

## PUCC: The Preventonomics Unit Cost Calculator

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### Introduction

In this short article we introduce a new downloadable tool that allows users to estimate unit costs for individuals and for interventions. Building on the work undertaken within the *Unit Costs of Health and Social Care* volumes, the Preventonomics Unit Cost Calculator (PUCC) programme allows users to more easily develop unit costs that reflect local conditions: perhaps based on the salary actually paid to a member of staff, or on the 'overheads' accruing for back-office functions in a specific organisation. The second function addresses another challenge often faced by both researchers and service personnel: estimating the cost of an intervention that involves more than one professional, such as a 10-week parenting course, or a 12-week course of CBT. This tool addresses some of the common challenges in costing such services:

- The calculator allows users to include staff and non-staff costs (such as room hire fees or refreshments), as well as both revenue (such as finance or HR departments) and capital (buildings, land) overheads.
- PUCC enables data to be entered for multi-site deliveries of the same intervention – a useful attribute in a large cost-effectiveness study – and can take into account the different ways a single intervention may be delivered and used.
- Cost estimates can be stored, so PUCC allows users to see the impact on cost if some of the parameters are changed. What if care assistants not nurses were to deliver the intervention? What if intervention participants could be encouraged to attend all the sessions?
- Particularly useful in times of constrained budgets, PUCC can therefore help a service manager understand how they can deliver a particular intervention within their budget constraints.

PUCC was developed as part of our [Preventonomics](http://www.pssru.ac.uk/blogs/preventonomics/) research, funded to support the Big Lottery Fund's *Fulfilling Lives: A Better Start* (ABS) initiative. The [Personal Social Services Research Unit \(PSSRU\) at LSE](http://www.pssru.ac.uk/) was commissioned by The Big Lottery Fund in 2013 to develop models and frameworks to help local areas understand potential down-stream public sector cost savings to be generated from intervening with parents and children aged 0-3 years. The ABS initiative aims to improve child outcomes in social and emotional development, speech and language, and diet and nutrition. Thus, PUCC originates from research primarily concerned with providing services for children and families. However, the principles underpinning this work apply to all unit costs in health and social care services.

*The aim is to identify a coherent method for calculating unit costs that is convincing in its relationship with – for example – the work of children's services and the realities of children's needs.*

*However, estimating costs is always likely to be an imperfect science, but the more accurately all the expenditure categories that contribute to a service are acknowledged, the closer we will get to understanding real costs.*

(Beecham, 2000)

### Using the Preventonomics Unit Cost Calculator

The Preventonomics Unit Cost Calculator (PUCC) is built on an Access database. It allows users to

- Calculate the unit cost for individual professionals
- Calculate the unit cost for multi-professional interventions and services, and

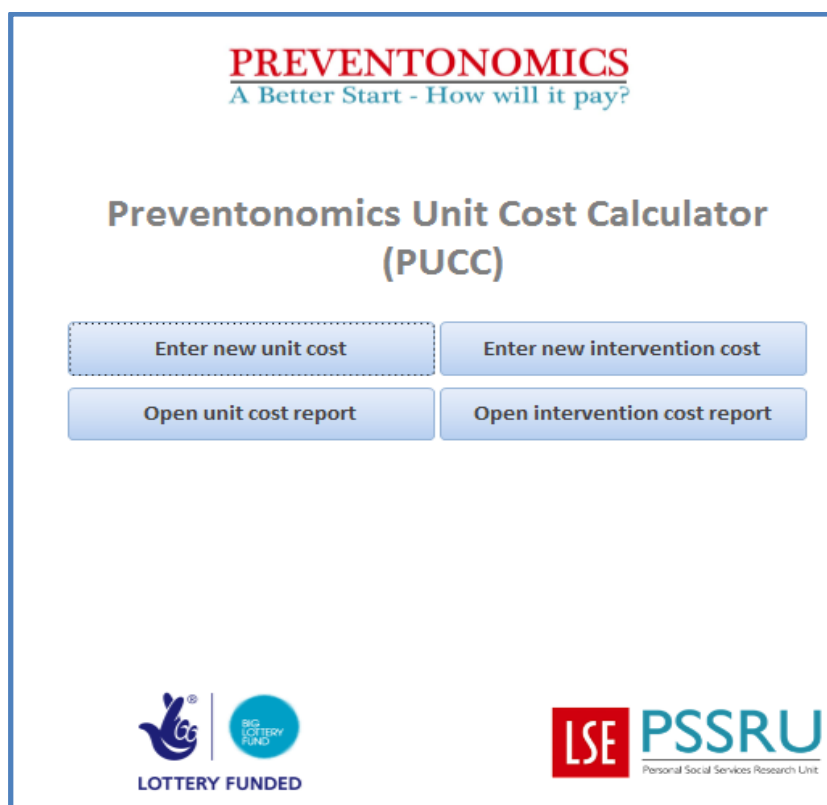
- Stores these estimates in a database

The calculator follows 'best-practice' principles of unit costing, as applied to these volumes of the *Unit Costs of Health and Social Care*. Indeed, the default values for some overheads have been taken from the *Unit Costs of Health and Social Care 2015*. The PUC is also pre-loaded with salary information, such as the NHS Agenda for Change pay bands. In addition, it is easily customisable with local data, resulting in unit costs that better reflect local circumstances.

