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Expertise, Values, Scientific Advice – and the Vaccination of Children

– Lucie White –

Abstract: The policy decision to recommend the vaccination of children against COVID was a controversial one - a controversy that Guibilini and colleagues characterize as stemming from expert disagreement. I argue that scientific dissent was not the primary issue here - rather, this is a problem of a persistent ambiguity concerning what standard needs to be met for the vaccination of children to be justified - which potential benefits should we take into account, and for whom? I trace the decision-making process in both the UK and the US to draw this out, and then consider some of the key ethical questions we need to consider when adopting a standard of justification.
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1. Introduction

How should you decide when to vaccinate your child against a contagious illness? For the vast majority of us, our decision must depend on what the experts say – we do not have the ability, or the time, to fully parse all the relevant evidence ourselves. But what do we do when the experts disagree? How do we work out, in this situation, whom to trust?

This is the situation, according to Alberto Giubilini, Rachel Gur-Arie, and Euzebiusz Jamrozik, that parents found themselves in in September 2021.[1] The UK's Joint Committee on Vaccination and Immunisation (JCVI) – the independent advisory committee charged with advising the UK Department of Health on vaccination, considered whether to recommend COVID-19 vaccination for children between 12 and 15. They did not recommend that a large-scale vaccination program be undertaken in this age group.[2] Meanwhile, the USA's Centers for Disease Control and Prevention, acting on the recommendation of *their* advisory committee, had already been recommending vaccination for children of this age for several months.[3]

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[1] Giubilini et al. (2025).
[2] JCVI (2021e): 6.
[3] CDC (2021).

This case, for Giubilini and colleagues, raises fundamental general questions about scientific expertise, and scientific dissent.[4] I agree that there is much of broader interest to be learned from a close look at these decisions. But I will suggest that these conflicting recommendations are best understood not as arising from scientific disagreement, but rather from ambiguities about what *standards* should form the basis of such a recommendation – i.e., the circumstances under which vaccination, particularly vaccination of a child, is *justified*. I will suggest that we can tackle many of these questions without relevant scientific expertise.

To see what's involved in this case, and its broader implications for scientific advice, we must come to a clear picture of how these decisions were made. I will thus begin by tracing the decision-making process of advisory committees in the UK and the US. This will help us to identify (or infer) the factors that weighed most heavily on the decision-making process, and to draw out some elements of fundamental ethical importance. I will identify some ambiguities in what goes into these decisions and how decisive these factors are. But primarily, I will suggest that there is a persistent ambivalence about what standards, precisely, need to be met in order to legitimate the vaccination of children. I will characterize and explore this problem, map out different potential standards we might wish to adopt, and give a preliminary indication of how we might decide upon a particular standard.

2. From Vaccine Science to Vaccine Policy

Scientific advice, and the role that it plays in policy-making, has been the focus of increased scrutiny since the COVID pandemic.[5] Advice on vaccination, however, differs from the kind of scientific advice that has received much of this attention. Much of the debate has focused on whether it is ever permissible for scientific advisory committees to offer recommendations, or if they should rather stick to a neutral presentation of the implications of various policy options.[6] But this is not a question in the case of vaccine advisory committees – it is explicitly within their purview to issue *recommendations* concerning when a vaccination program should be rolled out, in what populations, and on what schedule.[7] There is no question that values play a central role in formulating recommendations about whether to implement a mass vaccination program. This means that much of the existing discussion on the legitimate role of values in science[8] do not fully capture the problems that arise in this context – as we will see, vaccination advice raises a different set of ethical issues.

But in order to see this, we must first understand more about the process by which the decision to vaccinate children 12-15 against COVID was reached. Let's turn first to the UK. The vaccine advisory committee responsible for issuing advice and recommendations to the Department of Health in the UK is the "Joint Committee on Vaccination

[4] Giubilini et al. (2025).
[5] See e.g. Bennett (2020); Birch (2021); Pamuk (2022).
[6] See Birch (2021); Pamuk (2022).
[7] Kirkland (2016); Pamuk (2022); UK Government (2013).
[8] See Birch (2021); Pamuk (2022), see also Douglas (2000); Douglas (2009).

and Immunisation" (JCVI). The JCVI considered whether to recommend the vaccination of children 12-15 (not in a clinical risk group) against COVID over the course of three meetings on the August 26, September 1, and September 2, 2021.[9]

What factors do the JCVI emphasize in their meetings, and what standards do they apply when weighing the evidence? In their first two meetings, three key factors of concern are apparent. On August 26, they consider modelling evidence on the impact of vaccination in this age group – both concerning the potential of a reduction of infections, hospitalizations and deaths in the target age group, but also that "the modelling indicated that the epidemic could be shortened through vaccination of children and young people."[10] They note that the Netherlands had decided to vaccinate children aged 12 and over, and that part of the rationale was the potential for the vaccination of children to shorten the epidemic. The second relevant topic for discussion on August 26 is a review of available evidence on the risks and benefits for only the target age group. They highlight the most concerning adverse event of vaccination – myocarditis.[11] The discussion is continued at the next meeting on the September 1, which is dedicated entirely to a review of the available evidence on myocarditis in children and young people.[12]

So far we can see a concern with the broader public health effects of vaccination, the effects within the target group, and a particular emphasis on severe adverse effects of vaccination. The discussion on September 2 puts forward, for the first time,[13] an explicit standard by which the decision will be assessed – after noting, again, the possibility that vaccination in this age group will lead to "indirect" benefits both for adults, and younger children, the JCVI decides that they will issue a recommendation only on the basis of "the direct health benefits and risks of vaccination."[14] Broader public health benefits, then, are excluded from the JCVI's consideration. But equally notable is the JCVI's decision to focus only on *health* benefits.

