ABSTRACT
European lockdown strategies over the winter of 2020 have brought into sharp relief the need for effective strategies to reduce the rate of COVID-19 transmission and lower the rate of hospitalisations and deaths. Understanding exactly how European nations have arrived at this point, and the process by which they have done this, is key to learning constructive lessons for future pandemic risk management. Bringing together experience from across five European nations (the UK, France, Germany, Sweden and Switzerland), this paper outlines what has occurred between September 2020 and mid-January 2021. Our analysis draws out several themes important to understanding the different national risk management approaches adopted, namely: the extent to which lessons were learned or overlooked from the first wave of the pandemic; the relationship between science and policy; the speed and responsiveness of policy decisions; and differing levels of reliance on individual responsibility for safeguarding public health. Subsequently, we recommended that: there is more involvement of decision scientists and risk analysts in COVID-19 decision making, who have largely been absent thus far; the epidemiological science should be followed where possible, but when value judgments are made this should be clearly and transparently communicated; proactive measures avoiding policy delay should be followed to reduce the rates of infection and excess deaths; governments must avoid confusing or inconsistent regional implementation and communication of interventions; rebuilding public trust is key to promoting public compliance and support for COVID-19 health measures; overreliance on individual responsibility as the focus of non-pharmaceutical interventions should be avoided; public compliance with COVID-19 restrictions requires pre-tested simple messages; open and consistent engagement with local leaders and officials should become a mainstay of government efforts to help ensure consistent adoption of nationwide COVID-19 policy measures.

1. Introduction
As of late January, approaching ‘one year on’ from the World Health Organisation’s (WHO) declaration of a Public Health Emergency of International Concern, there have been 17.9 million cases of COVID-19 in the EU/EEA and over 425,000 deaths (European Centre for Disease Prevention and Control 2021). The United Kingdom (UK) alone passed the grim milestone of...
100,000 COVID-19 deaths on 26 January (BBC News 2021c). In view of such alarming figures, questions have understandably been raised about the ability of European governments to effectively plan and adopt appropriate COVID-19 risk management strategies as the crisis has evolved while continuing to fail to identify, acknowledge and learn from past mistakes (Bryce et al. 2020; Wardman 2020). Furthermore, taking a narrow inwardly focused view of COVID-19 public health requirements, while ignoring the successes of pandemic strategies adopted by other nations around the world, has also been argued to be responsible in part for many avoidable deaths in Europe (Han et al. 2020; Patel and Sridhar 2020; Wardman 2020). Understanding how different European nations arrived at this point, and what can be learned from their experiences, is therefore vital to ensuring effective pandemic risk management moving forward. As such, risk management throughout the pandemic, especially in the second and third waves through autumn and winter 2020, must be scrutinised to understand how the impacts of the virus have been so great, and what can be done to mitigate further damages in future.

Addressing these issues, this paper examines the COVID-19 risk management strategies of 5 European nations, namely: the UK (England more specifically), France, Germany, Sweden and Switzerland. These nations have been chosen, in part, as they correspond to previous papers by the authors respectively on communication of the COVID-19 vaccine rollout (Warren and Lofstedt 2021) and lessons learned from earlier national pandemic leadership strategies (Wardman 2020; Wardman and Lofstedt 2020). This juncture in the health crisis also offers a timely opportunity to compare the unique, and sometimes overlapping, socio-political characteristics of different risk management strategies put in place by these five nations. In particular, focusing in-depth on the time period from around September 2020 until mid-January 2021 allows for comparative observations to be made with the earlier period of the first wave of coronavirus from March to June 2020, which has received extensive attention (see for example Desson, Lambertz, et al. 2020; Freedman 2020; Petridou 2020; Wardman 2020; Kuhlmann et al. 2021). The analysis presented thus aims to trace key similarities and differences in pandemic risk management approaches, especially concerning: how lessons from the first wave were learned and implemented; the relationship between science and policy in each nation; the speed and responsiveness of policy decisions; and differing levels of attention and focus given to individual responsibility for safeguarding people’s health.

The paper proceeds as follows. First, following a chronological outline of each nation’s policy, a brief analysis of the approach is offered. Then, conclusions are drawn from a more general analysis of common themes and approaches between nations identified. Finally, recommendations are offered to promote more effective COVID-19, and general pandemic risk management strategies, in future.

2. England within the United Kingdom

2.1. Post-lockdown and summer strategy

After the first COVID-19 wave restrictions were lifted beginning in May, a 5-level ‘Covid Alert System’ was introduced and controlled by a new organisation, the Joint Biosecurity Centre and Chief Medical Officers (BBC News 2020a; Cabinet Office 2020b). Prime Minister Boris Johnson (2020b) announced the new system in a press conference on 10 May, stating that the alert levels were ‘determined primarily by R [rate of infection] and the number of coronavirus cases’, and that the country was currently at level 4 transitioning to level 3. This speech also introduced a confusing new slogan ‘Stay Alert, Control the Virus, Save Lives’ instead of the original ‘Stay at Home, Protect the NHS, Save Lives’, which was extensively criticised at the time (Mee 2020; Torjesen 2020; Wardman 2020). Restrictions also began operating at a local level and varied by region rather than being applied nationally, being reflective of local NHS service hospital capacity to cope with COVID-19 cases (Heffer 2020). Late May also saw the Dominic Cummings
debacle ‘Cummingsgate’, widely viewed as a trust-destroying incident that greatly undermined confidence in, solidarity with, and perceived fairness of the government approach to managing COVID-19 (Reicher and Stott 2020; Wardman 2020).

Following a resurgence in cases in early September, new social distancing rules were put in place in England (Cabinet Office 2020a). The government also announced a ‘moonshot’ plan to control spread of the virus through a £100bn investment to facilitate mass testing of the virus (Iacobucci and Coombes 2020). By mid-September, around 20% of UK residents were placed in enhanced restrictions at a local level, especially in the North East and Manchester, with support from some local leaders and protestation from others, such as Manchester Mayor Andy Burnham (BBC News 2020b; Wardman 2020). In mid-October, the government brought out a three-tier national framework in England with increasing levels of restriction dividing the UK into regions with different lockdown strengths controlled primarily from central government (Department of Health and Social Care 2020), and Liverpool was the first area in the ‘Very High Risk’ ‘Tier 3’ category (Murphy 2020). Although a national framework was introduced to ensure no disparities or inconsistencies between localities, the legislation for Tier 3 was amended only 3 days later allowing regional variation through The Health Protection (Coronavirus, Local COVID-19 Alert Level) (Very High) (England) (Amendment) Regulations 2020 (2020). This resulted in differences in Tier 3 rules between Liverpool and Lancashire for example, again raising questions of fairness and proportionality from local leaders (Culbertson 2020).

2.2. Autumn and winter lockdown strategies

Despite the introduction of this three-tier system, case and death rates continued to increase: on 30 October there were 274 COVID-19 related deaths within 28 days of testing positive and over 24,000 new infections in the UK (Kelly-Linden and Global Health Security Team 2020), compared with 136 deaths and over 16,000 new cases two weeks previously (Center for Systems Science and Engineering 2020). Facing pressure from an exponentially increasing case rate, Prime Minister Boris Johnson (2020a) announced a new national lockdown on 31 October, stating:

> Our hope was that by strong local action, strong local leadership, we could get the rates of infection down where the disease was surging, and address the problem thereby across the whole country […]. But as we’ve also seen from those charts, we’ve got to be humble in the face of nature […]. And so now is the time to take action because there is no alternative. From Thursday until the start of December, you must stay at home.

