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Covid-19: Back to School, Rebuilding a Better Future for All Children

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Executive Summary

This paper provides a summary of the key academic papers for the following areas: learning loss and academic attainment; EdTech interventions and home schooling; physical activity, food insecurity and obesity; and mental health and wellbeing. For each area, the findings from peer-reviewed academic papers are summarised and discussed in terms of relevance to the current Covid-19 pandemic. The latter half of the paper provides, for each area, a range of research informed short-, mid- and long-term school based strategies, policies and interventions to advise the UK government for pupils returning to school. The early adoption of these proposals will support teachers, parents and children and provide positive messaging to pupils and hence, increase public confidence.

Finally, the authors appeal to the concept of human capital, and discuss how schools provide an excellent platform to narrow mid-to-long term health and educational inequalities. The suggestions in this paper converge with action at the international level; with many key agencies (UNESCO, UNICEF, World Bank and World Food Programme) making the case for the key role of school food in supporting the back to school movement.

Covid-19 and School 'Closures'

On March 12th the WHO declared the Covid-19 outbreak to be a pandemic. On March 18th 2020, the UN Educational, Scientific and Cultural Organisation established that 107 countries had implemented national school closures affecting 862 million children and adolescents. On Friday 20th March 2020, schools across the UK closed their doors to all but the most vulnerable pupils and children of key

workers, with no planned date for re-opening on the horizon and speculation that schools may be closed for up to six months. A recent UN report states that 190 countries have now implemented school closures affecting 1.5 billion children and young people, with nearly 310 million children missing out on school (United Nations, 2020). Whilst schools are closed, we acknowledge that in the UK, as for many countries, not all school gates are closed and many schools' doors are open for vulnerable children and the children of key workers. Second, we acknowledge that teachers are working hard to support children in their learning and welfare during the current Covid-19 pandemic, and staff are busy planning for the re-opening of schools.

The Department for Education (DfE) have developed a monitoring process on school attendance. The most recent data, as of 17th April, suggests that around 15,100 establishments (61%) were open, with an approximate attendance of 84,000 children (0.9% of pupils who normally attend). Of those children in attendance, 24,000 were classed by schools as vulnerable. The DfE estimates that this represents around 5% of all children and young people classified as 'Children in Need' or who have an Education, Health and Care Plan.¹ While, 62,000 of the children in attendance on Friday 17 April were classed by schools as children of critical workers; representing around 2% of all children of critical workers. These children were cared for by 59,000 teaching staff and 43,000 non-teaching staff. In terms of the Early Years survey, the data suggest that on 16th April 65,000 children attended a childcare setting; approximately 4% of the number of children who usually attend childcare in term time.

The aim of the current paper is not to debate the underlying public health evidence pertaining to the need for school closures; rather the aim of this paper is to focus on some of the consequences of school closures and the important role that schools and all school staff will play post Covid-19 taking into account rules regarding social/physical distancing.

Disadvantaged Pupils

An excellent report by the Children's Commissioner for England (April 2020) provides a clear definition of how the government classifies a pupil as being disadvantaged; "A pupil is classed as disadvantaged by the Government if they have been eligible for free school meals within the five years before sitting GCSE exams or if they have been in care or adopted from care". Data shows that, in 2019, 26.5% of pupils in state funded schools were disadvantaged. Of course, eligibility for free schools is a proxy measure for vulnerability, and does not include the growing number of

families living just above the eligibility threshold; young carers; those families with No Recourse to Public Funds, the estimated 140,000 children in receipt of Universal Free School Meals but who were eligible to claim means tested free school meals (APPG Inquiry into Hunger, 2014), or the significant number of recent claimants for universal credit that have dependent school-aged children.

Educational Learning Loss: Will School Closures due to Covid-19 increase Educational Inequalities?

When schools re-open, it is fair to speculate that many parents and carers will have a new-found appreciation for their children's teachers and the amount of planning and preparation that goes in to each and every school day. But what about children's learning? Will children experience learning loss or stagnation? Will learning loss be the same for all children? Will all countries be equally affected?

Lessons from history:

To consider the above points we will draw on prior research studies that have explored the impact of school closures and summer holidays on educational attainment. Although we recognise that there are differences between such events, the research findings should help to inform governments about potential consequences of the current situation, and for them to plan accordingly. In a recent article von Hippel (2020) cites various historical examples of school closures, including teacher strikes in New York City public schools which resulted in school closing for over two months in 1968 and the closure of French Belgian schools for over two months in 1990 (Belot & Webbink, 2010).

However, schools have also been required to close as a result of natural disasters including hurricanes, and plagues of locusts (Esnard, Lai, Wyczallkowski, et al., 2017, von Hippel, 2020). Typically, long term school closures have a negative impact on children's learning and educational attainment. To illustrate, the closures of New York City schools in 1968 resulted in children's maths scores being, on average, two months lower than the previous year. Likewise, French-speaking pupils affected by the teachers strike in Belgium in 1990 did not advance as far in school as similar Dutch-speaking pupils whose teachers did not strike (von Hippel, 2020).