The committee spends some time discussing one other potential benefit for this age group – potential educational benefits (i.e., not having to miss school due to infection or illness). The committee decides not to factor this into their recommendation for two reasons. First, they "hadn't received any evidence to inform advice on the educational benefits of vaccination of those aged 12 to 15", and they can't be sure that these benefits would be substantial.[15] Second, and relatedly, they decide that "the usual JCVI processes should be used in development of advice, and that factors outside of the Committee's remit could and should be considered by Government."[16] This leads to a key feature of

[9] JCVI (2021c): 7.
[10] Ibidem: 3.
[11] Ibidem: 5. They consider here, and at other points in the discussion, a single dose vaccine strategy (as opposed to the usual 2-dose regimen) to maximize benefits while minimizing risks – this is a recommendation which is ultimately picked up by the UK CMOs (Chief Medical Officers, see below).
[12] JCVI (2021d): 2.
[13] The JCVI has adopted this same standard for previous decisions (see e.g. JCVI (2021a)), with some notable exceptions that will be discussed below.
[14] JCVI (2021e): 3 – although they do suggest that that "if the direct benefits and disbenefits to children and young people were relatively balanced, then indirect benefits could be considered." Ibidem: 4.
[15] Ibidem: 5.
[16] Ibidem: 6.

their recommendation, which may cause some confusion about the presence of scientific dissent. The committee votes, and decides by majority, "against advising vaccination of healthy children and young people aged 12 to 15 years, based on the health benefits alone."[17] Though they agree that "the [health] benefits from vaccination are marginally greater than the potential known harms,"[18] they determine that this margin of benefit is not sufficient to recommend a vaccination program.

However, the committee stipulates that their

> position was based on health benefits alone, and it was agreed that additional consideration should be given to the educational and associated public health benefits. The Committee was clear that they were not saying that a programme should not be undertaken, but that there was insufficient health benefit, in isolation, to promote a programme in children and young people aged 12 to 15 years.[19]

The committee "agreed to indicate to Government that the Government may wish to take additional advice from the UK CMOs [Chief Medical Officers] on the potential educational benefits of vaccination in those aged 12 to 15 years of age in the development of policy."[20] And this is just what happened next.[21] The four CMOs of the UK decided that "the additional likely benefits of reducing educational disruption and the resulting reduction in public health harm provide enough extra advantage to recommend in favor of vaccinating this group."[22] They take this to be an acceptance of, and building upon, the advice of the JCVI.[23,24] Interestingly, though the CMOs are charged with considering wider (i.e., non-health) benefits, they are still limited to the "benefits and disbenefits, direct or indirect... for children and young people aged 12 to 15 years" – potential benefits for other age groups are not considered.[25]

So in the UK, we see a very interesting situation concerning the standards for childhood vaccination. The JCVI explicitly limit themselves only to the direct health benefits to the age group in question when issuing their recommendation, but they are very clear that they do not think that these are the only factors that should be taken into consideration – they indicate to the UK Government that theirs is not the final word, and encourage them to take into account other considerations before reaching a final decision.

How does this compare to the decision-making procedure in the US? Here, too we have a dedicated vaccination advisory committee – the Advisory Committee on Im-

[17] Ibidem.
[18] UK Government (2021b).
[19] JCVI (2021e): 6.
[20] Ibidem.
[21] UK Government (2021a); UK Government (2021b); Welsh Government (2021).
[22] Welsh Government (2021).
[23] UK Government (2021b).
[24] In addition, following the considerations of the of JCVI as documented above, the CMOs recommend only one dose of the vaccine – postposing the decision about whether and when to administer a second dose until the JCVI has had the opportunity to review further information (UK Government 2021b).
[25] UK Government (2021a).

munization Practices (ACIP), charged with providing recommendations that will form the basis of the Centers for Disease Control and Prevention's (CDC) decisions on vaccination schedules. The ACIP do not publish minutes of their meetings (though they can be observed via webcast). This means that we can't trace the factors considered throughout the decision-making process as we can with the JCVI. However, the ACIP uses a standardized framework, the Grading of Recommendations, Assessment, Development, and Evaluations (GRADE) to evaluate available evidence - which allows us a clear look at what factors were identified as important for their recommendation. It should also be noted that the decision to vaccinate children 12-15 against COVID in the US was made in May 2021 – over 4 months before the JCVI meetings documented above. The JCVI, in considering the risks of vaccination, particularly myocarditis, relied heavily on the evidence gathered from the widespread vaccination of children already taking place in the US (and Canada)[26] – and even at this later stage, the uncertainties surrounding the long-term risks were a key factor in their determination that the individual benefits did not significantly outweigh the risks. Does it mean that the ACIP, at an earlier stage with a larger amount of uncertainty, came to a different conclusion about the evidence? Or did they use a different standard?