Despite this new national lockdown, which was set to last four weeks beginning on 5 November, the UK recorded its highest number of daily COVID-19 deaths since 5 May 2020 at 696 on 26 November (Sky News 2020a). In late November, Prime Minister Johnson set out the COVID-19 ‘Winter Plan’ to be enacted at the end of the second national lockdown, which detailed a three-tier system of restrictions to reduce the rate of COVID-19 transmission, planned to last until the end of March 2021 (HM Government 2020). Following a national lockdown, this tiered system allowed localised closures and restrictions on social mixing in England similar to that enacted before the second national lockdown in October, although a little more strict as the old system was deemed by the government’s expert scientific advisory group SAGE to be not fit to reduce the virus rate of reproduction (R number) below 1 (BBC News 2020d). At the same time, the government announced the plan for the creation of ‘Christmas bubbles’ across the UK, allowing indoor mixing and overnight stays for up to three separate households between 23 and 27 December (Walker et al. 2020). This originally was intended to be a temporary relaxation of rules, and on 28 December the original ‘tier’ rules would be reinstated (Walker et al. 2020).

However, after the discovery of a new, more transmissible variant of COVID-19 ‘Variant of Concern 202012/1’ and increase rate of COVID-19 transmission, an additional tier, ‘Tier 4’, was
introduced and put in place in London and the South East of England on 19 December, four days before the relaxation was due to take place (Johnson 2020c). This brought back the mandate for people to ‘Stay at Home’ and closed all non-essential retail and leisure activities (Johnson 2020c). This also cancelled the ‘Christmas bubbles’ rules relaxation plan announced by the government in these ‘Tier 4’ areas, and ‘Christmas bubbles’ were made only possible on Christmas Day, 25 December, in non-‘Tier 4’ areas rather than between 23 and 27 December (BBC News 2020e).

After over 50,000 cases reported daily for the week before, on 4 January Boris Johnson announced the introduction of the third national lockdown from 5 January (Johnson 2021). Schools would shut, despite having originally opened to primary school children for the 4 January and being deemed as ‘safe’ by the Prime Minister and the Education Secretary Gavin Williamson just 24 hours before (BBC News 2021a; Booth, Adams, and Pidd 2021). Certain new groups of people now counted as ‘critical’ workers that didn’t in the first lockdown, including parents working in higher education and financial services (Cabinet Office and Department for Education 2021). This watered down criteria undermined the order for schools to close, with some schools recording attendance at 50%, leading to questions about their safety due to the much higher in-person attendance numbers than recorded in the first lockdown (Otte 2021; Richardson 2021). This change was walked back by Secretary of State for Education Gavin Williamson a few days later on 9 January, with parents advised to keep children at home if they are also working from home (Otte 2021). As of late January, England is still in a national lockdown, however public debates about the enforcement and precise meaning of rules have continued. These include: a couple being fined for driving to meet for a walk that was seen as excessive and ‘not in the spirit’ of the law (later withdrawn) (BBC News 2021b), debate over a scotch egg counting as a substantial meal allowing pubs in ‘Tier 2’ to provide alcohol table service (Bland 2020), and the Metropolitan police commissioner Cressida Dick recently asking for guidance from the government on outdoors exercise to be clarified after Boris Johnson was spotted cycling 7 miles away from 10 Downing Street, the Prime Minister’s residence (Hymas 2021).

2.3. Analysis

The English strategy to managing the COVID-19 response after the first wave has been widely panned as being slow, inconsistent and riddled with U-turns (Wardman 2020). This has continued into the autumn and winter of 2020. In fact, according to barrister Adam Wagner COVID-19 rules in England have changed 64 times between March 2020 and mid-January 2021 (Syal 2021). This is despite the well-researched effectiveness of clear, consistent management and communications strategies in reducing and managing risk generally, and more specifically in the case of COVID-19 risk management (R. Lofsedt 2011; Wardman 2020).

The government has continually held to the message that decisions made are ‘following the science’ (Pérez-González 2020). Aligning with scientific expertise is an effective risk communication approach to ensure message credibility and greater adherence, at least in the short term (Renn and Levine 1991; Balog-Way and McComas 2020). However, it is clear to see that science has often been ignored in decision-making, or selectively chosen (Newton 2020; Stevens 2020), one recent example amongst many being the delay between SAGE calling for a second national lockdown in September, for it only to be put in place a month later (BBC News 2020c). Public scepticism about the extent to which restrictions and rule changes are insulated from political factors has thus subsequently grown over the last year, shaking the perceived credibility and impartiality of the decisions being made and damaged trust in the government strategy (Abbasi 2020; Ahuja 2020; Wardman 2020).

The UK approach can also be described as not being prepared to be resilient in the face of future COVID-19 waves or planning ahead for them. Often measures have been put in place too
late, and are often reacting to the state of affairs rather than proactively preparing for the problem at hand, as seen with the closure of schools in January 2021 (Independent SAGE 2021). In this instance, the government missed a key opportunity to take advantage of the summer period, which recorded fewer COVID-19 cases and deaths and allowed for greater relaxation of restrictions, to plan ahead and prepare test-and-tracing facilities and hospitals despite scientists’ expectations of a second wave in the autumn (Campbell 2020; Lee et al. 2020). In addition, offering greater rates of sick pay than those that currently exist for those told to self-isolate has not occurred unlike in half of all OECD countries (O’Connor 2020). This policy has been put forward by the OECD (2020) as an important way of ensuring and increasing adherence to self-isolation rules England has one of the lowest statutory sick pay levels in Europe, at £95.85 per week, and this has contributed to people earning under £20,000 per annum being three times less likely to be able to isolate compared to other groups (Atchison et al. 2020; O’Connor 2020).

In the UK media landscape, the narrative has often focused on ‘rule breakers’ and those infringing the government’s laws, recommendations, and exhortations (Reicher 2020; Reicher and Drury 2021). This negative amplification and focus on public decision-making on adherence has, according to Reicher (2021), ignored the issues associated with the rules themselves: are they effective enough, and is there enough support provided to promote public adherence? This focus also is more likely to result in a cycle of lower compliance as people are likely to be influenced by prevailing social norms: if it is perceived as normal to break the rules then more people will be likely to break them (Cialdini and Goldstein 2004; Van Bavel et al. 2020). Further, repeated scandals including ‘Cummingsgate’ and Boris Johnson’s recent cycle ride bring into sharp focus a growing ‘one rule for us, another for them’ mentality, which can depress intentions to abide by the rules by reducing a shared sense of identity and solidarity (Reicher and Stott 2020; Van Bavel et al. 2020; Wardman 2020).

Based on the deep inconsistency and U-turns, poor planning ahead, reactive policy implementation, a weak safety net in place to promote adherence, a prevailing narrative highlighting non-compliance and a shrinking shared identity between policy makers and the public, the authors would argue the signs are that the UK government has not put in place an effective risk management strategy on COVID-19. This is evidenced most clearly in the UK having one of the highest death tolls in Europe, passing 100,000 on 13 January (Barr, Davis, and Duncan 2021).

### 3. France

#### 3.1. Post-lockdown and summer strategy

France saw a tailing off of new COVID-19 cases in mid-May, and on 10 July the ‘State of Health Emergency’ was lifted, relaxing restrictions dramatically and leaving in place only rules on physical distancing (Mazoue 2020). Cases started increasing again from August onwards, and by late September the government set local COVID-19 rules centrally and created ‘Enhanced alert zones’ and ‘Maximum alert zones’ (République Française 2020). These ‘Maximum alert zones’ signify areas where there are more than 250 cases per 100,000 residents, more than 100 cases per 100,000 older residents, and where 30% of those in intensive care units are there for COVID-19 related reasons and allowed for a more restricted localised lockdown (République Française 2020).

#### 3.2. Autumn and winter lockdown strategies

On 23 September, the French health minister, Olivier Véran, declared at short notice the city of Marseille as a ‘Maximum alert zone’, as the criteria described above had been met (Rof 2020). This decision was harshly criticised by the at-the-time First Deputy Mayor of Marseille Benoît Payan, who argued that these new measures were ‘an affront’, taken ‘without consultation’ (LCI
Despite Paris being placed in the ‘Maximum alert zone’ just two weeks later on 5 October and case rates increasing dramatically, President Emmanuel Macron only announced a new second national lockdown on the 28 October, starting on the 30 October until at least 1 December (Le Monde 2020). This lockdown was deemed lighter than that experienced in March, with President Macron stating that ‘schools will stay open, work will be able to continue, [and] nursing homes and retirement homes can be visited’ (Le Monde 2020).

