Stagnant pay costs consultants up to £1.5m

EXCLUSIVE The true cost of pay stagnation on NHS consultants’ gross earnings has been revealed in modelling by the BMA.

The association has calculated the total lifetime losses due to wages not keeping up with inflation since 2008-09 across different components of income. These include reduced pension payments, cuts in pay, and increased employee pension contributions.

In one case the cumulative losses in gross earnings exceeded £1.5m and in another case the losses stood at £1.2m.

Pay experts in the BMA’s consultants committee modelled the losses for two consultants in typical circumstances: “Alice” and “Khaled.” Both are assumed to be full time doctors reaching the top of their pay scales in 2011-12, aged 50, and members of the 1995 NHS pension scheme. Retiring at 60 after 38 years of pensionable service, they are assumed to die aged 90 (based on the Government Actuary’s Department’s assumptions of life expectancy).

Khaled, who worked 10 programmed activities but received no additional earnings beyond his basic salary, stands to lose £1 204 771 from his gross lifetime earnings, while Alice, who worked the 10 programmed activities, stands to lose £1 529 238 because she also received a level 6 local clinical excellence award and a supplement for an average on-call commitment.

The BMA says the losses are a direct result of pay falling behind retail price index inflation since 2008-09 and rises in pension contribution rates. But, because shortfalls in income are compounded over time, the modelling shows significant losses.

Vishal Sharma, chair of the BMA’s pensions committee, said, “Every year your pay is restrained, two things happen. The first is that you lose pay that year, but that compounds over time. If you’ve got 10 years of pay erosion, then that gets crystallised into your pension, meaning your pension is permanently reduced in real terms.

“Most senior doctors, consultants, and SAS doctors [staff and associate specialists] have a final salary pension so if your final salary is 35% lower than it should be, then your pension is correspondingly reduced as well. And that pension is your payment for 20-30 years after you retire, so the lifetime losses can really rack up.”

He added that the modelling provided a clear rationale for why consultants were choosing to retire early.

Adele Waters, The BMJ

Cite this as: BMJ 2022;378:o2073

“Ten years of pay erosion crystallises into your pension,” says Vishal Sharma, chair of the BMA’s pensions committee

LATEST ONLINE

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Some NHS trusts will have to find as much as £2m extra a month this winter because their energy bills will be two to three times higher than last year’s, an investigation by The BMJ has found.

Higher than expected inflation, including rising costs for gas and electricity, is “wiping out large parts of the NHS budget,” said the NHS Confederation, a body that represents NHS organisations. It told The BMJ that, unless the government protects trusts from “eye watering wholesale market increases” in energy, they will have no choice but to cut back on services for patients.

Rory Deighton, senior acute lead at the NHS Confederation, told The BMJ, “This isn’t an abstract problem, as the gap in funding from rising inflation will have to be made up by fewer staff being employed, longer waiting times for care, or other areas of patient care being cut back.”

The BMJ asked several NHS trusts in England for details of their recent and predicted future energy bills and how they expected to mitigate the additional energy charges they face this winter.

Nottingham University Hospitals NHS Trust has budgeted for a 214% increase in electricity and gas costs for 2022-23 (box). Marcus Pratt, programme director for system finance at NHS Nottingham and Nottinghamshire, said, “Nottingham University Hospitals NHS Trust have planned for, and continue to forecast, an increase in budget for annual energy costs of approximately £27m compared to costs experienced in 2021-22. For Sherwood Forest Hospitals NHS Foundation Trust, the equivalent value is approximately £5m.”

Forecasts

Similarly, Craig Richardson, director of estates and facilities at Leeds Teaching Hospitals NHS Trust, said that his trust was expecting to pay an extra £2m each month for electricity and gas combined in January and February 2023, a rise of around 110% on January and February 2022.

Most trusts The BMJ has contacted are expecting their bills to at least double.

Great Ormond Street Hospital for Children NHS Foundation Trust in London anticipates a combined gas and electricity bill of around £650 000 a month in January and February 2023, up from around £350 000 in the same months this year.

Sheffield Children’s NHS Foundation Trust is expecting its total energy bill for 2022-23 to be 129.9% higher than in 2021-22. John Williams, the trust’s chief finance officer and deputy chief executive, said, “Unfortunately, over recent months the cost of our electricity and gas has increased significantly, as it has for domestic users and other businesses, and is likely to continue increasing by a considerable amount in the future.”

The trust has been able to curtail its costs to some extent because it is locked into current prices with its energy supplier until 31 March 2023. “We budgeted for the additional costs as part of our plan for 2022-23, but ultimately

**TRUSTS ARE FAST TRACKING GREEN INITIATIVES TO REDUCE ENERGY BILLS**

Most NHS trusts are attempting to mitigate some of the increased energy costs heading their way this winter by prioritising upgrades of their estate, while reducing their carbon footprint at the same time.

Facing a 214% increase in gas and electricity costs, Nottingham University Hospitals Trust is replacing 6000 halogen bulbs with LEDs and will replace all of the glazing at the Queen’s Medical Centre (left). The trust has already removed the coal fired boilers at City Hospital and will fit combined heat and power units, which is expected to deliver significant cost savings. By January the trust expects around a fivefold drop in its electricity use from the previous year. In January 2022 the trust consumed 4 397 108 kWh of electricity, costing £801 292, and it expects electricity consumption to fall to 810 721 kWh in January 2023—saving around £450 000 on the monthly electricity bill despite a record rise in tariff prices. However, the trust’s gas consumption is expected to rise slightly from 21 182 903 kWh this January to 25 521 458 kWh next January, and its gas bill will increase dramatically from £835 836 to £2 253 121, owing to the huge increase in the price of gas.

Milton Keynes University Hospital NHS Foundation Trust has installed more than 2500 solar panels over the past year, which saved £50 000 on last year’s electricity bill. It will install 800 more by the autumn. It will then be able to generate 1 GWh of electricity a year, meeting almost 15% of the trust’s electricity needs.

The trust is also introducing motion activated LED lighting, which uses less energy, and is increasing its roof insulation from 50 mm to 150 mm in some of the oldest parts of its buildings.
this is still NHS resource that could otherwise have been used to support the delivery of patient care,” Williams added.

A few trusts are locked into longer term energy deals. South Tyneside and Sunderland NHS Foundation Trust said that it was not expecting its gas and electric costs this winter to be any higher than last year’s.

In May 2022 NHS England estimated that rising energy prices would cost the NHS £485m more in 2022-23 than had been budgeted for when the NHS planning guidance was issued last December.

NHS England has set aside £1.5m from its existing budget to cover this £485m energy increase and a variety of other inflationary pressures on the NHS, including fuel costs for ambulance services, private finance initiative contracts, and local authority care prices.

This money will be cascaded through integrated care boards to acute care trusts and other NHS providers. Conditions are attached to the extra funds, such as controls over agency and bank spending and consultancy costs.

Decreased spending power

But energy prices have continued to rise. They will have almost tripled for domestic consumers in the year to October 2022, almost doubling since April alone, and are expected to rise by around another 50% next year.

Deighton said, “The new prime minister must provide a top-up in this autumn’s budget or any emergency budget they hold to make up the shortfall. The NHS needs at least £3.4bn to make up for inflation during this year alone, and that is before we face a winter of even higher wholesale energy prices.

“A failure to properly compensate the NHS for inflation will only heighten pressure on our health service as we move towards a winter that we know will be particularly challenging this year.”

George Stove, an associate director of the Institute for Fiscal Studies, told The BMJ that, without action, higher inflation would decrease the NHS’s real spending power over the coming years.

He said, “Increases in expected inflation mean that DHSC [Department of Health and Social Care] real day-to-day spending is now set to increase by an average of 2.9% a year between 2021-22 and 2024-25. This is down from planned average annual growth of 3.8%—using inflation forecasts from March 2022—an already lower growth figure than the 4.3% expected at the time of the 2021 spending review.

“To compensate DHSC budgets for the increase in expected inflation since March 2022 would require an additional £4.4bn in 2024-25, on top of the £2.4bn that would already have been needed to bring real spending up to expected levels at the time of the 2021 spending review due to the growth in expected inflation between October 2021 and March 2022.”