Summer Holiday Learning Loss:

Another area of relevant area of research is the impact of the school summer holiday period on pupils learning. Research shows that during the school summer holidays, all children are at risk of "summer learning loss", or at least stagnation in learning. Learning loss has been defined as the tendency for children to lose skills and knowledge across the summer holidays, particularly in maths

and reading. In the US, recent summer learning studies have produced inconsistent results, with some suggesting that students lose 2-3 months of skills each summer, while other studies suggest that students lose next to nothing, on average (von Hippel, 2019; von Hippel & Hamrock, 2018; von Hippel, Workman & Downey, 2018; Workman & Merry, 2018). Results for the gaps between advantaged and disadvantaged students are also inconsistent, with some results suggesting that gaps grow during summer, but other results suggesting that gaps hold steady or even shrink average (von Hippel, 2019; von Hippel & Hamrock, 2018; von Hippel, Workman & Downey, 2018).

A recent study used summer learning findings to try and predict the achievement effects of pandemic-induced school closures (Kuhfeld & Tarawasa, 2020). It considered two scenarios. One was a “COVID slowdown,” perhaps better named a “COVID stall,” in which students neither gained nor lost skills during the closure, returning to school in September with approximately the skills they had when schools closed in March. A more pessimistic scenario, the “COVID slide,” involved students learning skills almost as quickly as they gained skills during the school year, returning to school in September with approximately the skills they had in December—effectively losing an entire semester. A more optimistic scenario, not considered in projections inspired by summer learning research, is that children will gain skills thanks to home schooling and distance learning—which we discuss in the next section.

In Europe loss of skills during summer has been observed in some studies, but not all. For example, Paechter, Luttenberger, Macher, et al., (2015) found that children lost skills in maths and spelling following the nine week school summer holiday, but gained skills in reading. However, children’s skills and knowledge in each domain improved following nine weeks of teaching in the Autumn term. Other European studies have similarly found that children are susceptible to losing skills and knowledge in spelling and mathematics but may gain or stall in reading skills (Lindahl, 2001, Meyer, Meissel, & Mc Naughton, 2015). However, only two studies have investigated whether summer learning loss occurs in UK children. Research conducted by Shinwell & Defeyter (2017) and Shinwell & Defeyter (2020) (under review) suggest that children who live in and attend schools in areas of high deprivation in the UK found that at best, children’s learning stagnates over the summer. In their first study, Shinwell & Defeyter (2017) found that children’s performance in a spelling declined following a seven week school summer break. However, after seven weeks of teaching, children’s performance improved, exceeding levels achieved at the end of the previous academic year. No significant changes occurred in children’s reading scores, leading the authors to conclude that learning stagnated in reading across the summer. In their second study Shinwell & Defeyter (2020) (under review) further found that following a six-week summer break, children’s learning in maths computation stagnated

EdTech Interventions:

Globally, teachers and school staff have been making herculean efforts to bridge the gap between home and schools. From Albania to Zambia, Governments, schools and teachers across the globe have attempted to mitigate the effects of school closures by ensuring that learning materials are provided to pupils through a variety of mediums, including email, websites, videoconferencing software, and television (United Nations, 2020a). However, schools have had to respond to the UK government's announcement of the closure of school buildings and implement programmes of distant learning within a short period of time and thus quality of these programmes will vary between institutions. Furthermore, different schools will have access to different resources and /technology to implement this type of learning (i.e. independent schools vs multi academy trusts vs village school operated by LA) and thus, there will be differences in type and quality of learning set by schools during this lockdown period.

In addition to learning set by schools, social media sites are awash with stories of home-schooling by parents, many of whom are also trying to work at home and take care of family members. For example, in the UK, maths celebrity Carol Vorderman is providing daily maths lessons (Vorderman, 2020) and author and actor David Walliams is providing a free story at 11.00 am each day (Walliams, 2020). In a previously un-seen step, the Department for Education in England has partnered with the BBC and other partners to provide parents with free access to a range of additional home learning packages including Bitesize Daily offering daily broadcasts of 20 minute lessons to support, but not replace, school based on-line learning materials; with additional resources available through the Bitesize website and app (Department for Education, 2020). Likewise, the National Oak Academy is providing 180 filmed video lessons a week across a broad range of subjects for every year group from Reception through to Year 10. Similarly, celebrities (e.g. Joe Wicks) and athletes (e.g. Jason Brown, Oktawiva Nowacka) have been sharing their home-workouts to encourage children and young people to keep fit during lockdown (Olympic Channel, 2020). However well-intentioned, a number of social media sites promote educational and physical activity programmes that are not subjected to any professional quality assurance procedures. We suggest that the DfE and PHE may wish to consider a kite mark, so the general public can have a greater awareness and understanding of what is being offered.

