

'The petri dish and Russian roulette': Working in UK contact centres during the Covid-19 pandemic

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Abstract

This article analyses the dynamic interaction of SARS-CoV-2, the virus that causes the disease Covid-19, and its epidemiological characteristics, with an expansive conception of the contact centre labour process, integrating the contact centres' socially-constructed built environment with distinctive qualities of the social organisation of work. Based on an online survey conducted April-May 2020 of 2,226 call-handlers in, largely, the telecoms and financial services sectors, it provides compelling evidence of the risks facing workers from *inter alia* dense building occupancy, compromised social distancing, inadequate cleansing and sanitisation, heating ventilation and air conditioning systems and from the outcomes of management control systems. A crucial element in explaining widespread virus transmissibility lies in understanding how the broader political-economy that produced the dominant mass production contact centre paradigm is intertwined with its 'inner workings', leading to a 'business-as-usual' default that prioritised value-generating service continuity at the expense of any precautionary principle. The article contributes additionally by re-affirming the utility of labour process theory.

Key words

Call/contact centres; Covid-19; occupational health and safety; labour process theory

Introduction

The Covid-19 pandemic, more than any contemporary phenomenon, exemplifies the ontological truth re-affirmed by Said (2003:3), that every domain in our world is connected to every other. Confusion over the early diffusion of SARS-CoV-2, the virus that causes the disease Covid-19, was exacerbated by the Chinese authorities' lack of transparency (Calvert and Arbutnot, 2021). Almost certainly originating in horseshoe bats, its emergence in Wuhan is a subject of controversy, and it is not clear exactly when and how it transitioned from animals to humans and then between humans (Huang et al, 2020). The general observation of radical epidemiologists is that multiple zoonotic pathogens have originated on the frontier of capitalist agri-business and its destruction of wild forest (Wallace, 2020). From the terminus of an expanding peri-urban supply chain, the virus spread worldwide within days through global production and travel networks (Davis, 2020). An epidemiological understanding of Covid-19 rooted in relational, as much as absolute, geography, embeds the pathogen's transmission within global circuits of capital.

The combined and uneven concentration of Covid-19's mortality and mobility are contingent on multiple interrelated factors at national, regional, local and community scales, including population and residential density, ethnicity, demography, pre-existing income and wealth inequalities, global health policy (World Health Organisation), government policy, public health resources and interventions and their timing and effectiveness. Within the matrix of epidemiological transmission and prevention, the spheres of work and employment, and particularly the workplace in its assemblage of potentially vulnerable bodies, is inescapably important. Covid-19 is thus a public health *and* an occupational health issue, a crucial consideration neglected by the UK government policy and regulatory bodies (James et al,

2021). Exemplifying the downplaying of the occupational risk dimension of Covid-19, the Health and Safety Executive (HSE), the UK body for workplace regulation, accorded Covid-19 a 'significant' rather than serious classification under its Enforcement Management Model (*Hazards*, 2021).

In addition to obvious hazards in 'front-line' workplaces, whether hospitals and care homes and including supermarkets, warehouses, and occupations such as transport workers or teachers (Mutambudzi et al, 2021; TUC, 2021), particular environments are identified as major risk sites, including meat-packing (Middleton, et al, 2020) and food processing plants. Call/contact centres have been the loci of multiple outbreaks. Data from media sources, inevitably incomplete, identified thirty-seven major events between March and December 2020 (Taylor, 2020a). The Driver Vehicle and Licencing Agency (DVLA) in Swansea reported 562 positive cases, mostly in its contact centre, between late-September 2020 and February 2021 (*Guardian*, 2021), the most serious outbreak of any UK workplace. More than 500 office outbreaks were recorded during the second half of 2020, a greater number than in supermarkets, construction sites, warehouses, restaurants and cafes combined (Wall, 2021)ⁱ. Deficient official statistics and wholesale under-reporting have hindered inter-occupational analysis of morbidity and mortality (TUC, 2021).

Given this lacuna, knowledge of viral transmission and its effects in the UK call/contact centres necessarily depended on other sources. This article stems from research which had the empirical objective of moving beyond emerging (March-April 2020) anecdotal evidence of infection to establish reliable data on Covid-19's impact in contact centres and on call-handlers. It commences with a review synthesising and summarising extensive literature from medical and epidemiological science (e.g. Jones et al, 2020; Morawska and Milton, 2020). Establishing knowledge of the respiratory virus, SARS-CoV-2, is the first step in a logic of inquiry that prompts investigation of potential transmissibility and infectivity in the concrete conditions of contact centres. What are the characteristics of this distinctive hybrid of interactive service work and clerical work (Boreham et al, 2008) that might make call-handlers particularly susceptible? Answering this question takes us to the foundational debates on the call centre's organisational form, inspired by labour process theory (LPT), which delivered, arguably, the most compelling conceptual insight into the phenomenon. That a 'mass production' paradigm, however qualified, dominated the sector, was accepted by most scholars. However, a critical review of recent literature is undertaken to establish whether that perspective endures or requires revision. Situating the contact centre and its labour process in its political-economic contexts is central to this article's analysis and prefigures explanations as to why the call centre and its built environment may constitute a particular 'structure of vulnerability' (Nichols, 1997).

The research methods are explicated, the study based on an on-line UK survey distributed through trade unions that yielded 2,226 completions from call-handlers still attending their workplaces. The research approach is informed by principles of lay epidemiology (Watterson, 1994) that recognise the importance of workers' accounts of their conditions as a key diagnostic tool. To comprehend fully the meaning of the results, the salience of contemporary developments must be acknowledged. The survey link opened on 6 April 2020, following the UK government's first 'lockdown' (23 March), formalised by regulation (26 March) (HM Government, 2020a). Completed responses were received in large numbers during this period when Covid-19 infection and mortality escalated. UK cases exceeded 100,000 on 16 April and deaths passed 16,000 on 19 April. In these fearful conditions 71 percent of completions were received by 10 April and 96 percent by 15 May. Social distancing protocols and hand-washing

and cleaning etiquette had been advocated from 10 March, but specific guidelines for contact centres were not published until 11 May (HM Government, 2020b).

Of considerable contextual significance are government definitions of key and essential worker status (HM Govt, 2020c), which underpinned the requirement for many call-handlers to attend work. The designation, overriding injunctions to 'stay home' and 'work from home wherever possible', included 'staff needed for essential financial services provision' and, in telecoms, 'call centre staff' and those on 999 (emergency services) or 111 (urgent health advice) calls. Employers' interpretation of the ambiguous criteria (Ramsay and Molloy, 2020) were a source of profound discontent amongst call-handlers.