The Department of Health and Social Care and NHS England did not comment.

Ingrid Torjesen, The BMJ
Cite this as: BMJ/ 2022;378:o2088
New Zealand curates living history of covid

From textile viruses to the prime minister as Wonder Woman, New Zealand’s national museum, Te Papa Tongarewa, is expanding its covid history collection, to capture the country’s experience of the pandemic.

Staff at the Wellington museum began to draw together the collection from the moment Jacinda Ardern, the prime minister, announced one of the world’s toughest lockdowns in March 2020.

The amassed objects cover themes including life in lockdown, the government’s response, graffiti, Māori perspectives, and the experiences of ethnic minority groups. As the pandemic evolved so did the collection to include the vaccine rollout and the antivaccine sentiment.

“What became apparent was the amount of creativity that was happening during lockdown in response to both the lockdown and concerns about the virus,” Claire Regnault, a senior curator, told the Guardian.

“We’re collecting what we can now—the things we think are interesting or important—but we know in 10, 30, or 80 years people will come to us and say: ‘I got this from my grandma from the covid pandemic,’ so we work with a long view,” Regnault added.

The government’s pandemic response is credited with giving the country one of the lowest rates of excess mortality in the world. Public health researchers at Otago University concluded that New Zealand had minus 215 excess deaths per million, around 1103 fewer people dying than would have been expected in the same period before covid.

Alison Shepherd, The BMJ
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Questions for the UK’s covid-19 public inquiry

A BMJ series examines how politicians used, and failed to use, evidence in response to the pandemic

As we await the completion of the UK’s covid-19 inquiry, chaired by Heather Hallett, we will need patience and realistic expectations. Public inquiries in the UK tend to be slow to conclude and even slower to lead to change. The outgoing prime minister, Boris Johnson, has dallied and delayed over a covid inquiry, and it took a threat of judicial review to get the government to finally publish the inquiry’s terms of reference. The inquiry has two aims, to provide a factual narrative account of what happened and to identify lessons that can inform the response to future pandemics. It will cover the public health response, including preparedness, use of data, decision making, and the effect of the pandemic across society; the health and care sector response, including social care and procurement; and the economic response, such as the furlough scheme.

One challenge will be getting at the truth, given the government’s track record of rejecting requests under the Freedom of Information Act, refusal by ministers to attend parliamentary committees, and Johnson’s habit of not answering the questions put to him in parliament. In these circumstances, Hallett’s warning that she will “not tolerate any attempt to mislead the inquiry, to undermine its integrity or its independence” seems understandable.

Another challenge will be assessing how the decision making process was informed and influenced. Throughout the pandemic politicians and their scientific advisers insisted that decision making would be “guided by the science.” However, evidence is socially constructed and can be highly contested. Different sources, and indeed types, of evidence are given different weight in developing policy: it is important to consider whose science counts, and why. To be useful for future pandemics, the inquiry must come to a view about how the scientific evidence figured in decision making, and how approaches to bridging the evidence-to-policy boundary could have been more effective.

Our analysis
To help the inquiry in these areas, The BMJ has commissioned a series of articles examining how evidence was used to shape the response to the covid-19 pandemic in the UK (www.bmj.com/covid-inquiry). We also explore how information was misused, abused, and manipulated to feed an ideologically driven “infodemic” with global consequences for vaccine hesitancy and resistance to non-pharmaceutical interventions.

The articles in the series describe successes and failures. The successes include the vaccine programme, at least in its early stages, and the response of the NHS in delivering the vaccine rollout, creating clinical learning networks, and in health service innovation. The Recovery trial, the OpenSafely data resource, and COG-UK, which provided genomic sequencing and some of the modelling, were world leading.

But many mistakes were made. This is forgivable when dealing with a new virus, but what is unforgivable is that they were not corrected as knowledge and experience accumulated. The evidence that SARS-CoV-2 transmits through the air, in crowded and poorly ventilated places, was clear relatively early on. Even now, many policies ignore this vital fact.

Children have been harmed through covid affecting them or family members, and through loss of education. The measures that would protect them, such as vaccination and improved ventilation in schools, attract lukewarm support at best. Those unlearnt lessons are also evident in how modelling was used to inform public policy, in implementation of covid-19 vaccination, in knowledge mobilisation and getting evidence into practice, and in the role of science advice in policy making.

Our conclusion is clear: with the toll approaching 200 000 excess deaths the UK’s response should have been much better. In 2019, it had come second in the world in an index of pandemic preparedness. There is now little doubt that the UK’s response fell far short of its potential. The effect of that mismanagement continues to be felt in ongoing pressures on the workforce and patients in health and social care.

Why? That is the central question the UK’s covid-19 inquiry must answer. Each article in our series, which will continue over the next few weeks, offers messages that we hope will inform the inquiry, as well as a list of questions that demand answers. But one message is universal and unequivocal: scientists and health workers on the front line of the response, and therefore the public, were too often let down by politicians. True to a phrase first used to describe British infantrymen in the first world war, scientists and health workers during the covid-19 pandemic of 2020-21 were “lions led by donkeys.”

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Scientists and health workers during the pandemic of 2020-21 were “lions led by donkeys”
Coronavirus: policy on children and schools

Deepti Gurdasani and colleagues argue the UK did not give pupils sufficient priority and question the evidence behind government decisions

Children in the UK have been severely affected by the pandemic. The closure of schools deprived them of access not only to education but to the other things schools provide, from support and life skills to, for some, regular meals. Some schools, especially those attended by children from more affluent families, were able to partially compensate by moving lessons online, but many could not, not least because many of their pupils were in families that were digitally excluded. Children from disadvantaged families were also disproportionately affected by bereavement as many had breadwinners in jobs that placed them at high risk of infection.

As the pandemic progressed, the needs of children continued to be overlooked. Schools reopened without measures to protect them and their families, in particular effective ventilation. When vaccines became available, there were long delays before they were given. The vaccine roll-out to primary school pupils remains far lower than the European average.

Questions for the public inquiry

- Why was preventing covid-19 in children deemed low priority?
- Why was transmission risk in schools underestimated?
- Why was so little attention paid to air quality?
- Why were testing and support for isolating given little attention?
- Why was masking in schools undervalued and de-emphasised?
- Why was vaccination offered late to children and considered low priority?
- Why was more not done to support learning?

The UK vaccination rate for primary school pupils remains far lower than the European average. In February 2022, the Joint Committee on Vaccination and Immunisation (JCVI) recommended vaccines to 5-11 year olds. However, reopening was not accompanied by a comprehensive package of measures to protect children. Schools relied on measures such as hand and surface hygiene, staggered start times, and class or year group bubbles. Masks were advised only for secondary schoolchildren, and mostly not in classrooms.

Government policy seems to have been based on three assumptions—children had a minimal role in community spread, particularly to vulnerable relatives; schools were not loci of transmission; and children were not harmed by infection. However, none of these assumptions is true, and this was knowable when key decisions were made (see table 1 on bmj.com). Indeed, policies on children and schools diverged in many ways from those implemented elsewhere and were contrary to advice from the World Health Organization, the European Centre for Disease Prevention and Control, and US Centers for Disease Control and Prevention.64-65

UK was international outlier

The vaccine roll-out to primary school children was compared with that in many other countries. Portugal and Austria required masks for all children aged 6 years and above in school as early as May 2020, and Italy, Greece, Spain, Austria, France, and several states in Germany by required masks in primary and secondary schools by October. Germany invested substantially in ventilation in public buildings, including schools, during this period. Denmark and Greece reduced class sizes. Israel, Spain, Denmark, and Italy increased physical distancing within classrooms.

