Author's response to reviews

Title: Evaluation of an integrated system for classification, assessment and comparison of services for Long-Term Care in Europe: The eDESDE-LTC Study.

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Author's response to reviews: see over
REPLY TO REVIEWERS

We thank the useful comments made by the reviewers which have substantially improved our paper. Some of the reviewers’ comments are at the core of our scientific quest and any attempt to answer them sufficiently exceeds the scope of this paper. We have extended our reply beyond the specific frame of the paper and the amendments made to provide our general view on the topic.

In our opinion one of the problems that lays behind some of the comments made is the lack of international consensus, guidelines, and related literature on the metric properties and the quality indicators of classifications and instruments in health system research. This is in contrast with developments made in the standardization of instruments for clinical and population assessment, and for the quality assessment of process/throughput of individual services. We have made an effort to address this topic as deeply as possible at the ‘method’ section taking into account that this is not a method paper. We also provide the webpage address where full open access information on the method of this project is available in English. We also provide the Questionnaire in 6 different languages including English, German and Spanish, as well as the contact partners in these 6 European countries which can provide local complementary information. Undetected editing errors may still appear at the documents available at the webpage as these documents were completed at the last month of the project for EU auditing. We will incorporate a statement at the webpage stating that they are preliminary to this manuscript.

Reviewer's report

Version: 3 Date: 22 November 2012
Reviewer: Dirk Colaert

Reviewer's report:
This paper poses the problem of interoperability between regions on the definitions of long term services and proposes a solution in the form of a classification, together with the evaluation of this classification. The methodologies, used for the evaluation are referenced and not fully explained in the paper, which is ok. Results are given and seem to support the conclusions of the paper.

We are aware that the full description of the project largely exceeds the format of a single paper and this is why we have provided the project’s webpage where the full information on the background and methods of the project is available – open access. We have modified the introduction and the method sections to improve its clarity and to incorporate as much information as possible to get a better understanding of this topic. Although the problem of commensurability
and terminology is largely extended in Health Service research there is little awareness of its huge impact on international comparability.

**Minor essential revision:**

1. Tables and figures should be put on the right place

*As recommended, tables have been relocated and properly formatted.*

**Discretionary revision**

2. English phrasing can still be better. Suggest last text review

*The English phrasing has been reviewed by two UK co-authors.*

**Minor Essential Revision**

3. On Semantic Interoperability and Ontology design (issues on page 8 and 12)

Semantic interoperability is not only at the level of domain concepts, but also on the level of relations between the domain concepts. Only concepts + relations (more than mere subsumption) constitute in a full understanding of the domain. It may be less relevant for the classification of the domain but as a general statement, even coming from an outside reference (11) it will be perceived as incorrect by many. The ontological coverage seems to be limited to a DL level, typically using only part-of and is-a relationships. Reality is much more complex than a tree based description of a domain.

*The reviewer is right: semantic interoperability transcends the aim and content of this paper. We have removed the comments on semantic interoperability throughout the text.*

The problem of semantic interoperability cannot be reduced to a classification/coding/terminology problem!

*Even though the reviewer is right it is important to note that the development of a common taxonomy and an alphanumerical coding is an essential step to ascertain a meaningful semantic interoperability. It is also important to note that this fundamental step is missing in the field of international health service assessment, which on the other hand is critical in health information systems and health systems research. To put it in another words: MEANINGFUL semantic interoperability cannot be reached without addressing classification/coding/terminology and, to our knowledge, this is the more advanced approach to this question to date. Therefore this point could be reframed as follows: Are service codes in current HiS semantically interoperable? Is there any HiS which reaches the DL level in service coding? The lack of semantic interoperability of the health service information system was at the very origin of our research question and it is also at the end of it. We have put forward a new EU proposal on the applicability of DESDE-LTC to HiS (Meta_DESDE). At the same time we agree that it would be better to address*
the semantic interoperability argument when the data of this new study are available.

Look at what SNOMED already has and still some people state that SNOMED is not an ontology.

The reviewer mentions a key and unsolved conceptual problem in this area. Agreement on what is an ontology classification system and what is not is a key question in modern taxonomy but different perspectives coexist. The taxonomy of health taxonomies should be addressed in the next future. A distinction across philosophy-based ontology, expert-based clinical ontology and computer/formal ontology is also needed, as well as the agreement on the formal links between the high-level meta-categories of classification in health sciences: terminology, typology, taxonomy and ontology. There is not a common agreement on this specific issue even in our research group. One of us has published on the typology of health classifications (Roma-Ferri & Palomar, 2008, Cruanes et al, 2012)

In the course of the development of the classification system we had several contacts with SNOMED-CT and IHTSDO, as well as OECD (participant in this project), WHO and the European Observatory (one of the authors is a member of this European institution although it not participated as such in the project). A review of the classification of health services both at SNOMED-CT and at SHA 2.0 indicates the lack of coherence from an ontology-taxonomy perspective. The overall hierarchy and its granularity of these systems show many problems that have not been addressed properly. We have reviewed several key items at SNOMED related to hospital and day care and we hope to produce a paper on this topic in the near future. This lack of coherence is in sharp contrast with the developments made by SNOMED-CT in the clinical field, and it is another indicator of the lack of visibility and awareness of the current problems in the classification of services in health sciences.

Was there any attempt to also describe and formalize different contexts? As long as the aim of the work was to make a classification this is ok, but expecting full semantic interoperability just by using a classification scheme looks to me too optimistic.