The evidence, consisting of descriptive statistics and judicious quotation from extensive responses to open questions, is presented in sub-sections following the logic of inquiry, that sought to establish, through the experiences of call-handlers, the hazards from SARS-CoV-2. A tested model for investigating office occupational health and safety (OHS) (Baldry et al, 1997; Taylor et al, 2003), integrating causal factors relating to the *proximate* environment (workstation, workspace, ergonomics) and to the *ambient* environment (heating, ventilation, air quality) with the *social environment* (work organisation, labour process, management control), is utilised. Examining the requirement to attend includes management's interpretation of the key/essential worker status and is followed by sub-sections analysing perceptions of hazards in relation to social distancing, cleansing and sanitisation, hotdesking and the effects of HVAC (Heating, Ventilation and Air Conditioning) systems. The culmination of the data are reported Covid-19 symptoms among colleagues, known illness and even mortality, providing an indicative answer to the research question posed at the outset – what is the extent of Covid-19's impact in contact centres and on call-handlers?

Discussion focuses initially on the holistic analysis of factors relating to the proximate, ambient and social environments for understanding the SARS-CoV-2 hazards facing workers in the concrete conditions of contact centres. Consideration is given to its epidemiological properties, particularly transmissibility, and their interaction with organisational dynamics, particularly the managerial preoccupation with sustaining profitable customer engagement, and with the built environment, that may produce harmful consequences. The article concludes with broader reflections on the utility of labour process theory (Thompson and Smith, 2010). The value of insights from applying LPT to investigations of diverse phenomena, at first blush seemingly peripheral to the workplace, in this case Covid-19, is affirmed.

SARS-CoV-2 Transmission and Covid-19

In order to evaluate potential hazards in contact centres, it is necessary to understand SARS-CoV-2's transmission. This section synthesises literature from medical and scientific disciplines and sub-disciplines, extant during the period researchers and public health bodies were wrestling to comprehend this novel pathogen. Respiratory viruses, including SARS-CoV-2, transmit in three main ways. First, contact transmission follows direct contact with infected persons or by touching contaminated surfaces (fomite). Second, transmission of large and small virus-containing respiratory droplets can result from proximity to infected persons. Third, airborne transmission occurs through smaller droplets and (aerosol) particles suspended in the air over longer distances and time than for droplet transmission (*Lancet Respiratory Medicine*, 2020).

The received wisdom, embraced by the WHO, emphasised the first two routes, which prioritised hand hygiene, respiratory etiquette, cleaning, physical distance and avoiding unprotected contact with symptomatic individuals. However, accumulating evidence challenged physical distancing rules as based on an outdated, dichotomous notion of respiratory virus-containing droplet size (e.g. Jones et al, 2020). The historical threshold of 5µm (microns) differentiating large droplets from small particles failed to explain the aerodynamic behaviour of particles released by breathing, talking, coughing, shouting, sneezing, that span 0.01 to 100s µm. First, respiratory droplets can project horizontally, far beyond the conventionally understood 2 metre limit up to 7-8 metres (Bourouiba, 2020). Second, large droplets (>5µm) cannot be released without smaller ones (Allen and Marr, 2020). Third, evidence grew that pathogens are most commonly found in breathable small particles, airborne aerosols (<5µm) (Zhang et al, 2020). Aerosol plumes contain the highest concentrations of virus-bearing particles which dissipate over time, up to 16 hours, and distance, a 5µm droplet capable of travelling 10s of metres (Bourouiba, 2020).

Corroboration of significant aerosol transmission came from investigations of infections among people not in direct contact. Influential studies include that on the Skagit choir event, which concluded that 'inhalation of infectious respiratory aerosol from "shared air" was the leading mode of transmission', not fomite or ballistic droplets (Miller et al, 2020). A restaurant outbreak in Guangzhou indicated transmission patterns consistent with localised ventilation airflow (Li et al., 2020). Qian et al (2020) confirmed SARS-CoV-2 risks in indoor environments from analysing 7,324 Chinese outbreaks. Of particular relevance is the Korean call centre cluster (Park, 2020). Belatedly, in September 2020, the WHO and public health bodies (e.g. US Centers for Disease Control and Prevention) recognised the threat from microscopic respiratory droplets, following urgent appeals by 241 scientists (Morawska and Milton, 2020).

That the act of talking is implicated in person-to-person transmission (Anfinrud et al, 2020) underscores the infection potential for call-handlers. A *sine qua non* of the labour process is vocal communication and, speaking loudly (which may increase viral load) is commonplace because of background noise (IOSH, 2012). The inhalation risk from aerosols in indoor environments is increased by poorly-ventilated spaces (van Doremalen et al, 2020) and/or potentially by ambient airflows generated by HVAC systems. That small virus particles have been discovered in extract air ducts suggests HVAC systems are problematic (REHVA, 2020). Relative to natural ventilation, mechanical AC systems are associated with sick building syndrome symptoms by 30-200 percent due to circulating Volatile Organic Compounds, bio-aerosols, outdoor pollutants and recirculating contaminated indoor air (Seppänen and Fisk, 2002). Indoor spaces that cluster individuals over long periods, such as open-plan offices, facilitate Covid-19's airborne spread (Beggs and Avital, 2020).

Neglect of small particle (aerosol) transmission is illustrated by 'Public Health Matters' (HM Government, 2020d) which asserted that transmission occurs only through 'close sustained contact with someone who has the virus'. This position was re-iterated in contact centre guidance (HM Government, 2020c), when scientific research was confirming aerosols as a dominant infection route. Physical distancing rules should not be disregarded, though, for transmission risks are 2-10 times greater at 1 metre than 2 metres (SAGE, 2020), so hand-washing and social distancing are necessary but insufficient mitigations.

The Call Centre

Emerging in the late-1980s/early-1990s call (later contact) centres developed as a dominant mode of interactive customer contact (Russell, 2008). They became, not an organisational adjunct, but central to profit-generating activity (private sector) and efficient service delivery (public sector) (Taylor and Bain, 2007). The contact centre remains defined by the integration of digital technologies (fibre optics, telephony switches, PCs), especially Automated Call Distribution systems, which profoundly shape its work organisation. LPT-inspired research decisively contributed to understanding this telemediated hybrid of clerical and interactive service work (Boreham et al, 2008), initially through the proposition that call centres constituted the Taylorisation of interactive service work (Taylor and Bain, 1999), albeit profoundly imbricated with the performance of emotional labour and the utilisation of soft skills (Callaghan and Thompson, 2002).