The vaccine roll-out to 12-15 year olds started in the UK after most children in the US, Canada, Israel, and much of western Europe had already been vaccinated. Over 8.7 million 5-11 year olds had been vaccinated in the US by the time the Joint Committee on Vaccination and Immunisation (JCVI) recommended vaccines for this group in February 2022.66-67 The UK vaccination rate for primary school children remains far lower than the European average (two dose uptake 2.1% compared with median of 13.6% in 5-9 year olds across the EU, as of 21 July 2022).68-69

Children deemed low priority

Early pandemic policy rightly prioritised protecting those at greatest risk of severe acute disease and death, such as older people. But as the pandemic progressed, protecting children continued to be seen as low priority. The effect on children was underestimated consistently, as severe disease in children was compared with that in adults rather than against other childhood illnesses. Although deaths from covid-19 are rare in children (85 up to June 2022, table 2), they are more common than from many other childhood illnesses (eg, mumps, measles, varicella, rubella).70
The effect of long covid on children was also largely ignored despite early evidence from the Office for National Statistics (ONS) that substantial numbers of children reported persistent symptoms post-infection.

Government policy also did not consider the wider impact of community transmission on children, including the effect of death or long covid in carers.12 More than 13,000 children lost a parent from covid-19 compared with estimates of 6000 for Germany, 6700 for Europe, 3400 for Spain, and 4800 for Italy.79

Transmission risk was ignored

The government prioritised reopening schools but failed to do anything to reduce disruption to education caused by spread of covid in schools. This resulted in high levels of absences in children and staff, even after requirements for isolation of contacts were removed.13 Despite warnings of the important role schools played in transmission, policy decisions drew on an implicit or explicit narrative that the harms of remote schooling outweighed the benefits of in-person classes. Evidence accumulated that schools were important sites of transmission during summer 2020.15–17 26 However, the UK Health and Security Agency’s (UKHSA) research,22 conducted at a time when attendance and infection prevalence was low, predictably showed few outbreaks within schools. This was interpreted as showing that in-school transmission was minimal. Similarly, the ONS Schools Infection Survey finding that infection rates in schoolchildren were lower than in the community26 was interpreted to mean that schools were not contributing significantly to transmission, when it was almost certainly because many children with covid-19 and their contacts were not sampled because they were isolating at home.

There also seems to have been increased focus on a systematic review by a UK team (including members of SAGE)35 that suggested children had reduced susceptibility to infection. The primary evidence included in the review had serious flaws, as has been highlighted before.27 In particular, many studies failed to take account of the fact that infected children are often asymptomatic or have atypical symptoms28–32 and will therefore be missed when case ascertainment is based on symptoms. In addition, the UK ONS infection survey indicated that infection rates among children were often highest when schools were open. Increases and falls mirrored the opening and closing of schools (figure).40

Air quality received too little attention

Covid-19 is an airborne disease.41 Schools are high risk settings for airborne spread,42 and reducing transmission requires attention to air quality by ventilation (eg, opening windows, fans, and monitoring carbon dioxide levels), filtration (with inbuilt or portable filters), or sterilisation (eg, with ultraviolet light).43 Despite recommendations by international public health bodies and SAGE committees to improve ventilation early in the pandemic,45 little was done until September 2021. Over 90% of schools reported opening windows to ventilate, but the adequacy of these measures is hard to quantify without data on air quality.49 All schools were promised CO₂ monitors,50 but delivery was considerably delayed,51 and their utility limited by inadequate supply and barriers to ventilation (eg, temperature, limited window opening).52 53 The Department for Education (DfE) and Public Health Scotland also stipulated a much higher cut-off (>1500 ppm) for action than international standards (800-1000 ppm).52

Masking undervalued and de-emphasised

Policy on masking more generally was characterised by competing scientific narratives, policy inertia, and public conflict (especially around government mandated encroachments on individual freedoms).54 Masks for the public were initially depicted as having unproved efficacy. Powerful pressure groups, including the parent group Us for Them, campaigned against masking of children.55

Against this background, the English DfE stated in August 2020 that masking in school “should be avoided” as it would lead to a “negative impact on learning and teaching.”56 Masking within classrooms was not recommended in England, Northern Ireland, and Wales throughout 2020. Masks were introduced in communal areas for secondary school students in November 2020. In Scotland, masks were introduced in communal areas only for secondary school students in August 2020 but extended to classrooms in November 2020.

Lack of masking was compounded by the large class sizes, no cap on bubble sizes (bubbles often being hundreds of children), and crowded classrooms. This is likely to have contributed to the growth of the second wave, as the alpha variant spread in late 2020.59–61 UK policies contrasted starkly with those in comparable countries. In February 2021, for example, the US CDC recommended all children wear masks in school,62 and WHO recommended masks for all children above the age of 12 years when physical distancing could not be maintained, advising a risk-based approach for 5-11 year olds.

UK policy on masking in schools relied heavily on a small, highly flawed and non-peer-reviewed study the DfE conducted over two weeks in October 2021.63 This study was underpowered and had too short a follow-up period to test masking’s effectiveness.

Testing and support for isolation

Given the importance of pre-symptomatic transmission, and the high levels of asymptomatic infection in children, frequent testing was important to reduce spread. However, many parents caring for children at home faced potentially unaffordable costs as there was limited financial64 and practical support for isolation, providing little incentive for voluntary routine testing. The initial roll out of asymptomatic testing was poorly planned with little involvement of teachers and parents.87 Uptake of testing reduced steadily to only 21% of secondary school children registering tests in May-June 2021.88 Testing was never made available to primary school children, unlike in other European countries (eg, Austria), where accessible testing (eg, saliva tests) for young children was prioritised.

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Region</th>
<th>Estimates (up to June 2022)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospital admissions with covid-19 18 years</td>
<td>England and Wales</td>
<td>26,207</td>
<td>Admissions in England and Scotland between August 2020 and October 2021 exceeded those across 10 European countries put together, including Germany and Italy.</td>
</tr>
<tr>
<td>Deaths from covid-19 18 years</td>
<td>England and Wales</td>
<td>92 deaths involving covid-19 (COVID death certificate)</td>
<td>Covid deaths among 0-19 year olds in 2021 were 56% compared with 1 from measles, 1 from varicella, and none from mumps and rubella in 1975.</td>
</tr>
<tr>
<td>Mental health</td>
<td>England</td>
<td>Over all mental health did not change or improved slightly.</td>
<td>Effect worse for children with special educational needs and disadvantaged children. Children reported anxiety about effect of pandemic on loved ones. Effect in primary school children correlated with restrictions and cases.</td>
</tr>
</tbody>
</table>

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Table 2 | Health effects of government policy on children

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Region</th>
<th>Estimates (up to June 2022)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long covid 12-16 years</td>
<td>UK</td>
<td>150,000 (28 days), 26,000 (1 year)</td>
<td>Rates have tripled since August 2020</td>
</tr>
<tr>
<td>Deaths from covid-19 18 years</td>
<td>England and Wales</td>
<td>92 deaths</td>
<td>Covid deaths among 0-19 year olds in 2021 were 56% compared with 1 from measles, 1 from varicella, and none from mumps and rubella in 1975.</td>
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</tr>
</tbody>
</table>
Late vaccination

The flawed narrative that children were not severely affected by covid-19 led to delays in offering vaccination to children in the UK compared with other countries. Minutes of JCVI meetings revealed that the modelling by PHE and Warwick University had suggested a substantial benefit of vaccinating these age groups but the committee chose not to recommend it. By the time children were offered vaccination, a substantial proportion had been infected.

JCVI minutes suggest it gave much more weight to the potential long term effects of the vaccine than to the known effects of infection. Long covid gets only a short mention, even though it was known to be more common and concerning than any adverse events from the vaccine at the time. Furthermore, the JCVI, unlike other countries, recommended a 12 week wait between doses for adolescents, and the same wait between infection and dosing. This meant substantial delays for many children who were infected before or during the vaccination schedule.

Lack of support for learning

Headteachers and their staff worked tirelessly to support pupils during the pandemic. However, like the NHS, schools entered the pandemic greatly weakened by a decade of austerity and struggled to cope. The government’s scheme to purchase laptops for schools fell far short of what was promised. Lack of appropriate remote schooling provision and technological barriers affected children unequally. The most deprived students in state schools and colleges were less likely to experience online learning and have interactions with teachers, students, and peers than less deprived students in independent schools. Stripping back of catch-up funding for children has left schools, children, and families struggling.

By the time children were offered vaccination, a substantial proportion had been infected provision and technological barriers affected children unequally. The most deprived students in state schools and colleges were less likely to experience online learning and have interactions with teachers, students, and peers than less deprived students in independent schools. Stripping back of catch-up funding for children has left schools, children, and families struggling.