Most schools have put lessons and learning materials online but this is no guarantee that pupils are going to actively engage in these educational resources. A fundamental requirement for EdTech interventions to work efficiently is for pupils to have good access to the internet. However, internet

access is not available to all. In the UK, an estimated 60,000 children lack any internet connectivity at home, while 700,000 are in homes lacking a laptop, desktop or tablet (Children's Commission, 2020). Recent research from the Sutton Trust shows that by the start of April 2020, only 34% of pupils had taken part in live or recorded online lessons, and that pupils from middle class homes are much more likely to have taken part (30% doing so at least once a day compared to 16% of working class pupils). At private schools, 51% of primary and 57% of secondary students have accessed online lessons every day, more than twice as likely as their counterparts in state schools (Montague, 2020).

In order to support internet access for disadvantaged children the Department for Education recently announced that disadvantaged children in year 10, children who have left care and children aged 0-19 who have a social worker will be given laptops and tablets to support their learning, and where needed, 4G hubs would also be installed in the homes of disadvantaged children in year 10, children who have left care, and children aged 11-19 who have social worker, enabling them and their parents/carers to access the myriad of online resources (Department for Education, 2020). However, the quick roll out of these schemes had proved problematic for some schools and local authorities. We propose that the government needs to ensure equity of internet access for all pupils. However, the government's and schools' investment in online learning materials and internet access may be beneficial in the post Covid-19 era in terms of supporting children and young people to recoup potential learning loss through directed study outside of school.

While EdTech solutions may lend themselves to the teaching of formal education, the online learning experience is a very different experience to that of classroom learning involving group learning, discussion and interactions with their teacher and peers. It is also hard to envisage how such solutions may be utilised to support nursery/kindergarten children in the acquisition of social skills or the development of gross and fine motor skills. Although some of the DfE-funded online educational materials have been specifically developed for the early years. Finally, it is unclear as to how much provision is targeted towards SEND pupils, who experience specific, individual learning challenges (von Hippel, 2020).

Home Schooling:

Of course, the current situation of school closures is not the same as planned closures over school holiday periods. At present, children and young children are not engaging in school holiday clubs, organised sports events, cultural activities, going away on holiday, visiting friends etc., and many parents, with the exception of key workers, have taken on the role of home educators at a time

when families are under immense additional pressures. Globally there has been a rise in demand for private online tutors. For example, the private tuition market in the US is expected to grow by US\$7.37bn by 2023 (The Financial Times, 2020); a further demonstration of the increasing divide between the richest and poorest in society.

Differences in parents' educational capital, cultures, values, perceived need, levels of motivation and material factors such as space within the home, are also likely to have a significant effect, at the individual level, on the effectiveness of home schooling. In addition, many parents are having to juggle working at home commitments, and/or taking care of additional family members, alongside parenting and home schooling responsibilities. Also some pupils will be more motivated to engage in home schooling than others. Speculatively, these factors suggest that the level of provision and pupil engagement in home schooling is likely to be highly variable and there is a high probability that the poorest children will be most disadvantaged. However, there are international examples of countries that have implemented effective home schooling systems. For example, the emergency home schooling system in China has been rigorously implemented as children become vulnerable to environmental risks and as productivity is said to be deeply rooted in early years (Wang et al, 2020). Whilst it must be acknowledged that there are cultural differences between countries, the efficacy of different approaches on outcome measures needs to be carefully considered.

Physical Activity, Food Insecurity, Diet and Obesity

Physical Activity:

Not much is known about the level of children's engagement in physical activity during Covid-19. Firstly, it depends on the severity and duration of the lockdown. In some countries, children are allowed out for up to 60 minutes of physical activity outside of the home environment, providing individuals are compliant with social distancing rules. In other countries or regions, the lockdown has been more severe, with some people not being permitted to leave their residences. However, we suggest that lessons can be learnt from periods of time when children are not in school.

Extensive evidence confirms the multifaceted benefits of childhood physical activity (PA) (Bailey et al., 2009). These benefits and harms arise from the established mechanisms of chronic and acute adaptation. PA plays a powerful adaptive role in six important areas of human development; physical, emotional, individual, social, intellectual and financial. While it is well established that PA

improves physical function across the lifecycle (Dobbins et al., 2017; Kriemler et al., 2011), it is increasingly seen as helping prevent many diseases originating in childhood (Andersen et al., 2006).

Healthy children attend school more regularly. Furthermore, physically-active children do better in school regardless of where they engage in PA (Donnelly et al., 2016). More specifically, physical activity during the school day benefits cognition and academic performance (Best, 2010); potentially by capitalising on repeated acute responses. A recent meta-analysis found that higher levels of PA within the school day were associated with improved classroom behaviour, math performance, reading and overall composite scores of school performance (Alvares-Bueno et al., 2017).

Importantly, the loss of cognitive advances, especially in children from low socioeconomic status backgrounds, attributed to prolonged summer breaks from school, may be as much associated with loss of rich PA experiences as lost exposure to classroom learning (Hall et al., 2017.) COVID lockdown - March 2020 has significantly reduced the amount and variety of PA in which children can engage. Given the need for repeated acute exposure to PA, we should anticipate that many children will be experiencing levels of deconditioning in their skill- and health-related fitness never seen in our post-war schools.