Re-engaging with the literature that established typologies, confirms call centres as differentiated according to diverse criteria, by the value of customer segment served (mass production, mass customisation, professional services) (Batt and Moynihan, 2002), or volume (quantity) or value (quality) (Taylor et al, 2002), or competing logics of customisation and cost-efficiency (Korczyński, 2002). Although contact centres may provide professional services (e.g. Smith, et al, 2008), the consensus was that mass production operations dominated. Do recent research and industry developments question this paradigm's durability? Reviewing academic work since 2008ⁱⁱ identifies seventy-plus journal articles and ten books. In significant ways this work deepens our knowledge of themes previously examined, including skill (Lloyd and Payne, 2009), emotional labour (Jenkins et al, 2009), normative control (Prichard et al, 2014), professional work (Russell, 2012), offshoring (Mirchandani, 2012), comparative perspectives (e.g. Holman, 2013) and theorisation of interactive service work (Belanger and Edwards, 2013). However, this work does not compel a re-evaluation of the dominance of the paradigm but, if anything, re-affirms its persistent characteristics (Brophy, 2017; Woodcock, 2017).

In operational terms, technological innovation has included IVR (Interactive Voice Response), web articulation, blended customer contact, screen capture, customer relationship management systems, specialised workflows and deepened divisions of labour (Taylor and Bain, 2007). Yet, evolution to the 'omni-channel' contact centre has not transformed fundamental features, evident in highly-limited automation, with telephony self-service remaining 'stubbornly low' at 5 percent of traffic (Contact Babel, 2020:43). Two-thirds of contact still requires live voice, the remaining 28 percent involving agent interaction (email, web chat, SMS).

This paradigm cannot be understood solely by reference to the technological architecture. Belanger and Edwards (2013:264) re-iterate, in an observation crucial to this analysis of Covid-19's impact, the need to locate call centres within broader political economy. The profitable outcomes of applying ACD and associated technologies, initially in financial services (Taylor and Bain, 2007), were emulated across sectors, wherever customer servicing occurred. Increasing centralisation of hitherto dispersed – or newly created – servicing and sales processes, generated cost savings and significant scale economies. Most workers were concentrated into large sites; in Scotland in 2003, 52 percent worked in centres employing 500 or more, rising to 60 percent by 2011 (Taylor and Anderson, 2012). Distance-shrinking technologies facilitated location to cities and towns with relatively inexpensive labour possessing generic soft skills, thereby enhancing worker concentration and regional clustering.

Callaghan and Thompson (2001) convincingly argued that call centres are characterised by combinations of technical, bureaucratic and normative controls, designed to overcome labour

indeterminacy. However, converting labour power into concrete labour depends particularly on managerial pre-occupation with monitoring, measurement, 'stats' and diverse quantitative and qualitative targets that drive employees to maximise output (Bain et al, 2002). Metrics prescribing 'on-call' times, obliging call-handlers' to engage for protracted periods with customers, are crucial to the ensemble of metrics on which performance management is based (Taylor, 2013). The interrelationship between organisation-wide Key Performance Indicators, reflecting organisations' competitive or budgetary pressures, and individual targets, is made manifest through SLAs (Service Level Agreements). These linkages address, for the call centre, the 'connectivity' question of relating the 'relative autonomy' of the labour process with political economy, often problematised in LPT (Thompson and Newsome, 2004), but rarely concretely explored. Such an expansive LPT perspective helps explain the post-economic crisis, 'lean', aggressive cost-reduction, work-intensified mass production model that prevailed in financial services and telecoms at the onset of the pandemic.

If cost minimisation dominates work organisation, then it impacts the built environment, as it contributes to value extraction. Buildings are sources of rent for owners, they house technology and capital for occupying organisations and, above all, facilitate managerial control, enabling the co-ordination of production through divisions of labour. The 1970s energy crisis accelerated the growth of speculative office markets and, combined with IT developments and modular furniture, ended experiments with Bürolandschaft that had promised generous personal workspace. Pressures coalesced to increase occupational densities. Within these open-plan shells the flexibility mantra justified removing the personalisation of workstations and introducing clean desks, hotdesking and work pods (Baldry, 1999).

Work buildings increasingly represented a cost to be minimised, leading to increased occupancy and centralised control over their functioning, that affected their internal configuration – colleague proximity, acoustics, heating, lighting and air quality. A tested OHS model for offices proposes holistic analysis of factors contributing to ill-health, integrating elements from the proximate environment (workstation, space, ergonomics), the ambient environment (heating, lighting, air quality) and the social environment (labour process, job design, work intensity) (Baldry et al, 1997; Taylor et al, 2003). Proximate factors include hot-desking, which in one study 38 percent of call-handlers reported as contributing to ill-health (Taylor et al, 2003:445). Thousands of call-handler responses (e.g. Taylor et al, 2003; Bain et al, 2007) reveal the ambient environment to be even more important, with HVACs seen as delivering unsatisfactory thermal comfort and poor air quality. One complained;

The company have to do something about the air conditioning—it's an incubator of germs. In an office of 800 people one person with a little bug leads to germs rattling about the place (ibid: 446).

Regarding the social environment, the ways tasks are structured, paced and performed interact with effects of the proximate and ambient environments to produce illness. The requirement to maximise call throughput, deriving from, and connectively linked through targets to, market pressures, creates the relentless 'assembly line in the head'. At the utilities' case the average proportion of time call-handlers spent at their workstations during a shift was 95.3 percent (ibid:447). Moreover, pressures *to attend work* exacerbate those experienced *at work*. Presenteeism, coming to work when ill, in the context of cost-reduction and lean staffing exposed vulnerable call-handlers to risk (Taylor, et al; 2010). Pre-Covid-19 evidence, then, suggests that contact centres possess many characteristics that may facilitate SARS-CoV-2 transmission; densely-occupied, sealed buildings, mechanically-ventilated, with call-handlers

compelled to undertake long periods of sedentary work and whose vocalising projects aerosol plumes, potentially infected with SARS-CoV-2.