Broader issues

We have catalogued areas in which the response by UK governments let children down (box). We trust that the public inquiry will examine these in more detail. However, some broader issues must be examined.

No one disputes that keeping schools open should be a high priority, but they should be safe, with measures to minimise transmission among children and to their families. Some children died and others have been left severely disabled. Others have been orphaned. Serious illness and death of children should not be so easily dismissed. Of course, these severe outcomes were much less common than in older people but this is the wrong comparison. Cancer in children is also rare, but that does not mean it can be ignored. The appropriate comparison is with other childhood illnesses.

More widely, much of the evidence that was generated and used was problematic. Many of the studies that should have been able to inform policy were poorly designed and inadequate to answer the question posed. Key reviews misinterpreted some of the evidence examined.

In many cases it seems that there was a failure to update guidance on, for example, school transmission, efficacy of masks, importance of airborne spread, or illness in children. Structured and predetermined processes to review evidence, both domestic and international, might have facilitated translation of evidence into policy and incorporated learning from mistakes into future policy making.

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Gabriel Scally, visiting professor of public health, University of Bristol
Hisham Ziauddeen, senior research associate, University of Cambridge
How the virus spreads: narratives, counter narratives, and social dramas

Trisha Greenhalgh and colleagues explore why inaccuracies about the mode of transmission of SARS-CoV-2 emerged early in the pandemic and shaped a flawed policy response, with tragic consequences.

The draft terms of reference for the UK covid-19 inquiry encompass not just what decisions were made but also how and why.¹ The World Health Organization overlooked—and at times explicitly denied—airborne transmission of SARS-CoV-2 for over two years, despite early evidence indicating that this was an important, and perhaps the dominant, route of transmission.² UK policy makers likewise adhered to an assumed droplet mode of transmission and prioritised interventions accordingly, neglecting the key topic of indoor air quality.³

We consider how flawed narratives about SARS-CoV-2 transmission arose and became entrenched, leading to misplaced policies and avoidable deaths. We invite the inquiry to consider not just those specific flawed decisions but also the culture of premature scientific conclusions and reluctance to engage with uncertainty.

Policy making as a struggle between narratives

Policy making involves competing narratives, institutions, and interests.⁴ Policy might ideally “follow science,” but whose science and why? Science shapes policy narratives through an “inside track” (such as official advisory committees) and, to a lesser extent, through an “outside track” (such as fewer mainstream scientists and citizen movements).⁴ Pandemic policy making has been characterised not by clearly identified knowledge gaps that science obligingly fills but by toxic clashes between competing scientific and moral narratives.

Getting the mode of SARS-CoV-2 transmission right matters, because preventive strategies follow.⁵ Being honest about scientific uncertainty also matters, because—among other reasons—it is hard to backtrack after declaring a policy to be “evidence based.”⁷

KEY MESSAGES

- A flawed narrative that SARS-CoV-2 was transmitted by droplets rather than being airborne became entrenched early in the pandemic
- Measures aimed at an assumed droplet pathogen (handwashing, surface cleansing, physical distancing) were over-emphasised
- Measures to reduce airborne transmission (improving indoor air quality, reducing indoor crowding and time spent indoors, and high-grade respiratory protection) were under-emphasised
- UK policy makers seemed to favour narratives from a narrow group of scientific advisers
- Consequences included care home deaths, mission critical delays in public masking, and avoidable infections of healthcare workers

Competing narratives around transmission

“Covid is droplet, not airborne, spread” At a press conference on 11 February 2020, WHO’s director general announced that covid-19 was airborne.⁸ After a prompt, he corrected himself and declared that the virus was transmitted by droplets (coughs, sneezes, and contaminated objects). The reasons for this hasty correction are not fully known but might have included a desire to prevent public panic and to avoid exacerbating a major supply chain issue with personal protective equipment⁹ in the face of known international shortages.¹⁰

WHO’s early public information campaign promoted droplet measures—handwashing, respiratory hygiene, and disinfection of surfaces and objects—and firmly reassured the public that the virus was not airborne (figure). This stance reflected the dominance of infection prevention and control clinicians—whose day jobs included enforcing controls against droplet-borne infections in hospitals—on key committees.¹¹

The UK government’s narrative was similar to WHO’s. It did not reflect nuanced discussions in the Scientific Advisory Group on Emergencies (SAGE), some members of which had raised the possibility of other transmission routes on 18 February 2020.¹⁵ Rather, it reflected advice from a small group of infection prevention and control experts from Public Health England, Public Health Wales, NHS Scotland, and Public Health Agency Northern Ireland (see supplementary file on bmj.com) who favoured a droplet-but-not-airborne narrative.

The droplet-but-not-airborne narrative emphasised randomised controlled trials,¹⁶ drawing implicitly on the hierarchy of evidence—a formalisation of the assumed superiority of randomised trials, which

FACT CHECK: COVID-19 is NOT airborne

The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or speaks. These droplets are too heavy to stay in the air, they quickly fall on floors or surfaces.

You can be infected by breathing in the virus if you are within 1 metre of a person who has COVID-19, or by touching a contaminated surface and then touching your eyes, nose or mouth before washing your hands.

To protect yourself, keep at least 1 metre distance from others and disinfect surfaces that are touched frequently. Regularly clean your hands thoroughly and avoid touching your eyes, mouth, and nose.

March 28 2020

Tweet from WHO on 28 March 2020 denying airborne transmission of SARS-CoV-2

Policy might ideally “follow science,” but whose science and why?
Box 1. 10 Streams of evidence that support airborne transmission of SARS-CoV-2

1. Superspreading events: the virus is often transmitted at mass events from one or a few people to many people.
2. Long range transmission: the virus spreads in shared air among people who have never physically met or touched any common surface.
3. Asymptomatic and pre-symptomatic transmission: a high proportion of people who pass on the virus have no symptoms at the time.
4. Indoor dominance: transmission is many times greater indoors than outdoors, and ventilation reduces transmission.
5. Nosocomial infections occur despite strict contact and droplet precautions and reduce when airborne precautions are added.
6. Although SARS-CoV-2 is difficult to isolate from air, viable SARS-CoV-2 was detected early in the pandemic in real world settings where infected people had been.
7. SARS-CoV-2 has been detected in air filters in building ducts.
8. Transmission between animals has occurred when their cages are connected with air ducts.
9. The virus exhibits overdispersion (one person with covid-19 might infect no-one; another might infect dozens).
10. Empirical evidence supporting droplet or fomite transmission is sparse.

Adapted from Greenhalgh and colleagues.

“Covid is unequivocally airborne”

Laboratory studies, real world case studies, and computer modelling have shown that respiratory pathogens, including other coronaviruses such as SARS and MERS, are transmitted by aerosols and require airborne mitigation measures and that coughs and sneezes generate turbulent gas clouds of different sized particles that can travel long distances.

Since early 2020, evidence has accumulated to support the hypothesis that, like most other respiratory pathogens and perhaps more so than other coronaviruses, SARS-CoV-2 is transmitted through the air (box 1).

Countries such as Japan, where “inside track” aerosol scientists had the ear of government, introduced airborne precautions early in the pandemic. But in most western countries the aerosol narrative initially fell on deaf policy ears. By July 2020, aerosol scientists were alarmed that official advice was based on oversimplified and incorrect models of transmission (which had perpetuated for decades in the infection control literature) and wrote an open letter to WHO offering to help.

“Covid is ‘situationally’ airborne”

From the outset, WHO’s guidance on protecting healthcare workers from covid-19 recommended a standard level of protection for most activities but a higher level for “aerosol generating” ones, reflecting a long established (but flawed) medical research tradition. WHO’s Infection Prevention and Control Research and Development Expert Group for Covid-19 did not initially include any aerosol scientists and seemed to ignore the offer of help.

Some parts of WHO subsequently welcomed the input of aerosol scientists and changed the guidance in December 2021 to recommend higher grade personal protective equipment (including N95 respirators) for all covid-19 patient care. But the expert group dissented from this overall view, as noted in a footnote: “WHO provides this interim recommendation independent of the covid-19 infection prevention and control guidelines development group.” That group continued to promote the “situationally airborne” narrative, which has persisted despite evidence against it and has far reaching implications. If aerosols transmit only when certain procedures are being performed, only a small fraction of healthcare staff need higher grade protection and only when performing particular procedures. If that assumption is incorrect, staff (especially non-medical and less senior ones) and patients in most healthcare facilities are under protected.

