement in public (Sandford, 2020). Efforts to reduce the transmission of COVID-19 and safeguard susceptible populations on a global scale that do not include pharmaceuticals and are community-based. Avoiding big gatherings, washing hands often, concealing one's face, staying home alone, and restricting one's mobility in public are among methods the population was advised to use (Ebrahim et al., 2020; Sandford, 2020).

According to Roe and McCay (2021), the pandemic had a significant impact on pre-existing disparities. The Coronavirus employment crisis has affected the UK's capital the worst. Employment declined resulting in roughly 110,000 fewer payrolled employees in February 2021 compared to February 2020. As an outcome, the capital had the highest increase in unemployment of any area in the UK. Young individuals in central London, as well as those from ethnic minority backgrounds, were far more likely to lose their jobs and become unemployed during the epidemic. The number of people receiving unemployment benefits grew to 11.7% in the most ethnically diverse areas, compared to 4.4% in mostly white neighbourhoods. Additionally, economic disparities exacerbated by the pandemic, such as job losses and financial instability, further deepened existing inequalities and contributed to social stigmatization towards lower classes (Gough, 2021).

Mitigation strategies employed to reduce viral transmission have a significant impact on global daily life, reducing public meetings, cultural activities, and socialising. Even though millions were affected, the pandemic had the largest impact on the population's mental health. The pandemic was marked by uncertainty, anxiety, the loss of loved ones, and, most importantly, the inability to connect freely with the outside world (Roe and McCay, 2021).

In light of the growing number of people using public areas, the World Health Organisation (WHO) has issued a number of suggestions to combat the COVID-19 epidemic. One possible solution pointed out was to promote walking and cycling as modes of transportation to accommodate changing mobility patterns. Another was to implement tactical urbanism strategies in public spaces, such as transforming roadways into bike lines, pedestrian routes, and recreational zones. Lastly, expanding access to public and green spaces throughout the city could help encourage social distance while allowing different demographic groups to participate in recreational and physical activities (WHO, 2022).

4.2 Adapting the Green Public Spaces

City dwellers' priorities have been sharpened by the COVID-19 epidemic. As a result of COVID-19 restrictions, we were more cognizant of the impact of our daily surroundings on our health and the significance of our communities. The ways in which we can be physically separated are well-known to those in charge of planning and policymaking, but in order for communities to flourish, its members still need opportunities to enjoy both indoor and outdoor green and blue spaces, to make and maintain meaningful social connections (Roe and McCay, 2021).

In order to enjoy nature's benefits, nearby parks and riverbanks became increasingly popular (Roe and McCay, 2021). Having even visual contact with nature has substantial positive effects on mental health, according to the scientific literature. The demand surge was evidence of how highly people regard natural spaces, irrespective of their accessibility, quantity, or quality (Rojas-Rueda et al., 2019; Velarde, Fry, and Tveit, 2007).

When viewed from above, London appears remarkably lush, with more than 800 square kilometres of green space. However, Figures 4.1 and 4.2 show that private gardens occupy 36% of the green areas, whereas only 26% are available to the public. Some people have access to public green areas, while others live too far away, and those who have private gardens stand in stark contrast to others who do not. This green spatial disparity has been highlighted by the pandemic. Moser, Malzieu, and Petkova (2020) suggest that tactical approach such as reclaiming parking spots for public use would help alleviate the inequality in access to green areas.

Figure 4.1: London total green space map (Moser, Malzieu, & Petkova, 2020)

Figure 4.2: London's public green space map (Moser, Malzieu, & Petkova, 2020).

Resilient cities prioritise public spaces because of their adaptability to meet emergency health objectives (Polko, 2012). The global pandemic altered the function of many parks and other green areas. Three cities—London, New York, and Vancouver—turned their conference centres and open areas into makeshift hospitals for medical emergencies. This highlights the importance of environments that can adapt. Domino Park in Brooklyn, which was separated into multiple small circles to meet social distance needs (Figure 4.3), is an example of how tactical urbanism can change public green spaces to fulfil modern demands (Cogley, 2020).

Figure 4.3: Social distancing in parks (Cogley, 2020).

4.3 Adapting the Public Space

Many municipal governments developed and modified urban spaces to manage traffic, reassess event performance venues, and organise presence hours within the urban area in order to swiftly respond to these new demands and accommodate enterprises reopening. In addition to providing public spaces and amenities, several of the projects aimed to expand non-automatic transit options. According to Ortar and Rérat (2023), the majority of efforts are focused on making public urban spaces and roadways safer for the public.