Method

The study arose from the urgency in March-April 2020 to gain knowledge of Covid-19 hazards facing call-handlers. Workplace infections were being reported by sector stakeholders and trade unions. Moving beyond anecdote to swiftly generate robust data, without compromising breadth and depth, was imperative. Research was driven by a logic of inquiry, to develop an understanding of the perceived risks to call-handlers and to identify factors potentially facilitating transmission in this 'unique working environment' (HELA, 1999). Ancillary objectives were to disseminate findings that could inform the HSE, local authority (Local Authority) enforcement offices and contribute to government (UK and Scotland)ⁱⁱⁱ guidelines for safe working. Additionally, union officers and representatives needed evidence-based reports to intervene in centres where acute problems were identified.

With on-site or face-to-face data collection prohibited, an on-line survey was deemed most appropriate. Questions were informed, first, by the author's decades-long research on call/contact centre work organisation and OHS. Second, epidemiological knowledge of SARS-CoV-2 and its predecessors (SARS-CoV-1, MERS) and of WHO, public health and government guidelines were reviewed. Third, exploratory Zoom interviews with 15 call-handlers in financial services, telecoms, outsourcing and retail delivered important insights. A draft survey was piloted with 23 call-handlers.

Trade unions were the means for engaging a sizeable population. Endorsement by the Scottish Trades Union Congress was followed by national support from the Communication Workers Union (CWU) and Unite the Union, *Hazards* and OHS networks. Uploaded on 6 April, the link <https://admin.onlinesurveys.ac.uk/account/phil/distribute/586766> was distributed via union membership databases. The research complied with Economic and Social Research Council and General Data Protection Regulations' requirements regarding consent, anonymity and data management. Call-handlers still attending their workplaces delivered 2,226 responses. Quantitative findings from Likert scale questions are complemented by qualitative data from open questions, totalling 235,000 words. These comments were thematically analysed by NVivo, cross-question coding enabling a synthesis of discrete and common themes across the data-set. Selected quotes are attributed to the specific respondents by the convention; gender (F, M, NB, NG-'not given'), age band, sector (FS – financial services, Tel – telecoms, OS – outsourcer, Sales) and length of service, separated by colons.

Table 1: Profile of Respondents

Gender (n=2,082)	Female 59.6%	Male 40.2%	Non-binary 0.2%			
Job Description/Grade (n=2,139)	Call-handler 96.9%	T/L Manager 1.7%	Admin 0.7%	IT 0.5%	Coach/trainer 0.1%	
Length of Service (n=2,179)	< 1 year 12.3%	1-2 years 21.0%	3-5 years 23.4%	6-10 years 10.2%	> 10 years 33.1%	
Age (n=2,152)	Under 25 11.9%	25-35 34.8%	36-45 24.7%	46-55 18.9%	56-65 9.0%	Over 65 0.7%
Ethnicity (n=2,105)	White 93.4%	Irish 1.7%	Asian 2.0%	Afro/Caribbean 0.4%	Mixed 1.2%	Other 1.2%
Contract (n=2,184)	Permanent full-time	Permanent part-time	Temporary full-time	Temporary part-time	Agency temp	

	71.8%	26.9%	0.6%	0.3%	0.4%
Sector (n=2,200)	Telecoms 68.1%	FS 20.9%	Outsourced 5.1%	Public sector 2.0%	Other 3.0%

Of the 2,140 responding, 91.5 percent were union members; 78.3 percent in the CWU and 13.7 percent in Unite, reflecting union concentrations in telecoms and financial services, where mass production call centres dominate. Regarding job description/grade, 96.9 percent were call-handlers, the remainder being handfuls of team managers/leaders, admin/IT workers and trainers/coaches. Worker evaluations of their conditions, is a well-established, diagnostic resource (Watterson, 1994). The self-completed questions and first-hand narratives constitute 'lay worker epidemiology', providing compelling complementary knowledge to professional epidemiology. Black and Asian workers are unrepresented, a limitation, given Covid-19's disproportionate effects on them (Razia, 2021).

Essential work and Business-as-Usual

The requirement for call-handlers to attend came from the organisational imperative to maintain service activity. A majority reported that managers stressed business-as-usual (BAU), an acronym commonly used thereafter. A large minority received no formal notification, relying on colleagues for information or, frequently, merely assuming they had to work as normal. Contestation existed over key/essential worker status. While 52.3 percent (n=2,208) reported being so designated, 65 percent (n=2,206) did not consider the designation appropriate. This gulf between employer designation and employee perception is accompanied 50,000 words of critical testimony. Comments such as these proliferated:

I have spoken with no vulnerable customers during the lockdown restrictions... I haven't helped anyone with their service, the majority of the calls is to cancel sport or re-contract bb and tv packages (F:25-35:Tel:6-10).

There are too many people in, it's busy but they're accepting too many non-emergency calls. They cannot open with safe social distancing with the sheer numbers. There can be emergency workers but not nearly the 1,000 people in our centre. It's outrageous, dangerous. They're playing Russian roulette with our lives. We're guinea pigs for new measures to keep us in the emergency/key worker frame (F:25-35:Tel:>10).

The imprecision in the government's definition enabled employers to conflate key/essential services with so-called 'business critical', profit-generating activities. BAU entailed continued service provision and the implementation of familiar combinations of control, designed to convert labour power into concrete labour, and buttressed by disciplinary measures. Three aspects require amplification; pressure to attend, increased call volumes, targets and performance management.

First, the compulsion to attend appeared largely unaffected by Covid-19. Almost four-in-five (78 percent) 'strongly agreed' or 'agreed' with the statements 'I feel pressurised into coming into work' and 'I come to work because I am worried about losing money' (n=2,112). Bureaucratic control and discipline dominated, but evidence does exist of normative control in that 50 percent 'strongly agreed' or 'agreed' (n=2,201), 'I come into work because I am committed to customers'.

Second, the drive to maximise call-handlers' productive engagement was exacerbated by the fact that some employees were missing through self-isolating or shielding. Thus, 59.3 percent reported increased call volumes, the median increase being 50 percent (n=1,073). Only 15.6 percent believed management was 'effective' (11.6 percent) or 'very effective' (4 percent) in dealing with call volumes (n=2,212).

Third, performance management, based on SLA-prescribed metrics, the key mechanism connecting market pressures and signals with call-handler targets, continued. Despite the Covid-19's disruption, appraisals remained a management preoccupation; 56 percent 'strongly agreed' or 'agreed' (n=2,212) with the statement, 'I am worried about my performance appraisal'. Forty-two percent considered management 'very ineffective' or 'ineffective' at 'easing targets' and 'relaxing performance management measures' (n=2,199). Only 9 percent reported appraisals having stopped and 10.4 percent temporarily suspended (n=2,224). Of concern regarding social distancing, 31.2 percent said they occurred face-to-face. Critical comment demonstrated call-handlers' contempt for performance management, appraisals and targets, with the 'lucent^{iv} police still calling' (F:25-35:Tel:>10) as one cynically observed.