“Everyone generates aerosols; everyone is vulnerable”

A systematic review found wide disagreement among guideline panels about which procedures and activities should count as aerosol generating. Many procedures, such as taking a nasopharyngeal swab, were inconsistently classified; some acts, such as coughing, were not procedures; and several procedures were classified as aerosol generating only because they induced coughing. A review of the physiology and aerodynamics of respiratory acts concluded that coughing, sneezing, breathing (especially if laboured), speaking, and singing generated substantial amounts of aerosol and that well documented superspreading events for covid-19 involved a critical triad of poor ventilation, crowding, and loud vocalisation. These findings raise some paradigm challenging questions. Should respirator grade protection be worn by everyone—including other patients—whenever patients are coughing? Should more attention be paid to measures higher up the hierarchy of controls, such as ventilation or filtration of air or ensuring that fewer people share air and for shorter periods?

Should respirator grade protection be worn by everyone whenever patients are coughing?
Social dramas

Droplet precautions became ritualised
The official droplet-but-not-airborne narrative materialised as artefacts (such as posters, disinfectant dispensers, and 2 metre distancing markers) and social practices. Droplet directed practices became ubiquitous, as people washed hands and forearms assiduously for 20 seconds, quarantined and disinfected their post, and stayed a measured distance apart, and institutions installed and policed the various artefacts and practices.

These rituals of purification powerfully reinforced the official narrative. “Clean” and “contaminated” came to be demarcated in terms of how recently and thoroughly hands had been sanitised and how far a droplet was assumed to travel. The same rituals served to downplay or obscure the narrative of aerosol transmission—which demarcated clean and contaminated in terms of air purity, with practices oriented to controlling indoor crowding and time spent indoors, ventilating or filtering air, and optimising quality and fit of masks.

Rituals of purification—handwashing, sanitising—powerfully reinforced the official narrative
Care home residents died in their thousands
On 23 March 2020, with up to 500 000 deaths and an overwhelmed NHS predicted, the UK’s prime minister announced a national lockdown. Hospitals had switched into urgent discharge mode on 19 March, sending patients back to care homes without routine pre-discharge testing. Between March and June 2020, 18 104 deaths involving covid-19 and 11 169 additional deaths above the five year UK average occurred among care home residents.44

The crisis was largely avoidable. Because aerosol generating procedures are rarely undertaken in care homes, these settings were low priority for PPE. Under-emphasis of the importance of ventilation and no routine use of masks are likely to have greatly amplified transmission between infectious residents and care home staff.

Public masking was a libertarian lightning rod
Libertarianism is a political ideology that favours individual choice, freedom, and a retreat from state and institutional control. Libertarians resist imposed rules and like to do their own research rather than trust scientists or government. Uncertainty and conflict about masking allowed libertarian messages and practices to flourish.

Public announcements and professional videos45 issued by Public Health England between February and June 2020 presented masking as ineffective and potentially harmful on the grounds that people might take compensatory risks or self-contaminate while putting on or removing their mask (the “donning” and “doffing” of infection control jargon). They provided no evidence to support these claims.

The confusion about masking in key decision making committees was due partly to confusion about mode of transmission. A presumption of droplet transmission explains the limited attention paid to the type of mask and the excessive concern about self-contamination. An influential inside track narrative seemed to confute the absence of relevant randomised controlled trial evidence with evidence that masking was ineffective.46 Outside track scientists argued for the precautionary principle, on the grounds that there was indirect and mechanistic evidence and strong theoretical arguments for public masking and huge potential risks associated with delay.47 Mask mandates were finally introduced in England on 15 June (public transport) and 24 July 2020 (all public places). By then, public opinion was polarised, and many thought it was ineffective.51

Masking policies in the United States, and to a lesser extent the UK, were met with a strong libertarian backlash aligned with populist political leaders, right wing Christianity, anti-authoritarian social media groups, and, latterly, anti-vaccination groups.53 In this context, masks came to symbolise pointless restriction of individual freedom, mindless compliance with authoritarian governments, and even blasphemy.54

Healthcare settings became occupational health battlegrounds
As documented in the 9 January minutes of the New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG)—an expert committee that advises the UK government—SARS-CoV-2 was initially classified as an airborne high consequence infectious disease by the four nations’ public health agencies.51 Consequently, staff caring for patients with suspected or confirmed covid-19 required filtering facepiece respirators (FFP3) or equivalent.

NERVTAG minutes from 13 March 2020, however, show growing concern about shortages of respirator masks and the Department of Health and Social Care’s request for “adapted” guidance that recommended surgical masks in most circumstances.55 The deputy chief medical officer agreed to meet with the chair of the government’s Advisory Committee on Dangerous Pathogens, whose members “were unanimous in supporting the declassification of covid-19 [as a high consequence infectious disease].”55

The declassification of covid-19 in early March 2020 had profound implications for the protection of healthcare workers.

The number of UK health and care workers infected with SARS-CoV-2 at work is not officially documented. The secretary of state for health and social care reported that by mid-2021, around 1500 had died of covid-19 and 120 000 had developed long covid. In early 2021, the BMA and Royal College of Nursing demanded respirator grade protection for all staff working with patients with covid-19.

The latest guidance from the UK Health Security Agency, introduced in April 2022 but withdrawn in May 2022 when all jurisdictions were asked to revert to their respective national guidance, continued to promote a situationaly airborne narrative and restrict respirator use to aerosol generating procedures.65 It did not recommend respirator masks for all covid-19 patient care. There remains wide variation in infection control policies in different NHS trusts; those that provide respirator grade protection seem to have much lower nosocomial infection rates for covid-19.61

Discussion
At the root of the UK’s limited success in controlling transmission of SARS-CoV-2 lie flawed droplet-but-not-airborne and situationaly airborne narratives. These narratives, and the false certainty with which they were conveyed, produced ineffective public health measures, contributed to shocking levels of care home deaths, exacerbated toxic discourse on masking, and justified withholding adequate protection from most health and care staff.

Why did the flawed narratives prevail? We consider four complementary hypotheses. The first is psychological. Social representation theory holds that people faced with new information show two tendencies: anchoring (grounding the new in an existing framework of concepts, ideas, and values) and concretisation (in which something abstract is made meaningful by making it physical and tangible).66 People are unlikely to change their beliefs in light of complex and contravening evidence because this requires effort and causes aversion.67 Policy makers are known to exhibit “satisficing”—
Questions for the inquiry

1. Why were early indications that this virus could be airborne overlooked? What checks and balances might have helped policy makers keep a more open mind about mode of transmission rather than seeing it as a settled issue from an early stage?

2. Why did policy makers convey an unjustified level of scientific certainty about the mode of transmission and measures to prevent transmission, rather than sharing with the public that the mode was not yet known, as other countries did? How might the culture of UK policy bodies change to foster greater intellectual engagement with scientific uncertainty and how to handle it?

3. What were (and are) the membership and terms of reference of the UK’s “infection prevention and control cell”? Who appoints them? Who checks their work? Does this group include any experts on airborne transmission and the delivery of safe indoor air? Why did (and does) this group have such a high degree of influence on policy? Why are its activities (at least partly) hidden from the public?

4. Why did policy makers continue to de-emphasise the evidence base on the airborne mode of transmission for so long, even as strong and consistent empirical evidence was accumulating? To what extent were cognitive biases operating? How might such biases have been minimised or overcome?

5. Why did policy makers continue to place so much emphasis on droplet precautions even after they had accepted that the virus was likely airborne? Why was indoor air quality given so little attention?

6. To what extent were policy decisions adversely influenced (consciously or unconsciously) by the shortage of high grade personal protective equipment? Who made these decisions and what is the chain of accountability?

7. To what extent was the limited public confidence in the efficacy of masks influenced by negative policy announcements early in the pandemic? Why were early statements that masks were likely ineffective and could be harmful not corrected as evidence to refute them accumulated?