South Woodford's mobile hub

The epidemic has prompted London to create mobile hubs to address the need for active commuting modes and physical activity, while also boosting local businesses. Originally, the Redbridge council was going to buy its own mobility centre, which would have made changing modes of transport much easier. An electric vehicle charging station, a space for a club vehicle, and a parklet with plants, benches, and a water feature would all be part of the hub (South Woodford Village Gazette, 2020). There is no "one size fits all" solution, but the hub concept integrates public transport with shared mobility options like bike-sharing and car clubs, together with infrastructure for pedestrians and cyclists and improvements to the urban environment (Meristem Design, n.d.). The hub offers covered waiting rooms, strolling spaces, handicap access, real-time trip planning information, green space, package pickup locations, workout areas, and Wi-Fi and phone charging stations. It can be situated near community services like these. Figures 4.4 and 4.5 show the characteristics of the South Woodford hub, which include a club bay for electric vehicles, a community-led café, coffee tables, outdoor eating with bar stools, bike parking, trees and plants (Meristem Design, n.d.).

Figure 4.4: South Woodford's mobile hub concept (South Woodford Village Gazette, 2020).

Figure 4.5: South Woodford's mobile hub in use (Extraredbridge, 2022).

4.4 Adapting Mobility in Public Spaces

Our interactions with our local communities and neighbourhoods have been transformed as a result of the social distancing measures, which have mandated floor signs and road closures to ensure safe walking. An outdoor 2-meter norm for social distance has been proposed as a mitigation mechanism (Figure 4.6) (Schroter, 2020). However, most pavements are too short to adequately separate people from one another. Although passing someone on the pavement does not provide a high risk of contracting Covid-19, public health authorities nonetheless advise moving aside. On the other hand, getting from one place to another might be dangerous, putting people at risk of being infected or injured from cars.
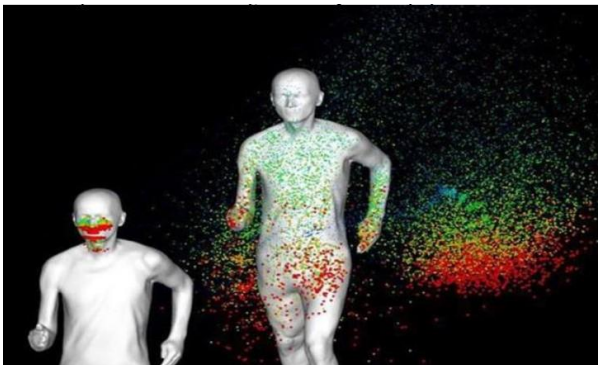

Figure 4.6: Covid-19 mode of transmission (Yeager, 2020).

City planners have started to prioritise walkers and bicycles, and automobile traffic has dropped in entirely closed cities as a result of the mitigation techniques' changes. In New York, a temporary bike queue compensated the subway's passenger loss, increasing active transportation demand (Figure 4.7) (Teixeira and Lopes, 2020).

Figure 4.7: New Your mobility adaptations (Security Boulevard, 2020).

A case study from London is chosen to portray how the capital has responded to these trends in mobility adaptation.

London Streetscape

Aiming to redevelop important thoroughfares, the London Streetscape Plan included the creation of new pedestrian and bicycle walkways, as well as temporary bike lanes. As physical distancing on crowded public transport is seen as a challenge, the objective was to promote walking and cycling as alternatives when the lockdown is lifted. In low-traffic regions, the new road network encourages walking and biking (Figure 4.8) (Ortar & Rérat, 2023) in an effort to reduce public transport congestion and radically reorganise local city centres.