The ACIP's GRADE report aims to evaluate the benefits and harms of the proposed vaccination program by identifying potential risks and benefits, specifying how important they are to the policy decision, and assessing the quality of the evidence for each identified factor (from "high" to "very low" certainty). They proceed on the basis of a systematic review of available evidence for a 2-dose regimen in the target age group – identifying only one study that fit the profile: the Pfizer phase II/III randomized controlled trial (RCT). The identified factors of interest include individual benefits and harms, but do not appear to be limited to them. Prevention of symptomatic COVID is identified as a "critical" factor of interest, while prevention of hospitalization is identified as "important." Prevention of asymptomatic infection is, however, also included as "important." The possibility of "serious adverse events" is the only other factor deemed "critical." There was no available data to assess either the effects on hospitalization (because no hospitalizations occurred during the RCT), or the impact on asymptomatic infection. Out of the seven factors identified as important or critical, the GRADE analysis zones in on three for which data are available – including symptomatic COVID, and serious adverse events.[27] The evidence that the vaccination reduced risk of symptomatic COVID was assessed as of "high" certainty. The evidence on severe adverse reactions, however, was regarded as of "very low" certainty – both due to the small sample size, but also because the short follow-up time of 2 months would not capture longer term sequelae (echoing the concerns of the JCVI).

How are these findings translated into recommendations? The ACIP take these results on board, and supplement them with some other considerations. Interestingly, and in a departure from both the JCVI and the CMOs, the reduction of "community transmission"[28] is put forward as a key reason to vaccinate this age group. The report

[26] JCVI (2021d).
[27] ACIP (2021) (see Table 2).
[28] Wallace et al. (2021): 751.

emphasizes the "importance of COVID as a public health problem" and the contribution of this age group to "household transmission," along with an assessment of the risks and benefits for the target group – determining that the use of the "vaccine among adolescents is a reasonable and efficient allocation of resources."[29] In an additional contrast to the JCVI, who are preoccupied, for a great deal of their discussion, with the possibility of serious adverse effects, the ACIP notes the very low certainty of the available evidence, but also the very low observed frequency of adverse events – and it is ultimately not at all clear what role this consideration played in their decision. Some of the difference in attitude might be explained by the fact that myocarditis (or any serious adverse effects in this age group[30]) was not, at this stage, on the ACIP's radar – the first reports started coming in just after this point – although these did not change the ACIP's determination that the benefits of vaccination outweighed the risks.[31]

3. Values and Expertise

I want to suggest that the differences between the recommendations issued in the US and the UK can be best understood as based on conflicting values, rather than scientific dis-sent. But more must be said to establish why, even if these discrepancies are value-based, they can be understood and addressed without scientific expertise. There are different sorts of value judgments that enter the equation when we are attempting to determine what standards *should* govern vaccine recommendations. It's quite widely accepted, by now, that some value judgments are inescapable in scientific practice, particularly because of "inductive risk" – the notion that scientists (and certainly scientific advisors) must weigh the consequences of a false positive and false negative when deciding how much evidence is required to accept a hypothesis (or support a recommendation), which will turn on how much we disvalue these consequences.[32] Vaccination throws this problem into sharp relief – the consequences of holding back on a potentially beneficial and sufficiently safe mass vaccination program are severe, and so, too, are the adverse consequences of vaccination gone wrong. In order to decide how much evidence is sufficient to recommend vaccination, we need to make a value judgment about which consequence we are more concerned with avoiding. Although, as noted above, it is not possible to directly compare the JCVI and ACIP's deliberations to draw definitive con-clusions about their attitude to risk, there are several indications that the JCVI is more risk-averse than the ACIP.[33]

Inductive risk raises a set of ethical issues that can be difficult to settle, because judgments of inductive risk are often inextricable from the scientific process, which means that they cannot be parsed without scientific expertise. For example, the question

[29] Wallace et al. (2021): 750.
[30] Ibidem.
[31] Gargano et al. (2021): 979..
[32] See Douglas (2000); Douglas (2009)
[33] Including the JCVI's prolonged discussion of serious adverse events, compared to a lack of discussion about the role this consideration played from the ACIP, and the JCVI's insistence that benefits must not just marginally but "markedly" (JCVI 2021e: 5) outweigh risks, compared to the ACIP stating simply that the benefits outweighed the risks.

of which sample size and length of follow-up time would be sufficient to produce a sufficiently certain indication of potential severe adverse effects[34], involves both a value judgment and relevant scientific expertise. However, this does not mean that all value judgments in this domain require scientific expertise, particularly if we step back from the specifics of a particular study. For example, in requiring that the individual benefits for children not just marginally but "markedly outweigh the risks,"[35] the JCVI appears to be guided by public opinion.[36]

In addition, the ethical issues that arise here are not limited to concerns of inductive risk – there are also ethical questions that are "external" to scientific reasoning,[37] and clearly fall beyond the purview of scientific expertise. When we ask under what circumstances the vaccination of a child can be ethically justified, we must determine not just how much risk we are willing to tolerate, but which benefits (and risks) we may justifiably consider in the first place. We have seen that this emerges as a key distinguishing feature between the advisory and decision-making bodies surveyed above: the JCVI considers only health benefits for the target group, the UK CMOs consider wider benefits but still within the target group, while the ACIP appeals, in addition, to broader benefits to the population as a whole.

