

28th October 2023

Dame Caroline Dinenage
Chair
Culture, Media and Sport Committee
House of Commons
London
SW1A 0AA

By email

Dear Dame Caroline

RE: Inquiry on Gambling Regulation - statistics on gambling and suicide

I am writing to you in relation to recent correspondence sent to your committee on the subject of gambling disorder and suicide – and in particular the reliability of estimates produced by Public Health England (Belloni et al., 2021) and the Office for Health Improvement and Disparities (Babalola et al., 2023) which have been relied upon in discussions.

Earlier this year, Regulus Partners published a review of both the Public Health England ('PHE') and Office for Health Improvement and Disparities ('OHID') reports. To our knowledge, this is the only such review to have been published (the Gambling Commission produced an internal review of the PHE report, which was partially released last year under the Freedom of Information Act). In August 2022, the Department of Health and Social Care committed to a review of the PHE report – but this has still not been published¹. Our review has been shared with officials at the OHID and the Gambling Commission.

It is widely accepted that people with gambling disorder are at elevated risk of self-harm. The fact that this is true of most if not all mental health disorders² – or that suicide is a complex phenomenon – should not be permitted to diminish concerns. In our view, licensed gambling operators should pay more attention to this issue than is currently evident; and all stakeholders have a duty to treat the matter with the seriousness it warrants – including a responsibility to adhere to factual accuracy.

In our review of both the PHE and OHID reports, we discovered a number of mathematical and factual errors as well as methodological flaws³. In relation solely to the report sections on gambling and suicide, our analysis shows the following:

- Neither the PHE nor the OHID reports can be used to support claims that *“every day someone takes their life in the UK because of gambling”*⁴. This is a clear misrepresentation of their findings.

¹ Instead of publishing a review, as promised, the DHSC simply replaced the PHE report.

² See for example, Kessler, R., Borges, G. & Walters, E. (1999) Prevalence of and Risk Factors for Lifetime Suicide Attempts in the National Comorbidity Survey. *Arch Gen Psychiatry*

³ An earlier version of our analysis – on the PHE report alone – contributed to the report's withdrawal earlier this year

⁴ Gambling With Lives. Retrieved from www.gamblingwithlives.org/

- Both the PHE and the OHID reports rely on a study⁵ of 2,099 people who received treatment in hospital in Sweden between 2006 and 2016 (the ‘Swedish study’). Each of these hospital patients had an ICD-10/DSM-IV ‘pathological gambling’ diagnosis (renamed ‘gambling disorder’ under the ICD-11/DSM-5). The Swedish study found that 21⁶ of the patients died by suicide – a rate 15.1 times greater than the national average.
- Both PHE and OHID applied adjusted mortality ratios from the Swedish study to the estimated number of PGSI ‘problem gamblers’ in England⁷. In this way, they calculated estimates of excess deaths associated with ‘problem gambling’.
- **This is demonstrably unscientific.** A clinical diagnosis of ICD-10 ‘pathological gambling’⁸ (renamed ‘gambling disorder’ in the ICD-11) is *not the same* as a PGSI ‘problem gambling’ classification of ‘problem gambling’ (a sub-clinical classification) obtained via a population prevalence survey. ‘Pathological gambling’/‘gambling disorder’ typically denotes more dysregulated behaviours and more severe harms than ‘problem gambling’. By way of illustration, analysis of results from NHS Health Surveys between 2012 and 2018 reveals that fewer than 50% of those classified as PGSI ‘problem gamblers’ had a DSM-IV ‘pathological gambler’ classification⁹.
- **PHE and OHID assumed therefore that mortality risks for people with a clinically diagnosed psychiatric disorder are the same as for people with no diagnosis of psychiatric disorder.** This is clearly in contradiction of the research literature on suicide risk¹⁰.
- People seeking treatment for gambling disorder, generally have more severe disorders (this is true of mental health disorders in general). The American Psychiatric Association observes that *“individuals presenting for treatment of gambling disorder typically have moderate to severe forms of the disorder”*¹¹. This is also demonstrated by results from the National Gambling Support Network in Great Britain, which shows that those entering treatment have, on average, markedly higher PGSI scores than ‘problem gamblers’ in the general population.
- The hospital patients whose medical records were studied in the Swedish study were generally in very poor mental and physical health. To illustrate, we observe the following¹².
 - 60% were clinically diagnosed with anxiety disorders
 - 51% were clinically diagnosed with depressive disorders
 - 41% were clinically diagnosed with substance use disorders
 - 29% were clinically diagnosed with alcohol use disorders
 - 40% had diseases of the musculoskeletal system
 - 31% had diseases of the digestive system

⁵ Karlsson, A. & Håkansson, A. (2018) Gambling Disorder, increased mortality, suicidality, and associated comorbidity: A longitudinal nationwide register study. *Journal of Behavioral Addictions*.

⁶ There is some uncertainty about this figure, which appears to have been revised downwards (from 21 to ten) in a subsequent paper - Håkansson, A. & Karlsson, A. (2020) Suicide Attempt in Patients With Gambling Disorder—Associations With Comorbidity Including Substance Use Disorders. *Frontiers in Psychiatry*.

⁷ The Health Survey for England 2018 produced a central estimate of 168,149 PGSI ‘problem gamblers’ in England aged 16 and older.

⁸ We note that the use of the term ‘pathological gambling’ has been disputed. It is unclear why this should be the case as this is the diagnostic term used in the Swedish study (which used the ICD-10 classification, which was current at the time).

⁹ Using the DSM-IV screening instrument, a classification of ‘problem gambling’ requires a score of three or more (out of ten); a classification of ‘pathological gambling’ requires a score of five or more.

¹⁰ See for example, the NHS Adult Psychiatric Morbidity Survey 2014.

¹¹ American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Health Disorders*. 5th Edition. p.586

¹² This is just a selection of the more common comorbid health issues in the sample studied and is not exhaustive.

- 25% had diseases of the respiratory system
 - 24% had diseases of the skin
 - 23% had diseases of the ear and eye
- A little under half of the patients in the study did not in fact have a primary diagnosis of ‘pathological gambling’ (in other words, it was not considered to be the primary health issue requiring treatment). A subsequent study of the same dataset by the same authors¹³ found far higher rates of comorbidity for those who had attempted suicide (including completed suicides):
 - 80% were diagnosed with mood disorders
 - 79% were diagnosed with anxiety disorders
 - 51% were diagnosed with drug use disorder
 - 50% were diagnosed with alcohol use disorder
 - 14% were diagnosed with psychotic disorder
 - Hakansson & Karlsson concluded that: *“the high prevalence of suicide attempts in gambling disorder patients is particularly high in individuals who also have another psychiatric disorder during the time studied here, and that alcohol and drug use disorders markedly increase the risk of suicidal behaviour in gambling disorder patients.”*¹⁴
 - It should be clear from these figures that the group of patients whose records were analysed in the Swedish study, had extremely poor physical and mental health and were therefore unrepresentative of people with ‘pathological gambling’ in Sweden – let alone people with the less severe classification of ‘problem gambling’ in England.
 - Karlsson & Hakansson acknowledged this point, stating: *“It is therefore likely that results may be skewed toward a population of individuals with more severe forms of GD. It is likely that this once again implies that this study sample might contain patients with higher mental health comorbidity, as well as individuals with more severe forms of GD, since these individuals are more likely to receive specialized psychiatry care.”*¹⁵
 - ***The estimates provided in both the PHE and OHID reports therefore rely on the assumption that there is no association between the presence, severity and comorbidities of mental health disorders and suicide. This is clearly absurd.***

The OHID team acknowledged the uncertainty of its estimates but failed to mention either the wide range of comorbid health conditions suffered by patients in the Swedish study or Karlsson & Hakansson’s warning against the generalisability of findings. OHID attempted to resolve the uncertainty by reference to a meeting of an expert panel, which it claims, endorsed the approach. Disclosures made by the Department of Health and Social Care reveal however, that this critical meeting is entirely undocumented, admitting: *“there was no paper or agenda shared before the meeting or minutes circulated afterwards.”*¹⁶ Further, one member of the expert panel, speaking at a fringe event at the Conservative Party Conference in 2022, publicly criticised the PHE and OHID

¹³ Håkansson, A. & Karlsson, A. (2020) Suicide Attempt in Patients With Gambling Disorder—Associations With Comorbidity Including Substance Use Disorders. *Frontiers in Psychiatry*.

¹⁴ *Ibid.*, p.5

¹⁵ Karlsson & Hakansson, 2018, p.1094

¹⁶ It is difficult to understand how such an important decision can have been made with any rigour in the absence of any written materials to review; or why the OHID considered it unimportant to record the meeting outcome.

approach, stating, “we cannot extrapolate from Swedish studies, from Norwegian studies – it doesn’t work”¹⁷.

I make these observations not to diminish the issue at hand – or to deny that disordered gambling can contribute to death by suicide - but because accuracy matters. In our view, more can and should be done to address risk of self-harm – but the misuse of statistics is unlikely to be unhelpful in this regard. The Gambling Commission has itself observed that the figures provided by PHE and OHID are not based on reliable data¹⁸; and their use in public policy discourse has generally been misleading.

By way of disclosure, Regulus Partners has conducted research on behalf of a range of organisations, including licensed gambling firms. Our critique of the PHE and OHID reports attached to this letter was not funded by any organisation. We are happy to discuss our analysis with other stakeholders; and hope that you will agree that *ad hominem* disparagement is not a suitable substitute for open and honest discussion of the evidence.

I attach a copy of our full report and would be happy to discuss any aspects of our analysis with you and your committee members if that would be helpful.

Your sincerely

A handwritten signature in black ink, appearing to read 'Dan Waugh'.

Dan Waugh
Partner
Regulus Partners

¹⁷ Dr Henrietta Bowden-Jones, speaking at a Social Market Foundation event on ‘The gambling white paper and the future of reform’. Retrieved from: www.youtube.com/watch?v=5gumNGutlLo&t=484s

¹⁸ At a recent conference in London, Tim Miller of the Gambling Commission suggested that it had deliberately omitted the OHID findings from its advice to the Government due to concerns about its quality.

Report

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The economic cost of gambling-related harm in England: A Structured Critique

Foreword

The publication by the Office for Health Improvement and Disparities ('OHID') of its report, *'The economic and social cost of harms associated with gambling in England: Evidence update 2023'* raises a number of issues of competence and impartiality. The most important question to be asked about this report, however, is why it – or the 2021 report by the OHID's predecessor, Public Health England – were undertaken in the first place.

The authors of the OHID review state at the outset that *"the annual economic burden of harmful gambling in England"* is either £1bn or £1.8bn. The extent to which these estimates are likely to be relevant to Government policy on the regulation of Britain's licensed gambling market hinges on two considerations: first, whether the researchers used sound methods in order to calculate these figures; and second, whether an assessment of the costs associated with any activity can provide a meaningful basis for policy deliberations without an accompanying examination of benefits.

Are the OHID and PHE cost estimates accurate or meaningful?

On the question of whether the OHID cost estimates should have a bearing on gambling market regulation, we make three critical observations:

1. The bases for calculation of each cost component are – by the OHID's own admission - highly speculative; and are undermined by factual errors, mathematical mistakes, opaque calculations and questionable methods.
2. The costs identified cannot be attributed with any degree of confidence to either gambling or to harmful gambling.
3. A majority of the costs (77% of the upper estimate) are not costs to the state but intangible costs to 'society'.

In short, the OHID and PHE reports provide an array of unreliable estimates of costs of unknown origin, to – in most cases – unknown entities. The policy relevance of such calculations ought therefore be of limited value; something that has been recognised by the Gambling Commission. In November 2021, the market regulator made this assessment of the PHE cost estimates (which must also apply to the OHID 'update' because it uses the same data and methodology):

"Given the (mostly acknowledged) limitations, it's surprising that the £1.27bn cost of the gambling industry¹ has been promoted by PHE as one of the main findings from the entire review. This may be due to its status as being one of the few conclusions that is 'new', a desire to emphasise the need for further research to strengthen the evidence base or intending to ensure gambling is considered as a public health issue."

¹ We observe here that the Gambling Commission reflexively describes the PHE cost estimate as being attributable to the gambling industry, even though that is not what PHE's report showed.

The suggestion from the Commission is that PHE (and by association, the OHID) published and promoted cost estimates of questionable accuracy and relevance in order to support a predetermined agenda². The nature of that agenda (as revealed in the separate OHID Delphi study published in August 2022³) includes the prohibition of certain forms of betting (in-play betting and spread betting on sports), all gambling advertising and marketing, annual tax increases above the rate of inflation⁴ and (in time) a requirement for ‘plain packaging’ of all gambling products⁵ - a measure that would result, amongst other things, in a ban on traditional playing cards (such as the Queen of Hearts or the Jack of Clubs).

The most significant claim made in the OHID report is that there are either 117 or 496 suicides associated with gambling in England each year. These figures - cited repeatedly in parliamentary debates – are demonstrably unreliable. The methodology used by the OHID team is based on the belief that there is no association between the presence, severity or complexity (including comorbidity) of mental health disorders and self-harm. In other words, it relies on a transparently false premise.

The cost of everything

The failure to consider benefits from gambling is a significant omission. Any assessment of the economic and societal value of a particular activity or economic sector, based solely on the experiences of disordered or harmed consumers will present a distorted picture. By way of illustration, an assessment of costs associated with people with caffeine use disorder will be of very limited value to considerations of Government policy concerning the sale of tea and coffee.

The OHID and PHE researchers failed to consider – or make any mention of – findings in relation to consumer and societal benefits from gambling⁶; and adopted deliberately selective and inconsistent approaches to assessments of cost. By way of illustration, the OHID estimate of costs associated with depression totalled £508.0m a year (£114.2m of direct costs; £393.8m of intangible costs). This calculation is predicated on the finding that PGSI ‘problem gamblers’ and ‘moderate risk gamblers’ are more likely to suffer from depression than the general population. This association, however, cannot be assumed to be causal and in fact will be multi-directional. The costs therefore cannot be attributed to participation in betting or gaming.

The OHID and PHE assessments fail to consider (or even mention) repeated findings from NHS Health Surveys that recreational or ‘non-problem’ gamblers (who constitute around 90% of people who gamble) are *less likely than the general population to suffer depression*. The association between gambling and depression therefore – *using OHID’s methodology* – would indicate a substantial benefit to the state and society instead of a cost. There may be many reasons unconnected with gambling

² The Commission’s concerns appear to be well-founded given the issues of bias and poor governance we outline on pages 6 to 8.

³ Regan et al., 2022

⁴ This is indisputably a prohibitionist measure as it would, in time, make the provision of licensed gambling services financially unviable.

⁵ Defined as: “Standardised design and packaging for gambling products so that no brands; colours; imagery; corporate logos and trademarks are displayed.”

⁶ For example, Forrest (2013) provides a rough partial estimate of consumer surplus from participation in regulated gambling in Great Britain of £1.9bn a year. An adjustment for market growth indicates that the same exercise repeated today would result in an estimate of consumer surplus in excess of £3bn a year.

participation why recreational gamblers experience – on average – better mental health than the population at large; but this is also true of the relationship between ‘moderate risk’ and ‘problem’ gamblers and poorer mental health.

In our Critique we highlight a number of examples of *a priori* bias within the PHE and OHID research teams as well as instances of poor governance. Taken together with the methodological problems identified, it seems plausible that the purpose of the OHID review is not to provide a sound evidential basis for policy decisions but rather, as the Gambling Commission observed, “*to ensure gambling is considered a public health issue*”; and thereby to support the substantial programme of market restrictions recommended in the OHID Delphi study.

One particularly troubling aspect of the OHID review is its failure to disclose mistakes made by PHE – and specifically its erroneous calculations of suicide mortality. Both the OHID and the DHSC appear to have engaged in efforts to prevent examination of PHE’s claims, in the knowledge that they were methodologically and mathematically inaccurate.

It is in the interests of sound public policy that Government research is subjected to scrutiny, particularly where it has a bearing on the health, wellbeing and freedom of citizens. Both the OHID and PHE reports have been cited uncritically by the Department for Culture, Media and Sport (‘DCMS’) in policy debates; and referred to by one Government minister as “*an important input*” to the forthcoming White Paper on gambling market reform. The Gambling Commission meanwhile, has adopted a policy of not commenting on research produced by Government departments, even when its own internal analysis has revealed the research to be misleading.

In this critique, we highlight the major problems with the OHID review in order to address this gap in official scrutiny and so better inform the public policy debate on gambling market regulation.

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Executive summary

On 11th January 2023, the Office for Health Improvement and Disparities ('OHID') published *'The economic and social costs of harms associated with gambling in England'* (the 'OHID review'). The OHID described its report as a "review and update" of Public Health England's ('PHE') *'Gambling-related harms evidence review: the economic and social cost of harms'* (the 'PHE report') published just a little over 15 months earlier⁷. The update was, the OHID review stated, "a standard approach for previously published reports"⁸.

Where PHE had claimed that the "annual economic burden of gambling in England" was £1.27bn, the OHID offers a choice of either £1.05bn or £1.77bn. Every single line item in the cost analysis was altered – in some cases dramatically⁹. Table 1 (below) shows these changes:

Table 1: Comparison of the OHID (2023) and PHE (2021) cost estimates								
	Direct costs (£m)		Intangible costs (£m)		Total (£m)		Difference	
	OHID	PHE	OHID	PHE	OHID	PHE	Total	L-4-L*
Homelessness	49.0 ¹⁰	62.8	-	-	49.0	62.8	-22%	-22%
Suicide	-	-	241.1 or 961.7	619.2	241.1 or 961.7	619.2	-61% or +55%	-10%
Depression	114.2	335.5	393.8	n/a	508.0	335.5	+51%	-66%
Alcohol dependence	3.5	4.7	-	-	3.5	4.7	-26%	-26%
Illicit drug use	1.8	2.0	-	-	1.8	2.0	-10%	-10%
Unemployment benefits	77.0	79.5	-	-	77.0	79.5	-3%	-3%
Imprisonment	167.3	162.5			167.3	162.5	+3%	+3%
Total	412.9	647.0	635.0 or 1,355.5	619.2	1,047.8 or 1,768.4	1,266.1	-17% or +40%	-20%

*L-4-L = like for like

As Chart 1 (overleaf) shows, the OHID estimate of direct costs to the Government is £234.1m (36%)¹¹ lower than PHE's. The OHID estimate of total costs (including intangible costs) is £335m (20%) lower than PHE's on a like-for-like basis¹².