Research evidence conducted during the school holidays suggests that when schools are no longer a factor in children's lives, the spheres of influence for children are their home environments, communities and neighbourhoods. Studies investigating children's physical activity levels have identified that children take part in less physical activity and more sedentary activity (especially television) on weekends and during summer holidays (Brazendale et al. 2018; Domone, Mann, et al. 2016). This was especially true for children of lower socioeconomic status (Gershenson, 2013). Perhaps for those reasons, obesity prevalence among school-age children in the US tends to increase when schools break for summer (Moreno et al., 2013; von Hippel et al., 2007; von Hippel & Workman 2016). An unpublished analysis projects that, if young schoolchildren behave during school closures as they do during summer holidays, their obesity prevalence among young schoolchildren will increase 4 percentage points by September (Workman, 2020). Nevertheless, children participating in structured activities and programmes during the holidays i.e. holiday clubs are more likely to be more active and spend less time engaged in sedentary activities compared to children who do not participate in these structured programmes (Tovar et al 2010).

Of course, we are not living in normal times and it is hard to determine if exactly how data collected during the schools holidays contribute to our understanding of the current context, as there may be

inter-group differences based on household income, type of accommodation, employment status, accessibility to gardens and green space and so forth.

Food Insecurity:

In addition to health concerns over children's potential lack of engagement in physical activities, there has been widespread publicity on the potential negative effects on children's dietary intake. Initially, in the UK, widespread panic due to the Covid-19 lockdown resulted in panic buying and many people experienced difficulties in accessing basic foods. Research has shown that there has been a significant increase in individuals claiming welfare assistance and many low-income families, or those shielding or clinically self-isolating have experienced difficulties in accessing food. The government has heavily relied on the community sector to supplement people's dietary intake. Many food banks have experienced difficulties in coping with the additional volumes but are nonetheless staying open to support those in need (Booth, 2020; Sustain, 2020; The Trussell Trust, 2020).

The United Nations Food and Agriculture Organization (FAO) has stated that "food security" is achieved "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for active and healthy lifestyles (FAO 2015)." Conversely, individuals and households face "food insecurity" when they have restricted access to nutritious and culturally appropriate food (Pinstrup-Andersen 2009). Recent estimates suggest that roughly 10% of UK citizens live in food insecurity (Food Foundation 2016). Food insecurity disproportionately affects already marginalised populations such as low-income individuals, people of colour, women and children. Children from low-income families often benefit from Free School Meals (FSM) during term-time. Over one million UK pupils currently receive means tested FSM and estimates suggest that another two million pupils also live in poverty but are not eligible for FSM (Forsey, 2017). Clearly, there is substantial need for food-insecure children and households to have access to school feeding programs when schools re-open after the pandemic. When schools reopen it is likely that there will be additional low-income children that were not previously part of the FSM programme since many parents have been furloughed or have become unemployed as a direct result of Covid-19. The extent of this economic hardship is likely to have immediate impact on schools that may find themselves in the position of providing meals to hungry children while families wait for universal credit.

The impact of food insecurity for those additional Covid-19 children could provide a significant challenge to schools. Children face numerous social, physical and mental problems when faced with

food insecurity. For instance, research has linked food insecurity with declines in social skills and increases in aggressive behaviours in children (Golley et al. 2010; Howard 2011; Kleinman et al. 1998). Food insecure children fall behind in school more often than food secure children (Jyoti, Frongillo and Jones 2005). Importantly, given the likely impact of Covid-19 on learning loss, there is the potential that food insecurity will intensify this problem for those children who are facing food insecurity but are not yet eligible for FSM. Scholars have also repeatedly shown that children's physical and mental health are negatively impacted by food insecurity. For example, childhood food insecurity is associated with dental problems (Chi et al., 2014) headaches (Alaimo, Olson and Frongillo, 2001), stomach aches (Alaimo et al. 2001), anemia (Eicher-Miller, et al. 2009), asthma (Kirkpatrick, McIntyre and Potestio 2010), anxiety (Melchoir et al. 2012; McIntyre et al., 2013), long-term developmental, psychological, physical and emotional harm (Dunn et al., 2020) and depression (Melchoir et al., 2012; McIntyre et al., 2013), among many others.

Obesity:

Food takes up a much higher proportion of the available budget in more deprived households (Barton, Chambers, et al., 2018) potentially limiting the likelihood for more ideal food choices to be made (Scott, Sutherland and Taylor, 2018). Further, skipping meals is a commonly-reported strategy for dealing with food insecurity (End Hunger UK, 2018), which may negatively affect metabolic health, further contributing to the obesity problem. Randomized controlled trials demonstrate that meal regularity (compared with irregular eating patterns) leads to an increased total energy expenditure: changes which should improve weight management and metabolic health (Farshchi, Taylor & Macdonald, 2004; Alhussain, Macdonald & Taylor, 2016). The health effects of irregular eating can carry from childhood to adulthood. For example, having poor breakfast habits, including skipping breakfast, as an adolescent has been found to be associated with greater central obesity and higher fasting blood glucose levels in adulthood (Wennberg et al., 2014).