Moser, Malzieu, and Petkova (2020) suggest a focused cycling network, temporary materials, and more routes as potential solutions to the overcrowding on trains, buses, and the tube. The creation of low-traffic corridors around London and the reduction of traffic on residential streets were additional project goals aimed at encouraging more people to incorporate walking and cycling into their everyday lives. Another technique is to provide larger pavements on high streets to allow for lineups outside businesses as people safely stroll past, while social distancing is utilised in town centres to allow for safe walking and cycling when feasible (Verhulst et al., 2023).
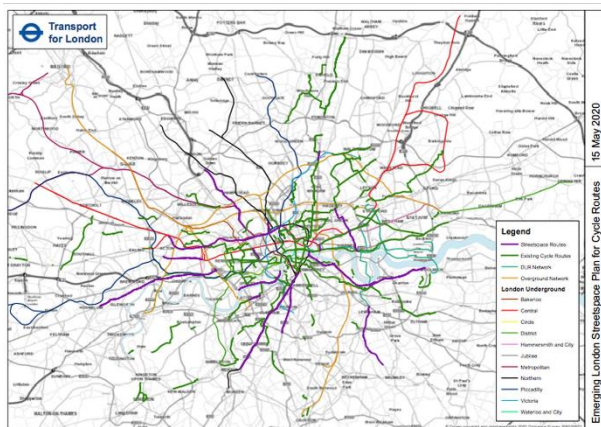

Figure 4.8: London's plan for cycling routes (Moran, 2020).

Outdoor eating, planned street closures, and temporary bike lanes are just a few examples of the innovative infrastructure and activities that have benefited from the transient nature of these schemes. Overall, the effort resulted in 92.8 km of additional cycling paths, 88 low-traffic neighbourhoods, and a large quantity of extra pedestrian space and temporary outdoor eating options. There have been conflicting viewpoints on the quality of the measures used, but London has witnessed a significant increase in active transport, with a wider range of users and economic advantages (Cazzato, 2021).

Figure 4.9: Adaptation of the public space in Covent Garden,. (London Road Safety Council, 2020).

Figure 4.10: Reclaimed street space (London Road Safety Council, 2020).

4.5 Covid-19 Pandemic Summery

Public space and the urban environment have been profoundly impacted by the COVID-19, according to the reviewed literature and case studies. The emotional and physical health of the people has been negatively affected by the mitigation efforts used, since the urban fibric was not yet ready to handle the additional problems posed by the epidemic. Better planned urban public spaces were possible due to the pandemic's acceleration of urban design development and tactical urbanism methods. As an example of a tactical approach, the mobile hub showcase prioritised the following: the provision of sustainable and alternative modes of transportation; the creation of gathering spaces within time constraints; the implementation of greenery; and the provision of retail and small business support during times of crisis. Massive improvements are made possible by the London Streetspace Programme, which includes the installation of temporary bike lanes, landscaping to slow down traffic, and the expansion of pedestrian walkways to meet the needs of social distance and outdoor dining.

5. Conclusion

Following the examination of previously reviewed literature and case studies, the investigation's findings are summarised in the 'Historic pandemic influences on the development of London's urban public spaces design' framework (Table 5.1). According to the research, there is a strong link between urbanisation and pandemic occurrence in major cities. Certain areas of the city with a high concentration of migrant populations became hotspots for public illnesses and diseases. As a result, the amount of urbanisation and the occurrence of hotspots can be seen as preconditions for pandemics. Mitigation measures used to maintain urban health have a significant influence on both persons and public urban environments. The analysis of these historic pandemics has revealed that certain mitigation strategies exacerbate previously existing disparities in metropolitan settings, putting additional strain on the disadvantaged population. As a result, mitigating strategies and disparities can be considered accelerators for the development of healthy urban public spaces. The urban tactics implemented in public spaces with the goal of restoring public health achieve not only the mitigation strategies proposed to contain and fight diseases but also address the accreted previously existing urban space inequalities and contribute to the creation of an equally accessible and healthier city.

After the investigated literature and case studies, it can be concluded that the historic pandemics has had a significant impact on the development of public urban spaces in London. As a consequence of the Cholera pandemic, narrow streets have been widened, meandering streets have been straightened, underground sewage systems have been built, sewage treatment plants have been established, and water purification plants have been developed to provide clean water to city residents. This epidemic has also prompted the public to pay more attention to and rectify disparities in the lower classes' way of life. The current HIV/AIDS pandemic focuses on critical concerns such as tackling the growing number of dangerous drug-injecting behaviours in public settings, which increases the risk of HIV infection. Important implications for urban public space as a result of this pandemic have been the redevelopment of urban public spaces to provide equal access to everyone in these spaces while implying the necessary restrictions to provide safety, address drug consumption by redirecting drug addicts to appropriate services and reduce the stigma of HIV infected populations. The COVID-19 pandemic has highlighted the importance and need for adequate public urban space design, as well as having significant implications for the development of public urban spaces by providing temporal infrastructure and initiatives such as al fresco dining, providing alternative modes of transport, reducing public space inequalities by reclaiming streets, and addressing London's population's need for physical activity and outdoor near-normal life.