⁷ 30th September 2021

⁸ Babalola et al. (2023), p.5

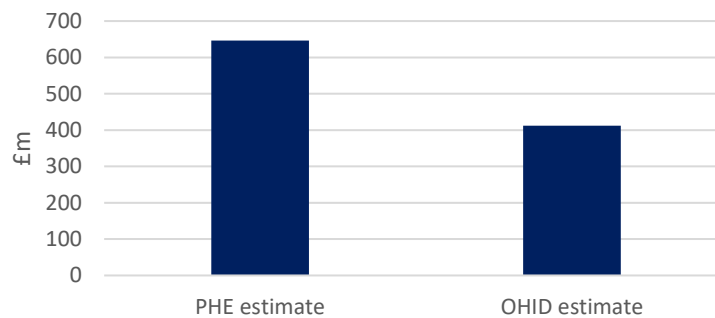
⁹ In an internal email sent on 6th December 2022, in preparation for a meeting with the Gambling Commission, a member of the OHID team (whose name has been redacted) stated that "nothing in the report has changed substantially – one figure has become a range rather than a number, and data has been updated to 2021". It is difficult to reconcile this statement with the figures shown in Table 1.

¹⁰ As we highlight on pages 36 and 37, the OHID researchers have miscalculated this cost item. It should be c£35m rather than £49.0m

¹¹ Using correct data inputs for homelessness, direct costs are c£249 (or 39%) lower in the OHID review compared with PHE

¹² The like-for-like calculation excludes the intangible costs associated with depression (which were deliberately excluded by PHE) and uses the upper estimate (95% confidence interval) of intangible costs associated with death by suicide from the PHE report.

Chart 1: PHE and OHID estimates of direct costs to the Government associated with gambling harms



Cost calculations are based upon the estimated number of cases of each harm ‘associated with gambling’ (with a unit cost applied to each case). In aggregate, the ‘excess’ cases of harm in the OHID review total around 110,000 individuals¹³ (although this may be overstated as some individuals will be assumed to suffer more than one harm) compared with around 267,000 individuals in the PHE report. In other words, **the OHID review assumes that 59% fewer people experienced harm in association with gambling** compared with the PHE report, but assumes that the cost per individual of these harms is **more than three times greater**.

What is striking when considering the differences between the two sets of estimates is that OHID’s access to research or data was nearly exactly the same as PHE’s¹⁴. The fact that two reports by similar organisations¹⁵ - including some of the very same researchers - should produce such different estimates, illustrates the speculative nature of the entire enterprise. The OHID researchers neither show, nor explain, these marked differences.

As we demonstrate within this critique, the OHID review:

- reflects an absence of impartiality and objectivity;
- is on occasion factually and mathematically inaccurate;
- misrepresents findings from scientific research;
- demonstrates a lack of domain knowledge in relation to ‘problem gambling’ and Gambling Disorder;
- misapplies research findings from studies in overseas jurisdictions to data from England;
- is highly selective in its use of research and fails to critically appraise studies that it relies upon and cites;
- fails to acknowledge the presence of factual inaccuracies in the original PHE report – **including significant errors in its estimates of suicide mortality**;
- in most cases, fails to show its workings or provide the numerical calculations used to calculate costs;
- is inconsistent in its approach to estimating social and economic costs;
- is inconsistent in its describing these costs.

¹³ Corrected for the OHID error in the section on homelessness where excess cases were overstated by around 40% (or c5,000 individuals)

¹⁴ The one difference is Allami et al.’s meta-analysis, published in November 2021 and which OHID uses in preference to Afifi et al. (2016) when estimating costs associated with depression

¹⁵ PHE was subsumed by the OHID upon its disbandment on 30th September 2021

Chapter 1: Thematic Review

In the following chapter, we examine the OHID review (and its predecessor report from PHE) in terms of common themes that emerge from our analysis.

1. Comparisons between the OHID and PHE reports

The OHID review is described as a “*review and update*” of PHE’s ‘*Gambling-related harms evidence review: the economic and social costs of harms*’; yet it makes very few references to the original report. It provides no comparisons between the two sets of estimates and makes no attempt to explain a number of marked differences, or to explain obvious errors made by the PHE team.

In some respects, the OHID estimates are more coherent than PHE’s. The OHID excludes PGSI ‘low risk gamblers’ from its estimate of treatment costs for depression¹⁶ and is more precise about the imputed nature of the associations between gambling and the harms examined¹⁷. Whereas PHE claimed that costs were associated with ‘at risk’ or ‘problem’ gambling ‘only’, the OHID simply notes associations and does not exclude the likelihood that these harms may also be associated with a wide range of other variables. In other areas, as we highlight in this report, it seems more confused and less reliable than its predecessor (although the truth is that neither report appears particularly sound).

2. Issues of integrity and transparency

It is a troubling aspect of the PHE and OHID reviews (both undertaken under the aegis of the Department of Health and Social Care – or ‘DHSC’) that their production should be accompanied by indications of bias, opacity and poor governance. We have identified a number of instances where those involved with the project appear to reveal the presence of underlying agendas and predetermined views on the desirability of gambling as a legitimate pastime for adults. It seems reasonable to assume that the presence of such *a priori* views served to colour the analysis undertaken by both sets of research teams. We examine these issues below in terms of impartiality, transparency and good governance.

2.1 Was PHE and OHID’s agenda predetermined?

The circumstances surrounding the publication of both the OHID and PHE reports suggests the presence of a predetermined (but undeclared) agenda, characterised by a desire to restrict or prohibit gambling as a legal activity for adults in Great Britain.

In a journal paper published in 2020 - ‘*Gambling harm is everybody’s business: A public health approach and call to action*’ - Marguerite Regan, the project leader for the PHE and the OHID reviews of gambling harms, called for the development of “*a compelling narrative*”¹⁸ and the instigation of

¹⁶ This appears consistent with findings from the Health Surveys that ‘low risk’ gamblers’ are unlikely to report mental health problems related to gambling; and findings from the NHS Adult Psychiatric Morbidity Survey that DSM-IV ‘low-risk’ gamblers may be less likely to seek treatment for mental health problems than non-gamblers and non-problem gamblers.

¹⁷ In PHE’s report, the researchers escribed each cost area as being associated with at-risk or problem gambling ‘only’ – a clearly misleading premise given that the calculations made either no or very limited adjustment for other variables.

¹⁸ Johnstone & Regan (2020), p.63

“campaigns” on gambling. In the paper, she revealed her view of the role of research, writing that “despite... early forays, more research and evidence are needed to support advocacy and action”¹⁹. This was a clear articulation from the PHE and OHID project leader that her role as state-funded researcher (and the purpose of state-funded research) is to contribute to advocacy and activism. As Delfabbro & King (2021) observe:

“If research findings are presented by people who clearly present themselves as advocates for significant gambling reform and who also believe that gambling is inherently bad, would not the same concerns [as attached to advocates for industry] arise? Could such an advocate still be trusted to undertake unbiased and objective scientific research?”

On 28th September 2021, PHE had completed its evidence review of gambling harms. In preparation for publication, it transmitted a draft press release to the Gambling Commission (which had promised to provide *“a supportive quote”* even though no-one at the market regulator had actually read the reports at that time). The draft press release (which was obtained under the Freedom of Information Act) contained the following statement:

“Health leaders from organisations such as X and X are joining PHE in calling for a public health approach to gambling focusing on prevention, early intervention and treatment. This approach is similar to how we tackle tobacco consumption or unhealthy food consumption, and would require cross-government support.”²⁰

It should be recalled that both the PHE and OHID reviews stress the absence of any evidence indicating causality in associations between gambling and the harms identified. Despite this, PHE reveals in this extract an intention to take a ‘similar approach’ to gambling as that taken to tobacco-smoking – an activity which the Government had committed to eliminate by 2030. It seems therefore that PHE’s objective for gambling was to reduce – and eventually prohibit - participation.

Upon publication of the PHE review, the Gambling Commission expressed surprise at the prominence given to the report on social and economic costs. One analyst at the market regulator wrote (in an internal memorandum subsequently released under the Freedom of Information Act):

“Given the (mostly acknowledged) limitations, it’s surprising that the £1.27bn cost of the gambling industry has been promoted by PHE as one of the main findings from the entire review. This may be due to its status as being one of the few conclusions that is ‘new’, a desire to emphasise the need for further research to strengthen the evidence base or intending to ensure gambling is considered as a public health issue.”

Although this opinion was not published by the Gambling Commission, it reveals its view that the purpose of PHE’s costs estimate was to support a predetermined agenda – to ‘tackle’ gambling participation in a similar way to tobacco consumption²¹. The OHID’s interchangeable use of ‘gambling’

¹⁹ Ibid.

²⁰ See Appendix I. PHE removed this passage from the final press release, on the advice of the Gambling Commission – but there is no evidence that the agency members involved (who transferred to the OHID on 1st October that year) changed their planned approach.

²¹ The Gambling Commission analyst further commented: *“I don’t believe that even PHE have confidence that £1.27bn is an accurate estimate of those costs.”*

with ‘harmful gambling’ suggests that it sees no meaningful difference between the two terms; and that – as with tobacco consumption – it perceives a reduction in gambling participation to be indivisible from a reduction in harm.

2.2 Why did the OHID review PHE’s report?

The PHE report was published on 30th September 2021. Just ten months later (on 2nd August 2022), the then Parliamentary Under-Secretary of State for Health and Social Care, Maggie Throup MP, revealed that the DHSC had already commissioned a review of the document. This announcement was made in direct response to two Parliamentary Questions²² asking that the Secretary of State for Health and Social Care publish “*full numerical calculations*” for PHE’s calculation of costs associated with suicide and depression. At the same time, the DHSC admitted that PHE had made a significant “*mistake*”²³ in relation to its estimate of deaths by suicide.

According to the OHID researchers, however, the decision to undertake a review was not linked to these events, but was instead “*a standard approach for previously published reports*” – a claim that stretches credibility, in our view. The DHSC decision to commission a ‘review and update’ was made just ten months after publication of the original PHE report. To argue (as the OHID review does) that this is simply “*a standard approach*” stretches plausibility - particularly when one considers that PHE produced six separate reports as part of its evidence review, but only one (the report on cost estimates which had attracted awkward political questions) was selected for review²⁴.

It is unclear why the OHID might wish to disguise the reasons for conducting the review. The absence of any credible explanation – set against a backdrop of questionable analysis and opaque disclosure - may invite speculation that it was motivated by a desire to cover up mistakes made by PHE and, at the same time, to shore up unsound claims about social and economic costs associated with gambling.

2.3 The ‘expert panel’

As with the PHE project, the OHID team assembled an expert panel to guide its work – and specifically “*to advise on changes to the methodology*”. The OHID review fails to mention, however, that at least one of these panel members had been involved (and continues to be involved) with activism to influence the outcome of the Government’s Gambling Act Review^{25,26}. The most significant contribution of this expert panel was its support for OHID’s decision to undertake a highly questionable approach to estimating the number of deaths by suicide associated with ‘problem gambling’ (see page 24 of this Critique). This decision was used to validate 54% of the OHID’s upper

²² Hansard (2022)

²³ See Appendix II

²⁴ We also observe that, in a meeting with the OHID research team on 10th January 2023, we were told that external pressure in the form of Parliamentary Questions and requests made under the Freedom of Information Act, had prompted the review.

²⁵ The panel member in question has called for – among other things – state surveillance of spending by all gambling consumers (see Centre for Social Justice, 2020) and the defunding of charities involved in the treatment of Gambling Disorder (Noyes et al., 2022).

²⁶ The PHE expert panel included at least two activists for gambling market reform.

estimate of costs²⁷ and – as we highlight in our critique – is speculative and methodologically unsound. ***The expert panel meeting to approve the OHID approach is, however, entirely undocumented.*** On 7th February 2023, in response to a request made under the Freedom of Information Act, the DHSC admitted that *“there was no agenda or papers shared before the meeting or minutes circulated afterwards.”*²⁸ In other words, a discussion to determine how the OHID researchers should approach this sensitive, complex and highly emotive subject was conducted with no agenda and without any briefing materials being distributed in advance (or presented at the meeting) or any records being kept of the discussion and decisions made. This raises important questions in relation to both project governance and the scientific rigour with which key issues were addressed by the project team and its advisers.

Finally, we note that at least one member of the expert panel has publicly criticised the approach to estimating suicides contained within the PHE and the OHID reviews. At an event convened by the Social Market Foundation in September 2022, Dr Henrietta Bowden-Jones stated that the methodology used by both PHE and the OHID, involving the extrapolation of risk ratios from studies of hospital patients in Scandinavia *“does not work”*. This view (with which we agree – see chapter 3) seems irreconcilable with the opinion of the expert panel as described in the OHID review.

2.4 Workings not shown

The OHID review provides more granular information on data inputs compared with the PHE version, but it fails to provide the numerical calculations that were used to estimate costs. This is unhelpfully opaque. It is also inconsistent with the terms of the review announced by the DHSC on 2nd August 2022, when the Parliamentary Under-Secretary of State for Health and Social Care, Maggie Throup MP stated (in response to questions directly asking for publication of the full numerical calculations): *“We plan to publish an addendum in the autumn setting out the specific calculations and modelling assumptions in the report”*; and again on 19th August when the DHSC denied a Freedom of Information Act request for release of the calculations on the basis that they would be published as part of the OHID review²⁹.

The OHID review contains narrative descriptions of the calculations made but does not include the actual numerical calculations themselves – either for the revised estimates or for the PHE originals. This omission appears unhelpfully opaque and makes it difficult to: i) assess the coherence of the estimates; and ii) understand why they differ so markedly from one report to another³⁰.

2.5 Underestimates and overestimates

The OHID researchers consistently describe their cost calculations as underestimates. The report contains 11 claims that costs are underestimated; 11 claims that assumptions are ‘conservative’; and also refers to ‘under-reporting’ and ‘partial costs’. Of the seven components of the OHID cost

²⁷ Quite aside from the OHID’s crude attempts to apply a monetary value to deaths by suicide, it should be recognised that allegations of increased mortality are likely to have a profound impact on discussions on market regulation policy.

²⁸ See Appendix II

²⁹ Ibid.

³⁰ In compiling this Critique, we submitted a request to the OHID for the numerical calculations to be shared with us.

estimates, six are described as (or indicated to be) under-estimates. Costs associated with deaths by suicide is the only area where under-estimation is not explicitly indicated³¹. In addition, the OHID review suggests that overall costs are likely to be underestimates on the basis that certain harms (e.g. loss of workforce productivity) have not yet been quantified in monetary terms³². There is not a single reference in the report to the possibility that some costs may have been overestimated. Given the speculative nature of the exercise undertaken by the OHID researchers, it is of course reasonable to observe that calculations represent underestimates³³; but it is equally plausible to suggest they represent overestimates. The absence of any references to the possibility of cost exaggeration – even where analysis suggests this is likely to be the case – suggests an absence of impartiality.

The observation that total costs are likely to be under-reported on the basis that not all possible harms were costed may be technically correct, but banal. Determinations of what effects should be classified and costed as harms is inevitably subjective. The Gambling Commission, for instance considers that reduced cinema attendance and spending time away from loved ones are examples of gambling-related harm³⁴; while others reasonably consider these to be opportunity costs - or more simply, choices³⁵. It is plausible therefore that, no matter how detailed an examination is given to costs, it can never be considered exhaustive³⁶.

The OHID review identifies additional areas for cost analysis in the future. This is legitimate but – taken together with the matters discussed above – may indicate a desire to produce ever higher cost estimates in order to “*ensure gambling is considered a public health issue*” and to “*support advocacy and action*” in relation to a draconian programme of re-regulation (as illustrated by the OHID Delphi study – see page 13).

2.6 Arbitrariness of review scope

On a number of occasions, the OHID review states that a full review of methodologies and evidence used to produce estimates was “*out of scope*” for its analysis. The OHID researchers did however make one significant change to the scope of the review – adding in a new cost estimate of £393.8m relating to the intangible costs to society of depression suffered in association with ‘moderate risk’ and ‘problem’ gamblers. The OHID researchers included this estimate (which represents 38% of OHID’s lower estimate and 22% of its upper estimate) despite the fact that PHE had considered and deliberately excluded this area of intangible costs on the basis of unreliability of data³⁷. No explanation is provided for the adoption by PHE and the OHID of contradictory views³⁸.

³¹ Although even here, the OHID review emphasises that suicides associated with ‘low risk’ and ‘moderate risk’ are not included

³² Although it may be the case that the OHID adds such estimates to future ‘review and update’ reports

³³ More reasonable in some areas than others

³⁴ Retrieved from: <https://www.gamblingcommission.gov.uk/about-us/guide/update-pilot-of-survey-questions-to-understand-gambling-related-harm>

³⁵ See, for example, Delfabbro & King (2017), p.3 and Delfabbro, Georgiou & King (2020)

³⁶ For a rigorous examination of inclusion criteria for economic costs and benefits of gambling, see Walker & Barnett (1999)

³⁷ The decision to include this cost category was not based upon availability of new data

³⁸ See page 30 for a more detailed examination of the inconsistency between PHE and the OHID on intangible costs

3. Technical issues

In addition to questions of impartiality, transparency and governance highlighted in the previous section, we have identified three sets of technical issues with the OHID review:

1. Inconsistent and sometimes inaccurate bases of estimation
2. Clear and obvious error
3. Uncritical acceptance of research claims

3.1 Inconsistent and/or inaccurate bases of estimation

The OHID review claims to identify ‘costs associated with harmful gambling’. It defines ‘harmful gambling’ as applying to anyone with a Problem Gambling Severity Index (‘PGSI’) score of one or more (out of 27). As table 2 (below) shows the OHID’s description of PGSI ‘low risk gambling’ as necessarily ‘harmful’ is inconsistent with the official PGSI designations which indicate that ‘low risk gamblers’ are unlikely to experience adverse consequences, while ‘moderate risk gamblers’ may or may not. It is also inconsistent with findings from prevalence surveys which reveal that a large majority of PGSI ‘at risk gamblers’ are so classified on the basis of (generally occasional) risky behaviours and report no harmful consequences.