The targets are ridiculous. We are still expected to achieve 80+% for FCR [First Call Resolution] and NPS [Net Performance Score]. This is unfair considering we are here risking our health to service vulnerable customers and keep people connected. Due to high demand and the stress everyone is going through this is reflected in...more repeat calls (F:3-5:Tel:<25).

Since there is a pandemic and people are literally dying I think we should just be appreciated for coming into work and taking calls, putting ourselves and families at risk. Rather than focusing on stats and targets, focus on health and well-being (F:<25:Tel:<1).

With increased demand from customers and other departments being authorised to blind transfer, the NPS especially should be reduced, when actually I found out yesterday it's been increased. The anxiety these create anyway is bad but the current situation has exaggerated staff's anxiety about performance and being given a disciplinary about not meeting them [targets] (F:25-35:Tel:3-5).

Social Distancing: Workstation, Floor, Building

Evidence on social distancing is contextualised by the dates that organisations introduced measures. Thirty-one percent reported no guidance before 23 March, the date PM Johnson announced strict rules, and 35.2 percent that measures were implemented only after 30 March. Almost one-in-two (47 percent) reported the distance between themselves and the next adjacent workstation was less than two metres, while ten percent experienced a divide of one metre or less (Table 2).

Approximately one meter either side and 70 centimetres behind and in-front' (NA:25-35:FS:1-2 years).

I took a tape measure in. At some points, less than 1m (F:<25:Tel:<1).

Table 2: Reported distance to adjacent call-handler (n=1877)

	Number	%
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< 1 metre	51	2.7
1 metre	137	7.3
< 2 metres	703	37.5
2 metres	844	45.0
> 2 metres	142	7.6

Compromised social distance at workstations was more extensive than these numbers suggest. An additional 13.7 percent described an unoccupied workstation between themselves and the next call-handler, empty-desk policies being introduced often partially and belatedly. A majority believed the 2-metre rule was being breached:

They have us on a pod of 15 with I desk I between people. There are not 2 meters apart from each other sideways, so you can have someone sat opposite you and next to you from the side (F:25-35:O/S:3-5).

Formal adjacent compliance might not exist in the space behind, in front of, or diagonally from the call-handler.

Not nearly enough. There is a desk between each person. But you have someone to the front left and right, then someone to the back left and right. (F:25-35:FS:3-5)

The narrative of open-plan flexibility contrasts with inflexibility in workstation configuration. Respondents gave descriptions of seating arrangements, with call-handlers sitting in banks, rows, 'diagonal', 'chevron' or 'checker board' formations, depending on the workspace's specific topography. The dimensions of modular desks in office furniture suppliers' catalogues (e.g. 'Office Reality', 'BT Office Furniture', 'Genesys') reveal the difficulty, probably impossibility, of maintaining social distance with one or even two empty desks. Genesys' 16-person double-sided module totals 6.56 metre width and Office Reality's 'Cool Person Double Run' 0.8 metre individual width. In these typical cases two unoccupied desks falls well below two metres. Risk was aggravated for the 54 percent having to sit face-to-face with colleagues or team leaders/managers. The standard depth of workstation modules was 1.3-1.6 metres according to specifications, while the height of dividers ranged from 0.75-1.3 metres, widely regarded as inadequate:

4ft away from the person opposite, with a 12-16 inch barrier, over which all faces can clearly be seen, therefore offering no protection from transmission (F:36-45:Tel:>10).

...diagonally there is a gap in the baffle board meaning you are face-to-face and not 6-foot apart' (F:25-35:FS:5-10).

Concerns arose not merely from sedentary proximity, but from the inevitable physical movements when leaving or arriving at workstations.

This is an almost impossible task. I sit on the end of a bank of desks whichever way I choose to sit and people are constantly walking past at a foot or so distance. Management do not adhere to any guidance and do the same thing (M:25-35:FS:3-5).

To re-iterate, management's imperative in mass production centres is to maximise call throughput (while delivering customer satisfaction), and to minimise non-productive customer engagement. Although 'teams without teamworking' (van Den Broek et al, 2004) is widely

acknowledged, call-handlers are not hermetically sealed at their workstations. Responding to customer queries frequently requires interaction, tapping into colleagues' tacit knowledge. Under target pressure, colleagues speak to physically close co-workers rather than clarifying matters via time-costly internal calls. Talking over or around partitions remained commonplace. Call escalation might mean speaking face-to-face with team leaders/managers, at their workstations or being approached by them. Engrained routines of personal supervision persisted, prompting comments such as, 'managers keep coming up to check on what I am doing' (F:36-45:Tel:>10).

Ensuring call-handlers' satisfactory performance, shift-after-shift, call-after-call, compels target adherence, complemented by familiar HRM practices. Team meetings at the start of, or during shifts, or huddles (briefer, motivational meetings), or 1-1s with team leaders, seek to engender commitment by workers who, as well-documented, experience the labour process as repetitive, pressurised and emotionally demanding. Rather than the pandemic bringing suspension of such engagements, face-to-face meetings were reported by 35.6 percent, huddles by 33.6 percent and 1-1s by 35.9 percent (n=2,155).

All meetings have been face-to-face but have been reduced to around 15 people instead of the normal 40. But still too close. Managers seem not to want to give them up because they don't trust us to be left alone (M:25-35:Tel:3-5).

Typically coaching is carried out one-to-one at a manager's desk and we often have team huddles where the team will sit in a group (F:25-35;Tel:1-2).

Risks from social distancing breaches at workstations and in meetings were compounded by experiences of traversing floors or buildings. 'Impossible' 'not possible' or 'almost impossible' were frequent responses to the question asking how it was possible to maintain social distancing. Many criticised signage and one-way routing:

There is no consideration at all!!! The toilets are crammed...more people using the stairs. Loads of people going up and down with no social distancing. When standing in canteen queues no distancing between the people passing the line (F:25-35:FS:3-5).

The floor layout doesn't allow you to enter or leave the floor without being too close to someone. They have marked the floor with the distance to be kept but impossible with people leaving and entering the same way (F:25-35:Tel:1-2).

Perceptions of hazards are confirmed by quantitative data. Table 3 presents six aspects in descending order by the 'very hazardous' responses.