This research provided a historical overview of the impact of various pandemics on cities, as well as the function of the urban environment in preventing transmission. The thesis's goal was achieved by a thorough literature review and supporting case studies, which assisted in determining the most significant alterations in constructing pandemic-proofed urban public spaces in response to past pandemics. Based on the findings of the literature research and the case studies studied of London's public spaces, a summary framework of 'Historic pandemic impacts on the evolution of London's urban public space design' was constructed. The examined case studies are largely concerned with responding to time-related pandemics and can serve as examples of practical procedures that can be taken to create not only healthier but also more hospitable environments during pandemic circumstances. The framework consists of five components that investigate the urban prerequisites for the occurrence of a pandemic in London, accelerators for better urban public space design, and urban methods employed to restore public health.

Due to objective and time restrictions, this research has some limitations. The main constraints relate to the small number of case studies investigated and the limited literature examined. These limits might lead to oversimplified interpretations relevant to the location. Due to the time scope given for

this work and the unique setting of London, these examples were chosen to showcase successful implementation and adaptations of public urban spaces to respond to the historic pandemic crisis.

Nevertheless, the created framework can serve as a foundation for documenting both past and future responses to pandemics, which have implications for the development of urban public spaces. This documentation could enable us to learn from historical responses and create healthier, more resilient cities capable of coping with pandemics in the future.

	PRE-CONDITIONS			PANDEMIC ACCELERATORS					URBAN PUBLIC SPACE IMPLICATIONS
	Pandemics and Urbanisation	Pandemic hotspots		Impact of mitigation strategies			Inequalities during pandemics		Urban tactics aiming provision of public health
		Urban setting	Qualities of the urban setting	Strategies used	Impact on people	Urban spaces	Social Stigma	Urban inequalities	
Cholera (1831-32, 1848-49, 1853-54, 1866-67)	-London being largest city due to industrialization moving people from the countryside to packed slums	- Slums were Southwark consumers receiving water from the most polluted river area	-Poor garbage disposal in urban areas. -Especially bad odours near the Thames. -Urban public places smelling of decay, stagnant water, dirt, and death	-Miasmatical treatments include cleaning walls and floors, removing decaying waste, and protecting faces from odours -Contagion precautions include quarantine, travel restrictions, and city bans on outsiders	Stigmatization of urban poverty -Practices such as slum clearance and forced relocations	-Slum clearance -Public spaces have remained active	Disproportionate burden of the disease, suggesting that the poor were the cause of it due to their unhygienic practices	-Discriminatory access to water pumps -Water supply corporations disregard impoverished individuals. -Later, undifferentiated lower classes saw living circumstances improvements	-The sanitation movement led by Edwin Chadwick led to rapid human waste disposal, urban public space cleanliness, autonomous sewage systems, and slum clearing -The new egg-shaped sewer tunnels have widened narrow streets, straightened meandering streets, changed the appearance of the riverside, built underground sewage systems, sewage treatment plants, rehabilitated streets, and developed water purification plants, changing London's urban public space pattern
HIV/Aids (1980-on-going)	-Urban squalor and congested social interactions make cities perfect for HIV transmission	-Due to less social monitoring, addicts can use narcotics in city's hiding spots. -More restricted public places discourage public injecting	-Public spaces creating feeling of invisibility, seclusion, isolation or lack of natural surveillance	-drug-addiction treatment referrals -Providing medication to HIV patients and reducing infection risk -Discussion about the need for safe injection facilities due to drug injection increasing	-Safe injection facilities may result in concentration of drug users in some metropolitan areas.	-Public education activities - HIV testing facilities	-A high number of people were informed about their HIV status partly because of stigmatisation and fear of discrimination	- People who are already inclined to engage in prohibited or restricted activities may find themselves unfairly singled out by public space regulations.	-Unobstructed public spaces with wide field of vision -Offices and marketplaces providing 'soft monitoring' -Drug addicts, rough sleepers, and beggars guided to overnight dormitories by security -Police-connected CCTV cameras can improve public space security and self-management -Recognising vulnerable drug addicts while allowing equal public access -Boroughwide "possession and misuse of Novel Psychoactive Substances (NPS)" prohibition - Urban initiatives and high-quality HIV treatment facilities have helped the HIV response -Public education, social services, and HIV testing made accessible
COVID-19 (2019-on-going)	-Residents in cities are more likely to get infected due to the higher population density	-Any public and private space has the potential of becoming a hotspot for transmission	-Enclosed, crowded, over-populated, poorly-ventilated spaces	-Limit of mobility in public, social distancing, facial coverings, frequent handwashing, avoiding big gatherings, home isolation and limitation of mobility in public	- Negative effect on individuals including physical inactivity and mental health difficulties	-Banned cultural activities and public meetings -Roads, and parks replace public spaces -Prioritisation of walking and biking	-Job losses and financial instability caused by the epidemic intensified economic inequality Stigmatised poorer groups	-Fewer, smaller, and unmaintained green spaces in low-income communities -Disparities between those with private gardens and those without, those with access to green spaces and those who live far away	-Encouraged walking and cycling for social distance and mobility changes -Reclaimed car space for pedestrian and leisure use to lessen green space inequity -Floor signs and close roads for safe walking and neighbourhood improvements -Green areas became emergency field hospitals during the pandemic -Setting up temporary infrastructure like outdoor eating, traffic closures, and bike lanes to promote active commuting and normalcy -Mobile hubs can provide alternate transit, gathering areas under time constraints, vegetation installation, and crisis relief for retail and small companies