Table 2: The Problem Gambling Severity Index			
PGSI classification	Official designation (Ferris & Wynne, 2001)	PGSI score (out of 27)	Population prevalence (NHS Health Survey 2018)
Low risk gambler	<i>“This group likely will not have experienced any adverse consequences from gambling”</i>	1 or 2	2.7%
Moderate risk gambler	<i>“This group may or may not have experienced adverse consequences from gambling”</i>	3 to 7	0.8%
Problem gambler	<i>“Respondents in this group are those who have experienced adverse consequences from their gambling, and may have lost control of their behaviour”</i>	8 to 27	0.4%

It is clear from the official PGSI designations that ‘low risk gambling’ is unlikely to be harmful and that ‘moderate risk gambling’ may or may not be harmful. Analysis of PGSI item endorsement from NHS Health Surveys supports this with very low proportions (between 1% and 2.5%) of ‘low risk gamblers’ endorsing any of the ‘harm’ items; and with only a minority of ‘moderate risk gamblers’ doing so. It is therefore inaccurate to claim that all PGSI ‘at risk’ gamblers experience ‘harmful gambling’. At the very least, we would expect the OHID review to explain its reasons for deviating from official designations.

The OHID also refers to this group of PGSI ‘at risk’ and ‘problem’ gamblers exhibiting “*addictive behaviour*”. The PGSI instrument does not measure ‘addictive behaviour’ and the OHID description is therefore misleading. To illustrate this by way of example, anyone who is occasionally criticised by

another (for whatever reason) for buying a National Lottery ticket is – under the OHID definition - displaying behaviour that is both ‘addictive’ and ‘harmful’³⁹.

The OHID estimates are based on the application of costs to different groups of gambling consumers. Where suicide and imprisonment are concerned, cost analysis is conducted on the basis of problem gamblers and excludes ‘low risk’ and ‘moderate risk’ gamblers; depression costs are based on PGSI ‘problem gamblers’ and ‘moderate risk’ gamblers; and the remaining cost areas are based on all ‘low risk’, ‘moderate risk’ and ‘problem’ gamblers.

Where suicide is concerned, the OHID also models costs based on the estimated number of DSM-IV ‘pathological gamblers’ in England⁴⁰ (as well as using the number of PGSI ‘problem gamblers’) – but does not model other costs using this smaller population. The OHID’s inconsistent approach highlights the *ad hoc* rather than systematic nature of analysis.

3.2 Clear and obvious errors

The OHID review contains a number of clear and obvious factual errors. The most significant of these errors is contained within the section on homelessness, where researchers miscalculated the number of PGSI ‘at risk gamblers’ who claim to have experienced problems with gambling prior to becoming homeless. It cites a figure of 61.5% when it is clear from a reading of the source material⁴¹ that the correct figure is 22.2%. *This error results in a 40% over-statement of costs using the OHID methodology* (see pages 36-37) with the researchers inflating the claimed number of people harmed by around 5,000.

Its estimate of the number of deaths by suicide “associated with problem gambling” is based on a mathematically incorrect calculation (as well as unsound methodology). In April 2023, the OHID at last disclosed to us the detailed mortality assumptions used in this estimate. These figures are, however, inconsistent with the figures actually cited in the OHID report. In one case, the age-standardised suicide mortality rate used by the OHID was 40% higher than the figure cited in the report.

It also fails to identify two significant errors in the PHE’s approach to estimating rates of suicide mortality among PGSI problem gamblers. The first error was to conflate PGSI ‘problem gambling’ with ICD-11 Gambling Disorder. The second was to inflate the estimated number of people in England with a PGSI classification by 34,792 (20.7%). These mistakes are so serious that they undermine entirely the PHE calculation (see page 26 for analysis) but go unremarked in the OHID ‘review’.

The report contains a number of other errors that do not appear to affect the estimates but which indicate a paucity of domain knowledge. A description of these technical errors is provided in Appendix III.

³⁹ In this way, we might also say that anyone who is criticised for playing golf, eating pizza or drinking beer is displaying addictive behaviour

⁴⁰ It was effectively forced to do this by the DHSC’s concession of error in the PHE report

⁴¹ Sharman et al. (2016), p.320

Chapter summary: So what was the point of it all?

There is a fundamental inconsistency at the heart of the PHE and OHID reviews. On the one hand, they emphasise that their findings with regard to the costs of gambling harms cannot be used to infer causality. On the other hand, they explicitly intend that their findings should be used to influence Government policy in such a way that legislation and regulation restrict participation in betting and gaming in Great Britain and increase costs for consumers and businesses.

It is likely that any activity, subjected to the process developed by PHE and the OHID could be said to be associated with substantial direct costs to Government and intangible costs to society. For example, listening to certain genres of music, watching certain TV stations, shopping with certain retailers or reading certain newspapers could be shown to be associated with harms, particularly if there is no attempt to control for wider variables (as is generally the case with the PHE and OHID estimates). To take action against participants in these activities on the basis of such estimates would not only be illiberal, (and economically damaging) but would also harm consumers through the creation of ‘restriction effects’⁴².

The value of the PHE and OHID cost estimates is therefore highly questionable. As the Gambling Commission has itself observed, it seems likely that the real aim of the PHE and the OHID reviews was “to ensure gambling is considered as a public health issue”.

The PHE/OHID⁴³ *‘Policies and interventions to reduce harmful gambling: an international Delphi consensus and implementation rating study’* (the ‘Delphi study’), published in August 2022 would appear to vindicate the Commission’s suspicions. The Delphi study, which was directly linked to the original PHE report (and therefore to the OHID update) contained 40 recommendations to “substantially strengthen regulatory controls”⁴⁴ and was described as “a blueprint for a public health approach to preventing harms related to gambling”⁴⁵. These recommendations included the following:

- A ban on all in-play betting
- A ban on spread betting (on sports)
- A universal ban on all gambling marketing, advertising, and promotions
- A maximum limit on customers gambling on an operator’s website at any one time
- Annual increases in gaming and betting duties above the rate of inflation

An additional 41 measures were also recommended – including the introduction of *‘plain packaging for all gambling products’*⁴⁶ and a ban on the sale of beer and wine at racecourses, casinos and bingo clubs – but these were deprioritised (rather than excluded) on the basis of perceived practicability (rather than desirability).

⁴² For a useful discussion of ‘restriction effects’ see Walker (2013), p.189

⁴³ The study commenced under PHE and transferred to the OHID on PHE’s disbandment in September 2021

⁴⁴ Regan et al. (2022), p.705

⁴⁵ Ibid.

⁴⁶ Defined as the “standardised design and packaging for gambling products so that no brands; colours; imagery; corporate logos and trademarks are displayed”

The approach taken by the PHE and OHID researchers inevitably invites speculation that their reports on the costs of gambling-related harm were motivated not by scientific curiosity, but by a desire to “*support advocacy and action,*” in order to restrict participation in gambling by adults in Great Britain.

In the next section, we examine the methods used by the OHID to construct its cost estimates, identifying clear flaws and inconsistencies in its approach and differences from the PHE report that it was notionally intended to review.

Chapter 2 – estimate of intangible costs associated with suicide

It is widely recognised in the research literature that Gambling Disorder – in common with other mental health disorders – is associated with elevated risk of self-harm. Attempts to quantify the extent of this association, however, are often speculative. As the Gambling Commission has acknowledged, there is an absence of reliable data on which to base sound analysis. Where associations are identified, (as in the OHID and PHE reports) the nature of these associations is generally unclear.

To illustrate by way of example, we know that risk of suicidal behaviour is correlated with lower household incomes⁴⁷. It is also likely that people on lower incomes are more likely to use discount retailers than those on the highest incomes. It may therefore be possible to show an association between where people do their shopping and suicide; but the salience of such an association would be questionable, in our view.

The presence of a Gambling Disorder may indicate elevated risk of suicide – and in some cases the disorder may be a contributory factor. Gaining a better understanding of the specific nature of these risks can inform suicide prevention strategies (so long as they are grounded in a broader understanding of the complex array of factors that may lead some people to self-harm). At the same time, spurious estimates of prevalence have little value⁴⁸ and may in fact contribute to harm. The Samaritans (among others) advise that care should be taken not to over-simplify commentary on the causes of suicide in case doing so triggers further acts of self-harm. As the economist, Douglas Walker has observed, *“in areas where research is still quite primitive, perhaps no data would be better than flawed data”*⁴⁹.

While a number of claims have been made with regard to the prevalence of gambling-related suicide in Britain, we observe that no operationalised definition of this term has yet been developed. To do so would require the establishment of rules to determine how identification of the existence and strength of any relationship would be made. The observation that a person who has died by suicide previously participated in gambling, (and may have experienced loss of control over gambling) is likely to be of little practical value by itself.

Aside from these general issues, we observe that the OHID estimates of the number of deaths by suicide associated with Gambling Disorder and problem gambling (and of the intangible costs to society based on these estimates) are unreliable⁵⁰. They rely on the assumption that there is no relationship between suicide mortality and the presence, severity or complexity of mental health

⁴⁷ The Adult Psychiatric Morbidity Survey 2007 for example shows that men with the lowest quintile of equivalised household incomes are five times more likely to attempt suicide than those in the highest quintile. McManus et al. (2009), p.85

⁴⁸ We note in passing that in the absence of a suitably robust operational definition of ‘gambling-related suicide’ (one that addresses the nature and weight of the relationship) all such projections are likely to prove specious.

⁴⁹ Walker (2013) p.195

⁵⁰ A view apparently supported by the Gambling Commission

disorders⁵¹. They do little, if anything, to advance understanding of this highly complex subject and it is unclear what specific policy responses may be based upon them.

1. What the OHID researchers did

The OHID approach is essentially the same as that taken by PHE in 2021. First, the researchers estimated the number of PGSI ‘problem gamblers’ (and in turn DSM-IV ‘pathological gamblers’⁵²) in England who might be ‘expected’ to die by suicide, if their risk of doing so was the same as the wider population. They then applied an adjusted mortality ratio (from Karlsson and Hakansson’s 2018 study of Swedish hospital patients with Gambling Disorder) to estimate the ‘actual’ number of deaths⁵³. Finally, they subtracted the ‘expected’ figure from the ‘actual’ to arrive at a number, “*associated with problem gambling*”. To obtain an intangible monetary cost, they then multiplied this figure by £1.6m (calculated as the ‘willingness to pay’ to avoid loss of life).

Table 3: Comparison of suicide prevalence and cost estimates		
	OHID (2023)	PHE (2021)
Claimed excess deaths	117 or 496	409
Difference %	-71.4% or +21.2%	
Claimed intangible costs	£241.1m or £961.7m	£619.2m
Difference %	-61.1% to +55.3%	

2. Why are the OHID figures different from PHE’s?

The OHID and PHE estimates are based on exactly the same datasets; yet arrive at very different outcomes. Both use results from the Health Survey for England 2018 to estimate the number of PGSI ‘problem gamblers’ in England; and both apply the adjusted odds ratios from Karlsson & Hakansson’s 2018 study of people with Gambling Disorder receiving treatment in Swedish hospitals (the ‘Swedish study’)⁵⁴. The estimate of the monetary value of each death is increased from £1.5m in the PHE report, to £1.6m in the OHID review. This is in line with revisions to the HMT Green Book’s calculations of ‘willingness to pay’.

The OHID review provides two prevalence estimates (117 and 496 deaths a year), both of which are different from the single PHE estimate (409 deaths). These are inaccurately described as ‘upper bound’ and ‘lower bound’ estimates of a range of possible costs. This is misleading. The higher and lower figures are, in fact, two separate estimates based on the use of different data inputs and do not therefore represent a true range. As we will demonstrate, even the ‘lower bound’ estimate is likely to

⁵¹ They reject, for example, the widely established finding that depression, anxiety, alcohol use disorder or drug use disorder are risk factors for suicide.

⁵² The PHE estimate is based solely on the estimated number of PGSI ‘problem gamblers’ in England and does not include the DSM-IV ‘pathological gambler’-based estimate

⁵³ We consider the term ‘actual’ to be misleading as it implies a degree of certainty that is inappropriate given the speculative nature of the calculation

⁵⁴ Karlsson & Hakansson (2018)

be a substantial over-statement (notwithstanding the issues involved in calculating any meaningful figure as we highlight above).

- i) **Upper estimate** - applies the Swedish study mortality ratios to the estimated number of PGSI 'problem gamblers' in England. This is the same approach that PHE took but OHID uses the upper bound ratio (which assumed that people receiving hospital treatment for Gambling Disorder in Sweden were between 17.8 and 64.2 times⁵⁵ more likely than the general population to die from suicide) rather than the central estimate (15.1 times)⁵⁶.
- ii) **Lower estimate** - Applying the odds ratios to the estimated number of people in England with DSM-IV 'Gambling Disorder'.

Replicating the OHID estimates

Attempts to replicate the OHID estimates are rendered unnecessarily difficult by the failure to include in the report the actual numerical calculations. This was also an issue with the PHE report, and while the OHID version provides more granular narrative descriptions, a number of key inputs are missing and these frustrate replication.

The absence of the numerical calculations is inconsistent with the commitment given by the Parliamentary Under- Secretary of State for Health and Social Care, Maggie Throup MP on 2nd August 2022:

"The Department is reviewing the evidence published in Public Health England's 'Gambling-related harms evidence review: the economic and social cost of harms' report. We plan to publish an addendum in the autumn setting out the specific calculations and modelling assumptions in the report."

What are the problems with the OHID estimates?

We consider the OHID estimates of suicides associated with problem gambling and Gambling Disorder to be almost entirely speculative, unreliable, and of questionable value to policy-makers. The OHID researchers appear to recognise this, referring to the "uncertainty" of its figures on 12 separate occasions in the report. We highlight the following issues with this section of the OHID review:

1. As was the case with PHE, the OHID estimates are based on scientifically unsound methodology.
2. There are a number of issues of governance and transparency concerning the OHID's use of its 'expert panel' to validate the approach taken by researchers.
3. There is no attempt to explain the differences between the PHE and OHID estimates or acknowledgement of the errors made by PHE.

⁵⁵ This at least is our assumption. The OHID review does not make it clear precisely what ratios it uses (the PHE used ratios of 9.6 and 19.3)

⁵⁶ The OHID appears to have used separate mortality ratios for men and women as well as for two different age bands (20-49 years and 50-74 years).

1. Scientifically unsound methodology

The OHID estimate of deaths by suicide (which represents either 23% or 54% of the total costs) is predicated on two fundamentally unscientific assumptions: that people diagnosed with ‘pathological gambling’, who were receiving treatment in hospitals⁵⁷ in Sweden for a range of mental health and physical health conditions, were just as likely to die from suicide as people in England with either, i) the sub-clinical classification of PGSI ‘problem gambling’ and no diagnosed psychiatric disorders; or ii) the DSM-IV classification of ‘pathological gambling’ and no other diagnosed psychiatric disorders or physical health problems. In this section, we explain why this is erroneous.

1.1 Problem gambling is not the same as Gambling Disorder

The Swedish study is based on the records of 2,099 people who received treatment in Swedish hospitals between 2005 and 2016, and who had been clinically diagnosed with ICD-10 ‘pathological gambling’ (renamed ‘Gambling Disorder’ within the ICD-11). It is important to note that this diagnosis is not the same as the PGSI classification of ‘problem gambling’. Gambling Disorder has been officially recognised as a mental health condition since 1975, when it was first included in the World Health Organisation’s International Classification of Diseases (or ‘ICD’). In 1980, the American Psychiatric Association included ‘pathological gambling’ in the third edition of its Diagnostic and Statistical Manual (DSM-III). Renamed ‘Gambling Disorder’ in the DSM-5, it is defined as follows:

“Persistent or recurrent problematic gambling behaviour leading to clinically significant impairment or distress...”⁵⁸

The World Health Organisation meanwhile, describes Gambling Disorder – which can only be diagnosed by guided clinical interview - as:

“A pattern of persistent or recurrent gambling behaviour, which may be online (i.e., over the internet) or offline, manifested by: 1. impaired control over gambling (e.g., onset, frequency, intensity, duration, termination, context); 2. increasing priority given to gambling to the extent that gambling takes precedence over other life interests and daily activities; and 3. continuation or escalation of gambling despite the occurrence of negative consequences...The pattern of gambling behaviour results in significant distress or in significant impairment in personal, family, social, educational, occupational or other important areas of functioning.”⁵⁹

PGSI ‘problem gambling’ on the other hand is a sub-clinical classification, used in population surveys. It is defined as follows:

“Those who have experienced adverse consequences from their gambling, and may have lost control of their behaviour.”⁶⁰

PGSI ‘problem gambling’ typically describes less risky behaviours and lower severity consequences than is the case with Gambling Disorder. This should be obvious from a comparison of the three

⁵⁷ It is unclear from the Swedish study whether the patients in fact received treatment for Gambling Disorder

⁵⁸ American Psychiatric Association (2013), p.585

⁵⁹ World Health Organisation (2019)

⁶⁰ Wynne (2002), p.24

passages above and also from the fact that a higher number of criteria must be satisfied in order to obtain a diagnosis of ‘pathological gambling’ or Gambling Disorder compared with a classification of ‘problem gambling’⁶¹.

Analysis of results from NHS Health Surveys reveals that less than half of the people classified as PGSI ‘problem gamblers’ are likely to meet the criteria for DSM-IV ‘pathological gambling’⁶². Contrary to the claim on page 42 of the OHID review, people classified with DSM-IV ‘pathological gambling’ are not a subset of people classified with PGSI ‘problem gambling’⁶³. This error (along with other errors in the OHID review and previous errors in the PHE report) indicates a worrying paucity of domain knowledge.

