Editorial

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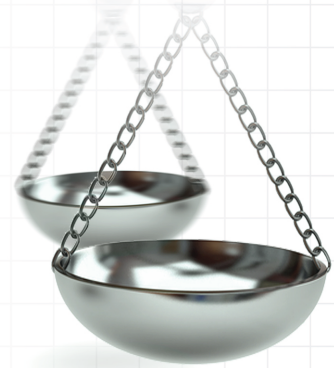

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Will the UK–US pharmaceuticals deal really cause 229,000 excess deaths? A critical appraisal

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"These estimates capture the average health effect of displaced expenditure across local health systems, not deaths that will identifiably occur; the 'excess deaths' reported are foregone statistical benefits contingent on a chain of disputable assumptions: that the NHS, facing a large and anticipated budget pressure over the decade ahead, would displace activity of average historical productivity rather than targeting disinvestment of lower-value services; that the NHS budget is strictly fixed; and that GDP-share spending targets will be met exactly as projected."

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In late 2025 the UK and US governments concluded an agreement on pharmaceutical pricing under which the UK will pay more for branded medicines – through higher cost-effectiveness thresholds for new medicines and a reduced rebate clawback – in return for tariff-free access to the US market for UK pharmaceutical and medical device exports. Writing in the BMJ, Cross and colleagues estimate that the deal will result in 229,000 excess deaths by 2036, a figure they compare with mortality during the COVID-19 pandemic [1]. The comparison is rhetorically powerful, but the analysis beneath it has four weaknesses: its headline figures inherit the full uncertainty of a contested opportunity-cost parameter; its ledger counts costs while excluding benefits, price dynamics, and everything outside the health system; its counterfactual assumes an equilibrium that was no longer available; and its framework, applied consistently, would generate mortality estimates of comparable magnitude from almost any large NHS spending commitment – as demonstrated below by applying the authors' own methodology to the recent medical pay settlement.

The opportunity cost estimate is a modeled counterfactual, not a measurement

The analysis rests on a marginal productivity estimate of £153,000 per death averted, derived from econometric analyses of the relationship between NHS expenditure and mortality [1,2] and from the same evidence base as the £15,000 per quality-adjusted life-year (QALY) used in Department of Health and Social Care impact assessments [3]. The point is not imprecision – published estimates from the same research group range from about £6000 to £13,000 per QALY [2,4,5], and lower values would imply a larger opportunity cost – but what the numbers represent. These estimates capture the average health effect of displaced expenditure across local health systems, not deaths that will identifiably occur; the 'excess deaths' reported are foregone statistical benefits contingent on a chain of disputable assumptions: that the NHS, facing a large and anticipated budget pressure over the decade ahead, would displace activity of average historical productivity rather than targeting disinvestment of lower-value services; that the NHS budget is strictly fixed; and that GDP-share spending targets will be met exactly as projected. The pandemic comparison obscures a further point: estimates of pandemic excess mortality also rest on a modeled counterfactual – how many would have died had the pandemic not occurred – but one anchored in observed deaths, whereas the deal's 'excess deaths' are counterfactual at both ends, with neither the health forgone nor the health purchased ever observed. Such estimates warrant considerable caution, not equivalence with pandemic mortality.

Costs are counted; benefits are not

The analysis assigns no health value to the medicines that the additional expenditure will purchase. The authors note NICE's estimate that the higher thresholds may yield only two to five additional approvals annually [1], but the model assigns no value even to these, nor to any effect of the deal on launch timing or availability. The omission matters because NICE's high approval rate partly reflects products that are never submitted, or are submitted late – a selection effect the authors do not address when arguing that the deal will merely raise prices for medicines that would have arrived in any event; medicines that today never launch in the UK are precisely where the deal's health benefits would arise, and they appear nowhere in the model. The study the authors themselves cite estimated that NICE-recommended medicines generated 3.75 million healthy life-years between 2000 and 2020 [6]; its modeled net population-health loss is wholly contingent on the same contested opportunity-cost parameter examined above. The relevant quantity is the net population health effect – health gained from new medicines minus health displaced elsewhere – which depends on prices relative to value. Treating the entire incremental expenditure as deadweight loss is not, as the authors describe it, a conservative assessment; it is a maximally pessimistic one.

Nor does the analysis reflect price dynamics. Medicines are the only major category of NHS expenditure whose prices fall substantially – frequently by more than 90% – on loss of exclusivity [7–9], after which their benefits accrue to the NHS at close to the marginal cost of manufacture in perpetuity. This matters most for the additional approvals and earlier launches the deal secures; an 11-year projection that assigns these incremental medicines no post-exclusivity value at all, materially inflates the apparent opportunity cost and cannot be described as conservative.