Using data from the Millennium Cohort Study, Goisis, Sacker & Kelly (2016) examined longitudinal data of children aged 5 years and 11 years (N=9,384). Their findings illustrate that the prevalence of obesity is considerably higher amongst poorer children than their more affluent peers. While there was no evidence of an association between household income and weight of the child at age 5 years, there were emerging inequalities by age 11 years, and a poor diet and lack of physical activity are contributing risk factors. Moreover, high levels of obesity in children are associated with poorer health outcomes in adulthood; obesity and being overweight are linked to a wide range of diseases including diabetes, asthma, hypertension, cancer, heart disease and stroke (Marmot, 2010; Marmot, 2020; Public Health England, 2015)

School Meals:

In England during term time all children in reception and years 1 and 2 (years P1 to P3 in Scotland) in state funded schools in England and Scotland are provided with a free school meal through the Universal Infant Free School Meals initiative (UIFSM) (NHS Scotland, 2016). However, there is no universal free school meal provision in Wales and Northern Ireland. For those children who are older than 7 years of age, FSM are a means-tested entitlement. Only families earning less than £7,400 per year (net income and before benefits are taken into account) are eligible to receive this entitlement. This threshold is £14,000 in Northern Ireland. Primary school children who pay for school meals typically pay £2.20 - £2.30 per day, and on average for parents who pay for school meals the cost is approximately £437 per child per annum; although cost varies between schools (Hacking, 2018). In Northern Ireland the price for school meals are set at £2.60 for primary school children and £2.80 for post-primary children. In England, the amount of money that secondary children receive seems to vary between £1.90 and £2.30 (The Food Foundation, 2019).

Research, conducted in England, has demonstrated significant differences in the nutritional quality of food consumed by children eating school meals compared to packed lunches from home, meal omission and off-campus options. For example, a study by Evans, Mandl et al (2016) demonstrates the nutritional and dietary differences by lunch type of children aged six to eight years, (N=2,709). The results of this study showed that children eating school meals are more likely to consume more protein, fibre, zinc and a larger variety of vegetables compared to children eating packed lunch who are more likely to consume snacks and sweetened drinks (Evans et al., 2016). Indeed, a recent, repeated cross-sectional survey of the quality of home-brought packed lunches identified that packed lunches remain low quality with only 1.6% meeting school food standards, with potential negative impacts in terms of health outcomes (Evans, Melia, Rippon et al., 2020).

It is estimated the lunch intake alone provides approximately 30% of total energy intake in children (Almoosawi, Cribb et al., 2016). For individuals who might have otherwise consumed breakfast, lunch and possibly snacks at school, over half of their weekday dietary intake will now occur at home. The example of divergence between home-prepared foods and school foods presented above may further be exacerbated by limitations in food access and economic restrictions that families might currently be facing (Naja & Hamadeh, 2020). The children most likely to be hit by dietary shortfalls are likely to be the ones who were receiving the most dietary support through school-based programs and children whose parents have recently claimed for universal credit. The existing School Food Standards target supporting a dietary habit that is closer to the notional ideals

of the public health recommendations (Adamson, Spence, Reed et al., 2013). There are no data to support a dietary ideal to limit risk of infectious disease but it seems prudent to follow the healthy dietary template outlined by food-based dietary guidelines (Musccogiuri, Barrea, et al., 2020). In the UK, these are represented by the Eatwell Plate and Guide (Public Health England & NHS, 2016).

The displacement of school foods of assured quality with options likely to be of lower overall nutritional value has the potential to negatively impact current dietary habit and possibly future disease risk. School closures for all children, apart from the children of key workers, has required the government to provide alternative arrangements for children. For schools unable to provide a catering service to provide meals or food parcels, schools were advised to offer families of pupils eligible for benefits-related free school meals alternative provision. The DfE developed a national scheme to provide supermarket vouchers to the adult with caring responsibilities for said child via an online portal, with the costs being covered by central government. The financial value of vouchers was set at £15 per week for every child eligible for benefits-related free school meals, not currently attending school. However, a large number of schools and parents have experienced a host of issues in accessing vouchers, being limited to certain supermarkets, and the length of time taken to receive vouchers. Although schools that logged into the online system early during the rollout have reported more positive experiences. While there remain a number of issues with the online system, such as the number of supermarkets that will accept vouchers, one positive aspect that has received little to no attention is that the system provides schools the ability to monitor when families have received and redeemed vouchers. A number of schools are using this information in their weekly 'ring round' telephone calls to parents. For schools offering packed lunches or food parcels there has been considerable variation in the quality and quantity of the food offer. Currently, the government has no plans to provide either of these schemes across the school summer holiday.