The higher of the two OHID estimates is therefore, based upon the assumption that people with a recognised psychiatric disorder, (diagnosed by trained clinicians in Swedish hospitals) have the same risk of dying by suicide as people who do not have a psychiatric disorder but who nevertheless, may exhibit some dysregulated behaviours and, who may experience some adverse consequences from their gambling. ***The logical implication of the OHID approach is therefore, that severity of both gambling problems and psychiatric disorder has no bearing on suicide risk.*** While analogies are imprecise, this is conceptually similar to assuming that people who are overweight have the same health risks as people who are clinically obese.

The PHE report made precisely the same error as the OHID researchers⁶⁴, yet produced a lower estimate of suicides (409 compared with the 496 produced by the OHID). This is explained (in part at least) by the fact that the OHID team used the upper bound mortality ratios from the Swedish study, (between 17.8 and 64.2 times) rather than the central ratio (15.1 times)⁶⁵. The OHID review does not explain why it adopted a different approach to PHE. In this way, the upper estimate is based on both a highly questionable application of findings from the Swedish study to English prevalence survey results; and a newly pessimistic view of the implications of the Swedish study.

The lower estimate of 117 deaths assumes that the mortality ratios from the Swedish study may be applied to the estimated number of people in England with a DSM-IV ‘pathological gambling’ classification. This is an improvement on the upper estimate because it applies findings from a study of people with ‘pathological gambling’ to a population estimate of people with ‘pathological gambling’ (even though the disorder can only be diagnosed by clinical interview and not by survey). While methodologically superior to the upper estimate, it is still likely to be unreliable for reasons that we now move on to.

⁶¹ Using the DSM-IV classifications, a score of 3 or 4 (out of ten) denotes ‘problem gambler’; a score of 5 or more denotes ‘pathological gambler’

⁶² The PGSI contains no classification of ‘pathological gambling’ or ‘Gambling Disorder’

⁶³ It may, however, be correct to describe them as a subset of people with DSM-IV ‘problem gambling’ (if one applies the ‘problem gambling’ classification to all those who score three or more on the instrument)

⁶⁴ This is not necessarily surprising as a number of researchers were involved in the production of both the OHID and PHE reports.

⁶⁵ This only partly explains the differences between the OHID and PHE reports. As we highlight below, the PHE and OHID reviews also appear to arrive at different results when allegedly conducting precisely the same calculation.

1.2 People receiving hospital treatment for Gambling Disorder are not representative of all people with Gambling Disorder

The Swedish study is based on the medical records of 2,099 people who received treatment in Swedish hospitals between 2005 and 2016, and who at some point received a clinical diagnosis of ‘pathological gambling’⁶⁶. It is unreasonable to expect that this group of people would have similar health outcomes to all people in Sweden (let alone England) with a ‘pathological gambling’ classification. Karlsson & Hakansson make this very clear in their study:

“It is therefore likely that results may be skewed toward a population of individuals with more severe forms of GD [Gambling Disorder]. It is likely that this once again implies that this study sample might contain patients with higher mental health comorbidity, as well as individuals with more severe forms of GD, since these individuals are more likely to receive specialized psychiatry care.”⁶⁷

Although this warning was ignored entirely by both the PHE and OHID researchers, it seems to us unarguable. Indeed, we note that in the OHID review’s analysis of depression, a study by Allami et al. is used in preference to one by Dowling et al. on the basis that “it looked at non-treatment seeking gamblers” and that this “increased our ability to generalise the effect size”⁶⁸.

We now consider a number of points that the research teams should have taken into account when considering the suitability of the basis for estimation.

1.2.1 People seeking treatment for Gambling Disorder will typically have more severe cases

There is strong evidence to indicate that people with mental health conditions, (including Gambling Disorder) who seek treatment will present with more severe and complex problems than those who do not. We highlight a number of examples here (which we might have expected the OHID to have considered):

- In the fifth edition of its Diagnostic and Statistical Manual (the DSM-5), the American Psychiatric Association observes that “individuals presenting for treatment of Gambling Disorder typically have moderate to severe forms of the disorder”⁶⁹.
- According to results from NHS Health Surveys, approximately 50% of those estimated to suffer from ‘pathological gambling,’ are likely to have either moderate or severe Gambling Disorder. **This suggests that OHID’s lower estimate is overstated by at least 100%.**
- Data from the National Gambling Treatment Service in Great Britain supports the hypothesis that rates of treatment-seeking are higher among people with more severe gambling problems. It cites a mean PGSI score of 19 (out of 27) for those entering treatment – markedly higher than Health Survey estimates of the mean PGSI score for problem gamblers of 12

⁶⁶ It is unclear whether all of the patients actually received treatment for pathological gambling and this should not be assumed

⁶⁷ Karlsson & Hakansson (2018), p.1097

⁶⁸ Babalola et al. (2023), p.49

⁶⁹ American Psychiatric Association (2013), p.586

(where a score of 8 is required for inclusion). Analysis shows that the top 30% (by highest score) of PGSI problem gamblers collectively have a mean PGSI score of 19.

It is inappropriate to use findings from a Swedish study of treatment receiving people with Gambling Disorder, to make health and mortality assumptions about all people in England with Gambling Disorder. At most, it *might* indicate health impacts for people receiving treatment for Gambling Disorder and those with similar levels of DSM-IV or PGSI severity who do not seek treatment. Using the Swedish study in this way, would indicate a much lower level of excess deaths (between 40 and 50). This however, is also problematic as we will now demonstrate.

1.2.2 People with Gambling Disorder receiving treatment in hospital are not representative of all treatment-seeking people with Gambling Disorder

The Swedish study is based on analysis of the medical records of 2,099 people clinically diagnosed with ‘pathological gambling’ (21 of whom died by suicide) from Sweden’s National Patient Register for hospital treatment. This indicates an average of 175 people per year – although this may be an undercount if people were in treatment across more than one year. The Ministry of Health and Social Affairs estimated an annual prevalence rate of ‘problem gambling’ in Sweden of 45,000 adults⁷⁰ and further assumes that 10% of them seek treatment⁷¹. This indicates that the patients in the Swedish study may have constituted as few as 0.4% of all problem gamblers in the country or 4% of all those receiving treatment.

Similarly, in England around 300 hospital admissions each year are related to Gambling Disorder – a figure that represents around 0.2% of all ‘problem gamblers’, 0.3% of all people with ‘Gambling Disorder’ and between 3% and 4% of those receiving treatment through the National Gambling Treatment Service⁷². It is imprudent therefore to assume that the health and mortality risks for people receiving hospital treatment for Gambling Disorder are similar or the same as for all people receiving treatment for gambling problems.

The Swedish study reported high levels of comorbidity with Gambling Disorder. A majority of patients were diagnosed with anxiety disorders (60%) and/or depression (51%). In addition, 41% were diagnosed with substance use disorders, 29% with alcohol dependence, and 19% with personality disorders. Their physical health was generally poor too - with a high prevalence of diseases relating to the musculoskeletal system (40%), the digestive system (31%), the respiratory system (25%), the skin (24%), eyes and ears (23%), the nervous system (20%) and the circulatory system (19%).

The Swedish study does not reveal the extent of comorbidities for those patients who died by suicide; but there is a strong indication that they will have been extensive. A different study by the same authors and using the same dataset of 2,099 patients with a ‘pathological gambling’ diagnosis⁷³ found that – where patients had attempted suicide – rates of comorbidity were markedly higher than for the

⁷⁰ This is the rate for 2018 whereas the Swedish study relates to the period 2005 to 2016. Given that the problem gambling rate in Sweden appears to have been falling, the sample examined by Karlsson & Hakansson may represent an even smaller percentage of ‘problem gamblers’ than we have estimated

⁷¹ Hofmarcher et al. (2020), p.5

⁷² This excludes those who receive support from the National Gambling HelpLine as well as those who are aided by Gamblers Anonymous and other organisations outside the NGTS

⁷³ Hakansson & Karlsson (2020)

group as a whole. For example, 80% suffered from mood disorders and 79% from anxiety disorders; 51% were diagnosed with substance use disorder and 50% with alcohol use disorder.

Given these high rates of comorbidity, it is unsurprising that Karlsson & Hakansson concluded that their study sample *“might contain patients with higher mental health comorbidity, as well as individuals with more severe forms of GD”*⁷⁴.

1.3 Comorbidities

As we have highlighted, the hospital patients from the Swedish study suffered from a wide range of mental and physical health issues. High rates of comorbidity are also observed in people with Gambling Disorder in general (although perhaps not at the rates found in the Swedish study). The American Psychiatric Association, for example, states that *“Individuals with Gambling Disorder have high rates of comorbidity with other mental disorders, such as substance abuse disorders, depressive disorders, anxiety disorders, and personality disorders.”*⁷⁵

This is relevant for two reasons.

1. Even if scientific estimates could be made of the number of deaths by suicide associated with Gambling Disorder, it would be challenging to then discern the extent to which the deaths were attributable to the Gambling Disorder (and if so, to what degree). In the absence of this, cost estimates remain speculative to the point of irrelevance. The OHID review’s omission of information concerning the extent of comorbidities in the Swedish study risks failure to convey the complexity of the analysis and is likely to result in over-simplistic inferences being drawn.
2. It seems implausible to assume that – in the absence of Gambling Disorder – the patients in the Swedish study would have enjoyed the same quality of life as the general population. In fact, the study cited by the OHID researchers (Ara & Brazier, 2011) suggests that the value of each year of life lost should have been far more heavily discounted given the high levels of comorbidity observed in the Swedish study. It is questionable whether researchers should in fact seek to ascribe a monetary value to the tragic loss of life from suicide; but greater care should be taken where such exercises are attempted⁷⁶.

2. Governance and transparency

As we describe in the previous section, the OHID team’s decision to apply mortality ratios from the Swedish study to population estimates of the number of PGSI ‘problem gamblers’ and DSM-IV

⁷⁴ Karlsson & Hakansson (2018), p.1097

⁷⁵ American Psychiatric Association (2013), p.589

⁷⁶ The OHID may contend that it has not in fact attempted to calculate costs of death caused by Gambling Disorder but simply those associated with Gambling Disorder. This is valid to a point but is undermined by revelations about the PHE/OHID intention to treat gambling participation similarly to tobacco consumption; and by the policies that OHID has recommended in order to address the harms it claims are associated with problem gambling or Gambling Disorder. In any event, given the likelihood that causality may be mistaken for correlation where the OHID costs are concerned, we would have expected the researchers to have been far more explicit about the effects of comorbidities on cost assumptions.

‘pathological gamblers,’ is highly questionable and produces unreliable estimates. Given the importance of these figures – both in terms of the OHID claims of total costs and the serious nature of the subject – we might have expected the OHID review to contain a robust analysis of its decision-making; but this is largely absent. Instead, the researchers rely on two assumptions:

- i) that the speculative nature of the exercise justifies a wide degree of latitude in estimating prevalence;
- ii) that the opinion of its expert panel provides sufficient justification for applying the findings of the Swedish study to population estimates in England.

In this section, we examine these two points. We conclude that the OHID team failed to conduct a thorough analysis; and that its reliance on the opinion of its expert panel is unsound – undermined by issues of bias and poor governance.

2.1 An imbalance of probabilities

As we have demonstrated above, the OHID decision to apply mortality ratios from the Swedish study to the estimated number of PGSI ‘problem gamblers’ in England is problematic. On page 46 of the OHID review, the researchers defend their approach in the following manner:

“It could be argued people receiving treatment are less likely to be suicidal due to the care they are receiving, but it could also be argued that these are more severe cases so are more likely to result in suicide. It is not possible to say with confidence either way. This assumption was agreed at the expert panel...”⁷⁷

This passage suggests a fairly similar probability that the patients from the Swedish study were either more or less likely to die by suicide than PGSI ‘problem gamblers’ (or DSM-IV ‘pathological gamblers’) in general. While many things *“could be argued”*, we consider the suggestion of similar probability to be misleading. As we have demonstrated above, the Swedish study was based on the medical records of people with a wide range of mental and physical health problems *who also reported* more risky behaviours and more severe problems with gambling⁷⁸. It seems to us unarguable that severity of gambling problems *is* associated with elevated risk of self-harm. There is no suggestion in the report that the OHID team considered the high rates of comorbidity found in the Swedish study and the extent to which these might affect suicide rates, despite the fact that the NHS Adult Psychiatric Morbidity Surveys (2007 and 2014) have shown associations between the number of mental health conditions experienced and suicide attempts.

The second of the two hypotheses presented by the OHID researchers is that the patients in the Swedish study may have been at lower-risk of suicide precisely because they were receiving treatment. We should certainly hope this to be true where people with comparable quality of mental and physical health are concerned – but as we have demonstrated, that is not even remotely the case when comparing the Swedish study with NHS Health Survey estimates of PGSI ‘problem gambling’ (or DSM-IV ‘pathological gambling’). Treatment-seeking on its own is not in fact a predictor of lower

⁷⁷ Babalola et al. (2023), p.46

⁷⁸ Indeed, the OHID researchers effectively concede this point on page 42 of their report.

suicide risk⁷⁹. It may also be imprudent to assume that the patients in the Swedish study were in fact receiving treatment for Gambling Disorder. The study is silent on this and – given the extent of mental and physical health conditions reported in the sample – it is plausible that some patients with a ‘pathological gambling’ diagnosis did not in fact receive treatment for the disorder.

2.2 Expert opinion

None of the information discussed in this section is even mentioned in the OHID review. The OHID researchers (as with PHE) fail to mention Karlsson & Hakansson’s warning about the likely unrepresentativeness of the patients whose records they studied. Disclosures made under the Freedom of Information Act reveal the PHE team did not discuss this warning⁸⁰ and the OHID team has admitted that they did not consider Karlsson and Hakansson’s warning about study limitations. We are also aware that neither the OHID, nor the PHE researchers, attempted to contact the authors of the Swedish study to discuss their use of findings prior to publication⁸¹.

Instead, the OHID team sought validation for its approach by asking its ‘expert panel’ – but the report provides no details about the nature of panellist deliberations on this complex issue and fails to mention the involvement of at least one of the panel members in activism and advocacy for reform of Britain’s gambling laws (thus casting doubt on the impartiality of panel discussions). Perhaps most concerning is the fact that the meeting with the ‘expert panel’ (which approved the OHID approach) is entirely undocumented. In February 2023, in response to a Freedom of Information Act request, the Department of Health admitted that *“there was no agenda or papers shared before the meeting or minutes circulated afterwards”*⁸². This seems to be an astonishing omission given the importance of the discussion⁸³ and we struggle to understand how the ‘expert panel’ could have given due consideration to the matter without the preparation of any materials for the meeting.

Finally, we note that one member of the expert panel has publicly criticised the approach taken by PHE and the OHID in estimating suicide deaths associated with harmful gambling. Speaking at a Social Market Foundation event in September 2022, Dr Henrietta Bowden-Jones said of attempts to measure rates of suicide, *“we cannot extrapolate from Swedish studies, from Norwegian studies – it doesn’t work”*⁸⁴. It is difficult to reconcile this opinion (with which we agree) with the description of the expert panel’s validation provided in the OHID review.

Dr Bowden-Jones is not the only critic of the PHE/OHID approach. In April 2022, the Gambling Commission described the PHE estimate as being based on *“inaccurate”* assumptions and concluded

⁷⁹ According to the Nuffield Trust, people in England who get in touch with mental health services are five times as likely to die by suicide than those who do not

⁸⁰ See Appendix II

⁸¹ This is not a particularly onerous task. We have corresponded with Anna Karlsson of Lund University with regard to how PHE and the OHID used the findings of her research with Anders Hakansson

⁸² See Appendix II

⁸³ In addition to determining the OHID’s approach to such a sensitive issue, this meeting effectively validated either 23% (lower estimate) or 54% (higher estimate) of the entire OHID cost estimate.

⁸⁴ Retrieved from: <https://www.youtube.com/watch?v=5gumNGutlLo&list=PLHqXVUCDXq7BaBNz9D8YB9WY-qZUOJs92&index=7>

that “*the reality is that reliable data does not exist*”⁸⁵ to make such estimates. Despite this, the OHID advised us that the Gambling Commission is ‘comfortable’ with its revised estimates⁸⁶.

3. Mind the gap – OHID vs PHE

There are a number of inconsistencies between the OHID and PHE estimates that go entirely unremarked in the OHID review, but which are worthy of analysis.

1. In estimating the number of deaths associated with PGSI ‘problem gambling’, the OHID researchers use the upper mortality ratios (95% confidence interval) of between 17.8 and 64.2 whereas PHE used the central mortality ratio from the Swedish study (15.1). The OHID researchers claim that this is “*standard practice for population surveys*”, yet fail to explain why PHE adopted a different approach⁸⁷.

2. Both the PHE and OHID studies estimate the number of PGSI ‘problem gamblers’ who might be ‘expected’ to die by suicide if their risk of doing so was the same as the wider population. On the face of it, this would appear to be the same calculation; yet while PHE arrived at an ‘expected’ figure of 25 deaths per year, OHID calculated 20 deaths per year⁸⁸. The OHID review fails to mention or explain the difference but a response to a request made under the Freedom of Information Act (‘FOIA’) reveals that PHE inflated the estimated number of people in England with a PGSI ‘problem gambler’ classification by 34,792 (20.7%).

Throughout its report, PHE used the figure of 168,149 PGSI ‘problem gamblers’ as the base for calculating costs⁸⁹. The DHSC’s FOIA disclosure however reveals that PHE based its suicide mortality calculation on a figure of 202,941 ‘problem gamblers’ (a figure that does not appear at any point in either the PHE report or the OHID review). Thus, the PHE approach is both scientifically unsound and mathematically incorrect. Using the correct input (i.e. the figure that PHE claimed to have used), the calculation results in a figure of 343 excess deaths rather than 409. Table 4 (below) shows how PHE’s incorrect estimate of the population prevalence of PGSI ‘problem gambling’ distorts its calculation.