Table 3: Perceptions of hazards from inadequate social distancing

	Not Hazardous %	Hazardous %	Very Hazardous %
Degree of social distancing when moving around (n=2,188)	7.8	46.5	45.8
Going to the toilet (n=2,173)	8.7	51.2	40.0
Proximity of colleagues at workstation (n=2,191)	11.0	55.0	34.0
Entry to the building/using the lift (n=1,953)	10.4	58.6	31.1
Accessing my work station (n=2,182)	11.3	59.6	29.0
Leaving the building (n=2,169)	14.5	60.7	24.8

A summary, authoritative finding is that 44.5 percent regarded management as 'very ineffective' or 'ineffective' in ensuring social distancing.

Cleaning, Sanitising, Hotdesking

The perceived effectiveness of cleaning and sanitisation practices is presented in descending order of ineffectiveness.

Table 4: Effectiveness/ineffectiveness regarding cleaning/sanitisation

	Very Effective/ Effective	Neither	Ineffective/ Very ineffective
Providing personal sanitiser (n=2,206)	17.6	9.4	73.1
Sanitising workstations and head-sets (2,203)	32.8	17.7	49.3
Sanitising work surfaces (n=2,199)	40.1	16.9	42.7
Sanitising toilets (n=2,196)	35.9	31.7	32.3
Sanitising lifts (n=2,174)	28.5	42.1	29.4

For all five aspects, excepting 'sanitising toilets', greater numbers perceived management to be 'very ineffective/ineffective' than 'very effective/effective', the disparity most pronounced in 'providing personal sanitiser'. Comments include:

Only clean one area of building - they are also making it so you can't talk about corona virus in fear of persecution, still have a hotdesk policy, communal food areas always packed within confined space, lack of sanitiser, using their own special blend no hand sanitiser at desks, wipes do not kill certain bacteria (M:25-35:FS:3-5).

We had no hand sanitiser and I was sat at a different desk unsure if had been cleaned or not. My head set given to me by a colleague from the other side of the partition. Again, unaware if some had used my head-set or if it had been cleaned (F:25-35:Tel:25-35).

Unsurprisingly, 60.8 percent (n=2162) regarded 'cleanliness/sanitisation at the workstation' as 'very hazardous' or 'quite hazardous'.

Peppering testimonies are references to hotdesking. Many call-handlers are not assigned their own workstations, but are required to sit at those unoccupied or become so, either directed by managers or having to find available spaces themselves. Hotdesking can occur at the start of, or during, shifts and concerns are intertwined with those regarding cleansing and air conditioning.

My main concern is hotdesking and air-conditioning as they could redistribute germs and viruses. I sometimes find myself holding my breath in work and totally anxious to the point I get intense headaches (F:46-55:FS:>10).

I feel put at risk by hotdesking...when you come in of a morning trying to find a desk that's available can take time and you have to clean it when you do find one and we keep getting told we don't need wipes as desks have been cleaned, but a lot are full of dust and dirt so I bring my own antibacterial wipes and hand sanitizer for my safety (F:36-45:Tel:>10).

Quantitative data underscores these articulated concerns. Of twelve potential hazards, 'workstation being used by others' was most frequently reported. This proxy for hotdesking

was regarded as 'very hazardous' by 67.2 percent. Many stated that adhering to social distancing protocols would have little effect if hotdesking continued, because it facilitated Covid-19's spread. Additionally, one-in-two regarded shared headsets and phones, associated with hotdesking, as 'very hazardous' or 'hazardous'.

Heating, Ventilation and Air Conditioning

A preliminary question asked if call-handlers had experienced difficulties pre-Covid-19 with the effects of HVACs, 90.3 percent answering that they had. An open question requesting detail, produced 1,611 responses and 35,000 words of testimony, demonstrating the seriousness with which HVAC contamination was perceived. They reflect commonly reported themes of temperature extremes, bugs and flu spreading like 'wildfire', no opening windows, no fresh air, filth and insects in air vents, and expressing profound fears of Covid-19 infection.

Place is a petri dish during cold and flu seasons, with taking time off for safety seen as not the smart responsible thing to do (M:25-35:FS:1-2).

Any sickness bug or cold/flu spreads like wildfire. Absence policy is very strict so people who are ill and should not be in come in and illness spreads and spreads quickly (F:36-45:FS:>10).

The vents are filthy and I found one which must have had around 30 dead wood lice. I turn the air vents off because they're so dusty and dirty, that my allergies go crazy (F:25-35:FS:3-5).

We have no air/open windows and the aircon just passes covid19 round the office if someone did have it (F:25-35:Tel:3-5).

Colds spread year-round due to all in the same office and breathing the same recycled air, in the summer it gets very hot, the aircon leaked on live wires and hardware but we were still expected to carry on BAU, a few months ago, leaks and flies were rampant to the point where exterminators were called (M:<25:Tel:3-5).

Risks are compounded by management's (in)action, by strict sickness absence policies that compel sick workers to attend, or management's obliviousness to SARS-CoV-2's aerosol transmission:

I have raised my concern to a manager that the air conditioning could be making things worse, however if you try to discuss anything most managers see you as confrontational and are rude back or in my instance I was told the aircon can't spread it as it's not airborne (F:36-45:OS:10).

Almost 6-in-10 reported being 'very' or 'quite worried' by HVAC risks on their floor.

Infection, Illness, Deaths: Call-handlers Fears

Following analysis of call-handlers' experiences of having to attend, and of the interaction of risks from proximate (workstation, hotdesking, cleansing) and ambient (HVAC) environments *with* labour process and management imperatives, evidence of the extent and effects of Covid-19 is considered. Three-quarters of respondents knew of colleagues who had developed Covid-

19 symptoms and had self-isolated (n=2,206). Regarding the extent of known illness, responses varied from specifying the numbers in teams, sections, floors or throughout centres, to percentages thereof, or descriptive accounts. The most effective way to convey the depth and breadth of reported infection is by judicious citation of the brief reports (n=1,581), that captures spread by size, sector and location.

One confirmed and about 70% self-isolation with symptoms '3 in hospital'. '4 I know they were hospitalised but we haven't been told the truth' 'About 85 percent inc. myself' (Tel:South Yorkshire).

119 colleagues across both sites, 43 in the one I'm based have developed symptoms and self-isolated I have not been made aware of their condition (FS:Cheshire).

'2/3 in ICU'. '6 cases, 1 in ICU'. '60% contact centre' 'Both in hospital, one in intensive care for 10 days'. 'Hundreds, one person in hospital on a ventilator' (Tel:Teeside).