Mental Health & Wellbeing:

Likewise, many pupils will be suffering from a range of mental health and wellbeing issues during the pandemic, which will endure long after. The UK was already in the midst of a mental ill health crisis before the pandemic, with one in eight (12.8%) 5 to 19 year olds having at least one mental disorder yet only 30% of them receiving the care they need (NHS England 2018). In particular, it seems likely that the pandemic will widen the gap in mental health inequalities, for example in homes where adverse childhood experiences are more frequent, such as parent mental ill health and domestic violence (Refuge 2020), in homes that rely on schools for mental health support (Lee, 2020), and in homes that are food insecure and depend on schools to supplement children's dietary intake (Vam

Lancker & Parolin, 2020). Early research shows 42% of parents report that their child's education is a main source of stress (Waite & Creswell 2020). Over half of children and young people are completing more than 2 hours of schoolwork per day, and around two thirds (69.1%) of parents of children and just over half (59%) of parents of adolescents reported that they were able to support their children around schoolwork (Waite & Creswell 2020). It is thus probable, in light of the pandemic, that the picture of mental health need will change, and severity of cases will be most likely be observed in young people who were already suffering and/or those who have vulnerabilities, as described above in this paper.

The current picture in mental health services is that some NHS workers, for example mental health nurses, are being redeployed and retrained to directly address the pandemic or respond to mental health crises (NHS England & NHS Improvement 2020). This is causing some mental health services to close or drastically reduce their offer, for example, only seeing critical cases and only seeing these cases online in order to follow social distancing, which is occurring alongside the increase in safe discharge rates of inpatients. Thus, we are likely to observe a spike in need from the moderate to severe but non-critical cases. A major gap in provision pre-pandemic was observed for children experiencing mild to moderate mental health issues, who were ineligible for treatment from mental health services, and without access to support from schools, we are also likely to see a rise in need here, especially among the most vulnerable who could tip into crisis for example through suicide, self-harm and neglect.

Most mental health charities and statutory organisations provide pandemic-specific, self-care resources, for example by the YoungMinds national charity and Public Health England, however these are highly limited in their reach and evidence base. With government aid, local children and young people's mental health multi-agency partnerships will need to continue to think creatively as to how to meet the change in and potential rise in mental health need under conditions of low resource, an area in which they are highly experienced and skilled. Pre-pandemic innovations, such as the Recovery Colleges, which offer online therapeutic courses, should be considered in the response, especially for those on waiting lists. The national Trailblazers in schools, being piloted by NHS England with a purpose to reduce waiting times to mental health services, currently has newly-trained Education Mental Health Practitioners based in schools in approximately 25 Clinical Commissioning Groups across England, and another 57 to commence in 2021 (NHS England 2020). Learning from how these clinicians, who facilitate whole school approaches with parents, staff and pupils, should be mobilised and spread across the UK. However, expectations should be managed in

how quickly schools will be able to return to “normal” and deliver curricula; pre-pandemic, there already existed a high level of emotional support children were not receiving in school that affected their learning, which will only increase now. Expectations around attendance should also be moderated, given adverse childhood experiences have been observed to increase school absenteeism without concerted measures to meet the needs of these maltreated young people (Bellis et al 2018).

Pupils Returning to School

This paper discusses peer-reviewed academic papers that show the closure of schools, due to Covid-19, will have significant impacts upon education, health and wellbeing. In addition, the academic evidence strongly suggests that pre-existing health and educational inequalities will widen significantly, with the most disadvantaged in our society being hit the hardest. The data on virus prevalence and transmission, and data on whether children can transmit the virus are incomplete. Hence the UK government faces a number of challenges in reopening schools and how the reopening of schools may impact on wider societal and economic factors. Specifically in relation to the reopening of schools, the government needs to consider physical, cognitive, educational and behavioural outcomes. The UK government has already started to engage with the relevant key stakeholders but it is also important that the government gathers the views of parents and pupils and carefully considers these views alongside the scientific evidence presented in this paper.

A useful framework for the reopening of schools has just been published by the UN, Unicef, the World Bank, and the World Food Programme (United Nations, 2020). This framework includes six key dimensions that governments should consider in the reopening of schools: Policy, financing, safe operations, learning, reaching the most disadvantaged, wellbeing and protection. The paper also includes example questions that may be incorporated into a rapid key stakeholder review survey. Such a survey would be useful to inform planning and inform the UK government about potential pupil uptake.

In the short-term, if the government adopts a phased return to school, there are a number of options available. After careful consideration, we favour an initial arrangement where specific year groups, disadvantaged and vulnerable children only return to school. This will support specific year groups currently studying for examinations, and target disadvantaged and vulnerable children in order to reduce future health and educational burdens and inequalities. It is projected that schools will only be able to accommodate approximately 30% of their full pupil cohort, although we acknowledge there will be considerably variability between schools depending on classroom

reconfiguration and the number of teaching staff, such a scheme will provide the government with essential data while minimising risk. Head teachers will also need to consider school hygiene, and potentially rotating school staff on a weekly basis, to ensure appropriate levels of staff coverage in case of Covid-19 infection. A robust monitoring system, recording data from multiple outcomes will need to be put in place prior to any schools reopening, while minimising the additional demand on school staff.

In the following sections we provide some focussed suggestions to mitigate the impact of Covid-19 on educational attainment, physical activity, diet and mental health and wellbeing once schools start to reopen. We have based our short-term suggestions on the most likely scenario of the UK government adopting a phased return to school with staff and pupils being required to conform to social distancing rules.