On 24 November, President Macron announced that the lockdown would be lifted on 15 December, and be replaced by a nightly curfew from 9pm to 7am if the health situation improved (Macron 2020b). This curfew timing was changed to 8pm and 6am on the 15 December with the exception of the 24 December (République Française 2021). Additionally, ‘non-essential’ businesses were allowed to reopen from 28 November (Macron 2020b). This was despite the case rate not being at the level the government had set to consider relaxing restrictions, set at 5,000 cases a day and around 2,500 to 3,000 intensive care patients (Berrod and Gallet 2020; Macron 2020b). The relaxation on 15 December allowed for the end of the stay-at-home order, the public to move freely between regions of France and hotels to reopen; however, restaurants and bars would remain closed, and although travel and personal holidays to winter resorts were allowed, ski lifts and facilities would be closed to the general public (Directorate of Legal and Administrative Information (Prime Minister) 2021).

On 10 December, Prime Minister Jean Castex announced the further relaxation of many restrictions specifically over the Christmas period, with families of up to 6 adults allowed to meet and move freely, and a wide-ranging testing regime put in place ahead of the easing of restrictions, however New Year was also put under curfew (Berrod and Gallet 2020). It was widely accepted in the French media that France had among the least restrictive Christmas lockdown plans, with Prime Minister Castex rationalising this decision by stating ‘Christmas occupies a special place in our lives and in our traditions’ (Mansour 2020). Generally, it was found that the French have widely accepted and followed the restrictions, with 83% of those asked stating they would stay within the Christmas restrictions, and 92% within the New Year’s Eve rules (Santé publique France 2020).

On 28 December, France recorded 364 new deaths from COVID-19 in a 24-hour period and the government convened a new ‘Defence Council’ to discuss potential new restrictions in the face of rising cases (Le Figaro and AFP 2020). On 22 December, the Scientific Council on COVID-19 made it clear to the government that there will be a ‘probable […] uncontrollable’ rise in COVID-19 cases in January (Franceinfo and AFP 2020). As a result, three policy options were proffered by the Scientific Council on COVID-19: (1) a strict lockdown from 28 December in the most affected areas; (2) a ‘deferred’ response in early January that is ‘adapted to the increase in infections from the end of the year’, which would be a reactive response and ‘limit social or economic activities […]’ that lead to greater contamination for better targeting of restrictions’, or (3) a ‘later response aimed at limiting the effects of a new increase in cases’ which would consist of ‘accumulating restriction measures, going up to a prolonged lockdown’, with the warning that this third response ‘presents the risk of intervening too late and then lead to more severe, long and restrictive measures than those brought into place earlier’ (Conseil scientifique COVID-19 2020, 8–9).

Despite this clear advice from the Scientific Council on COVID-19, Olivier Véran announced only a potential increase in the length of the curfew on 29 December to start at 6pm in certain areas but refused to put in place a third lockdown, stating ‘we do not want to confine at this stage’ (Franceinfo 2020b). Contrary to this response from national government, several local leaders, especially those from the Grand Est region, called for a local lockdown on the same day which according to the mayor of Nancy Mathieu Klein was ‘inevitable’, and President of the Grand Est region Jean Rottner hoped that ‘the decision [to put in place restrictions] will take place tomorrow, and that we won’t have to wait another week’ (Le Figaro and AFP 2020).

The government has also delayed the reopening of public spaces such as museums and cinemas, originally billed to reopen on 7 January, however schools and nurseries reopened that day (Miller, Abboud, and Beesley 2021). Despite scientific findings showing that the new Variant of
Concern 202012/1 is more contagious and just as transmissible in children as adults, on Sunday 10 January the Minister for Education Jean-Michel Blanquer stated that ‘nothing is excluded’, but at this time the closing schools ‘is not envisaged’ despite pressure from critics (Pech 2021). This policy approach is quite unique compared to the rest of Europe, and has been described as a political choice made by Minister for Education Blanquer (Bost 2021).

In the New Year, general public fears about a spike in new COVID-19 cases were exemplified by the French Director General of Health Jérôme Salomon. When talking about the potential effect of Christmas on COVID-19 case rates on 2 January to the Journal du Dimanche, he stated that ‘the trend is already worrying’ (Enault and Paillou 2021). Despite more and more scientists and doctors calling for a new lockdown as case rates increased, as of 13 January the government continue to distance themselves from the idea of a new ‘national confinement’ (Vaillant 2021). President Macron, in his New Year’s address, was hopeful yet did underscore the problems facing France in the short-term, ‘The first months of the year will be difficult and, at least until the spring, the epidemic will still weigh heavily on the life of our country’ (Berdah 2020).

3.3. Analysis

Overall, there has been extensive media critique of the French government’s response to COVID-19, perhaps best encapsulated by the Journal du Dimanche headline ‘Does France really have everything wrong?’ on 10 January (Demey 2021). Inconsistency has been a key problem. Particularly, epidemiologist Renaud Piarroux finds that the response has been more erratic in France than in nations with a better situation like Norway or Finland (Demey 2021). The centralised nature of the French decision-making process has not always been a drawback, and has allowed for a more effective policy rollout as well as the ability to transparently and candidly collect and share data on COVID-19 with the public (Desson, Weller, et al. 2020). It has also given France the ability at times to rapidly enact and enforce restrictions nationwide (Desson, Weller, et al. 2020).

However, the fairness of rules put in place by the centralised government at a local level, and the low level of engagement with local leaders, has been thrown into sharp relief with the debacle in Marseille in September and the reactive and slow policy implementation in the Grand Est region in December. According to Kuhlmann et al. (2021, 14), France traditionally reverts to its ‘Napoleonic-centralist (pre-decentralization) top-down governance mode’ in times of crisis, and the same has been true in the case of COVID-19 risk management. Further issues of fairness have also arisen in the conduct of leaders. On 17 December, it was announced that President Macron tested positive for COVID-19 and was self-isolating for seven days (Macron 2020a). The President came under criticism as he had attended a dinner the day before the diagnosis that had not followed the ‘rule of six’ standards that he himself had enforced (Franceinfo 2020a). Leading by example is key to ensuring high levels of compliance in reducing transmission of infectious diseases, and so such instances risk undermining widespread support for of government interventions and their effectiveness (Yaffe and Kark 2011; Gächter et al. 2012; Brooks et al. 2020). Trust-destroying incidents such as this one further serve to propagate the creation of a ‘one rule for us, one rule for them’ narrative, which can undermine support for strict policy measures employed during the COVID-19 pandemic in France. Care should therefore be taken to not violate the social contract and shared sense of identity between policy makers and citizens of being ‘all in this together’ in a bond of a shared solidarity (Reicher and Stott 2020; Van Bavel et al. 2020).

4. Germany
4.1. Summer strategy

Germany, despite some difficulties, has widely been credited with having one of the best COVID-19 responses in the first wave (Wardman 2020). Contrary to the much more centralised modes of decision making in the UK and France, Germany’s 16 Länder (states) that make up the nation have
persistently had higher levels of autonomy but applied COVID-19 restrictions recommended by the national government quite uniformly during the first wave (Oltermann 2020). The independent Robert Koch Institute (RKI), as Germany’s national public health institute for disease, has provided key information on case rates that alongside the reliance on medical expertise in decision-making have informed the state on strategies for controlling COVID-19 (Boin, Lodge, and Luesink 2020; Desson, Lambertz, et al. 2020). This allowed Germany to avoid the relatively high infection and death rates seen elsewhere in Europe, potentially due to younger average age of infection, reduced rates of personal contact, and more effective management strategies (Stang et al. 2020).