8. Why are UK health and care workers still not fully protected against airborne infections in the workplace? Why is a premature and false narrative that the pandemic is over being used to justify not supplying workers with personal protective equipment designed to protect against airborne pathogens?

9. Are experts in aerosol science now adequately represented on all key science advisory bodies and are measures in place to ensure that their advice is sought and heeded?

10. Why have policy makers put prime responsibility for preventive measures on individuals given many effective preventive measures for airborne transmission are located at institutional and national policy levels?

Our second hypothesis is that of the influence narratives. Scientists in infection control have amassed considerable scientific capital (influence, status, accolades); their favoured methods (randomised controlled trials) are greatly valued; and they have much to lose if they discard their long held droplet narrative and concede the importance of other kinds of evidence. The inside track for pandemic policy making in the UK and WHO was narrow and partisan, enabling an unusual degree of power to be wielded against outside track scientific voices, imposing a narrow and rigid set of acceptable scientific methods (what Danziger called “methodolatry”), and precluding the kind of interdisciplinary deliberation that might have allowed a full and fair consideration of important competing narratives. The low status of aerosol science in policy circles was perhaps compounded by the relative youth of this scientific field and the inherent technical difficulties of isolating viable virus from the air. The science of indoor air quality might be (wrongly) viewed as unsophisticated compared with much of modern biomedicine.

Our third hypothesis is practical and logistical. As confirmed in official minutes, the national shortage of high grade respiratory protective equipment was a live discussion topic in UK policy advisory groups at the beginning of the pandemic. Although adherence to a droplet-but-not-airborne narrative was not consciously undertaken purely because of this shortage, it certainly helped to make existing stocks go further.

Our fourth hypothesis is political. Droplet precautions are under the control of individuals and hence resonate with neoliberal discourses about individual freedom, personal responsibility, and restraint of the state. Airborne precautions require a paradigm shift in policy making, with strategic actions from those responsible for public safety; this approach aligns with a more socialist leaning political discourse and requires considerable up-front investment in the built environment whose benefits may take years to accrue. Who’s tweet (figure) emphasises how to protect yourself rather than what to expect of your employer, your child’s school, or your government. Relatedly, we hypothesise a role for populism, the modus operandi of which is cherry picking evidence that supports the policy drive and validating anti-science sentiment under the guise of bringing power to people.

The narratives and dramas presented in this paper are not exhaustive. The pandemic can be framed as what Marcel Mauss (cited in Chaunlat) calls a “total social fact,” a phenomenon that affects all domains and layers of society and requires us to draw evidence from across many scientific and other fields. In such circumstances, the combination of the cognitive biases and satisficing behaviour of policy makers, scientists’ desire to protect their interests, and politicians’ alignment with populist sentiment proved perilous.

As the pandemic continues to cause death and long term illness more than 30 months after the first case, airborne transmission of SARS-CoV-2 and the mitigations needed to tackle it remain misunderstood and under-recognised. Extraordinarily, a recent UK inquiry into errors made in the pandemic did not mention masks or ventilation at all. Although we acknowledge that solutions are always much more evident in retrospect, we think that the inquiry should ask hard questions about policy makers’ accountability in relation to past and ongoing omissions in this regard. We have 10 specific questions for the inquiry (box 2).

Bolding action is now needed to ensure that the science of SARS-CoV-2 transmission is freed from the shackles of historical errors, scientific vested interests, ideological manipulation, and policy satisficing. Policy makers should actively seek to broaden the scientific inside track to support interdisciplinary and pluralism as a route to better policies, greater accountability, and a reduction in the huge inequities that the pandemic has generated.
What do we know about covid-19 vaccines in under 5s?

It took a year for vaccines to be tested and approved for use in children. With countries now offering to vaccinate the youngest age group, David Cox reports on the evidence for their effectiveness and deployment.

On 18 June 2022, regulators in the US voted to authorise the rollout of Pfizer and Moderna’s covid-19 vaccines to children under the age of 5, meaning that the jabs will now be available to an estimated 20 million babies and toddlers. The decision sees the US join Argentina, Bahrain, Chile, China, Cuba, Hong Kong, the United Arab Emirates, and Venezuela in offering the vaccines to the youngest age category. Regulators in Europe are predicted to follow in the coming weeks.

Commissioners at the US Food and Drug Administration (FDA) said that vaccinating under 5s will provide vital protection against hospital admissions and death, with Peter Marks, director of the FDA’s Centre for Biologics Evaluation and Research, describing it as “a milestone.”

But not all scientists are convinced that vaccinating under 5s will make a meaningful difference in tackling the pandemic.

“The risk of severe covid-19 in children is very, very low in terms of hospital admissions, fatalities, and long term problems,” says Shamez Ladhani, a paediatric infectious diseases specialist at St George’s Hospital, London. “You end up having to vaccinate a lot of children to have a little bit of improvement in terms of outcomes at a population level.” According to Office for National Statistics data for the week ending 3 July, covid-19 positive hospital admission rates for children under 5 in the UK were just eight per 100 000, compared with 59.33 per 100 000 for 75 to 84 year olds.

Moreover, in the wake of omicron and its subsequent subvariants, most under 5s are thought to have now been exposed to the SARS-CoV-2 virus, perhaps limiting the need for vaccines which have a reduced ability to prevent infection. “Most of these kids already have some immunity from exposure to the virus,” says Ladhani. “The benefits of vaccinating on top of a previous infection, using a strain from two and a half years ago, are not known.”

Clinical trial data

One of the criticisms of both Pfizer and Moderna’s vaccines is that the interim data from clinical trials show they are relatively ineffective in preventing symptomatic infection in young children.

Moderna’s two dose regimen is between 37% and 51% effective at preventing children under 6 from becoming infected. Pfizer claims its vaccine, administered in three doses, to be 73% effective at preventing infection in children between 6 months and 4 years old—this figure was, however, based on a sample of 34 children.

“The top line efficacy results from interim analysis are not impressive,” says Hamid Merchant, a researcher in the department of pharmacy at the University of Huddersfield. “Although the vaccines are likely to be approved by the Medicines and Healthcare Products Regulatory Agency, they’ll probably be deemed non-essential for healthy children under 5.”

And it’s not just Pfizer and Moderna. There are limited efficacy data available for the three other covid-19 vaccines currently approved for under 5s in various countries—those produced by Chinese companies Sinopharm and Sinovac, and the Soberana vaccine from Cuba. Earlier this year, a study of Sinovac’s vaccine in 49 694 3-5 year olds in Chile found that it was just 38% effective at protecting against symptomatic infection.

Of course, how researchers and public health officials perceive the risk-benefit ratio of rolling out vaccines to under 5s varies around the world and depends on the impact covid-19 has had on that country. Sweden has had just a handful of fatalities in those aged under 18, and vaccines are still not available to children aged 5-11 years. But in Brazil the virus has killed an average of two children under the age of 5 each day—a rate which equates to around one in every five covid-19 deaths among under 5s worldwide. Understandably, doctors there are keen to boost protection levels, fearful of the impact that future variants might have.

“The main concern is protecting these children and avoiding interrupting scholarly activities,” says Pilar Veras, a researcher at the Instituto de Ciências Biomédicas II in São Paulo. “We can’t know for sure if a new variant will have a more significant impact on children than the previous ones.”

In Australia, paediatricians are seeing an increase in hospital
admissions of children with multiple respiratory virus co-infections, such as respiratory syncytial virus, influenza, and covid-19. Public health officials feel, therefore, that there is still something to gain from vaccinating younger age groups.

“Although children under 5 don't appear to get as unwell, there is still a risk for hospital admission,” says Nick Wood, associate director of clinical services and vaccine safety at the National Centre for Immunisation Research and Surveillance in Sydney. “One of the benefits of vaccination would be to reduce the impact of covid-19 in the severity of multiple infections.”

Sceptical parents

Even if vaccines are made available to children, it remains to be seen whether parents will accept them. The Kaiser Family Foundation has already noted that vaccination rates among under 5s in the US have peaked and are now decreasing, just weeks after they became available.

Data looking at the proportion of 5-11 year olds in the US and UK who have received covid-19 vaccines since they became available to this age group have already provided indications that many parents are not convinced they are necessary.