Mitigating learning loss:

In terms of educational attainment, research has shown that children who live in persistent poverty in the UK do less well than children from more affluent families. By the time UK children leave school, at the age of 16, children from low income families are nearly two years behind their peers from higher income families. Furthermore, the gap in educational attainment in the UK is widening, and at pre-COVID -19 levels of public expenditure, it would take an estimated 500 years to narrow this gap (Hutchinson, Bonette, Crenna-Jennings, et al., 2019). The findings from the research studies cited in this paper suggest that the majority of children will experience learning loss or, at the minimum stagnation even with EdTech interventions; with a high probability that disadvantaged children will experience greater learning loss compared to their more affluent peers. It is therefore vital that Government provide support and guidance to schools on teaching strategies and where, in the curriculum, teaching should resume, how to test for learning loss, to ensure that all children may flourish and disadvantaged children's learning does not fall even further behind. Recent research from The Educational Endowment suggests that all of the progress, over the last ten years, in narrowing the educational inequality gap may be wiped out as a result of the Covid-19 pandemic (www.bbc.co.uk/iplayer/episode/m000hr4j). Teachers face a massive challenge and any extended scheme needs to be properly supported and financed.

In the mid-to- longer- term, governments may wish to consider 'extended schools'; including both before and after school provision as well as holiday club/camp provision across future school holidays, depending on social distancing rules. For example, the DfE could increase their funding for holiday provision to enable all local authorities to run programmes across all schools holidays. By utilising this resource, the charity and voluntary sector could potentially be used as a vehicle for

returning people to employment, reducing the any additional burden on teachers, and providing much-needed resources for the most disadvantaged children. Research evidence has shown that such programmes promote children's engagement in physical activities, educational and cultural activities, and promote wellbeing in children and parents (Defeyter, Graham & Prince, 2015; Graham, Crilley, Stretesky, et al., 2016; Holley, Mason & Haycraft, 2019; Mann & Defeyter, 2017). Such provision, if carefully managed, will allow pupils to catch up with their learning, both formal and informal, while providing affordable childcare to support parents in their return to work.

School Food:

Without access to FSM or some type of universal school meal provision, already food insecure children will be even worse off than they are, and many previously food secure families who have been economically impacted by the pandemic and are now food insecure, will be in need of help. UK scholars have already speculated that COVID-19 pandemic will worsen the existing inequalities in the UK food system (Power et al. 2020), and we argue here that opening schools without a plan to roll out a universal school meal service will result in negative outcomes.

One challenge faced by the school food service will be to renormalize healthier choices in school children upon their return. Positive dietary habits (particularly fruit and vegetable consumption) appear to track through life as a result of as a result of early exposure (Chellappah, Tonkin et al. 2015, Korinek, Bartholomew et al. 2015, Taylor, Upton et al. 2015, Ehrenberg, Leone et al. 2019). It appears that each additional portion of fruit and vegetable consumed per day has is associated with a 5-6% reduction in risk of premature death (Wang, Ouyang et al. 2014). More recent estimates from the Global Burden of Disease Study suggest that the major dietary factors contributing to premature death and higher numbers of disease-adjusted life years are excess sodium intake and low whole grain intake (Afshin, Sur et al. 2019). Both of these factors appear to have greater impact on limiting total and healthy life expectancy than the population level shortfall in fruit and vegetable consumption do. Narrative reports have appeared in the scientific literature to suggest that previous infectious disease pandemics requiring quarantine have been followed by a wave of non-communicable disease issues (Mattiolic & Ballerini Puviani, 2020) possibly as a result of unintended consequences on diet and lifestyle. This underlines the need for the continuation of high-quality food provision across all institutions in the UK.

We suggest that a programme of free schools meals and breakfast clubs is introduced for all school aged children. Both of these programmes will help to attenuate the negative short, mid and long term impacts of Covid-19. The evidence presented in this paper lends support to the government

ultimately introducing a school meal service that is free to all pupils as the foundation for dietary habit. Such a programme will result in positive health and educational benefits to all children, reducing financial strain on parents and administrative load and costs associated with the delivery of a mixed entitlement school meal service. (Current checks of eligibility for Pupil Premium may need to remain in place until an auto link to Universal Benefit Claims could be established).

In terms of the wider economy, c.100, 000 people are directly employed in delivering school meals with an estimated 20,000 additional roles in the supply chain, British Farming and Food processing and would support small, medium and large producers.

A free for all service would contribute to a levelling of society, reducing stigmatisation that still occurs in some settings for those entitled to a FSM. The uptake of Universal Free School Meals was high and resulted in better dietary habits with a positive impact on obesity. Food should be an integrated part of the school day, linked to educational/curriculum subject areas and encompassing wrap around provision(including school holiday periods) in a single efficient service model aligned with the National Food Strategy; including extended and/or staggered lunch breaks will support social distancing measures; limited hot and cold menu options could be offered to reduce wastage and take advantage of using outside space for dining; pre plated meals could be served to seated pupils, reducing dining room circulation; and snacks and packed lunches brought in from home should cease unless there was a severe medical requirement, requiring school approval and segregation to avoid binary cross contamination.