As we have demonstrated, the PHE approach (as with the OHID approach) is fundamentally unsound – even if the correct population prevalence estimate⁹⁰ of ‘problem gambling’ is used⁹¹. Our analysis is not intended to diminish the gravity of deaths by suicide; but rather to highlight the importance of using methodologically robust methods when examining such a serious issue.

⁸⁵ See Appendix I

⁸⁶ This has not been confirmed to us by the Gambling Commission, which has said that it will no longer “*comment on another government body’s research beyond welcoming contributions to the evidence base*”.

⁸⁷ We highlight again the fact that a number of researchers served on both the PHE and OHID teams and that the project was overseen by the same individuals at PHE/OHID.

⁸⁸ This may be the result of the OHID excluding deaths from undetermined intent – but it is difficult to verify this from the OHID review (and the effect size). The publication of actual numerical calculations (as promised by the DHSC) would have been helpful in illuminating why this gap exists).

⁸⁹ In the section on suicide the PHE report referred to the Health Survey for England 2018 estimate of 0.4% of the population (or 168,149 individuals)

⁹⁰ In other words, if PHE had used the prevalence estimate that they claimed to have done

⁹¹ We do not suggest that the revised estimate (using the correct input) is likely to be accurate

Table 4: Analysis of PHE suicide estimate, using correct and incorrect ‘problem gambling’ data inputs

	PHE’s stated basis for calculation (correct input)	PHE’s actual basis for calculation (incorrect input)
Description	<i>“the prevalence of problem gambling in the general adult population (0.4% sourced from the HSE)”</i>	<i>“People experiencing problem gambling by age, calculated based on weighted prevalence from the combined Health Survey for England 2012, 2015, 2016, 2018 datasets.”</i>
Problem gambling population estimate	168,149	202,941
Implied number of excess deaths	343	409
Implied intangible costs to society	£519.3m	£619.2m

It is concerning that the DHSC refused to disclose the necessary information to allow scrutiny of the PHE calculation⁹² and that the OHID then failed to mention the mistake in its review (even though it knew that PHE had made the error).

3. The PHE estimate of *“suicides associated with problem gambling only”* was based on the factually inaccurate assumption that the Swedish study was based on the medical records of patients with a PGSI ‘problem gambler’ classification. In August 2022, the DHSC admitted that PHE had made *“a mistake”* and that the patients had in fact been diagnosed with ICD-11 ‘Gambling Disorder’⁹³. In this way, PHE mistakenly justified use of the Swedish study on the basis of alleged comparability with Health Survey results; while the OHID then justified the use of the Swedish study *in spite of* its poor comparability with Health Survey results. This discrepancy is not mentioned in the OHID review, highlighting the arbitrary nature of the OHID/PHE judgements.

The general omission of comparisons with PHE estimates (and accompanying explanations) is an unhelpful aspect of the OHID review. The absence of such comparisons or references to different approaches appears odd, given the description of the OHID review as a standard *“review and update”* of the PHE work.

⁹² The DHSC finally disclosed the information at the third time of asking. Previous requests for the information made under the Freedom of Information Act were refused in July and September 2022.

⁹³ Technically, this is also erroneous. The Swedish study is in fact based on the records of patients with ICD-10 ‘pathological gambling’; although this error is not significant.

Chapter summary

There is a large body of research that suggests that people with Gambling Disorder may be at elevated risk of suicide. Attempts by the OHID (as with PHE) to estimate the number of deaths “*associated with problem gambling or Gambling Disorder in England*” are however, demonstrably unreliable and serve little beneficial purpose⁹⁴. In summary, we make the following observations:

- The OHID estimates are based on two assumptions that do not stand up to examination and are insufficiently examined:
 - that people receiving treatment in Swedish hospitals for a complex array of psychiatric disorders and physical health problems will have similar risk of self-harm as people in England who may experience occasional loss of control when gambling (but do not have any diagnosed psychiatric conditions or physical health problems).
 - that risk of self-harm does not increase with the extent of gambling problems or severity of psychiatric disorder.
- The report fails to examine a number of key pieces of information and ignores warnings contained in the Swedish study used as the basis for the estimates.
- The report fails to reflect the complexity of suicide risk and the effect of comorbidities.
- The OHID calculation contains at least one significant mathematical error.
- The role of the ‘expert panel’ is insufficiently explained - conflicts of interest are left undisclosed and the critical meeting which validated the OHID approach is entirely undocumented.
- OHID’s failure to provide the numerical calculations underpinning its estimates is unhelpful and inconsistent with last year’s DHSC ministerial commitment.
- Marked differences between the PHE and OHID reviews – as well as clear errors made in the PHE report - are either ignored or left unexplained.
- The OHID failed to highlight two critical errors in the PHE report; and the DHSC suppressed information that would have permitted scrutiny of PHE’s approach.

⁹⁴ With the exception of course of PHE-OHID’s intention to adopt a similar approach to gambling as it has taken with tobacco consumption.

Chapter 3 – estimate of direct and intangible costs associated with depression

The second largest component of the total OHID cost estimate is depression ‘associated with PGSI moderate risk and problem gambling’. This combines direct costs to the government and intangible costs to society of £508m - representing 48% of the OHID’s lower estimate of total costs and 29% of its upper estimate.

NHS Health Surveys show that DSM-IV and PGSI ‘problem gamblers’ are at elevated risk of suffering depression, although causality is unclear and likely to be multi-directional. The Adult Psychiatric Morbidity Survey 2007, on the other hand found “*little or no association*” between DSM-IV ‘problem gambling’ and depressive episodes⁹⁵.

The OHID approach contains a critical omission in ignoring findings from NHS Health Surveys and other studies, showing that participation in non-problematic gambling is associated with better mental health and lower risk of depression. This has a potentially significant bearing on estimates of costs and benefits associated with gambling participation – and thereby on policy considerations.

1. What the OHID researchers did

The OHID review follows a similar approach to PHE, using published research to estimate the increased odds of depression for PGSI ‘problem gamblers’ as well as some ‘at risk’ gamblers. This involves first calculating the number of cases of depression that would be ‘expected’ if the risks for PGSI ‘problem gamblers’ and ‘at risk gamblers’ were the same as for the wider population. The researchers then apply risk ratios to calculate the ‘actual’ number; then deduct the ‘expected’ figure to arrive at an ‘excess’ figure. A comparison of the OHID estimates with those from the PHE report is shown in table 5 below.

Table 5: Comparison of depression prevalence and cost estimates		
	OHID (2023)	PHE (2021)
Claimed excess cases of depression per annum	69,099	212,511
<i>Difference %</i>	<i>-67.5%</i>	
Claimed direct costs	£114.2m	£335.5m
<i>Difference %</i>	<i>-66.0%</i>	
Claimed intangible costs	£393.8m	n/a
<i>Difference %</i>	<i>n/a</i>	

On a like-for-like basis, OHID’s estimate of the number of excess cases of depression and the assumed cost to the government of providing treatment and care, is around two-thirds lower than PHE’s.

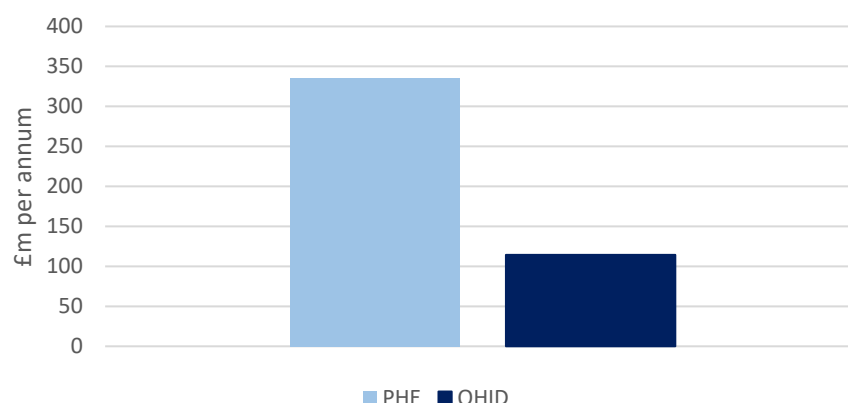
⁹⁵ This may be due to the fact that researchers used DSM-IV ‘problem gambling’ and not DSM-IV ‘pathological gambling’ (presumably due to small sample sizes). It seems likely that the association between DSM-IV ‘pathological gambling’ and depression would be stronger.

2. Why do the OHID estimates differ from PHE's?

The OHID approach is different from PHE's in three key respects:

- i) In estimating the number of cases of depression in England associated with 'at risk' and 'problem' gambling, the OHID researchers used Allami et al.'s 2021 meta-analysis of published research whereas PHE used a single longitudinal survey of young adults (18 to 25 years) in Manitoba, Canada⁹⁶.
- ii) OHID excluded PGSI 'low risk' gamblers from its analysis on the basis that *"there was not clear evidence in the literature or analysis of the HSE that there is a significant relationship between increased depression and low-risk gambling"*⁹⁷.
- iii) OHID adds a new category of intangible costs to society based on reduced quality of life for moderate risk and problem gamblers suffering from depression.

Chart 2: Direct costs of depression associated with problem and at risk gambling - comparison of PHE and OHID estimates



3. Are there any problems with the OHID estimates?

Overall, we consider the OHID estimate of direct costs to the Government associated with 'at risk' and 'problem' gamblers to be an improvement on PHE's. The OHID approach seems reasonable if somewhat speculative, given its reliance on the synthesis of 17 different overseas studies⁹⁸ and their combination with results from the Health Survey for England.

3.1 Direct costs to Government

The OHID estimate of direct costs to the Government for treatment and healthcare costs related to people with depression, is methodologically more coherent than PHE's. PHE imprudently assumed that the risks of depression for PGSI 'low risk', 'moderate risk' and 'problem gamblers' in England were the same as those found in a survey of young adults (18-25 years) in Manitoba, which had deliberately

⁹⁶ Afifi et al. (2016)

⁹⁷ Babalola et al. (2023), p.53

⁹⁸ We note that of the 17 relevant studies from Allami et al., eight were based on populations in Canada and five in the USA (with one each for Australia, Norway, South Africa and South Korea).

over-sampled for ‘problem gamblers’. In doing so, PHE ignored warnings from the authors of the Canadian study that findings were not generalisable for other age groups in Canada (let alone in England)⁹⁹. PHE further assumed that probability of experiencing depression is the same as probability of accessing treatment services for depression, despite evidence from the NHS Adult Psychiatric Morbidity Survey 2007 that DSM-IV ‘at risk’ gamblers are, on balance, less likely to use psychiatric services compared with the wider population¹⁰⁰.

The OHID estimate is based on the finding from a meta-analysis of 17 studies (Allami et al., 2021) that found that people with ‘pathological gambling’/‘Gambling Disorder’ and ‘problem gambling’ classifications were a little more than three times as likely to suffer from depression compared with the wider population. The OHID applied this risk ratio to the estimated number of PGSI ‘moderate risk’ and ‘problem gamblers’ in England – but not to ‘low risk’ gamblers.

While we consider the OHID estimate of direct costs to the Government to be an improvement on the PHE’s, we highlight a number of concerns:

3.1.1 Problem gambling is not the same as Gambling Disorder – Allami et al.’s meta-analysis is based on the study of people with (variously) ‘pathological gambling’/‘Gambling Disorder’ and the sub-clinical classification, ‘problem gambling’. As we explain in the section on suicide, ‘problem gambling’ is not the same as ‘pathological gambling’ or ‘Gambling Disorder’. Analysis of results from the Health Survey for England shows (unsurprisingly) markedly higher rates of depression for people with DSM-IV ‘pathological gambling,’ than people with DSM-IV ‘problem gambling’. It seems likely therefore that Allami et al.’s findings are weighted towards people with more severe gambling problems than is the case with Health Survey estimates of all people in England with a PGSI ‘problem gambling’ classification. This serves to inflate the risk ratio.

3.1.2 Problem gambling is not the same as moderate risk gambling – Allami et al. provides no information for estimating the relative risk of a PGSI ‘moderate risk’ gambler suffering depression. At the same time, NHS Health Surveys reveal that moderate risk gamblers are more likely to experience depression compared with the wider population. To address this, the OHID researchers adjusted the risk ratio for people with ‘problem’ and ‘pathological’ gambling from Allami et al. by the relative rates of depression (using the GHQ-12, Warwick-Edinburgh Mental Wellbeing Scale and ILLAF7) from the Health Survey for England (2012, 2015, 2016 and 2018). In this way, they calculated a lower risk ratio of depression for ‘moderate risk’ gambling. We consider this reasonable, if somewhat speculative.

3.1.3 Treatment-seeking is likely to be different between ‘problem gamblers’ and ‘moderate risk gamblers’ - OHID assumes that ‘moderate risk’ gamblers with depression are just as likely to receive treatment as ‘problem’ or ‘pathological’ gamblers with depression. This hypothesis is not supported (or even discussed) and is challenged by findings from the Adult Psychiatric Morbidity Survey that show far lower levels of treatment-seeking among DSM-IV ‘at risk’ gamblers compared with ‘problem gamblers’. As we explain in the section on suicide, people with more complex and more severe mental health conditions, are more likely to seek treatment. It therefore seems likely that the proportion of ‘moderate risk gamblers’ with depression who seek treatment for depression will be lower than the

⁹⁹ Afifi et al. (2016), p.109

¹⁰⁰ Cowlishaw & Kessler (2016), p.95

proportion of ‘problem gamblers’ with depression who do so. In this way, the OHID review may be expected to overstate the direct costs to government of treating depression¹⁰¹.

3.2 Intangible costs to society

The inclusion of a new cost category of intangible costs to society ‘associated with moderate risk and problem gambling’ more than offsets the reduction in direct costs. The description of this cost category is, however, misleading. The calculation is based on the intangible costs associated with depression rather than costs of depression. The figure of £393.8m therefore represents an intangible cost (borne by ‘society’ rather than the Government) associated with – but not necessarily caused by – depression; and where the individuals concerned may (or may not) have experienced adverse consequences from gambling. This more detailed description reveals the speculative nature of the exercise.

3.2.1 Decision to include intangible costs

It is unclear why the OHID researchers elected to include this category when the PHE team explicitly chose not to do so (citing paucity of available data) just 15 months earlier.

In its 2021 report, PHE observed, “it is reasonable to assume that a person experiencing depression or other mental health conditions associated with gambling addiction could experience a deterioration in their quality of life [QoL] if the condition is not addressed”; but noted that “the evidence on QoL for gamblers in England is scarce given the limited number of economic evaluations on health-related interventions to prevent gambling.”¹⁰² It concluded that, “Given these limitations to calculating QALYs lost for at-risk and problem gamblers in England, we do not consider QALYs in this report.”

The PHE review commenced in 2019 (having been commissioned in 2018). The researchers spent more than two years compiling their suite of reports. The OHID review, by contrast, was announced in August 2022 and published in January 2023. The PHE team therefore had far more time – and just as much information – to make an assessment of quality of life lost to depression, but chose not to. The decision to include this cost category – representing 38% of the lower OHID cost estimate and 22% of the upper estimate – would appear therefore to require an explanation. None is provided.

3.2.2 Inconsistent measures and definitions

The same caveats and concerns apply to these intangible costs as were made in reference to the estimate of direct costs to the Government. To these we add our observation that the OHID uses four different sources of information on ‘depression’ – but fails to clarify whether these refer to the same or similar disorders. These are as follows:

- **Population prevalence of depression in England:** The OHID uses the prevalence figure of 11.6% of the adult population of England from the NHS ‘Quality and Outcomes Framework 2019-20’. It is unclear from this report, however, what instrument (or instruments) were used

¹⁰¹ This is not to say that the OHID estimate is an over-estimate. The OHID review comments on a number of factors that may lead to under-estimates; but it repeatedly fails to recognise factors that may lead to over-estimates. The purpose of our observation here is to highlight the OHID’s omission of a salient consideration.

¹⁰² It may be significant here that PHE refers to the prevention of gambling rather than the prevention of Gambling Disorder or of gambling-related harms.

by General Practitioners to diagnose depression. We note by way of comparison that the NHS Adult Psychiatric Morbidity Survey 2014 found population prevalence of depression in England of 3.1%¹⁰³.

- **Prevalence of depression amongst problem and pathological gamblers:** Allami et al. analysed 17 different studies of problem gambling and depression in overseas jurisdictions – but depression was classified according to a range of instruments, rather than any single consistent measure.
- **Duration of condition** – the average duration of an episode of depression is derived from a Dutch cohort study¹⁰⁴, which produces estimates for a minor depressive episode and a major depressive episode. The OHID review uses the figure for a minor depressive episode.
- **Impact on quality of life** – the effect of harmful gambling on quality of life is based on a 2011 study by Sullivan et al. which modelled the disutility of ICD-9 ‘depressive disorder not elsewhere classified’.

In this way, the different inputs to the calculation of the intangible cost to society of depression associated with PGSI moderate risk and problem gambling, do not appear to be based on a consistent definition or measure of the harm (depression) being modelled.

4. Association between gambling and depression

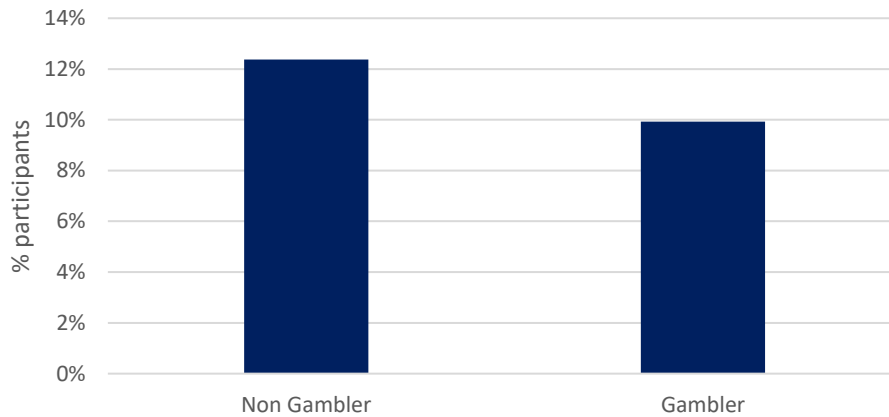
The OHID review restricts its analysis to associations between ‘moderate risk’ and ‘problem’ gambling in England and depression. It is therefore based on 1.2% of adults in England, or around 2.4% of all gambling consumers; and so ignores 98.8% of adults and 97.6% of gamblers.