With restrictions cautiously lifted by mid-June following a March lockdown, it seemed as if Germany had overcome any serious COVID-19 risks. However, because of the ability at state-level to decide the level of restrictions, some states opened up faster than others in a chaotic fashion (Hill 2020). Some local lockdowns were subsequently introduced in May and June due to outbreaks predominantly at meat processing plants, most notably Tönnies in Gütersloh, North Rhine-Westphalia that led to the town and its neighbouring district Warendorf re-entering lockdown restrictions again (Deutsche Welle 2020a).

4.2. Autumn and winter lockdown strategies

By August case rates in Germany had begun to increase again, and by 20 August stood at 1,707 in the previous 24 hours, around the same rate as recorded at the peak of the first wave in mid-April (Deutsche Welle 2020b). On 27 August, Chancellor Angela Merkel agreed a series of new national measures with local leaders to reduce the increasing case rate (Bundesregierung Deutschland 2020c). These included a national €50 fine for not wearing a mask on public transport, a requirement to keep 1.5 metres of physical distance from others, a ban on large events and parties until 2021, and a planned test-and-release system of quarantine if one returns a negative COVID-19 test after 5 days of isolation starting in October (Bundesregierung Deutschland 2020c). Despite trying to reach a fully unified response on all restrictions, there was divergence in rules on private parties at home, and questions remained as to whether some states would implement the rules (Tagesschau 2020). Saxony-Anhalt questioned the need for mask-wearing fines on public transport, for example, arguing that the comparatively lower COVID-19 case rate there meant that this rule did not need to be enforced at this time (Tagesschau 2020).

In late September, further national rules were enacted to punish those who give false names at restaurants, which Saxony-Anhalt again refused to enact, and restrictions on the size of private celebrations based on weekly local infection rates per 100,000 inhabitants (Rzepka 2020). Chancellor Merkel also expanded the rules to the public for actions they should take to reduce the risk of COVID-19 infection. Originally termed AHA (acronym for ‘Distancing, Hygiene, and Everyday Face Coverings’) (Bundesministerium für Gesundheit 2021), it was expanded to AHACL, to include ‘C’ (use of the German COVID-19 tracking application ‘Corona-Warn-App’) and ‘L’ for Lüften (ventilation of indoor spaces) (Connolly 2020a).

After a dramatic increase in cases in early October (4,964 newly reported COVID-19 cases on 9 October compared with 2,833 new cases on 2 October), a new ‘Hotspot Strategy’ was brought in as an emergency mechanism and strengthened to limit local outbreaks on 14 October (Bundesregierung Deutschland 2020a; Radtke 2021). However, the following day the National Academy of Sciences Leopoldina (2020b) announced that this approach would not be enough to keep increases in case rates down. Cases continued to rise throughout October, with the increase in infections described by the President of the RKI Lothar Wieler as making the situation in Germany ‘very serious’ (Bergmann and von Bullion 2020), and on 27 October several Presidents of very reputable scientific organisations: the German Research Foundation (DFG), the Fraunhofer Society, the Helmholtz Association, the Leibniz Association, the Max Planck Society and the National Academy of Sciences Leopoldina released a joint declaration calling for the government
to make ‘clear decisions […]’ implemented quickly’ to avoid the risk of overload of hospitals and increased death rates in the face of a high number of COVID-19 cases and an increase that can ‘no longer be controlled in many areas’ (Becker et al. 2020, 1).

On the following day, 28 October, Chancellor Merkel and the heads of the states agreed a so-called ‘lockdown light’ beginning on 2 November to last until the end of the month, reviewed every two weeks (Gensing and Reisin 2020; Presse- und Informationsamt der Bundesregierung 2020). Restrictions included reducing social contacts where possible, with public meetings reduced to 2 households or maximum 10 people and closure of public facilities such as swimming pools, restaurants and bars, however schools and retail shops would remain open albeit with some limits on number of customers in shops (Presse- und Informationsamt der Bundesregierung 2020). After two weeks had passed, the lockdown was extended, and on 25 November the government decided to extend the ‘lockdown light’ until 20 December and some tightening of restrictions due to a stabilisation, but not reduction, in daily COVID-19 case rates (Connolly 2020b). The lockdown was again extended on 2 December, to 10 January, and certain states including Bavaria and Saxony imposed stricter rules including over Christmas and New Year amid the recommendation from the National Academy of Sciences Leopoldina for a ‘hard’ national lockdown between 24 December and 10 January (Bundesregierung Deutschland 2020b; Deutsche Welle 2020c; ZDF 2020). An emotional appeal from Chancellor Merkel to the public on 9 December to reduce their social meetings also pushed for the German states to put in place the recommendations of the National Academy of Sciences Leopoldina to avoid this Christmas being ‘the last celebration with the grandparents’ (Connolly 2020c).

On 13 December, with over 20,000 new COVID-19 cases and 321 deaths recorded on that day, Chancellor Merkel announced a new national ‘hard lockdown’ between 16 December and 10 January after admitting that the ‘lockdown light’ imposed in November was ‘not enough’ and that the government ‘are forced to act and are acting now’ (DPA 2020; Sky News 2020c). The lockdown included rules that shops would be closed unless deemed essential, drinking alcohol in public would be banned and bars and restaurants would remain closed, schools would close or attendance made not compulsory, New Year’s parties and gatherings were banned, and only two households would be allowed to meet indoors (DPA 2020; Sky News 2020c). An exemption to the rules was made for the Christmas holiday between 24 and 26 December, where citizens could meet with up to four people beyond their own household and any number of children up to the age of 14 (Bundesregierung Deutschland 2020d). Overall, there was strong public support for a lockdown, with 73% of respondents favouring the new restrictions in a YouGov survey commissioned by DPA in December (Deutsche Welle 2020d).

Despite these restrictions, the COVID-19 death rate in Germany was at an all-time high in December, with over half of the total number of deaths from the entire pandemic (16,718 out of 33,071) occurring between 2 December and 1 January (Berry 2021). The hard lockdown was extended and further restrictions were put in place on 5 January originally until the end of the month, with a new 15 kilometre distance limit in place for COVID-19 hotspots that particularly aimed to reduce the number of touristic day trips taken by Germans throughout the lockdown period (Bundesregierung Deutschland 2021a). The hard lockdown was extended again on 19 January until mid-February, with new restrictions in place to limit private social meetings indoors to only being with one other person, an obligation to wear masks in shops and public transport and tighter rules on religious gatherings (Norddeutscher Rundfunk 2021). In a speech on 19 January, Chancellor Merkel also extended the closure of schools until mid-February, however the implementation of this rule has been inconsistent throughout the 16 states (Bundesregierung Deutschland 2021b; Das Erste 2021). For example, schools in Lower Saxony have seen in-person teaching since 18 January and after this announcement from Chancellor Merkel, Minister-President of Baden-Württemberg Winfried Kretschmann announced that primary schools would open from 1 February, if the infection rate allows (Kuhn 2021). As of 20 January, Germany has
recorded over 2 million cases of COVID-19 and 48,770 deaths, and 102,704 new cases have been reported in the last seven days (Robert Koch Institut 2021).

4.3. Analysis

The German risk management response to COVID-19 in the autumn and winter has fallen far short of initial successes in the spring and summer months. Blame for this difference has been attributed to the need for consensus among the 16 federal states for decisions to be implemented, their unwillingness to implement fast, strong, proactive national restrictions, and the inconsistent implementation of said rules. Scientific organisations in Germany have consistently advocated over the latter months of 2020 for stricter rules than what was currently in place (see Becker et al. 2020; Leopoldina 2020a). Indeed, risk communication and management literature has long advocated for leadership to be proactive, clear and decisive to minimise risk and ensure public trust in the approach taken (R. E. Lofstedt 2005; R. Lofstedt et al. 2011; Chakraborty 2020). This has been echoed in recent academic publications in the context of COVID-19 risk management strategies to contain the spread of the virus more specifically (Migone 2020; Wardman 2020; Wiedemann and Döl 2020). Despite the wealth of scientific evidence behind a more proactive approach to control the spread of COVID-19, there was a reticence on the part of local leaders to impose harsh restrictions. This was epitomised in the creation and promotion of a ‘lockdown light’, and a desire from state governors for a relaxation of rules to allow for a more ‘normal’ Christmas (Eberle et al. 2021). The recent disjuncture between different states’ school closure policies has also reinforced this problem (Kuhn 2021) with local leaders questioning the approach from central government and the recommendations of scientists. Minister-President Bodo Ramelow of Thuringia, conceded that this lack of a united front on the part of local and national leaders has been especially problematic, with Ramelow admitting ‘the Chancellor [Merkel] was right and I was wrong’ about the need for strict restrictions (Locke 2021). Other Minister-Presidents to recently admit fault having underestimated the impact of COVID-19 include Markus Söder of Bavaria and Michael Kretschmer of Saxony (Eberle et al. 2021).