Table 5.1.: Historic pandemic influences on the development of London's urban public spaces design.

References:

ACMD. (2016). *Reducing Opioid-Related Deaths in the UK*.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_

data/file/576560/ACMD-Drug-Related-Deaths-Report-161212.pdf

Al-Kindi, S. K. A., & Abbood , A. H. (2021). *Urban Street Space after Covid-19: (Indicators of safe and*

healthy urban street space). Turkish Journal of Computer and Mathematics Education.

Vol.12 No.12 (2021), 4452-4463.

Azman, A. S., Rudolph, K. E., Cummings, D. A. T., & Lessler, J. (2013). The incubation period of

cholera: a systematic review. *The Journal of Infection*, *66*(5), 432–438.

https://doi.org/10.1016/j.jinf.2012.11.013

Bavel, V., Curtis, D. R., Dijkman, J., Hannaford, M., Maïka De Keyzer, Eline Van Onacker, & Soens, T.

(2020). *Disasters and history the vulnerability and resilience of past societies*. Cambridge,

United Kingdom New York, Ny Cambridge University Press.

Bosch, M., & Ode Sang, Å. (2017). Urban natural environments as nature-based solutions for

improved public health – A systematic review of reviews. *Environmental Research*, *158*, 373–

384. https://doi.org/10.1016/j.envres.2017.05.040

Bosetti, N., Brown, R., Belcher, E., & Washington-Ihieme, M. (2019). *Public London: the regulation,*

management and use of public spaces. Centre for London.

https://www.london.gov.uk/sites/default/files/centre_for_london_public_london_digital.pdf

Bragança, L., Engel, C., & Cabeza, L. F. (2021). *Sustainable Urban Development*. Institute of Physics

Publishing.

BSc, L. S. (2019). *SpeakerNet*. Speakernet.co.uk. https://speakernet.co.uk/talk/2477/behind-and-

beyond-sir-joseph-bazalgette-and-his-london-sewers

Butler, G., Chapman, D., & Terry, P. (2018). Attitudes of intravenous drug users in London towards

the provision of drug consumption rooms. *Drugs: Education, Prevention and Policy*, *25*(1),

31–37. https://doi.org/10.1080/09687637.2016.1252316

Caplan, J. M., Kennedy, L. W., & Neudecker, C. H. (2020). Cholera deaths in Soho, London, 1854: Risk Terrain Modeling for epidemiological investigations. *PLOS ONE*, *15*(3), e0230725. https://doi.org/10.1371/journal.pone.0230725

Cazzato, M. (2021). *London's Streetspace Programme- A Lasting Legacy?* New London Architecture. https://nla.london/news/londons-streetspace-programme-a-lasting-legacy

CDC. (2022). *About HIV*. Centers for Disease Control and Prevention; CDC. https://www.cdc.gov/hiv/basics/whatishiv.html

Chantler-Hicks, A. F., Miriam Burrell, Lydia. (2023). *London drug death rate hits historic high, new report reveals*. Evening Standard. https://www.standard.co.uk/news/health/london-drug-death-poisoning-rate-synthetic-opioid-office-for-national-statistics-england-b1127959.html