In the following section, I will turn to a consideration of the different potential standards we might adopt to justify the vaccination of children – starting with the question of what benefits can justify a vaccination program, and exploring the subsequent questions that arise with each potential answer to this question. This exercise will aid in clarifying what we need to decide on and elucidate in order to make the ethical standards that underlie these decisions consistent, transparent and defensible. Although I will use the above discussion of the actual decision-making procedures as a means of highlighting factors that need to be clarified, I do not mean to suggest that any of these entities followed this reasoning in its entirety in coming to their recommendations. Some of the questions I raise are not (explicitly) addressed by the committees, and in some cases, the committees limited themselves to considering only certain factors due to administrative or pragmatic reasons rather than ethical ones (as we've touched on above and will further explore below). With that said, let's turn to an exploration of the possible standards to which such a decision might be held, and the questions that arise for each standard.

4. What Standard Justifies the Vaccination of Children?

Expected benefits for target group

Perhaps we might think that the vaccination of children is only justified when it is in the individual child's benefit – that is, when the expected benefits to the child outweigh any potential risks.[38] As we've already seen, a key question here will be determining how broad a view of benefits we should take. But before we explore this question, there are

[34] Cf. ACIP 2021 (see Results).
[35] JCVI (2021e): 5.
[36] Ibidem.
[37] See Douglas (2000).
[38] Cf. John (2022).

a couple of other questions that arise here too. First – *to whom* exactly must the benefits accrue? We've seen that the JCVI limits their inquiry to "health benefits of vaccinating healthy 12- to 15-year-olds"[39] while the UK CMOs are charged with investigating wider benefits, but only "for children and young people aged 12 to 15 years."[40] In a clinical context, we would look at the particular individual. But at the level of public health or public policy, we must always look at situations in terms of *groups*. So what does it mean to say that a vaccination policy benefits children 12-15 years old? Does it mean that the expected benefit for *each* healthy 12-15 year old outweighs the risk? It is difficult to see how this could be determined, or, indeed, how this standard could ever be met.[41] So perhaps it must be of expected benefit to *most* children in the group (how many)? *Some* exceptions to the rule seem inevitable, so if exceptions are priced into this standard, are there any additional conditions that need to be met? For example, must it be likely that where the general advice does not fit the circumstances of a particular child, this will be picked up on by, for example, the attending physician? Of course, the more different types of benefits we are looking at here, the more complicated this question becomes. Perhaps the educational benefits of missing less school are not so relevant to a particular child – who's being bullied at school, or has a lot of anxiety about attending school in a pandemic. Though this missing benefit was used to justify the vaccination program, it does not necessarily follow that the answer to this exception would be refusing the offer of vaccination – it might turn out that vaccination is still in the child's best interests.

Another pertinent question that jumps out when looking at the JCVI's discussion and decision is, as we've seen – by *how much* does the benefit need to outweigh the costs or risks? The JCVI was ultimately "of the opinion that the benefits from vaccination are marginally greater than the potential known harms", but the "margin of benefit" was considered to be "too small"[42] to advise for a vaccination program. So is marginal benefit enough, or must the benefits "markedly outweigh the risks,"[43] and if so, why? Is there a difference when we're talking about children, as opposed to adults?[44]

Let's now turn to the question of *which benefits* we should take into account. It's interesting to note that the ACIP, although it does not limit itself to a consideration of benefits only within the target group, does limit itself, in its report and evaluation of the research, only to quantitative health information – infection rates, hospitalization

[39] JCVI (2021e): 6.
[40] UK Government (2021a).
[41] Cf. Sven Ove Hansson's proposal that "exposure of a person to a risk is acceptable if and only if this exposure is part of an equitable social system of risk-taking that works to her advantage" (2003: 305). This is often used, for example, to show why exposing people to the risk of a car is acceptable – we all benefit from allowing people to drive. But of course, there will be exceptions to this (and probably every) rule – what if I am not able to get a license, and I live near a busy highway? If we're imposing a principle at a group level, we need to find some way to allow for inevitable exceptions, or the principle cannot get off the ground.
[42] UK Government (2021b).
[43] JCVI (2021e): 5 – we'll turn to why the JCVI (seemingly) adopts this standard in the subsequent section.
[44] As the JCVI also suggests – again, more on this below.

rates, incidence of severe adverse effects, and so on.[45] The JCVI, although they explicitly limit themselves to "health benefits", seem to also contemplate a wider range of factors. For example, they consider whether they can take "long COVID" into account in their risk-benefit analysis, though they lack the data to quantify benefits. They agree to factor it in "qualitatively."[46] They also discuss "unquantifiable benefits…mental health, peace of mind and overall quality of life,"[47] although it does not appear that these considerations ultimately factor into their decision.[48]