A second factor to potentially have exacerbated the damage of the second wave of COVID-19 concerns the success of the government response to the first wave and the identification by epidemiologists of a so-called ‘prevention paradox’. Adapted by the Director of the Institute of Virology at Berlin Charité Christian Drosten from Rose (1985, 38), this paradox describes how due to the effective and ‘overreactive’ method of disease control and prevention seen in Germany in the first wave, the population do not view the risk as being so severe as it was originally made out to be. This belief, in turn, leads to riskier behaviours and lower likelihood of later compliance with restrictive measures (Spinney 2020). This ‘self-defeating prophecy’, as termed here, is said to be most visible in the lower-level reduced contacts the public had in the second wave. Compared to a high of 63% contact reduction in Spring, only 43% of total contacts were reduced in the second wave in November (Leopoldina 2020a). The National Academy of Sciences Leopoldina (2020a) assert with this finding that nations such as Ireland and Belgium, who managed to reduce their social contacts much more than Germany, have had a lower rate of COVID-19 cases as a result. The much stricter lockdown now in place in Germany may aid in reducing the personal contact levels seen in November to spring levels.

5. Sweden

5.1. Background and summer strategy

During the first COVID-19 wave, unlike its neighbours Swedish authorities did not impose strict lockdowns, instead choosing to emphasise individual responsibility by encouraging
citizens to follow guidelines and be sensible (Petridou 2020; Pierre 2020; Giritli Nygren and Olofsson 2020). Face coverings were also not made mandatory. COVID-19 cases and deaths in Sweden were much higher than its neighbouring countries and continue to be today, in part because no strict measures were implemented in spring 2020 (Ludvigsson 2020; Our World in Data 2021). At the end of the first wave Anders Tegnell, Sweden’s chief epidemiologist, argued that Sweden’s COVID-19 risk management strategy should be looked at from a long-term perspective as it was likely that the country would not suffer a second wave as there would be a certain degree of ‘herd immunity’ in Sweden because of the severity of the first wave (Vogel 2020). After a quiet summer in which COVID-19 death rates came down into the single figures some commentators thought that Sweden was indeed out of the woods (Andersson and Aylott 2020). This was also confirmed in Tegnell’s view when quoted in the New York Times at the end of September:

We are happy that the number of cases is going down rapidly and we do believe immunity in the population has something to do with that. (Erdbrink 2020).

That said, compared to other European countries Sweden was still too slow when coming to testing and tracing for COVID-19. In mid-September there were still only 142,000 PCR tests carried out in Sweden, with some people waiting up to 5 days to get a result (Folkhälsoveridigheten Sverige 2020c).

5.2. Autumn and winter strategy

During the autumn, the number of COVID-19 cases in Sweden started creeping up, albeit from low levels in October, but by early November started increasing exponentially. As Sara Byfors of the Swedish Public Health Agency (PHA) stated to the Financial Times on 12 November:

‘It seems to follow this pattern that if you had a lot of cases during the spring, you also see a lot of cases now. We don’t know why this is’. ‘By tradition our law is based on voluntary measures … We will continue on this path and then expect all the people in Sweden will follow those recommendations and that will have the affect we aim for: to lower the spread of disease’ (Milne 2020a).

At the time, the number of patients taken to hospital with COVID-19 was doubling in Sweden every 8 days, the fastest rate for any European country for which data is available (Milne 2020a).

This high rate of infection in Sweden was also something that Tegnell admitted in an interview to The Times (Waterfield 2020). He is quoted saying:

It is a different situation than we had in the spring when it was more local. Now we have a community spread in many regions at the same time, which is partly a reason why we see such high numbers. (Waterfield 2020).

In the same article, one of his fiercest critics Doctor Lena Einhorn notes

‘Numbers are really rising. He was a hero last week, but I don’t know how much of a rock star he is right now. Sweden was regarded by many as a good example when case numbers and deaths were down but that immediately changed when they went up. They are extremely stubborn and they are reluctant to admit mistakes.’ (Waterfield 2020).

Because of the escalating COVID-19 cases Swedish Prime Minister Stefan Löfven felt that it was prudent to intervene. On 16 November he held a press conference where he noted that by 24 November only 8 people will be allowed to gather in public areas rather than 50, and that these measures will be in place until 14 December (Henley 2020). Prime Minister Löfven went on to say:

It is a clear and sharp signal to every person in our country as to what applies in the future. Don’t go to the gym, don’t go to the library, don’t have dinner out, don’t have parties – cancel! […] Advice and recommendations went a long way this spring but now compliance [with them] are lower. Now more of a ban is needed to bring down the curve of the number infected (Milne 2020b).
When asked about lockdowns he responded, ‘We don’t believe in a total lockdown. We believe that the measures that we have taken […] are appropriate.’ (Milne 2020b).

The following day, 17 November, the PHA hosted a press briefing where officials noted that the rule of 8 may cause public confusion as there are a number of exemptions such as in public transport (Folkhälsoomyndigheten Sverige 2020b). This became even more complicated when on 18 November the Swedish church asked for an exemption of 20 individuals to attend funerals, granted on 20 November (Svenska kyrkan 2020). The infection rates continued to increase, however. In a press briefing held on 19 November the PHA noted that despite measures to educate care staff on methods to reduce the likelihood of transmission of COVID-19, infections in old people’s homes had doubled in one week (Folkhälsoomyndigheten Sverige 2020d). It became clear that further measures needed to be taken. The Swedish government put forward a number of measures including the banning of families visiting old people’s homes in Stockholm as well ensuring that, as of 20 November, bars and restaurants will not be allowed to serve alcohol after 10pm (Euronews and AP 2020). Some of the PHA’s critics remained unimpressed. Professor Andrew Ewing of Gothenburg University noted:

Obviously these [recommendations] should have come earlier. But they do not go far enough. They are nowhere near as tight as in the UK. There are no requirements for masks here and hardly anyone wears them-sometimes not even in hospitals. It comes down to one word: prestige. The guy who is running the show said in the spring that masks don’t work and he just refuses to back down (Conradi and Callaghan 2020).

The discussions around COVID-19 became further politicised when Prime Minister Lofven gave his second 2020 speech to the nation on 22 November implores Swedes to take COVID-19 seriously and asking that everyone follow the recommendations and guidance put forward by the PHA, noting once again that all Swedes must ‘cancel and postpone’ any plans they had (Statsrådsberedningen 2020). In a press briefing on 24 November Tegnell conceded that he was incorrect about his COVID-19 strategy: ‘The issue of herd immunity is difficult. We see no signs of immunity in the population that are slowing down the infection right now’. (Lindeberg 2020). A week later, Prime Minister Lofven announced that as of 7 December high schools [gymnasiums] will be closed for in-person teaching and all should move to online-only tuition (Reuters 2020b).