'2-4 still in ICU at death's door another 38 home, some worried they are going to be sacked, managers phoning them every day to ask when they are returning. And we lost 50 staff due to refusal to come to work for fear of getting the virus - all sacked on the spot' (OS/Tel:Scotland).

'Multiple employees have been off due to self-isolating, 600 or more with a cough or a high temperature' (FS:Glasgow)

'At least 50 staff symptomatic with 40 testing positive' (NHS:South Wales).

Eleven deaths were reported, five in four different outsourced centres in Yorkshire, two in a Civil Service centre in Manchester, four in financial services, three in Cheshire and one in Glasgow. During the early pandemic, with the growing workplace infection and an acute sense of the hazards, respondents were fearful. Sixty-nine percent stated they were 'very worried' and 23.1 percent 'worried' about 'working in their contact centre now' (n=2,199). The prospect of having to continue to attend induced greater worry. Thirty-four percent said they would be 'terrified', 23.2, percent 'much more worried' and 19.6 percent 'more worried' if they had to be at work in seven days' time. The figures for 14 days were 45.6 percent, 20.8 percent and 12.9 percent respectively.

Almost nine-in-ten (88 percent) 'strongly agreed' or 'agreed' it was likely they would 'catch Covid-19 from the workplace' (n=2,212), while 91 percent 'strongly agreed' or 'agreed' they were worried they would give Covid-19 to family or friends (n=2,212). Additionally, 82 percent 'strongly agreed' or 'agreed' they were worried about their colleagues' health (n=2,207). Given these profound fears, 64.4 per cent had requested to work from home (WFH) (n=2,197) but 32.3 percent reported that they had been refused, 5.5 percent that their request was agreed and 62.3 percent were 'awaiting response'. Analysis of transition to WFH, its outcomes and the experiences of WFH will be the subject of further publications. What is significant for this article's argument is that extensive testimony further reveals organisations' reluctance to shift from the business-as-usual default.

Conclusion

The unfolding of evidence, following the logic of inquiry, commenced with understanding the context within which call-handlers were still required to attend work. Employers' insistence on attendance is the first link in a causal chain that exposed employees to potential infection from SARS-CoV-2. Simply put, if all call-handlers *were* permitted to work from home they *would not* have had to face workplace Covid-19 hazards. So why the compulsion to attend? Explanation is rooted fundamentally in the imperative for firms to maintain on-site operations, and in management decisions at centre-level consequent upon this prerequisite. These decisions are explicable, ultimately, by reference to the strategic position that contact centres occupy for firms, in terms of customer servicing and value-adding activity and the wider need to deliver shareholder value (Belanger and Edwards, 2013). Situating contact centres within sectoral markets is essential (Taylor and Bain, 2007) as, for example, in telecoms and entertainment where fierce market competition exists over 'quad play' (Broadband, mobile, landline, TV packages) (Evans, 2017).

An expansive labour process perspective acknowledges this 'connectivity' and traces the concrete interactions between broader economic pressures and the contact centre's 'inner workings'. Covid-19 induced a 'business-as-usual', minimal disruption default, as employers took advantage of ambiguous guidelines (HM Government, 2020c) to elide key/essential services with so-called 'business critical' activities. Accordingly, familiar combinations of controls (Callaghan and Thompson, 2001) prevailed as the drive to convert labour power into concrete labour continued in the context of increased call volumes. Call-handlers remained subject to stringent disciplines. KPIs and SLA metrics, deriving from corporate projections of, and responses to, market signals, translated in Covid-19 conditions into often the increased individual targets that underpinned performance management (Taylor, 2013). Appraisals continued, despite employee conviction they should be suspended and the worries of a majority as targets had become harder to achieve. During the early Covid-19 months, default adherence to the mass production contact centre paradigm trumped adoption of any precautionary principle (Richter et al, 2005).

Integrating the contact centre's socially-constructed built environment as part of the objective conditions of its labour process and subjective mechanisms of control (Baldry, 1999) is important analysing Covid-19's risk. All three principal routes of SARS-CoV-2 transmission (droplet, fomite, aerosol) are facilitated by open-plan spaces, the configuration of desks and high occupancy, the outcomes of decades-long cost minimisation that decisively shaped the architecture, construction, functioning and management of the office. The 2-metre mark, the holy grail of social distance for preventing droplet spread (Jones et al, 2020), was reported as compromised by a clear majority, with 10 percent reporting a far more hazardous 1 metre or less (SAGE, 2020).

If proximate environment factors are enrolled into analysis of the labour process, legitimately, since workstations are the very loci, the physical point, of production, then seating configuration contributed to viral transmission. Standardised furniture undermines social distancing protocols, fixed modules reflecting organisational requirements to maximise occupancy in the cost parsimonious modern office. The mass production contact centre embedded in this built environment (Baldry, 1999) reproduces the densely-concentrated workspaces that further compromise social distance. Respondents reported the near-impossibility of safely traversing the office floor or building, even when one-way walkways and appropriate signage were installed.

Intertwined proximate and social environmental factors, in the context of BAU, exacerbated risk. The ineluctable obligation for call-handlers to deliver sufficient call volumes, that must meet quality standards and hit customer satisfaction scores, is driven not merely by targets (Bain et al, 2002; Russell, 2008), bolstered by HRM practices (Deery and Kinnie, 2004). Ensuring continuous empathic, energetic and knowledgeable customer interaction that utilises call-handlers' soft skills (Callaghan and Thompson, 2002; Lloyd and Payne, 2009) in a labour process experienced as emotionally demanding is an enduring challenge for management, as it seeks to overcome labour indeterminacy. Intercourse between call-handlers, and between call-handlers and team leaders/managers, percolates the quotidian routines of contact centre work; informal, recurrent personal supervision, inter-colleague chat, structured team meetings, short motivational engagements and 1-1s, which were reported by one-third as continuing face-to-face. Such engagements breach the 2-metre rule, conventionally seen as a minimum for protection from large droplets (Morawska and Milton, 2020).

Hotdesking, a long-detested practice (Taylor et al, 2003:445), was widely feared as a source of infection. SARS-CoV-2 becomes a risk through the melding of causal factors. The social environment (social organisation of work) and the emphasis on cost reduction through optimal space utilisation and the lean application of eliminating resource waste, interacts with the proximate environment (workstation), especially given concerns over the rigour and regularity of cleansing and sanitisation, to generate possible fomite transmission (Van Doremalen et al., 2020).