There are two sets of issues here. Some of these potential benefits are pretty clearly health benefits, though it may be difficult to work out how to factor them in, if they cannot be quantified. Although there may not be a principled reason to exclude them, there may be a case for doing so if it is unclear how to incorporate them into a risk-benefit analysis. But of some, we might ask whether they are in fact strictly health benefits. This leads to a further question – is there any principled reason that such a decision should be limited to health benefits only? It is important to underscore that the JCVI do not think so.[49] They are very clear that they "could not fully take into account the educational benefits of vaccination,"[50] that they "hadn't received any evidence to inform advice on the educational benefits of vaccination"[51] so the "potential educational benefits would primarily be for the Government to consider alongside JCVI advice."[52] The JCVI then do not take educational benefits into account for the same reason we may not wish to take unquantifiable benefits into account – they feel that they are not able to do so, and, in addition, they take it to be outside their purview. They explicitly indicate that these benefits *should* be taken into account, by the CMOs.

But Giubilini gives us one reason to think that it might be ethically problematic to take educational benefits into account alongside health benefits when deciding on vaccination policy. He notes that the costs that vaccination is supposed to help us avoid, in this case, are costs that the government has itself imposed[53] – policies requiring school closures at a certain rate of infections, or policies requiring children to stay at home if infected. There is something suspect about this situation – it seems that a nefarious government could push its citizens into pretty much any course of action by imposing a burden and offering their preferred course of action as an escape from the burden. It might be seen as, in some ways, akin to asking someone to do something while holding

[45] Although the director of the CDC does mention a "faster return to social activities" and "peace of mind" for caregivers and families when announcing the adoption of the ACIP's recommendation (CDC 2021). They also appeal explicitly to wider benefits in Gargano et al. (2021). It's not clear how these are weighed alongside other factors.
[46] JCVI (2021e): 4.
[47] Ibidem: 5.
[48] It's notable that the CMOs were charged with considering "mental health" among the "wider issues" beyond what the JCVI had covered, suggesting that these considerations did not ultimately factor into the JCVI's recommendation.
[49] See also the German vaccination advisory committee's recommendation, which includes consideration of the "psychosocial consequences of the pandemic" (RKI 2021: 41).
[50] JCVI (2021e): 4.
[51] Ibidem: 5.
[52] Ibidem.
[53] Guibilini (2021).

a gun to their head. Even if the policies on school closures and isolation are thought to be legitimate, we might think of this as akin to legitimately imprisoning someone, and then offering them a reprieve if they participate in a medical experiment.[54] This is not to say, just as with research on prisoners, that such a course of action is never justifiable, but, again, just as with research on prisoners, it does appear to require particularly careful justification.[55]

In addition, as Giubilini claims, if most of the benefits to children of this age group are coming from the relaxation of restrictions, it should cause us to question whether we might instead lift the restrictions. This might be an indirect way in which other factors, beyond the benefits to this specific age group, are coming into the equation – perhaps we were reluctant, in this case, to lift restrictions, not for the benefit of children 12-15, but for the benefit of other groups. Again, this is not to say that such trade-offs cannot be justified, but rather that the standard of benefit to this group alone, adopted by both the JCVI and the UK CMOs, might be insufficient to justify this course of action.

There are other cases in which the benefits to the target population and benefits to others might blur. Consider, for example, the JCVI's earlier decision (in August 2021) that COVID vaccination should be rolled out for children "12 years and over who are household contacts of persons (adults or children) who are immunosuppressed."[56] They suggest that children should be offered the vaccine "on the understanding that the main benefits from vaccination are related to the potential for indirect protection of their household contact who is immunosuppressed." However, they also suggest that the "offer of vaccination may help to alleviate stress and anxiety experienced by the children and young people living in these difficult circumstances."[57] The JCVI, to its credit, is very clear that benefits to other play a role in this recommendation. But it does link the benefit of these children closely to the benefit of the vulnerable contacts – where the contacts are in danger, we might expect that the children will suffer. By protecting those close to them, the children are also benefitted. We should not follow this too far – we do not want what's in the best interests of the children in question to simply collapse into what's to the benefit of those around them – but it does serve to illustrate that there may not be a completely clear line between the interests of separate individuals.[58]

I have tried, here, to draw out some of the questions that we should ask when adopting the view that vaccination of a certain group of children is only justified when it is to the benefit of those children. I've suggested that we need to get clear on *who* needs to benefit, *how much* benefit is required, and *which benefits* should be taken into account. I've suggested that there is no principled reason to distinguish between health and wider benefits, but some potential benefits might require particular justification, and it might sometimes not be possible to justify the inclusion of some wider benefits while sticking to the standard that only benefits to the target group should be considered. In addition, it is sometimes difficult to completely distinguish between benefits to the target group, and benefits to others.

[54] NCPHSBBR (1979).
[55] See Guibilini (2021).
[56] JCVI (2021a).
[57] Ibidem.
[58] See also John (2020).