Despite these measures, COVID-19 cases continued to rise. On 10 December, the PHA announced that all ICU beds in Gothenburg, Malmo and Stockholm were full (Folkhälsoomyndigheten Sverige 2020a). On 12 December, the Stockholm Region noted that they are operating their ICUs at 99% capacity (Rolander 2020). By the next day, 13 December, Denmark, Finland and Norway informed Sweden that they would be willing to provide medical assistance to reduce the strain at Swedish hospitals (Milne 2020c). The situation was compounded by the Swedish Corona Commission (SCC) publishing its first findings on 15 December in which it blamed the Swedish authorities for failing to protect the country’s old people (Melin et al. 2020). Some 70% of the COVID-19 deaths in Sweden have occurred in old people’s homes or in homes where individuals cannot look after themselves. The SCC also found that some 20% of the infected residents in care homes were not seen by doctors at all, while 40% of those cases were not assessed by a nurse either (Melin et al. 2020).

On 18 December Prime Minister Lofven announced the toughest set of COVID-19 restrictions yet. The measures that became law on the 24 December included: a) the mixing of individuals within the same bubble will go down from 8 to 4 individuals (including children); b) Restaurants cannot serve alcohol after 8pm; c) Gyms and stores cannot be crowded or they will be temporarily closed; d) High schools will implement virtual learning until at least 24 January; e) State-owned entities that do not need to stay open such as libraries and public swimming pools should close; f) Recommendation that face coverings shall be worn on public transport as of 7 January during rush hour (Regeringskansliet 2020). At the same press conference, the Prime Minister Lofven noted:

This year Christmas has to be different. The situation is still serious. The situation in hospitals is very strained […] A very serious lockdown wouldn’t have an effect in the long run because people would not put up with that […] Locking down a society is also a burden on the population (Regeringskansliet 2020).
Following the discovery of the COVID-19 strain Variant of Concern 202012/1, all flights between Sweden and the UK were banned from 21 December until the end of the year (Infrastrukturdepartementet 2020). Sweden also closed the border with Denmark following another mutant strain being discovered there (Aftonbladet 2020). From this point, only Swedish citizens could enter Sweden from these two nations until end of the year.

Just before Christmas, the Swedish government took the view that, in these pandemic times, being primarily reliant on guidelines from the PHA was simply not enough. On 8 January the parliament debated the possibility of a temporary pandemic law that was passed. The law was due to come into force on 10 January and at the debate the Prime Minister argued:

The government has not decided on the closure of businesses, but is ready to make that kind of decision. This is not something that we take lightly, but people’s lives and health are at stake. (Crossland 2021)

On 15 January the PHA showed that cases of COVID-19 in Sweden were decreasing from very high levels (Folkhälsovmyndigheten Sverige 2021). ICUs were now at 78% capacity and the pressure especially in Stockholm on health care decreased (Paterlini 2020). PHA thinks that the tough new measures have worked. On the same day, the Government announced that as of 11 January high schools will be taught online-only for the foreseeable future (Utbildningsdepartementet 2021).

5.3. Analysis

Sweden’s strategy for managing the second COVID-19 wave centred on tightening guidelines and restrictions in light of the scientific evidence on COVID-19. There were no U-turns as of such, although some journalists have accused the PHA of changing the advice on face coverings when they recommended that masks should be worn on public transport during rush hour (AFP 2020). There was a clear and consistent risk management strategy, albeit at times a bit slow through the fall 2020, with politicians trying to play a bigger role in influencing COVID-19 policy compared to the first wave. The biggest criticism one could make of Sweden’s COVID-19 risk management strategy during the second wave was that authorities did not learn enough from the first wave in regard to protecting the nation’s elderly; something that the Swedish Corona Commission also highlighted in its first report (Melin et al. 2020). The Swedish Corona Commission have also highlighted the ‘late and sometimes insufficient’ measures taken by the government to protect the elderly in Sweden (Melin et al. 2020, 7). In an ‘Agenda Special’ on Swedish national television on 17 January discussing the COVID-19 crises, the Christian Democrat politician Erik Slottner, who is in charge of old people care in the city of Stockholm, explained why COVID-19 was spreading so much in the city’s old people homes noting on care home staff:

We had too many on hourly wages, a number had too low of a level of Swedish language knowledge, the levels of education are too poor, and there are too few who are nurses (SVT 2021).

It has also become clear that PPE should have been properly worn by all care home staff in those settings before it was eventually introduced in November 2020 (Claeson and Hanson 2021) and Tegnell admitted in the same TV special that they should have done more COVID-19 testing and contact tracing in care homes (SVT 2021).

The damage, however, was primarily made by the arguably lax handling by the authorities of the COVID-19 first wave (Vogel 2020). As the previous chief epidemiologist, Annika Linde, who has been critical of Tegnell’s approach, noted on 23 December ‘That what is planted in the spring will be harvested in the fall’ (SVT 2020). That is why the second wave has been so steep in Sweden, making Stockholm the hardest-hit capital city in Europe per capita after Madrid and Brussels (Kerpner 2020).
6. Switzerland

6.1. Summer strategy

Switzerland, like Germany, has a federal system, with the 26 cantons having even more autonomy and reduced central control from the Federal Council compared to Germany (Vatter and Stadelmann-Steffen 2013). However, in times of crisis such as the COVID-19 pandemic the Federal Council has been more assertive (Desson, Lambertz, et al. 2020). Switzerland has consistently focused on individual responsibility as a fundamental principle to tackle COVID-19, a value rooted in the national political psyche (Burci and Hasselgard-Rowe 2020).

After successfully reducing the COVID-19 case rate from the first wave, the state of emergency in Switzerland was lifted on 19 June and many activities were allowed once again from 22 June, including events of up to 1,000 people, no midnight curfew for restaurants and bars, a reduction of the physical distance requirement from two metres to 1.5 metres, scrapping the recommendation to work from home and an aim to promote ‘simplified basic rules for all’ (Federal Office of Public Health 2020d).

In July, Patrick Mathys of the Federal Office of Public Health (FOPH) ambiguously described the situation in Switzerland as ‘dangerously stable’ following an increase in cases compared to June with a clear upward trend (Grosjean 2020). By August the daily COVID-19 case rate was between 100 and 300 cases per day, although hospitalisation rates remained very low (Estoppey 2020). The end of August saw several cantons, including Geneva, Vaud, Basel and Zurich, put in place mandatory face covering orders in shops, among other rules that went above and beyond the Federal Council’s recommendations (SRF 2020).

6.2. Autumn and winter strategy

On 14 October, Switzerland recorded 2,823 new COVID-19 cases in one day, up from around 1,500 the week before according to the FOPH (Minet 2020a). The increase of cases in October led the French-speaking national broadcaster RTS to announce that the increase is ‘what looks like a second wave’ (Tombez and Renfer 2020). Following the spike in cases, the Federal Council met for an extraordinary meeting on 18 October and agreed a host of new restrictions starting 19 October. These included mandatory mask wearing in public indoor spaces, the requirement that bars and restaurants can only serve food and drink to sitting customers, and gatherings of more than 15 outdoors were restricted and a recommendation for people to work from home where possible (Federal Office of Public Health 2020a). Further measures were implemented 10 days later, to come into force on 29 October, which included the national closure of nightclubs, a ban on events of over 50 people, and the restriction of in-person teaching at universities and rollout of rapid testing from 2 November (Federal Council 2020). After the measures were introduced Health Minister Alain Berset described this tightening as ‘rules that fit Switzerland’, and that they would work in reducing the rate of infection while maintaining the need for the public to take ‘personal responsibility’ and show ‘common sense’ (Kleck and Briner 2020).

On 4 November, the daily number of COVID-19 cases reached its peak at 9,224 new infections (Probst 2021). From November and mid-December, Switzerland consistently recorded over 600 weekly COVID-19 deaths, far above the peak recorded in the first wave in March and April (Probst 2021). As a result of case rates not reducing from high levels or even increasing in some Cantons, the Federal Council continued to implement new rules every week, including on 4 December which restricted among other things the number of people allowed in shops at any time (Federal Office of Public Health 2020b). On 11 December a curfew of 7pm was put in place for bars, restaurants, shops and other public places, with a special curfew from 1am between 24 and 31 December (Federal Office of Public Health 2020e). On 18 December, despite hospital intensive care units being full and Switzerland having one of the highest rates of COVID-19 infection per capita in Europe, the Federal Council refused to put in place a hard lockdown, instead
opting for the closure of restaurants and bars but not shops and asking the population to stay at home for a month (Federal Office of Public Health 2020c; Mäurer 2020). Despite the implementation of new rules and the optimism on the part of Health Minister Berset, scientists such as Martin Ackermann have criticised the approach of the Federal Council in tackling rising COVID-19 infection rates for not being bold enough (Ackermann 2020; Swiss National COVID-19 Science Task Force 2020c). Defending the lack of a hard lockdown seen elsewhere in Europe, Health Minister Berset argued ‘it is also a question of political feasibility’ (Mäurer 2020).