It is therefore a highly marginal view of the association between gambling and depression. This may be significant. NHS Health Surveys reveal that participation in gambling *is associated with lower rates of depression* compared with non-participation (see chart 3 below). It is not possible to attribute these lower rates of depression to participation in gambling; just as it is not possible to attribute higher rates of depression to ‘moderate risk’ or ‘problem’ gambling. It seems sensible nevertheless, to accept that non-problematic participation in gambling may contribute to a higher quality of life, just as problematic participation is likely to contribute to poorer quality of life.

¹⁰³ Using the Clinical Interview Schedule-Revised or ‘CIS-R’.

¹⁰⁴ Have et al. (2017)

Chart 3: Prevalence of probable depression - gamblers and non-gamblers (Warwick-Edinburgh Mental Well-being Scale).
NHS/UK Data Service



This observation appears particularly relevant to the OHID assessment of intangible costs to society. It is probable that any activity – including playing sport, shopping or participation in the arts and entertainment - if assessed solely on the basis of dysregulated or harmful participation, will show an association with intangible costs to society.

The value of enumerating these costs on such a selective basis is questionable in our view. It should be recalled that the stated aim of the OHID review is *“to inform action on prevention and treatment”* and that the organisation has already recommended a programme of state intervention in the gambling market, on the basis of PHE’s claims of harms associated with gambling (now superseded by the OHID)¹⁰⁵. These measures included a ban on in-play betting, a ban on the sale of alcoholic drinks at racecourses, bingo clubs and casinos and state-imposed spending caps - measures that might reasonably be expected to reduce enjoyment and well-being for a large number of people in England.

5. Mind the gap – OHID vs PHE

The OHID review does not explicitly compare its approach and findings with PHE’s (despite the OHID review being billed as a ‘review and update’ of PHE’s work). We therefore make the following observations:

- OHID’s estimate of the number of excess cases of depression associated with ‘at risk’ and ‘problem gambling’ is two-thirds lower than PHE’s.
- OHID rejects the basis for PHE’s calculation of depression associated with ‘at risk’ and ‘problem’ gambling (Afifi et al., 2016) – although it fails to address the question of why PHE considered it a suitable basis for extrapolation (and why PHE ignored warnings about poor generalisability).
- OHID adds a new area of ‘intangible costs to society’, based on reduced quality of life due to depression. There is no explanation of why PHE explicitly rejected this just 15 months earlier and why the OHID researchers arrived at a different decision.

¹⁰⁵ Regan et al. (2022)

Chapter summary

- It seems likely that dysregulated gambling will, in some cases, result in costs to the state for treatment of depression – although quantifying this impact with any degree of precision is challenging given issues of comorbidity, causality and counter-factuality.
- The OHID revision to PHE’s estimate of costs to the Government of treating depression associated with ‘moderate risk’ and ‘problem’ gambling seems reasonable given the former’s reliance on a deliberately skewed longitudinal study from Manitoba, Canada.
- The OHID estimate of costs to the state is necessarily speculative and these costs cannot be attributed with any degree of confidence to participation in gambling.
- The estimate of intangible costs to society from depression (based on reduced quality of life) is an addition, and was explicitly excluded from the PHE report on the grounds of unreliability of data. No explanation is provided for this expansion in scope.
- The OHID estimate of intangible costs is even more speculative than the calculation of direct costs to the state for treatment of depression, and is based on a number of untested assumptions and the combination of non-comparable research findings.
- These intangible costs cannot be attributed with any degree of confidence to participation in gambling.
- A study of almost any activity – undertaken on the same basis – would reveal an association with (potentially substantial) intangible costs to the state. For example, watching certain TV channels or shopping for groceries with particular supermarket brands might also be associated with such intangible costs to society.
- Results from NHS Health Surveys¹⁰⁶ reveal that non-problem gambling is associated with lower risk of depression compared with non-gambling. It seems plausible therefore, that the OHID approach applied to all gambling consumers would show an intangible benefit to society associated with gambling.
- This intangible benefit may or may not arise from gambling participation (in the same way that the intangible costs may or may not arise from moderate risk or problem gambling), but it is of equal value for policy considerations.

¹⁰⁶ As well as a variety of other studies, including the GambleAware Annual Treatment Survey (cited elsewhere by the OHID) support the Health Survey findings of association between non-problem gambling and lower risk of poor health

Chapter 4 - estimate of direct costs associated with homelessness

It seems plausible that – in some cases – disordered gambling may contribute to homelessness (the diagnostic criteria for PGSI ‘problem gambling’ includes household financial problems, risk to employment and risk to relationships). The OHID estimate of homelessness applications associated with ‘at risk’ and ‘problem’ gambling, however, is based on untested assumptions derived from two small-scale studies in one (not necessarily representative) local authority in central London. In addition, it features one clear and obvious error in the way that it has been calculated.

While conceptually similar to the PHE approach, the OHID estimate relies on different data inputs. Why the two reports use different inputs is not adequately explained by the OHID.

1. What the OHID researchers did

The OHID review estimates the number of statutory homeless applications in England for male ‘low risk’, ‘moderate risk’ and ‘problem’ gamblers that would be expected if the risk of becoming homeless for people in these groups was the same as for the wider population. It then applies a risk ratio derived from the combination of two separate studies of people accessing homelessness services in Westminster¹⁰⁷ between 2012 and 2015¹⁰⁸. The first study reports rates of PGSI ‘low risk’, ‘moderate risk’ and ‘problem gambling’ in a sample of people accessing homeless services (n=456); the second assesses the extent to which gambling problems may have predated or post-dated homelessness for a smaller group (n=26) of ‘at risk’ and ‘problem’ gamblers. The estimate of the number of ‘excess’ cases is multiplied by estimated annual costs per statutory homeless application obtained from the Greater Manchester Authority (and in turn based on a report prepared by the charity, Shelter).

Table 6: Comparison of prevalence and costs of homelessness		
	OHID (2023)	PHE (2021)
Claimed excess homelessness applications	15,856	21,538
Difference %	-26.4%	
Claimed direct costs	£49.0m	£62.8m
Difference %	-22.0%	

The OHID estimate of the number of homelessness applications associated with ‘at risk’ and ‘problem’ gambling is 26% lower than PHE’s; and the associated costs are 22% lower.

2. Why does the OHID number differ from PHE?

While conceptually similar to the PHE report, the OHID researchers used a number of different inputs in order to calculate their estimates:

1. In order to calculate the ‘expected’ number of homelessness applications, the PHE report used a figure of 0.006 applications per household in England; whereas the OHID review used a

¹⁰⁷ Sharman et al. (2014) and Sharman et al. (2016)

¹⁰⁸ The fieldwork for the first of these studies was carried out in 2012 but the dates of fieldwork for the second study are not stated

figure of 0.003 applications per household, “*which references a male*”¹⁰⁹. This appears to have had a marked effect on the number of ‘expected’ homeless applications – which are 172% higher in the PHE report compared with the OHID review - although it only partly explains the delta (see table 7).

Table 7: Comparison of ‘expected’ numbers of homelessness applications			
	OHID (2023)	PHE (2021)	<i>Difference %</i>
‘Expected’ homeless applications	4,114	11,184	-63.2%

2. The OHID review uses higher risk ratios of homelessness applications than the PHE report (as shown in table 8 below). It is unclear why these ratios are different.

Table 8: Comparison of OHID and PHE risk ratios for homelessness among PGSI ‘at risk’ and ‘problem’ gamblers			
PGSI classification	OHID (2023)	PHE (2021)	
Low risk	2.13	1.49	
Moderate risk	2.38	1.71	
Problem gambler	27.35	15.96	

3. Are there any problems with the OHID approach?

The OHID estimates are based upon two relatively small-scale studies¹¹⁰ (n=456; n=72) of people accessing services for homelessness in Westminster between 2012 and 2015¹¹¹. The first study is used to estimate the distribution of PGSI ‘low risk’, ‘moderate risk’ and ‘problem’ gamblers among homeless people; the second, smaller study is used to identify whether gambling problems pre-dated or post-dated homelessness.

As we have observed elsewhere, PHE and the OHID’s failure to show their workings makes it difficult to assess the accuracy, soundness and comparability of estimates. We are able, nevertheless, to note a number of issues with the approach taken by the OHID as well as one clear and obvious error in the calculations.

3.1 Issues with the homelessness studies

The first study of homelessness (Sharman et al., 2014) found that 11.6% of 456 people surveyed were classified as ‘problem gamblers’, while 3.3% were ‘moderate risk’, 8.3% were ‘low risk’ and 76.8% were defined as ‘no risk gamblers’. This may indicate that the entire sample were past-year gamblers (on

¹⁰⁹ This adjustment – which has a significant effect on the estimate – is not explained; but we assume it was made on the basis that a large majority of people in the Sharman et al. studies were male.

¹¹⁰ Sharman et al. (2014) and Sharman et al. (2016)

¹¹¹ Fieldwork for the first study was carried out in January 2012. The second study does not reveal when the fieldwork was conducted. The paper was submitted for publication in September 2015.

the basis that a ‘no risk gambler’ is, by definition, a gambler¹¹²⁾¹¹³. If this is correct then the distribution of PGSI classifications is not comparable to results from Health Surveys (where nearly half of the adult population were defined as non-gamblers in 2018). We note that Sharman et al. (2016) includes non-gamblers within its classification of ‘no risk gamblers’ so it seems likely that this may also have been the case with the earlier study. This combination of non-gamblers and non-problem gamblers is unhelpful¹¹⁴ and makes it difficult to make comparisons between the two studies and with results obtained from NHS Health Surveys.

The second study, found a markedly lower rate of participation in gambling (44%) than was reported in the contemporaneous NHS Health Surveys (65% in 2012; 63% in 2015). Of the 32 survey participants who were past-year gamblers, 17 (53%) were classified as PGSI ‘problem gamblers’, one was classified as a ‘moderate risk gambler’ and eight were classified as ‘low risk gamblers’. Just six respondents (19%) were non-problem gamblers. Given the very small sample sizes involved and the differences between the surveys – as well as the fact that the results were drawn from just one (not necessarily representative) local authority - we would have expected the OHID review to be far more cautious when combining them to create risk ratios.

Table 9: Comparison of PGSI classification prevalence between two studies of homeless populations (and the NHS Health Survey)

	Sharman et al. (2014)	Sharman et al. (2016)	NHS Health Survey (2018)¹¹⁵
Non-gambler	76.8%	55.6%	46.0%
Non-problem gambler		8.3%	50.1%
Low risk gambler	8.3%	11.1%	2.7%
Moderate risk gambler	3.3%	1.4%	0.8%
Problem gambler	11.6%	23.6%	0.4%

3.2 Clear and obvious error

One of the key inputs to the OHID calculation is the estimate of ‘positive association’ between ‘at risk’ or ‘problem’ gambling and homeless applications. This is derived from the second of the two studies¹¹⁶, where researchers asked respondents with a PGSI score of one or more, whether they had experienced problems with gambling¹¹⁷ prior to becoming homeless. The OHID review claims that

¹¹² It is possible that the researchers included non-gamblers within the classification of ‘no risk gamblers’. If so, this may simply be a case of sloppy drafting; but in any case, we would expect this point to have been clarified within the OHID review.

¹¹³ There appear to have been some issues with the screening process used by Sharman et al. (2014), with some participants but not others screened for administration of the PGSI with the question, “In the last 12 months, have you bet more than you could afford to lose?”. It is unclear why this question was selected for screening purposes (rather than a question about participation) and why screening was inconsistent.

¹¹⁴ It is unclear why Sharman et al. did not simply use the official PGSI classification system.

¹¹⁵ The two studies by Sharman et al. use the modified scoring system (proposed by Currie et al., 2013) for ‘low risk’ and ‘moderate risk’ classification.

¹¹⁶ Sharman et al. (2016)

¹¹⁷ It is unclear from Sharman et al. (2016) how these disclosures were obtained. In any case, it seems unlikely that the researchers will have been able to identify historic (i.e. pre-homelessness) PGSI classifications.

61.5% of ‘low risk’ and ‘moderate risk’ gamblers and 82.4% of ‘problem gamblers’ had experienced gambling problems before becoming homeless. This, however, is incorrect as the relevant extract from Sharman et al. (2016) shows:

“Of the 26 participants with some level of gambling risk (i.e., PGSI > 0), 16 participants (61.5%) disclosed experiencing gambling problems prior to becoming homeless, and 4 (15.4%) reported only experiencing gambling problems after becoming homeless. The remaining six individuals did not consider themselves as having experienced gambling problems. The corresponding values for the 17 problem gamblers were that 14 (82.4%) indicated gambling problems prior to homelessness, versus 3 (17.6%) that experienced gambling problems after homelessness.”¹¹⁸

It is clear from this extract that the 61.5% figure applies to the combined number of ‘problem gamblers’ and ‘at risk gamblers’ (i.e. 16 of 26). As 14 of these 16 respondents were classified as ‘problem gamblers’, it follows that two were ‘at risk’ gamblers. There were nine respondents with an ‘at risk’ classification, which indicates that 22.2% of them (and not 61.5%) experienced problems with gambling prior to homelessness. When the correct input is inserted in the calculation, the risk rates change from 2.13 to 0.78 (for ‘low risk gamblers’) and from 2.38 to 0.83 (moderate risk) and the cost falls from £49.0m to around £35m, The OHID researchers therefore over-stated the cost estimate (according to their methodology) by around 40%. This is shown in table 10 (below) where we replicate table 25 from the OHID review¹¹⁹, using the correct data inputs.

Table 10: Adjustment to OHID risk rates for homelessness associated with ‘at risk’ gambling, using correct data input¹²⁰

Fig.	Description	Low risk		Moderate risk		Problem gambler
		OHID	Corrected	OHID	Corrected	OHID
A	Percentage accessing homelessness services who are gamblers (male)	14.2%		5.6%		20.8%
B	Percentage experiencing gambling harm before accessing homelessness services	61.5%	22.2%	61.5%	22.2%	82.4%
C	Percentage homelessness services associated with gambling, before homeless (calculated) (A*B)	8.7%	3.2%	3.4%	1.2%	17.1%
D	Percentage of gamblers in the non-homeless population (male)	4.3%		1.5%		0.6%
E	Percentage of non-gamblers in group accessing homeless services (calculated) (1-C)	91.3%	96.8%	96.6%	98.8%	82.9%
F	Percentage of non-gamblers in the non-homeless population (male) (calculated) (1-D)	95.7%		98.5%		99.4%
G	Relative risk (calculated) $((C/(C+E))/(D/(D+F)))$	2.13	0.73	2.38	0.83	27.35

¹¹⁸ Sharman et al. (2016), p.320

¹¹⁹ Babalola et al. (2023), p.107

¹²⁰ We have shown the OHID calculations as stated in the report. Our attempts to replicate the calculation resulted in slightly different results (possibly due to rounding).

3.3 Questions of representativeness

The second of the two homelessness studies (Sharman et al., 2016) reveals very high levels of comorbidities and adverse life experiences among the sample studied. As we show in table 10, a very high proportion of the at-risk and ‘problem’ gamblers were long-term unemployed, had experienced trouble with the Police, had problems with alcohol and/or drugs, were victims of violence, or suffered serious illness. Sharman et al. (2016) also notes that nine out of 17 PGSI ‘problem gamblers’ (53%) committed an illegal act *“specifically to fund gambling”*¹²¹.

These figures suggest that the individuals concerned had far more complex and serious health and social issues than for PGSI ‘at risk’ and ‘problem gamblers’ in general. It is therefore questionable whether it is correct to assume that all ‘low risk’, ‘moderate risk’ and ‘problem’ gamblers are at the same risk of homelessness as those studied by Sharman et al.

Table 11: Proportion of those studied in Sharman et al. (2016) reporting negative life events	
Life event (lifetime)	Yes (%)
Witness violence	23 (88.5%)
Long-term unemployment	22 (84.6%)
Trouble with Police	22 (84.6%)
Lost a job	43 (80.5%)
Alcohol problems	13 (50.0%)
Drug problems	13 (50.0%)
Victim of violence	11 (42.3%)
Serious illness	11 (42.3%)

3.4 Inconsistency of approach

The OHID section on direct costs associated with homelessness is inconsistent with some other sections of the report in its inclusion of PGSI ‘low risk gamblers’. We note that the section on depression deliberately excludes ‘low risk’ gamblers on the basis that *“there was not clear evidence in the literature or analysis of the HSE [Health Survey for England] that there is a significant relationship between increased depression and low-risk gambling.”*¹²² In this way, the reader is asked to believe that there is no clear association between ‘low-risk’ gambling and depression (which is relatively common, directly affecting around one-in-nine adults in Britain¹²³) but that there is one with homelessness (which is relatively rare, affecting around three in every one-thousand households). As we note below, it seems implausible to us to assume that there is any significant and meaningful relationship between PGSI ‘low risk’ gambling and homelessness.

¹²¹ This is substantially higher than rates of criminogenic gambling among PGSI problem gamblers revealed in analysis of Health Surveys (DSM-IV item endorsement by PGSI ‘problem gamblers’).

¹²² Babalola et al. (2023), p.53

¹²³ Using the NHS Quality of Care report

3.5 Questions of causality

The section on homelessness in the OHID review is unusual in that it attempts to apply an indication of causality to the cost estimates. This is done by reference to the findings, discussed above, from Sharman et al. (2016) that 62.5% of ‘at risk’ and ‘problem gamblers’ claimed to have experienced gambling problems prior to becoming homeless.

We observe here that simply because gambling problems may have preceded homelessness does not indicate a causal relationship, and also that asking respondents to assess in retrospect whether they had problems in the past may be skewed by their present circumstances. In other words, a person may – with the benefit of hindsight – view many past behaviours as problematic if their present circumstances are distressed.