Cogley, B. (2020). *White circles promote social distancing on Domino Park grass in New York*. Dezeen. https://www.dezeen.com/2020/05/20/social-distancing-circles-domino-park-brooklyn/

Davis, J. (2022). Epidemics, Planning and the City: A Special Issue of Planning Perspectives. *Planning Perspectives*, *37*(1), 1–8. https://doi.org/10.1080/02665433.2022.2019982

Deleuze, G. (1987). *DELEUZE GUATTARI*. https://files.libcom.org/files/A%20Thousand%20Plateaus.pdf

Dovey, K., Fitzgerald, J., & Choi, Y. (2001). Safety becomes danger: dilemmas of drug-use in public space. *Health & Place*, *7*(4), 319–331. https://doi.org/10.1016/s1353-8292(01)00024-7

Dyson, T. (2003). HIV/AIDS and Urbanization. *Population and Development Review*, *29*(3), 427–442. https://www.jstor.org/stable/3115281

Ebrahim, S. H., Ahmed, Q. A., Gozzer, E., Schlagenhauf, P., & Memish, Z. A. (2020). Covid-19 and community mitigation strategies in a pandemic. *BMJ*, *368*, m1066. https://doi.org/10.1136/bmj.m1066

Extraredbridge. (2022). *We want to hear your voice*. Extraredbridge.commonplace.is. https://extraredbridge.commonplace.is/en-GB/proposals/south-woodford-mobility-

hub/start

Forde, J., & Crook, P. (2013). *Review of HIV Epidemiology in London*. ADPH London.

Getty Images. (2020). *Vintage engraving of Washing streets around Covent Garden, London...* Getty

Images. https://www.gettyimages.nl/detail/illustratie/washing-streets-of-london-with-

antiseptic-royalty-free-illustraties/1219770605?adppopup=true

Gibb, R., Redding, D. W., Chin, K. Q., Donnelly, C. A., Blackburn, T. M., Newbold, T., & Jones, K. E.

(2020). Zoonotic host diversity increases in human-dominated ecosystems. *Nature*,

584(7821), 398–402. https://doi.org/10.1038/s41586-020-2562-8

Gough , E. (2021). *Mind the gaps – The pandemic and inequalities in central London*. Central London

Forward. https://centrallondonforward.gov.uk/blog-post/mind-the-gaps-the-pandemic-

and-inequalities-in-central-london/

Hackney History. (2019). *Cholera in Silk Mill Row, Hackney*. Layersoflondon.humap.site.

https://layersoflondon.humap.site/map/records/cholera-in-silk-mill-row-hackney

Jackson, L. (2014). *Dirty Old London*. Yale University Press.

Koch, T. (2005). *Mapping the Miasma: Air, Health, and Place in Early Medical Mapping*. Research

Gate.

https://www.researchgate.net/publication/275572849_Mapping_the_Miasma_Air_Health_a

nd_Place_in_Early_Medical_Mapping

London Councils . (2022). *The London HIV Prevention Programme | London Councils*.

Www.londoncouncils.gov.uk. https://www.londoncouncils.gov.uk/our-key-themes/health-

and-adult-services/public-health/future-commissioning-hiv-prevention-service-2

London Road Safety Council . (2020). *Harrow makes changes to improve Streetspace programme |

London Road Safety Council*. London Road Safety Council .

https://londonroadsafetycouncil.org.uk/harrow-makes-changes-to-improve-streetspace-

programme/

Martínez, L., & Short, J. R. (2021). The Pandemic City: Urban Issues in the Time of COVID-19.

Sustainability, 13(6), 3295. https://doi.org/10.3390/su13063295

MATRIX. (n.d.). *The John Snow Archive and Research Companion*. Johnsnow.matrix.msu.edu.

https://johnsnow.matrix.msu.edu/work.php?id=15-78-52

Meristem Design. (n.d.). *Meristem Design | Redbridge Mobility Hubs - Parklet*. Meristem Design.

