

## Costing Chronic Conditions: A Method



### Executive Summary

Accurate costing is increasingly recognised as a key dimension in providing clinical care – it is critical and there are plenty of reasons for policy-makers to immediately seek better cost control. Waste is an example of one of those reasons, and an ever-present part of healthcare systems. In the US system, it has recently been estimated that in just 6 categories of waste – overtreatment, failures of care coordination, failures in execution of care processes, administrative complexity, pricing failures, and fraud and abuse – exceeds 20% of **total** healthcare expenditures. The actual total may be far greater. In Ireland, where in 2014 gross spending (“voted expenditure”) exceeded the budgeted allocations by €1 billion, of which the largest single source of this overrun was the Health area, accounting for €647 million (76%), the need to control costs is thus critical.

However accurate, costing is also complex as healthcare spending is a political and/or economic struggle, wherein costs in the future will depend on policies, responses and unexpected events at many different times. Thus accurate costing is rarely executed well, and traditional methods have struggled to implement a sustainable model; thus an innovative approach is required. This is particularly salient in relation to chronic conditions, on which a vast majority (80%+) of all healthcare spending is allocated.

This project therefore represents the initial development of a methodology aimed at undertaking the accurate costing of complex, integrated care. Dementia was chosen as a test-case for patient-level costing as, historically, accurate identification of the monetary costs attributable to dementia is particularly challenging. It was therefore argued that an accurate costing methodology for dementia could subsequently be transferred, with some degree of confidence, to less non-linear chronic conditions/integrated care-pathways.

It has been suggested that to identify, map, and subsequently cost chronic conditions – which are a fragmented integration of care settings and activities – a patient-level approach may be well-suited. Time-driven activity-based costing, from the accountancy literature, was chosen. However, perhaps the key addition was the linkage with vignette-based surveying, from the social sciences, as the logical, albeit novel approach needed to undertake costing of chronic illness.

Two exemplar patients (Mary and Jack) were chosen as representative of the typical care-pathway for dementia patients. Detailed vignettes, spanning 4-12 years of conceptual care activities, were developed, and used as the framework from which to derive costs.

Data was collected at a number of healthcare settings (i.e., hospital, community, nursing homes) through participant observations and semi-structured interviews with healthcare professionals (HCPs:  $N = 105$ ). Individual-level costed process maps of care (i.e., per HCP/per location) were integrated for an end-to-end cost of care for the exemplar patients.

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## Recommendations: 'How-To' Guide for Researchers

### Vignette development

Identification of optimal patient exemplars and incorporation into well-developed vignettes represent the main methodological phase of this type of research. This requires triangulation of initial data-collection via detailed review of literature, content expert insight and input, early-stage interviews with key gatekeepers, and mock-interviewing of the final vignette 'product', into a standardised script for formal data-collection. As such, resources (time, researchers, travel outlay) need to be budgeted commensurately.

### Information gatekeeper data-collection

In-depth, primarily unstructured interviews with content expert/information gatekeepers should be conducted at the outset. Studies from the research team suggest that 20-30 hours of initial-stage interviews is appropriate.

### Field-site selection

Four general field-sites were chosen for this study (i.e., community, hospital, home, and nursing home), as between them they represent the majority of possible field-site options for dementia care activities. It is likely that research on integrated-care (or *integrated* care-pathways), will need to address each of these four sites (and even additional sites which may be relevant in discrete contexts [e.g., school setting in adolescents' healthcare, etc.]).

### Data-collection: observations

While observations are not possible at all sites, when possible they represent a valuable use of resources, as there must be a strong bond of trust between the entity conducting the survey and the (physician) respondents, and in the current study were repeatedly shown to be beneficial.

### Semi-structured interviews

For the formal/participant data-collection, semi-structured interviews were conducted. Depending on setting(s) a number of interviews per role is recommended. While this study represents a mixed-methods approach, the standardised script (i.e., the vignette) lends itself to quantitative data collection.

### Quantitative interviewing

The use of observations and even semi-structured interviewing raises the issue of study resources and the potential in subsequent future research for differing degrees of quantitative data capture. For example, for some conditions, depending on matters of feasibility etc. it may be necessary to reduce the initial data-gather – from content experts, information gatekeepers – into bespoke quantitative data-capture measures (e.g., the resource utilisation in dementia scale). This could be a way of again standardising the approach, and future research can assess 1) the degree to which this is achievable, and 2) valid.

### Data analysis

The key to the analytic procedure was the development of complex but logical linear equations, based on the specific components of times, personnel costs, system costs and overhead costs. Through Excel it was possible to undertake computation of specific costs: \*activity, \*actor, and for these to be computed, \*stage of illness/condition. The development and maintenance of a comprehensive dataset such as outlined above, is critical, as it can be used by researchers as a dynamic dataset from which base costs of all (recorded) activities throughout the healthcare system can be drawn. Additional activities, actors, timings and thus costs can be added/subtracted to the dataset.

### Sensitivity analysis

The need to assess changes in costing based on changes in key cost or activity parameters is necessary. A single patient – comprising every single activity, time, cost or version thereof – is developed, and versions/variants of this single meta-patient can thus be mapped and costed, by the simple modification of activities, times and/or costs. If for some patients, other activities need to be mapped or costed, this can be done using the data repository as a way to minimise researcher resources.

*Companies with a commercial interest in these connected health opportunities or who are intertested in collaborating with ARCH should contact Alica May, Project Co-ordinator on [info@arch.ie](mailto:info@arch.ie) or call 01 7165400.*