Expected benefits to others

But we might equally contend that a vaccination recommendation need not be based solely on benefit to the target group – perhaps we are also justified in taking benefits to the overall population into account. Even the JCVI, as we have seen, takes benefits to others as the basis of recommendations on occasion. This appears to be the approach, as we have seen, taken by the ACIP, who prioritizes, among some other factors, both a consideration of "risks and benefits" (here, they appear to focus only on the target group), as well as "public health" considerations – shortening the epidemic, reducing transmission, and so on. These are factors that might benefit the target population, but only insofar as they benefit the population as a whole. An immediate question is, how do we trade off these two goals? The ACIP does not provide an indication of how they approach this problem. Is there a threshold of benefit to the target group that must be met, or a maximum amount of risk that they can be exposed to, before broader considerations come into the mix? Vaccination programs always have a public health goal at their heart, but when we are appealing to this standard, we must ask, what are the side constraints? This brings us back to many of the questions raised above.

Perhaps, as some of the most prominent advocates of mandatory vaccination contend, this framing misses an important factor. Perhaps we are justified in compelling individuals to be vaccinated, because in going around unvaccinated, they are threatening harm to others, thereby violating John Stuart Mill's "harm principle" and justifying state intervention to curtail that harm.[59] That is, rather than viewing this as sacrificing one group for the benefit of the majority, we may justify vaccination as a means of protecting everyone in society from the threat of harm. As Stephen John puts it, it's conceivable that children may have an ethical obligation to be vaccinated, even if it's not in their prudential interests.[60]

Even if we doubt that a harm-principle-based argument gives us sufficient grounds to *compel* others to be vaccinated,[61] it should be noted that, in this context, we're not talking about mandatory vaccination – we're talking about making the vaccination available to those in the target population who want to take it. These vaccinations have also already been approved by the country's relevant regulatory agency (the FDA in the US, the MHRA in the UK). We might have no qualms about making a vaccine *available* to an adult even if for the protection of others.[62] We might even appeal to them to take it. But is it permissible to treat children in the same way?

One additional interesting question when we begin to consider benefit to others as playing a potential role in the justification of vaccination is whether we might appeal to the interests of another particular *group*. Consider, for example, the JCVI's recommendation in favor of a vaccination program against influenza for children aged two and above. This, again, was a decision based not on the interests of the children, but rather, "most of the health benefit…was gained from indirect protection of the high risk and older aged

[59] Brennan (2018); Flanigan (2014).
[60] John (2022): 1006.
[61] See Bernstein (2017); Giubilini (2020); White (forthcoming).
[62] See John (2022): 1007.

groups."[63] This is the second time we have seen a JCVI recommendation based on benefit to a particular, vulnerable group outside the group targeted for intervention. Might the vulnerable have a special claim to protection, even against the (arguably) special claims of children? Does it make a difference, as was the case with the influenza decision, if many of the members of this vulnerable group "do not themselves get vaccinated"?

And if we're looking at the potential weight of special claims – what about where vaccinating one group of children protects another group of children? Germany's STIKO[64] considered modelling that suggested that vaccination of children 12-17 wouldn't have a significant effect on the overall course of the next wave of COVID infections, but that it could lead to a reduction in cases in children under 12 years old.[65] We have been entertaining the assumption that children plausibly have a special moral status, and that we may need extra justification for vaccination in this age group. Could the protection of another group of children form part of the basis of this justification?

5. How Should We Decide?

In the previous section, I've aimed to draw out some of the questions we should answer when considering what standard must be met to justify recommending a vaccination program for children. So how should we go about determining the answers to these questions?

One option would be to consult the public. Because these are public policy decisions rather than scientific decisions, it seems that the public should have a role in determining the appropriate standard. This may also be necessary to secure public trust in vaccination decisions. Matthew Bennett suggests that in order to generate what he calls "recommendation trust" – that is, in order to trust in the recommendations of scientific advice – people must be able to see that the values underlying the decisions align with their interests.[66] In addition to clearly defining these standards by asking the questions I have asked above, and making our answers transparent and explicit, we might align these values with the interests of the people by determining and taking into account what the public thinks these standards should be.[67]

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[63] JCVI (2011): 6. It's also interesting to note that this was not the case for vaccination against COVID – the concern there was more about the risk of "diverting resources from high-risk groups towards low-risk groups" (JCVI 2021e: 6). If it had been the case that vaccinating the young were a good means of protecting the old, the JCVI's calculus might have been very different.

[64] The Standing Committee on Vaccination; the vaccination advisory committee responsible for providing vaccine recommendations to Germany's Robert Koch Institut (the government department responsible for disease control and prevention).

[65] See RKI (2021): 38-39.

[66] Bennett (2020).

[67] Bennett talks about the pitfalls of a simple strategy of transparency, but he is referring to issues in which value judgments are both difficult to disentangle from the science, and difficult to understand without scientific expertise. This will surely pose a problem with public involvement in decision--making too. As we've seen in section 3, however, some of the value judgements were are referring to here can be made without scientific expertise – and even when it comes to inductive risk, we may be able to make some determinations about how much inductive risk we are willing to tolerate at a general level without getting into expertise-necessitating specifics.