Retrieved April 9, 2024, from https://www.meristemdesign.co.uk/redbridge-mobility-hubs

Moran, M. (2020). *London's Streetspace plan takes shape*. Www.transportxtra.com.

https://www.transportxtra.com/publications/local-transport-today/news/65498/london-s-

streetspace-plan-takes-shape/

Moser, B., Malzieu, T., & Petkova, P. (2020). *Foster + Partners*. Fp-Corporatewebsite-

Prod.azurewebsites.net. https://www.fosterandpartners.com/insights/plus-journal/tactical-

urbanism-reimagining-our-cities-post-covid-19

Nieuwenhuijsen, M., Khreis, H., Verlinghieri, E., Mueller, N., & Rojas-Rueda, D. (2018). The Role of

Health Impact Assessment for Shaping Policies and Making Cities Healthier. *Integrating*

Human Health into Urban and Transport Planning, 609–624. https://doi.org/10.1007/978-3-

319-74983-9_29

Ortar, N., & Rérat, P. (2023). *Cycling Through the Pandemic*. Springer Nature.

Oueidat, F. (2021). *Reclaiming public spaces in the face of drug-dealership & other crime practices*.

ReserachGate.

https://www.researchgate.net/publication/349009200_Reclaiming_public_spaces_in_the_f

ace_of_drug-dealership_other_crime_practices

Oxford dictionaries . (n.d.). *Definition of pandemic noun from the Oxford Advanced Learner's*

Dictionary. Www.oxfordlearnersdictionaries.com.

https://www.oxfordlearnersdictionaries.com/definition/english/pandemic_1

Penn Medicine. (2022). *What is HIV and AIDS?* Pennmedicine.org.

https://www.pennmedicine.org/for-patients-and-visitors/patient-information/conditions-

treated-a-to-z/aids-and-hiv

Polko, A. (2012). *Public Space Development in the Context of Urban and Regional Resilience*. Research

    Gate.

    https://www.researchgate.net/publication/278679391_Public_Space_Development_in_the_

    Context_of_Urban_and_Regional_Resilience

Roe, J., & Mccay, L. (2021). *Restorative cities : urban design for mental health and wellbeing*.

    Bloomsbury Visual Arts.

Rojas-Rueda, D., Nieuwenhuijsen, M. J., Gascon, M., Perez-Leon, D., & Mudu, P. (2019). Green

    spaces and mortality: a systematic review and meta-analysis of cohort studies. *The Lancet

    Planetary Health*, *3*(11), e469–e477. https://doi.org/10.1016/s2542-5196(19)30215-3

Sandford, A. (2020, April 2). *Coronavirus: Half of humanity on lockdown in 90 countries*. Euronews.

    https://www.euronews.com/2020/04/02/coronavirus-in-europe-spain-s-death-toll-hits-10-

    000-after-record-950-new-deaths-in-24-hou

Saunders, H. (2021). *The Story Behind the Name - Broad Street Prevention*. Broad Street Prevention .

    http://broadstreetprevention.com/index.php/about/

Scales, L. (2019). *SpeakerNet*. Speakernet.co.uk. https://speakernet.co.uk/talk/2477/behind-and-

    beyond-sir-joseph-bazalgette-and-his-london-sewers

Schroter, R. C. (2020). Social distancing for covid-19: is 2 metres far enough? *BMJ*, m2010.

    https://doi.org/10.1136/bmj.m2010

Science Museum. (2019). *Cholera in Victorian London*. Science Museum.

    https://www.sciencemuseum.org.uk/objects-and-stories/medicine/cholera-victorian-london

Science Source Images. (n.d.). *Edwin Chadwick, Sanitary Map of Leeds, 1838*. Science Source

    Images. Retrieved April 9, 2024, from https://www.sciencesource.com/2056386-edwin-

    chadwick-sanitary-map-of-leeds-1838-stock-image-rights-managed.html

Shorter, G. W., Harris, M., McAuley, A., Trayner, K. M., & Stevens, A. (2022). The United Kingdom's

    first unsanctioned overdose prevention site; A proof-of-concept evaluation. *International

    Journal of Drug Policy*, *104*, 103670. https://doi.org/10.1016/j.drugpo.2022.103670

Smeele, W. (2016). Grounding Miasma, or Anticipating the Germ Theory of Disease in Victorian

Cholera Satire. *The Journal of the Midwest Modern Language Association*, *49*(2), 15–27.

https://www.jstor.org/stable/44164803?seq=5

South Woodford Village Gazette. (2020, September 2). *Redbridge's first mobility hub to be installed

in South Woodford*. South Woodford Village Gazette.