Selective scrutiny of 12% of the budget

Medicines account for less than 12% of NHS expenditure and branded medicines for approximately 7% [10]; the largest category – more than £70 billion annually – is salaries [11]. Yet nearly half of all published cost-effectiveness analyses concern medicines, whereas procedures, service configurations, and workforce decisions are rarely assessed [12], despite documented instances of non-pharmacological NHS interventions exceeding the £15,000 per QALY benchmark [13,14]. If the concern is genuinely opportunity cost, the appropriate remedy is comprehensive cost-effectiveness assessment across the entire health and care system, rather than the isolated scrutiny of the one budget category that is transparently priced, formally value-assessed, subject to rebate clawback, and destined to become inexpensive.

Innovation incentives & the free-rider problem

The authors dismiss any UK effect on global innovation on the grounds that the UK constitutes a small share of the world market. This is a collective action fallacy: every individual payer is small, and if each reasons accordingly, global research and development is underfunded relative to its societal value. Taken to its logical conclusion, the authors' position implies that the UK should pay the marginal cost of manufacture and free-ride on innovation entirely. The empirical literature consistently finds that expected market size and revenue drive pharmaceutical innovation [15,16], and comparative analyses suggest that countries paying below value free-ride on research disproportionately financed by the USA[17]. The authors' contrary claim – that the UK already pays more than 100% of the long-term value of new medicines [1] – rests on the same contested valuation of health opportunity costs examined above. The UK already lags peer countries on access: on industry-compiled figures, of medicines launched globally between 2012 and 2021, 85% were available in the USA, 61% in Germany, and 59% in the UK [18,19] – and these data predate most-favored-nation pricing pressure, under which confidential UK discounts can no longer be assumed to leave prices elsewhere unaffected, making delayed or forgone UK launches more likely, not less. The practical significance is forward-looking: if manufacturers expect the UK to pay closer to value, they are more likely to launch early, place clinical trials, and invest in the UK; if they expect the opposite, the historical pattern of late or absent launches will worsen.

Value beyond the NHS silo

The framework also confines value to QALYs within the NHS budget, excluding productivity gains for patients returning to work, carer effects beyond those captured in NICE appraisals, and broader societal spillovers [20], as well as the deal's stated economic rationale: tariff-free access to the US market for UK pharmaceutical and medical device exports, and the retention of a globally competitive life sciences sector. The latter is not incidental. In September 2025 AstraZeneca paused a £200 million expansion of its Cambridge research site, citing frustration with UK medicines pricing; in April 2026, with the deal concluded, it announced £300 million of investment in

Cambridge and Macclesfield that both its chief executive and the Prime Minister explicitly attributed to the new pricing arrangement [21]. The deal is already purchasing industrial outcomes of this kind, and they were plausibly among the principal reasons it was struck. The authors discuss these considerations qualitatively [1], but none enters the ledger, and governments legitimately weigh health against economic growth, industrial strategy and whatever else was on the negotiating table – much of which is unobservable. The magnitude of these benefits is open to debate, but an assessment described as 'accurate but conservative' that assigns them a value of zero, while treating highly uncertain modeled harms as precise, is not balanced.

Applying the same methodology to the medical pay settlement

If the authors' framework is valid, its application cannot be confined to medicines: opportunity cost is indifferent to the object of expenditure. What follows is not an argument that doctors should not have received their settlement; the figures are illustrative, produced solely to test the methodology. The period 2023–2026 saw the largest sustained increase in medical pay in recent decades: resident doctors in England received a compounded 22.3% over 2023/2024 and 2024/2025 [22,23], an average 5.4% for 2025/2026 [24], and, under the agreement accepted by British Medical Association members in June 2026, 4.9% for 2026/2027, leaving average resident doctor pay 35.2% higher than 4 years earlier [25].

The comparison is apt because pay awards displace other NHS activity through the same mechanism the authors attribute to medicines expenditure – committed spending growth without corresponding increases in available resources. The Nuffield Trust estimated that the 2024 resident doctor settlement alone cost approximately £600 million above the funded envelope over 2 years [26], and that the 2024 Autumn Budget funded pay growth of only 2% against average settlements of 5.5%, a shortfall of approximately £3.45 billion absorbed within existing budgets [27].

Three considerations should be acknowledged. First, a portion of any pay award returns to the exchequer through income tax and national insurance [28], whereas medicines expenditure accrues largely to manufacturers; this favors pay. Second, incremental medicines expenditure purchases incremental health benefit directly where it funds additional approvals and earlier launches, whereas an award to the existing workforce purchases no additional activity: its benefits – retention, recruitment, morale – are real but indirect, and belong to precisely the class of benefit the authors exclude for medicines. Third, the marginal productivity estimates identify the health effects of variation in expenditure that largely purchases additional inputs, whereas a pay award raises the price of existing inputs; extrapolating the estimates to a pure relative wage change therefore involves an untested assumption – though the same is true of the deal itself, which the authors argue chiefly raises the prices of medicines that would have been purchased in any event. Pay awards, moreover, are never subject to loss of exclusivity: the full cost is consolidated and recurs in every year of the 2026–2036 horizon the authors appraise, and the June 2026 settlement is itself a prospective commitment. Table 1 presents the calculation, with each assumption mapped to its counterpart in the Cross *et al.* analysis.