Interestingly, the JCVI does survey the public on their attitudes to vaccination, and this does have a bearing on the standards they adopt. But this is not directly for ethical reasons of justification – it is to ensure that a vaccine programme will achieve sufficient uptake.[68] For example, when recommending the influenza vaccine for children, but for the benefit of another group, they suggest that "attitudinal research to inform likely uptake of influenza vaccine should be conducted, including on attitudes when…most of the health benefit…would be gained by adults rather than children."[69] Similarly, we have seen that the JCVI generally holds that for the vaccination of children, the benefits must not just marginally but "markedly" outweigh the risks. Why do they think this? Because "in relation to childhood immunisation programmes, the UK public places a higher relative value on safety compared to benefits."[70] Part of their concern for severe adverse events could also be related to concerns about uptake – they document how the American and Canadian media have reported these concerns, and note (in the case of Canada) that "they were still able to achieve high vaccine uptake."[71] The vaccination standards that will lead to high uptake may be distinct from the ethical standards that the public thinks should govern vaccine programs.[72] But the JCVI's use of attitudinal research gives us one potential roadmap for how such standards might be gleaned, and incorporated into public policy, particularly if, as I have contended, many of these ethical questions can be answered, at least to a certain degree, without scientific expertise.

6. Conclusion

Science-based policy-making on a controversial issue, involving high stakes, under conditions of uncertainty, and where trust in scientific authorities is fraught, presents us with a very difficult set of issues. We can best tackle these issues by determining which are most prominent, with careful attention to the particular context. I have suggested that the question of whether and when to recommend vaccination for children is, at its core, a question about what standard must be met for the vaccination of a child to be justified. Once we get clear on this, we can begin to determine what this standard should be – delving into, and ultimately answering, all the questions that arise, for each possible standard. To secure public trust, we must also ensure that these standards are not out of step with those of the public.

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[68] In order to be effective, a vaccine program must have sufficient uptake. We see similar considerations from the ACIP (see Wallace et al. 2021: 750).
[69] JCVI (2011): 6.
[70] JCVI (2021a); JCVI (20021b).
[71] JCVI 2021d: 6.
[72] Thanks to an anonymous reviewer for emphasizing this distinction.

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References

Advisory Committee on Immunization Practices (ACIP) (2021), "Grading of Recommendations, Assessment, Development, and Evaluation (GRADE): Pfizer-BioNTech COVID-19 Vaccine for Persons Aged 12-15 Years," URL = https://www.cdc.gov/vaccines/acip/recs/grade/covid-19-pfizer-biontech-vaccine-12-15-years.html [Accessed 12.04.2024].

Bennett M. (2020), "Should I do as I'm told? Trust, Experts, and COVID-19," *Kennedy Institute of Ethics Journal* 30(3-4): 243–263.

Bernstein, J. (2017), "The case against libertarian arguments for compulsory vaccination," *Journal of Medical Ethics* 43(11): 792–796.

Birch, J. (2021), "Science and Policy in Extremis: The UK's Initial Response to COVID-19," *European Journal for the Philosophy of Science* 11(90): 1–27.

Brennan, J. (2018), "A libertarian case for mandatory vaccination," *Journal of Medical Ethics* 44(1): 37–43.

Centres for Disease Control and Prevention (CDC) (2021), "CDC Director Statement on Pfizer's Use of COVID-19 Vaccine in Adolescents Age 12 and Older," URL = https://archive.cdc.gov/#/details?url=https://www.cdc.gov/media/releases/2021/s0512-advisory-committee-signing.html [Accessed 15.04.2024].

Douglas, H. (2000), "Inductive Risk and Values in Science," *Philosophy of Science* 67(4): 559-579.

Douglas, H. (2009), *Science, Policy and the Value-Free Ideal*, University of Pittsburgh Press, Pittsburgh.

Flanigan, J. (2014), "A defense of compulsory vaccination." *HEC Forum* 26(1): 5–25.

Gargano, J.W., Wallace, M., Hadler, S. C., et al. (2021), "Use of mRNA COVID-19 Vaccine After Reports of Myocarditis Among Vaccine Recipients: Update from the Advisory Committee on Immunization Practices — United States, June 2021," *Morbidity and Mortality Weekly Report (MMWR)* 70(27): 977-82, doi: 10.15585/mmwr.mm7027e2.

Giubilini, A. (2020), "An argument for compulsory vaccination: the taxation analogy," *Journal of Applied Philosophy* 37(3): 446–466.

Giubilini A. (2021), "The Double Ethical Mistake of Vaccinating Children against COVID-19," URL = https://blog.practicalethics.ox.ac.uk/2021/09/the-double-ethical-mistake--of-vaccinating-children-against-covid-19/ [Accessed 12.04.2024].

Giubilini, A., Gur-Arie, R., Jamrozik, E. (2025), "Expertise, Disagreement, and Trust in Vaccine Science and Policy: The Importance of Transparency in a World of Experts," *Diametros* 22 (82): 7-27.

Hansson, S. O., (2003), "Ethical Criteria of Risk Acceptance," *Erkenntnis* 59(3): 291–309, doi: 10.1023/A:1026005915919.

John, S. (2020), "The Ethics of Lockdown: Communication, Consequences, and the Separateness of Persons," *Kennedy Institute of Ethics Journal*, 30(3-4): 265-289.

John, S. (2022), "How low can you go? Justified hesitancy and the ethics of vaccination against COVID-19," *Journal of Medical Ethics* 48(12): 1006-1009.