https://swvg.co.uk/2020/09/02/redbridges-first-mobility-hub-to-be-installed-in-south-

woodford/

Strike, C. J., Myers, T., & Millson, M. (2004). Finding a place for needle exchange programs. *Critical

Public Health*, *14*(3), 261–275. https://doi.org/10.1080/09581590400004386

Sutherland. (2002). EXTRACTS from Appendix (A) to the Report of the General Board of Health on

the Epidemic Cholera of 1848 & 1849. *International Journal of Epidemiology*, *31*(5), 900–907.

https://doi.org/10.1093/ije/31.5.900

Teixeira, J. F., & Lopes, M. (2020). The link between bike sharing and subway use during the COVID-

19 pandemic: The case-study of New York's Citi Bike. *Transportation Research

Interdisciplinary Perspectives*, *6*, 100166. https://doi.org/10.1016/j.trip.2020.100166

Thompson, A. (2020, May 7). *More cycleways, streets to shut, footpaths widened under NSW's

COVID-19 plan*. The Sydney Morning Herald. https://www.smh.com.au/national/nsw/more-

cycleways-streets-to-shut-footpaths-widened-under-nsw-s-covid-19-plan-20200507-

p54qwc.html

Thompson, R. N., Thompson, C. P., Pelerman, O., Gupta, S., & Obolski, U. (2019). Increased

frequency of travel in the presence of cross-immunity may act to decrease the chance of a

global pandemic. *Philosophical Transactions of the Royal Society of London. Series B,

Biological Sciences*, *374*(1775), 20180274. https://doi.org/10.1098/rstb.2018.0274

Tulchinsky, T. H. (2018). John Snow, Cholera, the Broad Street Pump; Waterborne Diseases Then

and Now. *Case Studies in Public Health*, *77-99*(PMC7150208), 77–99.

https://doi.org/10.1016/B978-0-12-804571-8.00017-2

UN HABITAT. (2018). *PUBLIC SPACE*.

> https://unhabitat.org/sites/default/files/2020/07/indicator_11.7.1_training_module_public_s
>
> pace.pdf

UN-Habitat. (2018). *Training Module: Public Space. United Nations Human Settlement Programme*.

> UN-Habitat; Nairobi.
>
> https://unhabitat.org/sites/default/files/2020/07/indicator_11.7.1_training_module_public_s
>
> pace.pdf

UNAIDS. (2016). *UNAIDS | 2016*. https://www.unaids.org/sites/default/files/media_asset/cities-

> ending-the-aids-epidemic_en.pdf

UNAIDS | 2016. (n.d.). https://www.unaids.org/sites/default/files/media_asset/cities-ending-the-

> aids-epidemic_en.pdf

Velarde, Ma. D., Fry, G., & Tveit, M. (2007). Health effects of viewing landscapes – Landscape types

> in environmental psychology. *Urban Forestry & Urban Greening*, *6*(4), 199–212.
>
> https://doi.org/10.1016/j.ufug.2007.07.001

Verbeek, T. (2014). *Reconnecting urban planning and public health: an exploration of a more adaptive*

> *approach*. Research Gate.
>
> https://www.researchgate.net/publication/288668035_Reconnecting_urban_planning_and
>
> _public_health_an_exploration_of_a_more_adaptive_approach

Verhulst, L., Corneel Casier, & Witlox, F. (2023). Street Experiments and COVID -19: Challenges,

> Responses and Systemic Change. *Tijdschrift Voor Economische En Sociale Geografie*, *114*(1),
>
> 43–57. https://doi.org/10.1111/tesg.12542

Walford, N. S. (2020). Demographic and social context of deaths during the 1854 cholera outbreak

> in Soho, London: a reappraisal of Dr John Snow's investigation. *Health & Place*, *65*, 102402.
>
> https://doi.org/10.1016/j.healthplace.2020.102402

World Health Organization (WHO). (2020). *Coronavirus Disease (COVID-19) - Events as They Happen*.

> Www.who.int. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-

as-they-happen

World Health Organization (WHO). (2023). *Coronavirus Disease (COVID-19)*. World Health

Organization; World Health Organization. https://www.who.int/news-room/fact-

sheets/detail/coronavirus-disease-(covid-19)

Yeager, S. (2020, April 9). *Be Careful Sharing This Viral Simulation—It Hasn't Been Vetted as a*

Scientific Study. Bicycling. https://www.bicycling.com/news/a32097735/coronavirus-viral-

simulation/