For Christmas, the Federal Council allowed a relaxation of the private gathering rules, accepting that up to 10 people could meet from a maximum of two other households, and that children will not be excluded from the total number of the group, unlike France and Germany (Hübner 2020). These Christmas rules, alongside those announced on 18 December surprised the public as there had been an expectation of stronger regulations after alarm from the head of the Swiss National COVID-19 Science Task Force (NCS-TF) Martin Ackermann, leading to the flippant headline in an editorial piece in Le Temps ‘Merry Christmas, don’t shake hands too much and everything will be fine’ (Minet 2020b). In this way, individual responsibility remained a fundamental tenet of the Federal Council’s approach (see Le Temps 2020).

On 13 January, the Federal Council extended the length of the restrictions implemented in December until the end of February, and the recommendation to work from home was made compulsory (Federal Office of Public Health 2021). Primary and secondary schools have remained open throughout the autumn and winter, however following the discovery of the Variant of Concern 202012/1 there have been more calls for their closure if cases grow again, including from the President of the Cantonal directors of health Lukas Engelberger (ASCH and ATS 2021). By mid-January, the infection rate had reduced to around 2,500 new COVID-19 cases per day, but have remained quite stable with only a slight decrease (Probst 2021). Daily death rates are also declining, albeit at a slower rate than cases (Probst 2021). Despite the new piecemeal restrictions put in place and the falling infection and death rate, according to the SonntagsBlick compliance had actually been decreasing as of early January, and movement had not changed since November (ATS 2021).

6.3. Analysis

Overall, Switzerland has suffered a much more deadly second COVID-19 wave in the winter than the first wave in spring 2020. There has been much media critique throughout the latter half of 2020 regarding the slow and dithering manner in which the Federal Council has tried to reduce COVID-19 infection rates after quickly trying to reopen after the first wave (De Weck 2020; Sager and Mavrot 2020). This situation became so bad that the NCS-TF have recommended much stricter health policy measures from a macroeconomic view (Swiss National COVID-19 Science Task Force 2021). This has been compounded as the ‘Test-Trace-Isolate-Quarantine’ plan (TTIQ plan) has failed after low availability and high cost of testing (Wagner 2020). Indeed, the new President of the Confederation Guy Parmelin has noted the mistakes made in managing the COVID-19 crisis, stating in an interview to SonntagsBlick, ‘Between July and September, we underestimated the situation’ (ATS 2021). A recent post-mortem in the Neue Zürcher Zeitung highlights that Switzerland was not able to overcome both waves of the COVID-19 pandemic in time, and calls into question the suitability of the Federal Council to act as ‘night watchmen’ in such a situation (Häsler Sansano 2021). Much more decisive policies needed to be implemented ‘as locally and as early as possible’ to reduce the COVID-19 case rate (Swiss National COVID-19 Science Task Force 2020b, 5), as well as to manage people’s expectations in the second wave as recommended by Akesson et al. (2020) and Briscese et al. (2020), which could have helped reinforce public adherence to COVID-19 restrictions. Unfortunately, these have been hamstrung in part by the federal nature of the state that has slowed down the speed at which decisions can be made (De Weck 2020).

Similarly, the weekly updates in central COVID-19 restrictions in December and cantonal inconsistencies have made it difficult to understand exactly what the current rules in any given
location are (see Keystone-SDA/ts 2020; Meyer 2020). Clear communication is needed to ensure the public undertakes the correct measures and to avoid having public disengagement from voluntarily adhering to new protective measures (Cairns, De Andrade, and MacDonald 2013; McCauley, Minsky, and Viswanath 2013; Swiss National COVID-19 Science Task Force 2020a). Worries about infringing on civil liberties placed much of the success of any measure on individual responsibility to maintain compliance and a communication to ‘encourage’ rather than ‘impose’ (Girardet 2020), having been a reasonably successful approach in Spring (see Eckert and Mikosch 2020). However, this has been less successful in the second wave as COVID-19 case rates have spiralled out of control and the TTIQ plan has been ineffective (Wagner 2020; Willi et al. 2020). Additionally, the shift in the lockdown debate from being about health to about the economy has hampered attempts to follow advice from health scientists to reduce COVID-19 case rates and deaths seen in the first wave (Sager and Mavrot 2020). Despite this shift in the political debate, as economic experts of the NCS-TF highlight in a recent report, this binary debate is inappropriate due to the risks of high hospitalisation rates on the health system and the impact of this itself on the economy (Swiss National COVID-19 Science Task Force 2021). Indeed, economic performance has been closely tied to swift and decisive public health measures seeking to eliminate cases of the virus (Sridhar 2020).

The slow approach to addressing COVID-19 infection rates has also led to a division between scientists advising the Swiss authorities and the Federal Council. In early November, after months of building demands for greater national intervention, a schism started to form between scientists that were part of NCS-TF and the Federal Council, with Health Minister Berset frustratedly stating in response to criticism ‘Those who do not hold the responsibility can simply criticise’ (Kleck and Briner 2020). By November, it was widely acknowledged that the scientists and Health Minister Berset blamed each other for the situation in which the country was in (Hehli 2020). In January 2021, the new President of the Swiss Science Council (SSC) and computer scientist Sabine Süssstrunk accused the scientists in the NCS-TF, numbering over 70 at the start of the pandemic, of poor communication techniques and advised that all scientists should undertake media training (Miserez 2021). This adversarial appearance is inadvisable as it can undermine public trust in both the policy makers and their approach, as well as faith in scientists. This is despite each often being among the most trusted actors in Switzerland (Visschers, Keller, and Siegrist 2011), and scientists and experts have been consistently relied upon by policy makers for credibility in policy making in the COVID-19 pandemic (Cairney and Wellstead 2020). The resulting loss in credibility and trust can then impact on support for, and compliance with, public health measures that rely on individual behavioural change to be successful (Udow-Phillips and Lantz 2020). As a case in point, trust in the Swiss authorities has drastically reducing since the first wave, with 37.4% of respondents trusting the Federal Council in October compared to 61.6% in March (Kissling 2020).

7. Analysis and conclusions

7.1. Failure to learn

Overall, of the five nations discussed here, none can be said to have performed well in terms of mitigating the impact of COVID-19 over the autumn and winter of 2020. Several key risk management themes notably emerge from the various case studies, one of the most fundamental being the lack of ‘lessons learned’ from the first wave. Learning from past experience, whether positive or negative, has long been viewed as an important activity to promote improvement in policy making (Wildavsky 1979; Majone 1989; May 1992). Trial and error regulation, as Wildavsky (1988) argues, provides greater safety: this is generally how society has always learned to manage risk better. Despite this widely held view among political and safety scientists, the nations studied here appear not to have learned from past experience. In fact, some administrations
such as the UK government have repeatedly maintained that ‘now is not the time’ for critical assessments of the effectiveness of national pandemic response strategies, which should rather only take place after the crisis has subsided (Wardman 2020). Yet clearly more can, and should, be done by all the nations assessed here to systematically evaluate the effectiveness of past responses in order to develop more successful strategies to adaptively reduce spread, infection, hospitalisation and mortality as a result of COVID-19.