If the lay epidemiological approach applied here reveals worker accounts of droplet and surface transmission risks, then even more dramatically it exposes hazards from airborne, small particle (aerosol) transmission (Allen and Marr, 2020). Almost nine-in-ten were 'very worried'/'worried' about the effects of HVACs and composed 35,000 words attesting to their fears. Call-handlers confirmed the long-standing problems with HVACs (Taylor et al, 2003; Bain et al, 2007). Pre-Covid-19 concerns with flu and illness spreading like 'wildfire' that revealed the risks from air-recirculation in environments with no opening windows, became acute fears given potential SARS-CoV-2 infection. While these fears are based on experience, scientific support exists for the problematic effects of HVACs (Seppänen and Fisk, 2002), particularly given the increasingly acknowledged risk from aerosol transmission.

Epidemiological science has generated compelling evidence of the transmissibility and virulence of aerosols (Bourouiba, 2020; Morawska and Milton, 2020; Zhang et al, 2020), which may constitute the dominant infection route. Talking releases aerosols, and loud vocalisation can increase viral load (Anfinrud et al, 2020), so the ambient factor of background noise may exacerbate this hazard. Evidence indicates dangers from poorly-ventilated spaces (van Doremalen et al, 2020) and from inhaling contaminated re-circulated air from HVAC airflows (Seppänen and Fisk, 2002). Miller et al's (2020:7) conclusion, then, that aerosol risks increase due to 'close occupancy, long duration, loud vocalisation and poor ventilation', is germane to contact centres.

This article has analysed the dynamic interaction of SARS-CoV-2 with the contact centre labour process, conceived of as expansive, integrating the contact centre's socially-constructed built environment (proximate and ambient dimensions) with the social organisation of work. The reasons why contact centres have experienced Covid-19 outbreaks, and why many call-handlers have become infected, are rooted in the epidemiological properties of SARS-CoV-2 and its routes of transmission, intersecting with multiple characteristics of mass production contact centres.

Compromised social distancing, that left potentially vulnerable bodies exposed to larger droplets and small particles, stemmed from *inter alia* workers sitting in close proximity to each other at tightly-spaced workstations, inflexible, standardized module seating, dense workspace occupancy, little room to move around, crowded walkways and stairwells and insufficient toilet provision. The labour process necessitated extended periods of sedentary work, with call-handlers continuously engaged in customer contact, periodically interspersed with hazardous, close verbal intercourse between colleagues and supervisory contact with team leaders, combined, for many, with face-to-face team meetings, huddles and 1-1s and performance appraisals. Changing the perspective from this telescopic scrutiny of constituent elements of the labour process to a wide-angle lens reveals these 'inner workings' as intertwined with external economic drivers, essentially the centrality of contact centres for value-generating activities pursued in aggressively competitive markets (Taylor and Bain, 2007) by, in this study, largely, telecommunications and financial services firms. Given essential political-economic realities, the arrival of this monstrous exogenous epidemiological shock, with the serious potential to disrupt the labour process, prompted default to an insistence on BAU. The ineluctable imperative to transform labour power into concrete labour continued. That 69 percent of respondents either 'strongly agreed' (48.6 percent) or 'agreed' (20 percent) with the statement, 'Management is more interested in profits than in my health' conveys an experiential truth.

Prior to Covid-19, the mass production contact centre had revealed itself as a 'structure of vulnerability', to use Nichol's (1997) term, to describe the regularities of industrial harm and how they are understood through their institutional location within capitalist social relations. Covid-19's intrusion into this 'structure of vulnerability' transformed the experience of ill-health into widespread morbidity and even mortality. This study re-affirms the criticality of labour process theory (LPT) as a distinctive, materialist and enduring analytical project that has proven capable of delivering unique insights into the domains of work and employment. Core LPT has demonstrated its capacity to meet diverse theoretical and empirical challenges (Thompson and Smith, 2010) and to respond to them with an interdisciplinary flexibility that helps explain complex social phenomena. This study uniquely has attempted to synthesise knowledge of epidemiological science with LPT to analyse the regularities and causes of infection from a deadly zoonotic pathogen in a concrete work setting.

Hindsight has disclosed ever more starkly the profound failings of the UK government in controlling and mitigating the Covid-19 pandemic, a series of catastrophic policy decisions and delays informed by deeply flawed assumptions (Calvert and Arbuthnot, 2021). Paralleling this negligence has been the profound failure of the workplace health and safety regulatory regime, evidenced by documented deficiencies in the HSE (James et al, 2021; TUC, 2021). If the UK population's public health has been badly served by state and government, so too has its occupational health been badly compromised.

Reports based on this study's findings have contributed to policy guidelines and near real-time union interventions in problematic workplaces, aimed at developing safe-working (Scottish Government, 2021; Taylor, 2020b) and making urgent cases for transitioning call-handlers to home-working. These interventions take us to the realm of agency, to matters beyond the scope of this article, but are equally if not more important from a labour process perspective informed by partisan scholarship (Brook and Darlington, 2013).

A final reflection considers telling criticism of SAGE (Scientific Advisory Group for Emergencies), which provided scientific advice for the UK government throughout the pandemic, that it lacked transparency (Calvert and Arbuthnot, 2021), was overly-narrow in composition and limited in the scientific expertise from which it drew (Ashton, 2020). The latter censured SAGE for excluding experienced public health experts, who could have delivered granular 'on-the-ground' knowledge of their cities and regions and contributed to more effective control of Covid-19. The argument for interdisciplinary expertise might include work sociologists and employment relations academics. This study, informed by decades of research on the contact centre and office labour process and OHS identified, not retrospectively but contemporaneously, in its reports during April 2020 (e.g. Taylor, 2020b), the profound hazards to which workers were being exposed. Had such knowledge, combined with intimate understandings of the realities of working during Covid-19 provided by trade unions and OHS campaigns^v, been listened to and acted upon, then unnecessary illness and even deaths could have been avoided. A powerful case can be made for the salience of critical social science.

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ⁱ The data was only released by Public Health England following Freedom of Information requests.

ⁱⁱ An appropriate demarcation of the first decade of academic research (Russell, 2008).

ⁱⁱⁱ UK government is responsible for lockdown restrictions in England. Public Health policies are devolved to the three governments/assemblies of England, Scotland, Wales and Northern. Employment policy is a reserved power.

^{iv} Alacatel-Lucent is a company producing commonly-used contact centre software architecture, responsible for call distribution and monitoring.

^v Hazards <http://www.hazardscampaign.org.uk/> is the most notable occupational health and safety campaigning body and produces invaluable reports, critiques and guidance.