Joint Committee on Vaccination and Immunisation Influenza Sub-Committee (2011), "Minute of meeting on Monday 19 September 2011," URL = https://webarchive.nationalarchives.gov.uk/ukgwa/20130107105354/http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@ab/documents/digitalasset/dh_131105.pdf [Accessed 28.05.24].

Joint Committee on Vaccination and Immunisation (JCVI) (2021a), "JCVI statement on COVID-19 vaccination of children and young people aged 12 to 17 years: 4 August 2021," URL = https://www.gov.uk/government/publications/jcvi-statement-august-2021-covid-19-vaccination-of-children-and-young-people-aged-12-to-17-years/jcvi-statement-on-covid-19-vaccination-of-children-and-young-people-aged-12-to-17-years-4-august-2021 [Accessed 12.04.2024].

Joint Committee on Vaccination and Immunisation (JCVI) (2021b), "JCVI Statement on COVID-19 Vaccination of Children Aged 12 to 15 years: 3 September 2021," URL = https://www.gov.uk/government/publications/jcvi-statement-september-2021-covid-19-vaccination-of-children-aged-12-to-15-years/jcvi-statement-on-covid-19-vaccination-of-children-aged-12-to-15-years-3-september-2021 [Accessed 12.04.2024].

Joint Committee on Vaccination and Immunisation (JCVI) (2021c), "Minute of the JCVI Extraordinary Meeting on COVID-19 Immunisation. Thursday 26 August 2021 08:00-11:00," URL = https://www.gov.uk/government/groups/joint-committee-on-vaccination-and-immunisation#meetings-agenda-and-minutes [Accessed 12.04.2024].

Joint Committee on Vaccination and Immunisation (JCVI) (2021d), "Minute of the JCVI Extraordinary Meeting on COVID-19 Immunisation – extraordinary meeting with cardiologists. Tuesday 1 September 2021 17:00-20:00," URL = https://www.gov.uk/government/groups/joint-committee-on-vaccination-and-immunisation#meetings-agenda-and-minutes [Accessed 12.04.2024].

Joint Committee on Vaccination and Immunisation (JCVI) (2021e), "Minute of the JCVI Extraordinary Meeting on COVID-19 Immunisation. Thursday 2 September 2021 08:00-11:45," URL = https://www.gov.uk/government/groups/joint-committee-on-vaccination-and-immunisation#meetings-agenda-and-minutes [Accessed 12.04.2024].

Kirkland, A. (2016), *Vaccine Court: The Law and Politics of Injury*, New York University Press, New York.

The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (NCPHSBBR) (1979), "The Belmont Report: Ethical Principles and Guidelines for the Protection of Human Subjects of Research," URL = https://www.hhs.gov/ohrp/regulations-and-policy/belmont-report/read-the-belmont-report/index.html [Accessed 30.05.24].

Pamuk, Z. (2022), "COVID-19 and the Paradox of Scientific Advice," *Perspectives on Politics* 20(2): 562-576.

Robert Koch Institut (RKI) (2021), Epidemiologisches Bulletin 33, 2021 (19. August 2021), URL = https://www.rki.de/DE/Aktuelles/Publikationen/Epidemiologisches-Bulletin/2021/33_21.pdf?__blob=publicationFile&v=3 [Accessed 29.05.24].

UK Government (2013), "Joint Committee on Vaccination and Immunisation Code of Practice 2013," URL = https://www.gov.uk/government/groups/joint-committee-on-vaccination-and-immunisation#code-of-practice-and-conflicts-of-interests [Accessed 21.05.2024].

UK Government (2021a), "Correspondence: Terms of reference for UK CMO advice on universal vaccination of children and young people aged 12 to 15 years against

COVID-19," URL = https://www.gov.uk/government/publications/universal-vaccination-of-children-and-young-people-aged-12-to-15-years-against-covid-19/terms-of-reference-for-uk-cmo-advice-on-universal-vaccination-of-children-and-young-people-aged-12-to-15-years-against-covid-19 [Accessed 26.05.2024].

UK Government (2021b), "Correspondence: Universal Vaccination of Children and Young People aged 12-15 years against COVID-19," URL = https://www.gov.uk/government/publications/universal-vaccination-of-children-and-young-people-aged-12-to-15-years-against-covid-19/universal-vaccination-of-children-and-young-people-aged-12-to-15-years-against-covid-19 [Accessed 12.04.2024].

Wallace, M., Woodworth, K.R., Gargano, J.W., et al. (2021), "The Advisory Committee on Immunization Practices' Interim Recommendation for Use of Pfizer-BioNTech COVID-19 Vaccine in Adolescents Aged 12–15 Years — United States, May 2021," *Morbidity and Mortality Weekly Report (MMWR)* 70(20): 749–752.

Welsh Government (2021), "Written Statement: COVID-19 Vaccination – JCVI & Chief Medical Officers' advice on vaccinating 12-15 year olds," URL = https://www.gov.wales/written-statement-covid-19-vaccination-jcvi-chief-medical-officers-advice-vaccinating-12-15-year [Accessed 26.05.2024].

White, L. (forthcoming), "Justification for Coercion in a Public Health Crisis: Not just a Matter of Individual Harm," *Monash Bioethics Review*, doi: 10.1007/s40592-024-00196-0.