So far just 36% of 5-11 year olds in the US have had at least one dose of a covid-19 vaccine since they were approved in November 2021. Rates are lower in England where only 10% of 5-11 year olds have received a single dose. In one survey conducted in March, 41% of parents of UK primary school children said that they would not have their children vaccinated if offered the jab.

This may represent part of a concerning trend. A new analysis from Unicef and the World Health Organization reported a noticeable global decline in routine childhood immunisations against measles, polio, diphtheria, tetanus, and pertussis since 2019.

Others, however, feel it is likely because the UK’s Joint Committee on Vaccination and Immunisation (JCVI) has downplayed the benefits of vaccination in young children. “The advice from JCVI was that vaccines for this age group are non-essential,” says Merchant, “The low uptake is not surprising.”

Vaccine uptake in Australia is much higher with more than half of 5-11 year olds having received one jab, and 60% being double vaccinated. This followed a sustained grassroots engagement approach with initiatives such as the Vaccine Champions Program and Building Confidence in Covid-19 Vaccines sessions emphasising the importance of childhood immunisation to communities across the country.

“There are benefits to vaccinating children under 5—both direct and indirect,” says Margie Danchin, a consultant paediatrician at the Royal Children’s Hospital in Melbourne, who has been involved in both initiatives. “We know children are at low risk of severe disease, but it does occur, and while vaccines have a reduced impact on transmission, there is still some value.”

Ladhani feels that the major public health risks which come with making vaccines available to under 5s is not so much safety—all studies so far have reported minimal side effects—but what he calls “opportunity costs.”

With nearly four million children in this age group, he predicts that vaccinating all of them against covid-19 would drive down inoculation rates for other diseases, through healthcare resources becoming over-stretched.

“To give one opportunity, you have to take it away from somewhere else,” Ladhani says. “That’s unfortunately how our healthcare works. Routine childhood immunisation may then be delayed because there aren’t enough immunisers. A lot of our disease control is based on herd immunity protection. If we don’t vaccinate enough kids, we may not be able to maintain that population control of diseases that we don’t see anymore.”

Nasal vaccines: game changer?

Ladhani feels it might be easier to see the benefits of vaccinating this age group if the available jabs were able to prevent infection more robustly, limiting community transmission in the process. In future a new generation of vaccines, ones that are administered intranasally, might be able to help with this.

Intranasal flu vaccines have proved far more effective in preventing cases of influenza in children because they produce mucosal antibodies that provide protection at the point of entry for the virus. Data have shown that they have boosted vaccine efficacy to more than 87% in children, compared with rates of 30-60% with injectable vaccines.

There are currently a range of nasal covid-19 vaccines in clinical development, including candidates from AstraZeneca, Bharat Biotech, CanSinoBIO, Lancaster University, National Taiwan University Hospital, Sputnik V, and the Université de Tours.

“Since the introduction of nasal flu jabs for school children in the UK, we were able to achieve the desired outcome from mass flu immunisation,” says Merchant. “Our experience with nasal flu vaccines suggests that a multivariant covid nasal vaccine is a likely solution for preventing infections in children and blocking community transmission.”

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The sector has undergone radical changes, with the UK’s 30 year old legislation unable to keep up. **Sarah Graham** asks what the UK’s regulatory body needs to do about this.

**Posthumous consent**

In June widower Ted Jennings (right) won a landmark court case, giving him the right to have a baby with a surrogate using a frozen embryo created with his late wife. The HFEA had originally rejected his request because his wife had not given written consent for posthumous surrogacy. However, the High Court ruled that the couple had not been given sufficient opportunity to consent to this scenario.

Widow Jade Payne faces a similar High Court battle to use her late husband’s frozen sperm after her name was mistakenly left off his original sperm donation documents in 2010.

**Consent and confidentiality**

“Consent involves a lot of paperwork, which is cumbersome and isn’t straightforward or easy to understand,” says Raj Mathur, chair of the British Fertility Society (BFS) and a spokesperson for the Royal College of Obstetricians and Gynaecologists (RCOG). “This has led to people having to go to court if they’ve not signed the correct consent form at the correct time, which obviously causes a lot of problems and distress for clinics and patients.”

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**Transparency and sanctions**

One of the biggest shifts of the past 30 years, not foreseen by the 1990 act, is the increasing privatisation of fertility treatment. With this comes a need for transparency of information to ensure patients can make informed choices about their treatment. In particular, says Gwenda Burns, chief executive of patient charity Fertility Network. “The act says patients should be provided with ‘relevant information,’ but the HFEA doesn’t have appropriate regulatory tools to enforce their guidance, so there’s a discordance there.” Chain too feels the current sanctions available to the HFEA are either “mild and often ineffective” or “severe and potentially disproportionate,” such as reducing, restricting, or removing a clinic’s licence. Her proposal is for a “graduated ladder of enforcement, including powers to use economic sanctions … to encourage compliance.” This could, for example, include fines for clinics found to have mis-sold products or services.

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**Much of the act remains fit for purpose, but it needs selective modernisation**

Julia Chain

said that while much of the act remains fit for purpose, she’d like to see “selective modernisation” in three key areas: patient protection; scientific developments; and consent, data sharing, and anonymity.

The HFEA has taken the first steps towards parliamentary change. According to a Department of Health and Social Care spokesperson, “The [HFEA] has agreed it will undertake a review of the Human Fertilisation and Embryology Act to identify priorities for modernisation and present a report on its proposals by the end of the year. The department welcomes this work and we will consider the report when it is completed.” So what do doctors and their patients need from modern fertility law and regulation, and how can the HFEA make this happen?

**Lifting medical secrecy would help to foster greater understanding**

Gwenda Burns

Transparency and sanctions

One of the biggest shifts of the past 30 years, not foreseen by the 1990 act, is the increasing privatisation of fertility treatment.

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**REPRODUCTIVE HEALTH**

Fertility law and regulation need to change—here’s how it could happen

The sector has undergone radical changes, with the UK’s 30 year old legislation unable to keep up. **Sarah Graham** asks what the UK’s regulatory body needs to do about this.
The HFEA doesn't have appropriate regulatory tools to enforce guidance  
Katy Lindemann

The recent legal cases of Jade Payne and Ted Jennings, for example (box, left), highlight the challenges that arise if one partner dies without giving explicit consent for their gametes or embryos to be used posthumously. “Nobody has a crystal ball and it’s really difficult to understand the importance of what you’re signing or not signing until something goes wrong,” says fertility law specialist Natalie Sutherland, a partner at Burgess Mee Family Law.

Sutherland would like patients to be required to seek mandatory private legal advice before starting treatment, rather than it simply being recommended. Some clinics already ask for a solicitor’s letter in certain cases, she explains, but this isn’t currently a requirement under the law. This can leave clinical staff and patients vulnerable to misunderstandings or oversights in relation to important legal considerations such as consent and legal parenthood.

“You don’t know what you don’t know. I’d like to see a more joined up approach between the clinical and legal side of fertility treatment, so all patients can give consent with full knowledge of the legal implications,” she says.

“Person responsible”

For Marta Janss Perez, director of embryology at reproductive health charity the British Pregnancy Advisory Service, a requirement for independent legal advice would relieve pressure on clinical staff. “As healthcare professionals we’re expected to take consent for legal parenthood. We recommend that patients get legal advice but currently it falls to us to decide what the legal implications are,” she says. This could be further streamlined, Mathur adds, by removing the need for legal parenthood consent altogether.

“There is a case to be made that by consenting to treatment you are consenting to become legal parents,” he suggests.

Equally, Mathur says, it’s no longer appropriate for the act to place the legal responsibility for fertility treatment on an individual “person responsible.”

This, he explains, could see a single doctor or scientist face criminal sanctions for a clinic’s transgressions, rather than the responsibility resting with those who benefit financially. “It doesn’t reflect how modern medicine is practised, how clinical governance works, [or] how commercial enterprises are run,” he explains.

“The time has come to divorce clinical and scientific responsibility, which should stay with clinical and scientific teams, from commercial responsibility, which should stay with whoever owns and benefits from the clinic.”