No analysis attributing 130,000 deaths to the medical pay settlement has been published, and rightly so – not because such a calculation is impossible, but because any credible version would have to confront what this one assumes away. Its counterfactual is genuinely unknowable: had the government held pay at funded levels, doctors might have continued striking at approximately £50 million per strike day [25,30], accepted the position, or left to work abroad; attrition and agency expenditure – the latter peaking at £3.5 billion in 2022/23 [11] – would have followed some unknowable path. It would count costs while excluding real benefits: retention, recruitment, continuity of care and the end of strike disruption. And its precise-seeming mortality figures, compounded across 11 years of assumptions, would convey false certainty. Each objection applies with equal force to the authors' analysis. Their counterfactual assumes an equilibrium that was no longer on offer: a world in which the UK could indefinitely pay substantially below peer countries with no consequences for tariffs, access, launch sequencing, or the location of the life sciences industry. Had the deal not been struck, we do not know whether manufacturers would have continued to accept UK prices far below other markets, launched later or not at all, or relocated; nor do we know what else – tariffs, defense, investment – was on the negotiating table. The alternative to the pay settlement was not restraint at 2% without consequence but 2% with continued strikes; the alternative to the deal was not the status quo but escalating trade conflict. An evaluation of the observable costs and benefits of either negotiation can only ever tell half the story, and a mortality headline built on the observable half is not evidence about the whole.

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Table 1. Application of Cross and colleagues' opportunity cost methodology to the 2023–2027 resident doctor pay settlement in England.

Step	Value	Meaning of the assumption, and its correspondence to the Cross *et al.* analysis	Ref.
Resident doctor pay bill, England	Approximately £6–7 billion in 2026/2027 (~75,000–80,000 resident doctors)	Built bottom-up from NHS England published earnings (£61,200 per FTE in 2023/2024, plus subsequent awards) and employer pension and national insurance on-costs (total employment cost approximately £85,000–90,000 per FTE); cross-checked against the Nuffield Trust's costing of the 2024 settlement.	[26,29]
Cumulative settlement, 2023/2024–2026/2027	+35.2% on average	The compounded effect of the 2023/2024, 2024/2025, 2025/2026 and June 2026 awards.	[22–25]
Counterfactual	Pay bill funded at ~2% per year, growing thereafter at 1.5%	Mirrors the Cross baseline of medicines spending growing at 1.5% annually; ~2% is the level the NHS budget was funded for.	[1,26,27]
Recurring excess cost	~£1.2–1.5 billion per year from 2027/28	Only the increment above the funded baseline is counted, exactly as the Cross analysis counts only medicines expenditure above its baseline. Consultant, specialty doctor, and general practitioner settlements are excluded, understating the total.	
Cumulative excess, 2026–2036	Approximately £15–18 billion	Summed over the same 11-year horizon, compounding as in the authors' Figure 1.	[1]
Conversion to 'excess deaths'	£153,000 per death averted → ~100,000–120,000	The authors' own central parameter, applied unchanged; all its limitations apply equally to both analyses.	[1,2]
Social care multiplier	+12% on all figures	The Cross analysis adds £118 million of adult social care costs per £1 billion of NHS diversion; only the expenditure multiplier is applied here.	[1]
Sensitivity analyses	~55,000–85,000 modeled deaths	Judging awards against cumulative consumer price inflation (~20%) rather than funded levels, or excluding employer on-costs entirely, leaves the modeled figure in the tens of thousands.	
Total modeled 'excess deaths'	~110,000–130,000 (central case)	Of the same order as the 137,000 pandemic-period excess deaths in England (March 2020–June 2022) that Cross *et al.* invoke as their benchmark – from a single staff group.	

Figures are illustrative only, produced solely to test the methodology, and are not endorsed as estimates of actual mortality. Extending the same arithmetic across the whole NHS workforce would yield figures several times larger than those attributed to the pharmaceuticals deal.
FTE: Full-time equivalent; NHS: National Health Service.

Points of agreement & a consistency test

The authors' call for transparency is well founded: the Department of Health and Social Care's impact assessment should be published, and the deal's long-term fiscal commitments merit full parliamentary scrutiny. Society is entitled to assurance that it obtains value for money from medicines. That assurance, however, requires an analytical framework that counts benefits as well as costs, reflects price dynamics across the product life cycle, employs credible counterfactuals, acknowledges the uncertainty in its own foundations, and – above all – is applied consistently. Spending that is amenable to conventional evaluation – capital programmes, service reconfigurations, workforce policy – should receive it; the pay arithmetic above shows how easily the same framework manufactures pandemic-scale figures wherever it is pointed. But the deal, like the pay settlement, is a negotiated outcome whose central considerations – counterfactual behavior, industrial location and undisclosed elements of the negotiation – lie outside the direct health system perspective these analyses adopt. That the mortality-headline treatment is applied publicly to this one category of expenditure indicates a rhetorical rather than an analytical choice. Either all major resource commitments are subjected to the same discipline, or claims that a single agreement "will result in thousands of excess deaths" should be read as advocacy rather than evidence.

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Writing disclosure

No writing assistance was utilized in the production of this manuscript.

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