Physical Activity:

In our collective short-, medium- to long-term interests, we face an unprecedented need to design more PA into all school provision. This need is driven by the scale of the biological, social and psychological deconditioning that will be exhibited by children returning to school after prolonged denial of exposure to PA through lockdown. In the short term, to achieve distancing across the school day, class groups will need to be much smaller. Just as supermarkets, and other businesses and organisations, have provided visual prompts for social distancing during lockdown, school environments will need similar adaptations. Across the curriculum, especially that requiring access to specific facilities, micro-teaching may become common. Within these confines, it is essential that we prioritise physical activity that promotes fun, social interaction and personal progress.

Practically, within confined spaces, schools may wish to deploy both curricular and non-curricular physical activity offerings that involve being active “on the spot”; e.g. active learning videos, dance activity, classroom movement breaks. Outside spaces likely provide greater opportunity for Physical

Education. The challenge here resides in differentiating the content to meet the needs of all pupils, while being delivered in a format that maintains appropriate distancing- that has implications for how instructions are passed, feedback is given and individualised. Creating a physical environment that ensures psycho-social safety while maintaining appropriate distancing, is of paramount importance. An example may involve sufficiently spaced relay type activities that focus on the development of fine motor skills . Unquestionably, this can be achieved.

To establish sustainable and effective physical activity in the medium- to long-term, the recently-developed Creating Active School's (CAS) Framework (Daly-Smith et al., 2020) provides a systems map of the many components that need to be actioned to develop a whole-school approach. Experience shows that new school management philosophies are needed to direct school curricula and key stakeholders to integrate PA into all day-to-day provision. Teachers will need help to revise their classroom practice, parents will need reassurance on the need for this shift, resources will be needed to adjust school processes, facilities and physical and social environments. Yet, a unique opportunity lies ahead; we can re-establish UK schooling as world leading by normalising PA within both the wider school provision and national curriculum subjects.

Mental Health & Wellbeing:

Likewise, it is highly probable that pupils may be suffering from a range of mental health issues. Thus, governments should plan to quickly expand counselling and mental health services (e.g. individual access to psychological therapies) to accommodate a potential increase in demand. Most mental health charities and statutory organisations provide pandemic-specific, self-care resources, for example those by the YoungMinds national charity and Public Health England. However these are limited in their reach and evidence base. With government aid, local children and young people's mental health multi-agency partnerships will need to continue to think creatively as to how to meet the change in and potential rise in mental health need under conditions of low resource, an area in which they are highly experienced and skilled. Pre-pandemic innovations, such as the Recovery Colleges, which offer online therapeutic courses, should be considered in the response, especially for those on waiting lists. The national Trailblazers in schools, being piloted by NHS England with a purpose to reduce waiting times to mental health services, currently has newly trained Education Mental Health Practitioners based in schools in approximately 25 Clinical Commissioning Groups across England, and another 57 to commence in 2021 (NHS England 2020). Learning from how these clinicians, who facilitate whole-school approaches with parents, staff and pupils, should be mobilised and spread across the UK.

Conclusion

In the longer term, we need to consider what kind of society and education system would be optimal to reduce health and educational inequalities, and to ensure that all children in the UK have the opportunity to fulfil their full potential. Under the United Nations Convention on the Rights of the Child, signatory states are required to ensure a standard of living of every child is adequate for their physical, mental, spiritual, moral and social development (Joint Committee on Human Rights 2003). Furthermore, governments must promote and safeguard every child's right to education, health and safety as set out in the Convention on the Rights of the Child. It is widely recognised that insufficient household income is associated with negative outcomes for children across all domains including mental and physical health as well as life expectancy (Galobordes, Smith & Lynch, 2006; Gunderson & Seligman, 2017, Marmot 2010), social wellbeing (Attree, 2006; Ridge, 2002, Wadsworth & Santiago, 2008) and educational attainment (Exley, 2016). In addition, with almost a third of UK children aged 2-15 years being overweight or obese (NHS Digital, 2018), tackling childhood obesity, reducing health, social and educational inequalities requires a step change in terms of government investment in human capital (Schultz, L., Appleby, L., & Drake, L., 2018). It has long been recognised that schools provide an excellent structure to enable effective education and health interventions to be delivered at scale; to enable every child to fulfil their full potential (Bundy, de Silva, Horton, Patton, Schultz & Jamison, 2017a). The concept of human capital has often been used to compare across countries (Bundy, de Silva, Horton, Patten, Schultz, & Jamison, 2017) but we propose that this concept may be applied within countries to ensure appropriate levels of investment to reduce within country inequalities and drive economic growth and prosperity. Schools provide an excellent structure to drive such change but they must receive sufficient, necessary, and equitable funding.

We urge the UK government to seize this opportunity to work across government departments (e.g. Department of Education, Department of Work & Pensions, Department of Health & Social Care, Department of Environment, Food and Rural Affairs) to rebuild a fairer society and an educational system that enables all children to fulfil their full potential in terms of health, wellbeing and educational attainment.

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