It is plausible that where someone is homeless and has a PGSI ‘problem gambler’ classification, their gambling may have been a contributory factor to homelessness (particularly if the gambling problems are relatively severe); but far less plausible where PGSI ‘low risk’ gamblers (who constituted six-sevenths of the ‘at risk gamblers’¹²⁴) are concerned. PGSI ‘low risk’ gambling is almost always defined by occasional risky behaviour (such as trying to win back money lost) ‘some of the time’; and hardly ever by harmful consequences from gambling. For example, just 1.25% of all ‘low risk gamblers’ report borrowing money in order to gamble; 1.1% report financial problems arising from gambling; and 0.8% report risking a job or relationship as a result of gambling¹²⁵.

The OHID researchers also neglect to mention in their analysis the high levels of comorbidities and co-occurring adverse life experiences revealed in Sharman et al. (2016) which we discuss above. Given that one purpose of the OHID review is to influence Government policy on gambling market regulation, we would have expected that information on comorbidities and complexity would at least have been discussed.

¹²⁴ One problem with the use of the two studies by Sharman et al. is that they cannot be used to infer PGSI classification at the point of becoming homeless. In this way, it is plausible that some people who were PGSI ‘problem gamblers’ at the point of becoming homeless were ‘at risk gamblers’, ‘non-problem gamblers’ or ‘non-gamblers’ at the point of participation in the study (and vice versa).

¹²⁵ Analysis from Health Surveys of DSM-IV item endorsement by PGSI ‘low risk’ gamblers.

Chapter summary

The OHID estimates of costs associated with statutory homelessness applications that are in turn associated with PGSI 'at risk' and 'problem' gambling are speculative and the basis for their calculation is mathematically inaccurate:

- The OHID and PHE estimates of homelessness costs associated with 'at risk' and 'problem' gambling are reliant on two inconsistent studies of small and potentially unrepresentative samples of homeless people in Westminster.
- The OHID estimates differ markedly from the PHE estimates – but no explanation for these differences is provided.
- The OHID review uses markedly different figures for inputs with similar descriptions – but no explanation for these differences is provided.
- The OHID researchers make one clear and obvious error in calculating risk ratios for 'low risk' and 'moderate risk' gamblers; and this has a significant bearing on its calculation of costs.
- The OHID review fails to acknowledge the high prevalence of comorbid mental and physical health problems and adverse life experiences in the homeless populations studied.
- The OHID's failure to show its workings makes further analysis difficult.

Chapter 5 - estimates of direct costs associated with imprisonment, unemployment, alcohol use disorder and illegal drug use

The remaining four areas of costs are treated fairly consistently by the OHID and PHE reports. In this section we summarise a number of minor changes, as well as concerns with methodology used in both sets of estimates. These refer to estimates of direct costs to the government of imprisonment, unemployment benefits payments, alcohol dependence, and illicit drug use. In aggregate, these cost estimates total £249.6m (PHE: £248.7m) - 60.5% of the OHID's estimated direct costs to the Government (PHE: 38.4%); and either 23.8% or 14.1% of its total cost estimate (PHE: 19.6%).

While the cost estimates in themselves are not significantly different from PHE's, some of the key data inputs to the calculations are. There is insufficient discussion in the OHID review of the reasons for these differences.

1. Imprisonment

Table 12: Summary of the OHID and PHE costs associated with imprisonment			
OHID cost estimate	£167.3m	PHE cost estimate	£162.5m
% of OHID total costs	16.0% (lower) 9.5% (upper)	% of PHE total costs	12.8%
% of OHID direct costs	40.5%	% of PHE direct costs	25.1%

A number of studies have shown that rates of 'problem gambling' tend to be higher amongst people in prison compared with the wider population.

In the OHID and PHE estimates, both research teams attempted to calculate the excess number of people in prison associated with 'problem gambling' by reference to a small-scale study conducted in 2008 and published in 2012¹²⁶. Both estimates appear to be based on precisely the same data inputs, yet they produce different results (see table 13 below). The OHID and PHE's failure to provide the numerical calculations makes it difficult to assess why this is.

Table 13: Comparison of the OHID and PHE calculations for costs associated with imprisonment			
	Central estimate		Difference
Estimate	OHID	PHE	
'Expected' number of prisoners who are PGSI problem gamblers	318	290	+9.7%
'Actual' number of prisoners who are PGSI problem gamblers	4,062	4,089	-0.7%
Number of people in prison associated with problem gambling	3,744	3,799	-1.4%
Excess direct costs (£m)	167.3	162.5	+3.0%

These differences are rather small and do not have a significant impact on the cost estimates (which are £4.8m higher in the OHID review as a result of assumed increased costs to the state of imprisonment on a per prisoner basis).

¹²⁶ May-Chahal et al. (2012)

Observations

We consider it likely that in a meaningful number of cases, imprisonment may be linked directly to disordered gambling, and the OHID approach appears fairly reasonable. We make a number of observations, however, that we would have expected the OHID commentary to have included.

- The finding by May-Chahal et al. that 5.4% of men and 3.0% of women in prison considered that their offence was linked to gambling, was not connected by the researchers to their PGSI status (although presumably the researchers could have carried out this analysis had they chosen to do so). PHE therefore appears to have made an incorrect extrapolation – assuming without apparent evidence that all of those prisoners who linked their prison sentences with gambling were also PGSI problem gamblers¹²⁷.
- The findings in May-Chahal (2012) were based upon a very small sample of PGSI ‘problem gamblers’ (n=34) in England’s prison population, surveyed in 2008.
- Those prisoners surveyed were roughly twice as likely to be serving sentences for drug offences¹²⁸ compared with the national average at that time. This raises questions of representativeness given evidence in respect of comorbidity of drug misuse with problem gambling.
- The use of self-report attribution is useful, but is of limited value without understanding the broader set of reasons given for criminal acts¹²⁹.

2. Unemployment benefits

Table 14: Summary of the OHID and PHE costs associated with unemployment			
OHID cost estimate	£77.0m	PHE cost estimate	£79.5m
% of OHID total costs	7.3% (lower) 4.4% (upper)	% of PHE total costs	6.3%
% of OHID direct costs	18.6%	% of PHE direct costs	12.3%

The OHID and PHE reports attempt to estimate the number of people receiving unemployment benefits associated with problem gambling. They adopt an approach used in a 2016 report from the Institute for Public Policy Research (‘IPPR’)¹³⁰, updating estimates with more recent cost data. Although both the PHE and OHID researchers appear to have used identical data inputs, they arrive at slightly different estimates for the ‘excess’ number of PGSI problem gamblers receiving unemployment benefits. The difference appears to be based on a lower count of total unemployment

¹²⁷ This may be a plausible assumption in general; but it is not one that can be proven and it renders the extrapolation unscientific. May-Chahal et al. do not disclose the precise question used in establishing association between gambling and the custodial sentence. It may for example be possible that a person serving a sentence for robbery of a betting shop or other licensed gambling venue might link his sentence to gambling.

¹²⁸ Imprisonment for drug offences of course does not denote drug use.

¹²⁹ Indeed, if gambling was the only response option for linking sentences to behaviours or external factors, then this may result in selection bias.

¹³⁰ Thorley et al. (2016)

benefit claims in England in 2019-2020, with the OHID using a figure of 2.9 million claims and PHE using a figure of 3.1 million claims.

Table 15: Comparison of the OHID and PHE calculations for costs associated with unemployment			
	Central estimate		Difference
Estimate	OHID	PHE	
'Expected' number of problem gamblers receiving unemployment benefits	13,898	14,647	-5.1%
'Actual' number of problem gamblers receiving unemployment benefits	36,830	38,860	-5.2%
Number of unemployment benefit claims associated with problem gambling	22,932	24,212	-5.3%
Excess direct costs (£m)	77.0	79.5	-3.1%

Observations

- The ratio of 'problem gamblers' receiving Job Seekers Allowance ('JSA') compared with non-problem gamblers is entirely dependent on a report published by the IPPR in 2016 (Thorley et al.), which itself has been criticised for methodological problems.
- The IPPR report estimated the increased ratio of 'problem gamblers' accessing JSA based upon respondents to the 2012 Health Survey who were classified as DSM-IV 'problem gamblers'; yet PHE applies the same ratio to PGSI 'problem gamblers'. This is methodologically unscientific.
- The OHID notes that its estimate for the cost of unemployment benefits associated with problem gambling is higher than the IPPR estimate, and that part of the reason for this is that the baseline number of claims for unemployment benefits increased by 40% within the general adult population between 2012 and 2019/20. The OHID (and PHE before it) seems therefore to have assumed that benefits claims among 'problem gamblers' will have increased at the same rate as the overall population. We were unable to understand (because it was not explained) why a substantial increase in the baseline rate of benefits claims can possibly be attributed to problem gambling - particularly when the reported PGSI 'problem gambling' rate was in fact marginally lower in 2018 than in 2012.
- Unemployment benefits are classified within economics as "transfer payments" and are not considered economic or social costs. This does not mean that unemployment costs associated with problem gambling are irrelevant – but it does highlight the *ad hoc* nature of PHE's approach to cost classification.

3. Alcohol dependence

Table 16: Summary of the OHID and PHE costs associated with alcohol dependence

OHID cost estimate	£3.5m	PHE cost estimate	£4.7m
% of OHID total costs	0.3% (lower) 0.2% (upper)	% of PHE total costs	0.4%
% of OHID direct costs	0.9%	% of PHE direct costs	0.7%

The OHID and PHE reports attempt to estimate the number of people receiving treatment for alcohol dependence associated with PGSI 'low risk', 'moderate risk' and 'problem' gambling. Both use a longitudinal study of young adults 18-25 years in Manitoba, Canada¹³¹ to assess the increased risk of alcohol dependence.

The OHID review cites a substantially lower estimated number of alcohol dependent people associated with PGSI 'at risk' and 'problem' gambling, compared with PHE, despite almost all of the inputs appearing to be the same. The one change we observed was the OHID's use of a risk rate based on an adjusted odds ratio for the Manitoba survey; whereas PHE appears to have used the adjusted odds ratio itself. As the numerical calculations are not provided in either report, it is difficult to understand why the figures are so different; but it does not make a material difference to the overall cost estimates.

Table 17: Comparison of the OHID and PHE calculations for costs associated with alcohol use disorder

	Central estimate		Difference
Estimate	OHID	PHE	
'Expected' number of alcohol-dependent 'at risk' and 'problem' gamblers	22,282	23,594	-5.6%
'Actual' number of alcohol-dependent 'at risk' and 'problem' gamblers	20,658	28,312	-27.0%
Number of alcohol dependent people in treatment associated with 'at risk' and 'problem gambling'	2,591	3,646	-28.9%
Excess direct costs (£m)	3.5	4.7	-25.5%

Observations

- The risk rate used to calculate excess prevalence of alcohol dependence in PGSI 'at risk' and 'problem' gamblers was derived from Afifi et al.'s study of data on young adults in Manitoba, Canada. The OHID researchers thus used data on 18-to-25-year olds in Manitoba to calculate risk of alcohol dependence among all adults and young persons (i.e. 16 years and over) in England. In so doing, they ignored the warning from Afifi et al. that their analysis should not be considered generalisable to the overall population of Manitoba (let alone England).
- In the section on depression, the OHID researchers rejected the Canadian study on the basis of inferior generalisability.
- The findings in Afifi et al. of the relationship between PGSI 'at risk' and 'problem' gambling and alcohol dependency were based upon an extremely small sample (n=13)

¹³¹ Afifi et al. (2016)

- The Manitoba survey identified alcohol dependence among young adults in Manitoba by using the Alcohol Dependence Scale (based on the CIDI-SF and DSM-III classification) whereas PHE's estimate of the number of people in England estimated to be alcohol dependent used the Alcohol Use Disorders Identification Test (or 'AUDIT'). These are different screens and should not be assumed to produce the same diagnosis or classification.
- The OHID accepts a number of important limitations to its study – notably the absence of evidence that alcohol dependence and alcohol dependence among PGSI 'at risk' and 'problem' gamblers has a uniform prevalence across adult age cohorts.

4. Illegal drug use

Table 18: Summary of the OHID and PHE costs associated with illegal drug use			
OHID cost estimate	£1.8m	PHE cost estimate	£2.0m
% of OHID total costs	0.2% (lower) 0.1% (upper)	% of PHE total costs	0.2%
% of OHID direct costs	0.4%	% of PHE direct costs	0.3%

The OHID and PHE reports attempt to estimate the number of young people and young adults receiving treatment for opiate and/or crack cocaine usage associated with PGSI 'low risk', 'moderate risk' and 'problem' gambling. Both rely on a longitudinal study of young persons and young adults in the Avon district in England¹³².

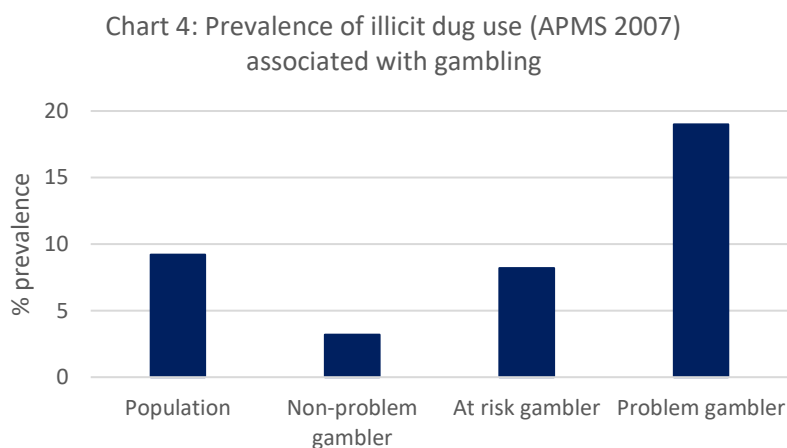
The OHID estimate of the number of young people and young adults with a PGSI score of one or more who use illicit drugs is 12% lower than the PHE estimate. The OHID review uses a risk rate based on the adjusted odds ratio from the Avon study, but it is unclear whether this explains the difference. Once again, the absence of numerical calculations from both reports is unhelpful.

Table 19: Comparison of the OHID and PHE calculations for costs associated with illegal drug use			
	Central estimate		Difference
Estimate	OHID	PHE	
Age range (years)	16-24	17-24	
'Expected' number of 'at risk' and 'problem' gamblers receiving treatment for opiates and or crack cocaine use	2,125	2,330	-8.8%
'Actual' number of 'at risk' and 'problem' gamblers receiving treatment for opiates and or crack cocaine use	3,437	3,817	-10.0%
Number of people in treatment for opiates and or crack cocaine use associated with 'at risk' and 'problem' gambling	628	712	-11.8%
Excess direct costs (£m)	1.8	2.0	-10.0%

¹³² Emond et al. (2019)

Observations

- The OHID review (as with the PHE report) fails to mention findings from the Adult Psychiatric Morbidity Survey 2007¹³³ that while DSM-IV ‘problem gamblers’ were more likely than other groups to use illicit drugs¹³⁴, ‘at risk’ and ‘non-problem’ gamblers were less likely to use illicit drugs than non-gamblers (see chart 3, below).



¹³³ The APMS 2007 is the only edition of the survey to contain information on gambling behaviour. It is also contemporary with the MLSYA which was conducted between 2007 and 2011.

¹³⁴ The APMS 2007 defined illicit drug use in terms of “cannabis, amphetamines, crack, cocaine, ecstasy, tranquillizers, opiates and volatile substances”. This would appear to be consistent with the classification used by PHE.

Conclusion

“If researchers continue to offer social cost estimates, they should estimate costs that are measurable (police, court, incarceration, and therapy costs). But for other costs such as psychic costs that cannot be reasonably measured, or for negative effects that are not social costs such as pecuniary externalities, let us identify them without providing spurious empirical estimates. Offering methodologically flawed cost estimates does not improve our understanding nor does it promote sound policy.”¹³⁵

The original report from Public Health England, *‘Gambling-related harms evidence review: The economic and social cost of harms’* was demonstrably flawed. The raising of justifiable concerns regarding its factual accuracy and methodological soundness ought to have prompted a transparent and genuinely independent examination of the work. Instead, the DHSC allowed the PHE research team (now transferred to the OHID) to review its own work without external oversight or engagement with those who had highlighted concerns in the first place. The result is another long and detailed report, produced at the expense of taxpayers and characterised by factual errors, opaque calculations and questionable governance. Even in the absence of these flaws, the policy relevance of the report is unclear, given the weakness of the associations identified.

It is, however, the explicit intention of the PHE-OHID research team that its research should be used in support of *“advocacy and action”* on gambling market regulation, including the widespread prohibitions recommended by the OHID Delphi study. In this report, at least, they have been somewhat successful. Findings from the PHE and OHID reviews (including claims about the prevalence of death by suicide) have been widely and uncritically accepted in parliamentary debates and by the national news media. That they have had an influence on the Government’s review of gambling legislation is not in doubt. On 27th June 2022 (a little over a month before the DHSC announced its review of the PHE report), the former Gambling Minister, Chris Philp MP described the original PHE cost estimates as *“an important input to our Review of the Gambling Act 2005”*¹³⁶.

The OHID ‘review and update’ fails, in fact, to provide any critical analysis of the PHE report and does not explore or explain the many substantial differences between the revised estimates and those contained in the original. Its claim that the review was undertaken - just ten months after publication of the PHE report – as part of *“a standard approach”* seems implausible; and its failure to bring to light significant errors made by PHE is troubling.

In undertaking this Critique, it has been our intention to provide the scrutiny so clearly absent from the OHID review’s production. That disordered or poorly-controlled gambling can result in severe harms – or that the actions of commercial operators and poor regulation can contribute to these harms - is not in question. Speculative attempts to quantify the monetary value of these consequences is, however, of little scientific value. In order to understand the best ways to address harms, it is important that research is robust, transparent and meaningful. We conclude this Critique with an observation from Walker (2013) on ‘Issues in Social Cost Analysis’ that should be considered by researchers attempting similar exercises in the future:

¹³⁵ Walker (2013), p.195

¹³⁶ Hansard, 27th June 2022, UIN 20331

Funding sources: None

Conflict of interests: Regulus Partners conducts research and provides advisory services for a wide variety of organisations, including (but not restricted to) licensed gambling businesses. Regulus Partners is not a member of any advocacy or special interest groups.