The other major problem to be resolved from a clinical perspective is the additional layer of confidentiality that’s still applied to fertility treatment. “The stigma around IVF that existed 30 years ago doesn’t exist anymore. But, if you have IVF and develop a complication, the clinic is not allowed to share information with a general gynaecological department or your GP without your specific permission. Removing that extra layer of confidentiality would really be in the interest of patient safety and ensuring a smooth pathway,” Mathur says. From a patient perspective too, Burns says, lifting this medical secrecy would help to foster greater understanding among other healthcare professionals, without the need for patients disclosing their “physically and emotionally challenging” fertility journey to their GP, midwife, or specialist.

Consent paperwork is cumbersome  
Raj Mathur

“draconian” confidentiality rules and a more streamlined consent process, Janss Perez says data would become more easily accessible for research. Both she and Mathur would also like the law to facilitate patients to donate to a central embryo bank for research, rather than restricting donations to specific research projects.

The law is also “overly prescriptive” when it comes to introducing new scientific developments, says Sarah Norcross, director of fertility charity Progress Educational Trust. “It’s not really the place for law and government to specify which techniques are permitted. They should allow a regulatory body to hear and weigh the evidence and decide if something’s safe and effective, which would allow new techniques to be introduced much more quickly. Otherwise potential scientific breakthroughs can end up being stymied while waiting for the law to change,” she says. For example, Norcross points out, it took 15 years to change the law to allow mitochondrial donation, but only two techniques—maternal spindle transfer and pronuclear transfer—are legally permitted for use. If a different technique were proven to be safe and effective, further legislative changes would be required before it could be put into practice.

“Person responsible”

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“There is a case to be made that by consenting to treatment you are consenting to become legal parents,” he suggests.

Equally, Mathur says, it’s no longer appropriate for the act to place the legal responsibility for fertility treatment on an individual “person responsible.”

This, he explains, could see a single doctor or scientist face criminal sanctions for a clinic’s transgressions, rather than the responsibility resting with those who benefit financially. “It doesn’t reflect how modern medicine is practised, how clinical governance works, [or] how commercial enterprises are run,” he explains.

“The time has come to divorce clinical and scientific responsibility, which should stay with clinical and scientific teams, from commercial responsibility, which should stay with whoever owns and benefits from the clinic.”

The other major problem to be resolved from a clinical perspective is the additional layer of confidentiality that’s still applied to fertility treatment. “The stigma around IVF that existed 30 years ago doesn’t exist anymore. But, if you have IVF and develop a complication, the clinic is not allowed to share information with a general gynaecological department or your GP without your specific permission. Removing that extra layer of confidentiality would really be in the interest of patient safety and ensuring a smooth pathway,” Mathur says. From a patient perspective too, Burns says, lifting this medical secrecy would help to foster greater understanding among other healthcare professionals, without the need for patients disclosing their “physically and emotionally challenging” fertility journey to their GP, midwife, or specialist.

More streamlined consent would make data more accessible for research  
Marta Janss Perez

Research and innovation

The legal implications for scientific research and innovation are similarly significant. With the lifting of “draconian” confidentiality rules and a more streamlined consent process, Janss Perez says data would become more easily accessible for research. Both she and Mathur would also like the law to facilitate patients to donate to a central embryo bank for research, rather than restricting donations to specific research projects.

The law is also “overly prescriptive” when it comes to introducing new scientific developments, says Sarah Norcross, director of fertility charity Progress Educational Trust. “It’s not really the place for law and government to specify which techniques are permitted. They should allow a regulatory body to hear and weigh the evidence and decide if something’s safe and effective, which would allow new techniques to be introduced much more quickly. Otherwise potential scientific breakthroughs can end up being stymied while waiting for the law to change,” she says. For example, Norcross points out, it took 15 years to change the law to allow mitochondrial donation, but only two techniques—maternal spindle transfer and pronuclear transfer—are legally permitted for use. If a different technique were proven to be safe and effective, further legislative changes would be required before it could be put into practice.

Chain says the HFEA’s legal advisory group has already reached a broad consensus about what needs to be modernised. The next step will be a “broader but very targeted public consultation” over the coming months with the 109 clinics regulated by the HFEA, as well as a wide group of clinicians, scientists, patient groups, legal experts, ethicists, and other stakeholders. From there, “we will develop and submit proposals to the Department of Health and Social Care,” she says, “it’s for them to [then] take forward by way of a draft bill to parliament.”

The main barrier, says Chain, is always parliamentary time. But the longer it takes, the more messy the current situation becomes. “We will do everything we can to ensure our proposals are robust, that we’ve consulted as widely as we need to, and to make our case to parliament that this is urgent,” she says.

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Young women and anal sex

Clinicians’ reluctance to discuss possible harms is letting down a generation of women

Anal intercourse is becoming more common among heterosexual couples. Within popular culture it has moved from the world of pornography to mainstream media. It is no longer considered an extreme behaviour but increasingly portrayed as a prized and pleasurable experience. In Britain, the National Survey of Sexual Attitudes and Lifestyle shows participation in heterosexual anal intercourse among 16 to 24 year olds rose from 12.5% to 28.5% over the past few decades. Similar trends are seen in the US, where 30-44% of men and women report experience of anal sex. Individual motivation varies. Young women cite pleasure, curiosity, pleasing male partners, and coercion as factors. Up to 25% of women with experience of anal sex report they have been pressured into it at least once. Hit television shows such as Sex and the City and Fleabag may unwittingly add to the pressure, as they seem to normalise anal sex in heterosexual relationships or make it appear racy and daring.

Anal intercourse is considered a risky sexual behaviour because of its association with alcohol, drug use, and multiple sex partners. But it is also associated with specific health concerns. The absence of vaginal secretions, increased traumatic abrasions, and less common use of condoms increase the risk of sexually transmitted disease and anal malignancy. Anal pain, bleeding, and fissures also occur as a result of anal intercourse.

Increased rates of faecal incontinence and anal sphincter injury have been reported in women who have anal intercourse. Women are at a higher risk of incontinence than men because of their different anatomy and the effects of hormones, pregnancy, and childbirth on the pelvic floor. Women have less robust anal sphincters and lower anal canal pressures than men, and damage caused by anal penetration is therefore more consequential.

Effective management of anorectal disorders requires understanding of the underlying risk factors, and good history taking is key. Without it, patients are likely to present repeatedly with the same symptoms. Asking about anal sex is standard practice in genitourinary medicine clinics but less common in general practice and colorectal clinics. Clinicians may shy away from these discussions, influenced by society’s taboos. However, with such a high proportion of young women now having anal sex, failure to discuss it when they present with anorectal symptoms exposes women to missed diagnoses, futile treatments, and further harm arising from a lack of medical advice.

Lack of awareness
More widely, public health education on anal sex considers only sexually transmitted diseases, making no mention of anal trauma, incontinence, or the psychological aftermath of the coercion young women report in relation to this activity. A plethora of non-medical or pseudomedical websites fill the health information void. Rather than helping young women make informed decisions, some sites may increase societal pressure to try anal sex.

It may not be just avoidance or stigma that prevents health professionals talking to young women about the risks of anal sex. There is genuine concern that the message may be seen as judgmental or even misconstrued as homophobic. However, by avoiding these discussions, we may be failing a generation of young women, who are unaware of the risks. With better information, women who want anal sex would be able to protect themselves more effectively from possible harm, and those who agree to anal sex reluctantly to meet society’s expectations or please partners, may feel better empowered to say no.

Reluctance to discuss anal sex is not confined to healthcare. The Scottish government attracted criticism for proposing that questions about it should be included in the schools’ health and wellbeing census, prompting first minister Nicola Sturgeon to respond: “Either we can bury our heads in the sand and pretend that young people are not exposed to the issues or the pressures that we know they are exposed to. Or we can seek to properly understand the reality that young people face and provide them with the guidance, the advice, and the services they need to make safe, healthy, and positive decisions.”

Healthcare professionals, particularly those in general practice, gastroenterology, and colorectal surgery, have a duty to acknowledge changes in society around anal sex in young women, and to meet these changes with open, neutral, and non-judgmental conversations to ensure that all women have the information they need to make informed choices about sex.

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