The database allows data to be stored over time. This means that costs data for any professional, need only be entered once and can be drawn in for multiple purposes, for example to estimate an intervention cost or to compare costs over time. As well as being able to vary the 'input' parameters for a multi-professional intervention (staff grade or numbers, overheads, etc), PUC also allows users to vary 'outputs': perhaps to see the impact on the intervention cost of increasing attender numbers per session or improving the recruitment to completer ratios over time. The standard reporting function makes it easy to see both assumptions and results.

This is a short introduction to a tool that we hope will be simple to use. This article gives a flavour of PUC's capabilities; the detailed Guidance can be found at [www.pssru.ac.uk/project-pages/unit-costs/pucc/](http://www.pssru.ac.uk/project-pages/unit-costs/pucc/). The PUC includes pre-loaded data entry forms, relevant queries and reports, allowing for data entry and retrieval, and unit cost calculation following the standardised PSSRU approach. There are some in-built macros that must be enabled, and we advise users to export their databases periodically to ensure work is not lost.

The **PUC welcome page** shows four options.



Each of the large buttons takes the user to a different PUC function.

**Estimate new unit cost** allows the user to enter data (or use pre-loaded default) for a single professional. The form follows a simplified version of the UCH&SC schema asking the user for information on, for example, the grade of professional, their annual pay and on-costs, and overheads. The final part of the form is concerned with working time such as total annual working hours (net of sick days, training etc.), and work-time multipliers for, say, face-to-face contact.

The **unit cost report** can then be opened which shows a summary of the information selected for each professional or practitioner, and displays the total annual costs, cost per hour and any 'weighted' costs using the multipliers.

One of the most exciting functions of PUCC comes at **Enter a new intervention cost**. Here, stored information on individual professionals can be drawn in alongside additional entries to build up the cost of an intervention. This part of the PUCC is based on the idea of a 'cohort' of users starting in year one for whom costs may be incurred over one or several years. Participants starting the intervention in year two (or perhaps a second cohort starting in year one) would form a separate cohort, and a new intervention cost would be calculated for them. This is to ensure that information on effectiveness can be matched to the information on the resources used (costs) for the same intervention.

For the PUCC user, the starting point is to enter information about the intervention: a brief title and description. Then information on the intervention users can be entered such as the numbers referred or enrolled to the intervention, or who take up the offer. There is also space to identify how many completed the programme. Each item is linked to a specific definition, for example:

- **Successfully enrolled:** Those successfully enrolled to the intervention, having previously been referred or recruited. A difference between the numbers recruited and enrolled may arise if a referred participant is not eligible to receive the intervention.

Before moving on to the 'resources' or staffing section, there is space to identify the number and duration of sessions in the intervention.

Staffing information is drawn up from the stored data-base and staff costs are calculated on the basis of the amount of staff time entered for each of the five intervention phases: design, recruitment, training and preparation, delivery, and feedback. Information on other resources used can also be entered for each phase.

Again, the **intervention cost report** shows the calculations in a standardised format, identifying the costs per recruit, per user taking up the intervention, and by person completing the intervention. Other parts of this report show the cost of the design process (which is not attributed to participants) and the total cost of the intervention. The report also shows the intervention cost by agency, phase, cost category and year incurred. All costs are shown as a total and at present value.

## Conclusion

This short article introduces readers to a downloadable tool for estimating unit costs. The development of PUCC was financed by the [Big Lottery Fund](https://www.biglotteryfund.org.uk/) (<https://www.biglotteryfund.org.uk/>) and was initially intended to support the five sites providing early prevention services for young families under the [Fulfilling Lives: A Better Start](http://www.biglotteryfund.org.uk/betterstart) (ABS) (<http://www.biglotteryfund.org.uk/betterstart>) initiative. However, underlying PUCC are aims and purposes that link closely with the *Unit Costs of Health and Social Care* volumes. PUCC aims to produce unit costs that reflect the long-run marginal opportunity cost of a relevant unit of service, and to make the methods used and data sources transparent, and to be disseminated widely.

For service providers and commissioners, and for researchers, PUCC's pre-programming and its flexibility are major advantages. For service personnel – whether in the public or independent sector – PUCC can help identify, not only the cost of an intervention but also the impact on cost if some of the parameters are changed, perhaps to meet budgetary limitations. Of course, as with any cost information, it is important that the results generated by PUCC are seen as only part of the information needed for commissioners and providers to make decisions. For researchers undertaking economic evaluations, PUCC makes estimating brief multi-person intervention costs easier, and can considerably reduce researcher workload where costs have to be calculated for multi-site or multi-mode deliveries of the same intervention.

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