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Appendix I: Freedom of Information Act disclosures (Gambling Commission)

1.1 – Draft PHE press release (sent to Gambling Commission for review), September 2021

UNDER EMBARGO UNTIL 00.01HRS TUESDAY 28TH SEPTEMBER
LANDMARK REPORT REVEALS HARMS FROM GAMBLING COST SOCIETY AT LEAST £1.27 BILLION A YEAR

- Public Health England is today publishing the first evidence review of gambling-related harms in England.
- The report highlights the link between gambling and mental health issues like depression and suicide.
- Health leaders are calling for a new public health approach to gambling focusing on preventing and reducing gambling related harms.

Public Health England (PHE) has today published the first comprehensive review of the evidence on gambling harms and their impact in England, using the best available scientific evidence.

The review includes the most comprehensive estimate of the economic burden of gambling on society to date, revealing that the harms associated with gambling cost at least £1.27 billion* in 2019-20 in England alone. These harms range from financial, like getting into debt, experiencing marriage problems or having a negative impact on jobs.

This includes the first estimate of the economic cost of suicide (£619.2 million) and depression (£335.5 million) associated with gambling.

The report also shows stark regional inequalities with more people at-risk of experiencing gambling harms in the North of England**, who may already be experiencing some negative consequences as a result of their gambling.

The review also highlights the link between gambling and mental health issues. The report found that gambling can increase the likelihood of some people thinking about, attempting or dying from suicide as well as finding a significant link between gambling and depression.***

The review also found that gender and poor mental health were the strongest indicators of gambling related harm:

- Men were 4.2 times more likely than women to be at-risk gamblers;
- People identified as having less than optimal mental health were 2 times more likely to participate in harmful gambling;
- and those who indicated they had a mental health condition were 2.4 times more likely to be a gambler experiencing gambling-related harms.****

Health leaders from organisations such as X and Y are joining PHE in calling for a public health approach to gambling focusing on prevention, early intervention and treatment. This approach is similar to how we tackle tobacco consumption or unhealthy food consumption, and would require cross-government support.

Rosanna O'Connor, Director of Alcohol, Drugs, Tobacco and Justice at PHE, said: "There is so much more at stake from gambling than just losing money - from the toll on mental health to the impact on those around the gambler.

1.2 - Extracts from analysis of PHE report, carried out by the Gambling Commission, November 2021

PHE's GRH evidence review: the economic and social cost of harms

Overview

This review is an assessment of the annual economic burden as a result of gambling, it is **not** an assessment of the economic value (costs vs benefits) of the gambling industry as a whole.

PHE acknowledge that this review underestimates most of the costs associated with gambling. Some categories (finance, health, employment, education, crime) are partially costed and some (cultural harms and impact on relationships) are not costed at all due to a lack of data.

It's encouraging that PHE have mostly followed the structure set out by the GC-funded harms framework produced by Wardle et al and the health economist paper produced by David McDaid (who is also thanked for his input) is referenced in the introduction.

Given the (mostly acknowledged) limitations, it's surprising that the £1.27bn cost of the gambling industry has been promoted by PHE as one of the main findings from the entire review. This may be due to its status as being one of the few conclusions that is 'new', a desire to emphasise the need for further research to strengthen the evidence base or intending to ensure gambling is considered as a public health issue.

However, the lack of data and underestimated costs mean that the estimated costs in this review are significantly below even the tax receipts from the gambling sector in 2017, which were estimated to be £2.7bn. The report succeeds in highlighting that there are costs to gambling, but I don't believe that even PHE have confidence that £1.27bn is an accurate estimate of those costs.

The rationale is understandable as a standard approach for government and not dissimilar to the GC's reasoning for commissioning a methodology paper for how gambling related harms (but not benefits) could be costed. A full economic evaluation of the gambling industry could be slightly awkward politically as it would fund work to identify the benefits of gambling but – to me – feels like the most balanced approach. It's likely that we would be critical of any industry-funded effort to estimate the benefits of the gambling industry.

Suicide - £619.2m

This figure is based upon the suicide rate amongst gamblers in a Swedish study and concludes that 409 are caused by PG-status each year (pg32).

The consequent cost is calculated at £60k/year (HMT Green Book) for each year that it is estimated that a person completing a suicide attempt would have lived, with some reductions in later life for poor health. They assume gambling-related suicides occur at similar ages to non-gambling related suicides (47 for men, 52 for women). It equates to broadly £1.51m per suicide.

Considering this section accounts for nearly half the gambling-related costs identified in the report, it is not particularly lengthy and is based on a single study in a different jurisdiction. Having said that, there is no robust evidence to inherently contradict the estimate in this report.

1.3 - Extracts from analysis of PHE report, carried out by the Gambling Commission, April 2022

PHE choose to use the Karlsson figures as focused on men, who are more likely to be PGs (Health Survey) and commit suicide (ONS). PHE stated (seemingly inaccurately) that the study uses the PGSI, not the DSM-IV, and the Swedish PG rate (0.6%) is similar to the GB rate (0.4%)

General thought – This isn't a figure that I've seen quoted extensively (internal or external) but Regulus produced an 8pg critique of this 4pg section.

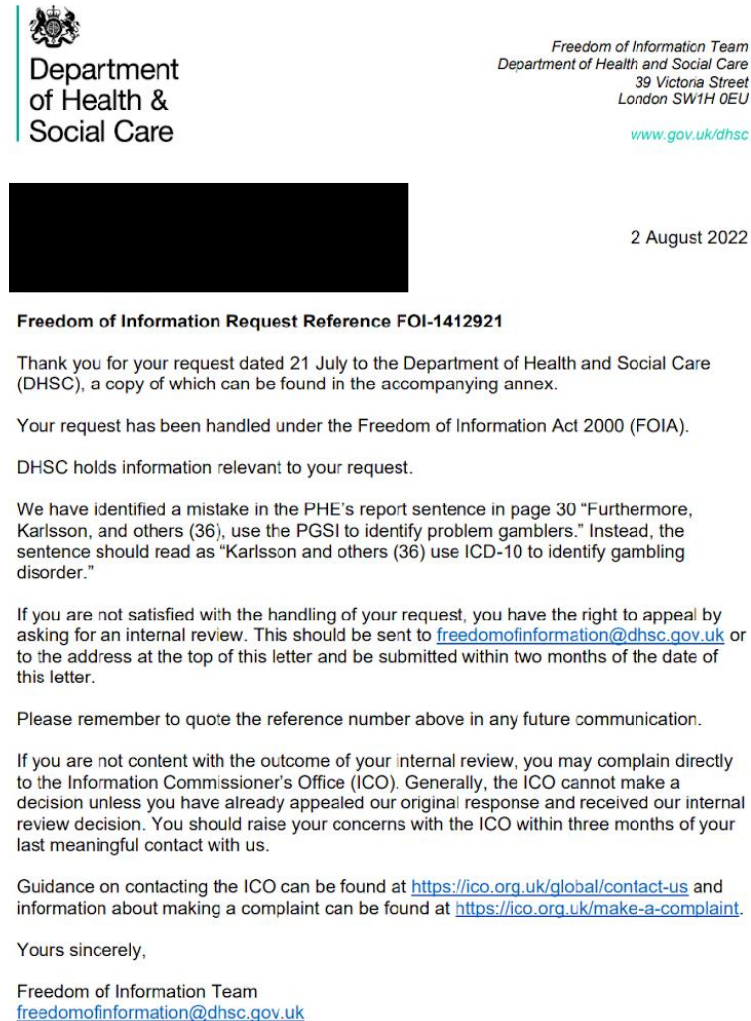
The participants of the Karlsson study are sufficiently different to those classed as PGs on PGSI to challenge PHE's use of that multiplier. I wonder whether the suicide ideation multiplier may be a better estimate - but the reality is that reliable data does not exist. As speculation: If investigated in future, the multiplier may be lower but the PG rate may be higher than 0.4% to produce a broadly similar number.

PHE's full calculations (they've committed to publish?) are needed to understand the figures and how/whether they've factored the over-indexing of males into figures. I got close to most of them but couldn't replicate them.

In terms of costs, the number of YLLs per suicide may be higher if identified gambling-related suicides have a lower average age than 'all suicides', but a higher discount may be applied for co-morbid factors. I don't know enough about PHE's full calculations or economic evaluations to speculate confidently.

Appendix II: Freedom of Information Act disclosures (Department of Health and Social Care)

2.1 – DHSC admission of error in PHE calculation of suicides associated with problem gambling



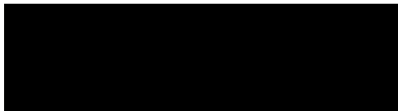
2.2 DHSC admission that OHID expert panel meeting was undocumented



Department
of Health &
Social Care

Freedom of Information Team
Department of Health and Social Care
39 Victoria Street
London SW1H 0EU

www.gov.uk/dhsc



7 February 2023

Freedom of Information Request Reference FOI-1434904

Thank you for your request dated 21 January to the Department of Health and Social Care (DHSC), a copy of which can be found in the accompanying annex.

Your request has been handled under the Freedom of Information Act 2000 (FOIA).

DHSC does not hold the information you have requested.

There was no agenda or papers shared before the meeting or minutes circulated afterwards.

If you are not satisfied with the handling of your request, you have the right to appeal by asking for an internal review. This should be sent to freedomofinformation@dhsc.gov.uk or to the address at the top of this letter and be submitted within two months of the date of this letter.

Please remember to quote the reference number above in any future communication.

If you are not content with the outcome of your internal review, you may complain directly to the Information Commissioner's Office (ICO). Generally, the ICO cannot make a decision unless you have already appealed our original response and received our internal review decision. You should raise your concerns with the ICO within three months of your last meaningful contact with us.

Guidance on contacting the ICO can be found at <https://ico.org.uk/global/contact-us> and information about making a complaint can be found at <https://ico.org.uk/make-a-complaint>.

Yours sincerely,

Freedom of Information Team
freedomofinformation@dhsc.gov.uk

2.3 – DHSC statement of the population prevalence of PGSI ‘problem gambling’ (used in calculation of suicide mortality), July 2022

Freedom of Information Request Reference FOI-1409062

Thank you for your request dated 17 June to the Department of Health and Social Care (DHSC), a copy of which can be found in the accompanying annex.

Your request has been handled under the Freedom of Information Act 2000 (FOIA).

DHSC holds the information you have requested.

Public Health England’s calculation for the figure of 409 deaths used the Office for National Statistics’ age-standardised suicide rates tables for 2019. These are multiplied by the prevalence of problem gambling in the general adult population (0.4% on average) to first estimate the number of gamblers who would have died by suicide in England for all persons (mean=25) if they had the same risk of dying of suicide as the general population. Multiplying this figure by the age-standardised mortality ratios (sourced from the study by Karlson and colleagues[1]) produces an estimate of the expected number of suicides (mean=434). Calculating the difference between these figures (434-25) results in the estimated number of deaths by suicide associated with problem gambling only (409).

2.4 – DHSC internal review of request for information regarding PHE calculation of deaths by suicide, August 2022



Department
of Health &
Social Care

Freedom of Information Team
Department of Health and Social Care
39 Victoria Street
London SW1H 0EU

www.gov.uk/dhsc

Mr Daniel Waugh

By email to: dan.waugh@reguluspartners.com

19 August 2022

Annex A: DHSC response to initial request

Annex B: Request for internal review

Dear Mr Waugh,

FREEDOM OF INFORMATION ACT 2000 (FOIA): INTERNAL REVIEW

CASE REFERENCE: IR-1412151 (FOI-1409062)

You originally wrote to the Department of Health and Social Care (DHSC) on 17 June 2022 requesting the following information:

Please can you supply me with the actual (numerical) mathematical calculation used to generate the figure of *"409 deaths by suicide associated with problem gambling only"* contained within Public Health England's 2021 report, *'Gambling-related harms evidence review: the economic and social cost of harms'*.

We responded to you on 13 July and a copy of our response, including the full text of your request, can be found in Annex A.

You subsequently emailed DHSC on 15 July requesting an internal review into the handling of your original request. A copy of your email can be found in Annex B.

The purpose of an internal review is to assess how your Freedom of Information (FOI) request was handled in the first instance and to determine whether the original decision given to you was correct. This is an independent review as I was not involved in the original decision. Please accept my apologies for the delay in replying.

I am sorry the detail within our FOI response was not in the format as you had requested. A review has been conducted and I can confirm that DHSC holds information relevant to your request. However, it is being withheld under Section 22, which states that public bodies are not obliged to disclose information that is intended for future publication.

The Department is reviewing the evidence published in Public Health England's 'Gambling-related harms evidence review: the economic and social cost of harms' report. We plan to publish an addendum in the autumn setting out the specific calculations and modelling assumptions in the report. The information you have requested will be freely available upon publication.

2.5 – DHSC restatement of the population prevalence estimate of PGSI ‘problem gambling’ (used in calculating suicide mortality), March 2023

Population estimate:

People experiencing problem gambling by age, calculated based on weighted prevalence from the combined Health Survey for England 2012, 2015, 2016, 2018 datasets. A combined dataset of several years of HSE data was used to ensure a more robust sample size when breaking down totals into specific age categories. The prevalence figures were then applied to the 2018 population to reach the figures below.

Age band	Problem gambling population
16-19	4,986
20-24	49,177
25-29	22,896
30-34	34,088
35-39	14,870
40-44	10,172
45-49	26,595
50-54	7,831
55-59	17,867
60-64	6,089
65-69	5,645
70-74	2,725
Total	202,941

N.B. 16-19 year olds were excluded from the suicide analysis

Appendix III: List of factual errors and unsubstantiated claims contained within the OHID review

Page	Text	Analysis
6 (and others)	<i>The analysis refers to harmful gambling, which includes individuals screened as 'low-risk', 'moderate-risk' (which are often combined and referred to as 'at-risk') and 'problem gamblers' using the Problem Gambling Severity Index (PGSI). The Health Survey for England (HSE) estimates there are about 1.76 million people participating in harmful gambling in England and of these, about 168,000 people are classified as experiencing problem gambling.</i>	As we note on page 11, it is incorrect to refer to PGSI 'low risk' and 'moderate risk' as necessarily 'harmful'. It is factually inaccurate to state that the Health Survey for England estimates that c1.76 million people participate in 'harmful gambling'.
17	<i>At a population level, gambling-related harms experienced by people participating in low-risk gambling can be greater at aggregate level than harms experienced by those problem gambling, given the size of these populations</i>	No citation is provided for this claim. Analysis of PGSI item endorsement in the NHS Health Surveys (2012-2018) indicates that this is likely to be incorrect.
22	<i>Due to data limitations, the cost estimates presented are mainly those borne by the government.</i>	This is incorrect. A majority of the total costs estimated relate to intangible costs to society rather than direct costs to the government.
34	<i>In a sample of 72 participants from homeless centres in Westminster, London, they explored the proportion of gamblers who experienced a problem with gambling before entering homelessness services. Findings showed 61.5% of at-risk gamblers and 82.4% of problem gamblers participated in gambling activities before becoming homeless.</i>	This is incorrect. Sharman et al. (2016) indicate that two of nine PGSI 'at risk gamblers' claimed to have experienced problems with gambling prior to becoming homeless. This represents 22.2% rather than 61.5% of 'at risk gamblers'.
39	<i>Cowlshaw and Kessler (35) conclude that there is a disproportionate burden of gamblers using healthcare services but they were unable to infer causality. They found that problem gambling has likely implications for mental health but given the complexity of the relationship they could not "infer mechanisms that underlie cross-sectional associations".</i>	This is incorrect. Cowlshaw and Kessler finds that there is a disproportionate burden of DSM-IV 'problem gamblers' using healthcare services; but this does not hold for DSM-IV 'at risk gamblers'. Cowlshaw and Kessler do not distinguish between non-problem gamblers and non-gamblers in their analysis. It is impossible to identify from their analysis whether gamblers are disproportionate users of healthcare services.

Page	Text	Analysis
42	<i>Of the population to apply this effect size to, the expert panel again suggested using a range, given uncertainty in applying results from a clinically diagnosed population. They recommended using 2 population estimates:</i> <i>1. The problem gambling population used throughout this analysis. These are people scoring 8 or more using the PGSI (equivalent to a score of 3 or more using the DSM-IV, which is also available in the Health Survey for England). This is just under 170,000 people.</i> <i>2. A subset of the problem gambling population used throughout this analysis. These are people scoring 5 or more using the DSM-IV. This is just over 120,000 people</i>	It is incorrect to describe DSM-IV ‘pathological gamblers’ (i.e. “people scoring 5 or more using the DSM-IV) as a subset of PGSI ‘problem gamblers’. The PGSI and DSM-IV are different instruments and it is both technically and factually incorrect to state that the former is a subset of the latter.
64	<i>Figures from the HSE on the number of people experiencing problem gambling in England imply that just 2.7% of people experiencing problem gambling accessed treatment in 2020 to 2021. This does not include people engaging in at-risk gambling who may also benefit from treatment and support.</i>	This is incorrect. It assumes that the all people with ‘problem gambling’ use the National Gambling Treatment Service. It therefore ignores people using treatment services provided by Gamblers Anonymous, private providers and community groups. It also ignores a much larger number of people (including ‘at risk gamblers’) who access support through the National Gambling HelpLine.
81	<i>For example, evidence on suicides (which represents 23 to 54% of estimated excess costs), work and employment, and crime were only available for the problem gambling population.</i>	This is incorrect. The evidence used for the suicide estimates was based on the ‘pathological gambling’/‘Gambling Disorder’ population and not the ‘problem gambling’ population.
90	<i>The gambling healthcare analysis, and all the different types of analysis included in this report, are only able to estimate costs associated with gambling addiction.</i>	This is incorrect. The ‘lower bound’ suicide estimate (based on prevalence rates of DSM-IV ‘pathological gambling’) is the only area of cost that could be described as being “associated with gambling addiction” – and even this is technically flawed.