Looking across the cases above, a number of critical observations stand out about how respective nations have handled the latest phases of the COVID-19 crisis. Sweden notably continues to have high case rates in care homes (Reuters 2020a). Both Sweden and England (as part of the UK) have struggled with poor ‘test and trace’ systems (Folkhälsomyndigheten Sverige 2020c; Syal 2020) with the UK system in particular being described by its own scientific expert advisory group SAGE as having a negligible impact on reducing cases of COVID-19 despite costing £22 billion (Booth 2020; Donnelly 2020). The UK government has also not been able to keep rules and regulations simple and consistent (Syal 2021). In a similar vein to the UK, the rise in cases following from Switzerland’s fast reopening after the first wave equally did not lead to faster, more decisive restrictions in the winter (De Weck 2020; Sager and Mavrot 2020).

7.2. Deteriorating science and policy relations

The broad deterioration in the relationship between scientific expertise and policy makers also makes for a worrisome development when, in the words of Collins, Florin, and Renn (2020, 1079), we should instead try to ‘strengthen the science-policy nexus’. As seen in the UK and Switzerland, an initial desire to ‘follow the science’ gradually unravelled as evidence has conflicted with the public policy positions adopted (Stevens 2020; Wong Sak Hoi 2020; Miserez 2021). This issue has also come to the fore in Sweden, where epidemiological experts advising the government clashed with medical experts, and now a formalised group called Vetenskapsforum COVID-19 or ‘Science Forum COVID-19’ has emerged (Vogel 2020).

The reality is that scientific evidence on COVID-19 has frequently shifted, and great uncertainties are a continual feature of the crisis. A robust public health discourse within the scientific community also inevitably contains widely varying interpretations and contrary views even about the same factual information, which can also feed into public ambiguity about the best way to proceed (Wardman and Lofstedt 2020). This has led to Abbasi (2020, 1) stating in November 2020 that, ‘claim[ing] to follow the science’ is a ‘misleading oversimplification. Science is rarely absolute’, and actually at times ‘it doesn’t make sense to slavishly follow science or evidence’ over openness about being only informed by science. Risk management itself is usually not based purely on the scientific evidence at hand, but involves some ‘value-based’ judgments (Hansson and Aven 2014), and so by its nature cannot be reduced to simply ‘following the science’ (Abbasi 2020). Clearly communicating that pandemic strategies will be informed and supported by health science and independent expert advice in correspondence with other policy considerations seems a better tack than continuously claiming to follow the science whilst plainly doing otherwise. Part of this equation also involves taking account of competing perspectives, as well as ‘risk-risk’ trade-offs and the countervailing impacts of decisions in addition to the direct health consequences of COVID-19 affecting populations, both now and in the future (see Graham and Wiener 1995; Collins, Florin, and Renn 2020; Stevens 2020; Wardman and Lofstedt 2020).

A parallel concern, however, is to ensure that science remains free from political influence. This view reflects a long-standing position of the UK and European Union that protecting the independence of scientific advisory bodies along with their reputations is key to the credibility of risk related policy-decisions (R. E. Lofstedt and Vogel 2001; Stevens 2020; Van Dooren and Noordegraaf 2020). In the event, the politicisation of science for political gain, or the perceived deviation from either the recommendations of scientists or objective decision-making processes, can undermine a public sense
of the competence and legitimacy of decision-makers thereby harming trust (Renn and Levine 1991; Baxter 2021). This can be observed in a large reduction in trust in the government’s response to COVID-19 in the UK (Sky News 2020b), and in Switzerland before the introduction of stricter measures (SwissInfo 2020). Similarly, Sweden also saw a deep reduction of public trust during the second wave in which 50% had confidence in the Public Health Agency, and 30% trusted in the government approach by mid-January 2021 (Novus 2021). This is significantly down from public trust during the first wave in 31 March, at which point 75% of respondents had trust in the PHA and 64% confidence in the government (Novus 2021).

In all five nations discussed in this paper, the division between scientific advice and policy has often been most obvious when discussing the speed and responsiveness of officials to changes in the COVID-19 situation. Health scientists have often advocated for faster, tougher measures long before they are implemented (BBC News 2020c; Leopoldina 2020b; Swiss National COVID-19 Science Task Force 2020a; Conseil scientifique COVID-19 2020; Vogel 2020). This slowness to react, in the eyes of many public health experts, has likely resulted in a higher rate of excess deaths (Independent SAGE 2020). Conversely, proactive measures aimed at ‘elimination’ of COVID-19 as seen in New Zealand and China have meant that these economies are returning to pre-COVID-19 levels much sooner than European nations who applied ‘mitigation’ strategies, fearing drastic negative impacts on their economies (Baker, Wilson, and Blakely 2020, 1). After suffering a 6.1% drop in real GDP in 2020, the IMF (2020) predict that the New Zealand economy will increase by 4.4% in 2021. Indeed, Wardman (2020, 1112) argues that COVID-19 risk management requires ‘responsiveness and adaptiveness’ when making decisions in the face of uncertainty. Putting a focus on research, gaining data and information to make decisions, and learning from past experience to allow for prompt and well-timed policies is therefore vital to this process (Wardman 2020). Additionally, taking a lead from other nations’ relative successes, future non-pharmaceutical interventions should aim for proactive ‘elimination’ of the virus rather than simple mitigation strategies as described by Baker, Wilson, and Blakely (2020). This becomes especially pressing following the need to restrict the emergence of new virulent strains of COVID-19 that could prove resistant to pharmaceutical interventions.

### 7.3. Individualising or collectivising the risk of COVID-19

In Sweden and Switzerland especially, there has been a strong focus on individual responsibility, whereas Germany and France have relied much more on putting in place legal requirements to reduce the spread of COVID-19. This has been very much in line with the kind of measures that were observed during the first wave of the pandemic in spring 2020 (Kuhlmann et al. 2021). After flirting with the idea of a ‘herd immunity’ approach, the recent shift in Sweden away from a liberal COVID-19 restriction regime to hard enforceable legislation highlights the risks of this method in this context: individual responsibility can only go so far in reducing transmission of COVID-19 (Nikel 2021). In Sweden and the UK especially, a factor that further exacerbates this issue is the practical inability of people to take protective measures, either due to the prevalence of zero-hours contracts that the Swedish Corona Commission has recommended reducing reliance on (Melin et al. 2020), or in the UK where the low statutory sick pay rate has reduced the ability to adequately self-isolate while also receiving a feasible income on which to do so (Atchison et al. 2020; Reicher and Stott 2020). Of course, there are unique national characteristics that mean more or less state intervention is appropriate, and in cases such as in Switzerland, more is more in terms of legally-binding requirements or lockdowns to reduce transmission (Davies et al. 2020). This is seen most clearly in the reduction in case rates per 100,000 people at the beginning of 2021 following tougher rules in all five nations discussed here in November and December, although case rates and deaths remain high, especially in Sweden and the UK (The Economist 2021).
8. Recommendations

Based on the analysis above and the findings from the national case studies, the following recommendations are put forward:

1. More involvement of decision scientists and risk analysts in COVID-19 decision making, who have largely been absent thus far, is needed;
2. The epidemiological science should be followed where possible, but when value judgments are made this should be clearly and transparently communicated;
3. Proactive measures avoiding policy delay is key to reducing the rate of infection and excess deaths;
4. Governments must avoid confusing or inconsistent regional implementation and communication of interventions;
5. For those nations where public trust has weakened over the course of the COVID-19 pandemic, rebuilding public trust is key to promoting public compliance and support in government and public health agencies’ approaches to tackling COVID-19;
6. Overreliance on individual responsibility as a non-pharmaceutical intervention to tackle COVID-19 should be avoided. It is one tool in the COVID-19 risk management toolbox but should not be the only one;
7. Ensure public compliance with COVID-19 restrictions through pre-tested and simple messages;
8. Clear and consistent engagement with local leaders and other officials should be taken as quickly as possible to ensure public compliance and nationwide policy consistency.

Of course, these recommendations are highly dependent upon the national context, which is reflective of factors such as socio-political values, the strength of the national economy, and public health, so should be adapted accordingly.

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