Although we have removed the comments on semantic interoperability the issue of different contexts remains a critical one. The system has been actually used in different contexts. We have highlighted this at the ‘introduction’ section. We incorporate a sentence saying that the pilot study will be published elsewhere. The Pilot study paper -now being completed for submission- compares services from different fields in two largely divergent contexts: Madrid and Sofia. The sample of services assessed in Sofia (Bulgaria) for the pilot study have been removed from the sample provided in this study to avoid any confusion between this study and the pilot study even though they both were part of the DESDE-LTC Project.
DESDE-LTC has been incorporated in the MH regional HiS in four regions in Spain characterized by very different health systems (Catalonia, Basque Country, Cantabria and Madrid) (references to the published Atlases have been added at the reference list). We have added this in the impact analysis [Ref. 38-39 in the paper]. DESDE-LTC tool is currently being applied in the REFINEMENT project (7th Framework Programme) to compare health services in Europe and the different financing systems (we also add this as a comment).

Version: 3 Date: 9 October 2012
Reviewer: Jürgen Stausberg

Reviewer's report:
Salvador-Carulla et al. present in their article “Development of an integrated system for classification, assessment and comparison of services for Long-Term Care in Europe: The eDESDE-LTC Study” an evaluation of a system describing services for long-term care. As the reviewer understands it, DESDE-LTC is a multi-axial system having several hierarchical axes. A service for long term care could then be described by combining several descriptors from different axes. An institution providing several services uses several of those combinations.

The attempt is challenging, because such a system is missing not only for long term care but also for hospital care or medical outpatient care. One might question whether it is really needed from a practical point of view. Nevertheless, the attempt is still scientifically interesting, at least useful for health services research.

Major Compulsory Revisions

a) First of all, the title is misleading. As it is pointed out by the authors themselves, the system had been introduced elsewhere. The current manuscript focuses on the evaluation. Therefore, I recommend changing the title as follows “Evaluation of an integrated system for classification, assessment and comparison of services for Long-Term Care in Europe: The eDESDE-LTC Study”.

As recommended, the title has been changed.

b) Secondly, there is a gap between the presentation of DESDE-LTC in the manuscript and what could be read in the manuals provided at the project’s homepage. The manuals state that “DESDE-LTC ... is an adaptation of the coding system of the ESMS ... and (DESDE) and related instruments (DESDAE and DESDE).” That definition is different to the one mentioned in the abstract: “The development of the DESDE-LTC coding system followed an iterative process using nominal groups in the 6 participating countries (Spain, Austria, Bulgaria, Norway, Slovenia and
the UK).” It should be clarified, that DESDE-LTC is significantly grounded on existing approaches that themselves offer a very specific scope.

Although we mentioned and provided the references of the previous papers at the first manuscript, we have clarified it further in the current version taken into account the reviewer’s comment. We have extended the description of the previous approaches on which DESDE-LTC is based at the ‘introduction’ section. ESMS, DESDE, DESDAE were developed by our group.

c) Thirdly, the structure of the manuscript should be revised:

- Background: Information is missing between the two last paragraphs.

The introduction section has been re-written and this information has been clarified.

- Methods: The description of the development process of DESDE-LTC should be part of the introduction. The method’s section should concentrate on the methods used for evaluation. The evaluation follows a structured process. The development process itself remains unclear to some extent.

We have moved the description of the development of the whole system (ESMS/DESDE) to the ‘introduction’ section. The development of this specific instrument and classification (DESDE-LTC) is described at the ‘method’ section as it is an essential part of this project. This has been modified at the new version to make it clearer.

- Result and discussion: There should be separate chapters for results and discussion.

These chapters have been divided and clarified in the reviewed manuscript.

- Result and discussion: The “Development of the eDESDE-LTC system” is not part of the evaluation. These paragraphs should be integrated in the introduction.

As recommended, this paragraph has been changed and moved to the ‘methods’ section (the first paragraphs following the background). We had a long debate within the group as to whether the development of this instrument (DESDE-LTC) should be at the introduction or the method section. It was finally agreed that it should be placed at the ‘method’ as the project consistent in the development AND standardization of the classification system and its tool. We do hope that the reviewer will understand this decision.
- Result and discussion: Sentences like “The DESDE-LTC tool may have a significant impact in efficiency and aspects of equity assessment in the near future” represent conclusions, not results.

All interpretative sentences and opinions have been moved to the ‘discussion’ section.

- Result and discussion: Subheading “Usability of the eDESDE-LTC instrument: Feasibility, Consistency, Reliability and Validity” should be deleted.

This subheading has been deleted in the new version.

The following four sub-subheadings should be subheadings.

- Result and discussion: Section “The DESDE-LTC training package” could be deleted. It does not contribute to the evaluation.

As recommended, this section has been deleted since do not contribute to the evaluation of the instrument.

- Limitations: I suggest moving the limitations as a subsection into the chapter discussion.

As recommended the paragraph on limitations of the instrument has been moved to the ‘discussion’ section. It has been modified in relation to the comments made by the reviewers.

d) The authors point to the material available at their website. The description of the classification and coding system raises severe concerns regarding the methodological foundation of DESDE-LTC. Due to the manifold concerns, the conclusion of the authors that “This instrument is ontology consistent and semantically interoperable” must be rejected. In the following I list some concerns in detail.

It should be taken into account that the information provided at the website includes the reports presented to the European Agency of Health and Consumer (EAHC) at the last month of the project as required for audit purposes. This is an extensive set of documents and some errors may still appear at the webpage docs in spite of the different checks carried out to date. Our final statement to the EAHC included the commitment to produce a scientific paper that would become the reference of the project after publication. We committed ourselves to publish it open access so the link and content could be easily available also from the project’s website. In order to clarify this further we are reviewing the webpage content and we will incorporate at the webpage a disclosure statement to differentiate preliminary reports from the final paper. The current manuscript is the scientific, peer-reviewed reference document of the eDESDE-LTC project.
- Non mobile outpatient care is available in figure 1 but not present in the manual.

Non-mobile outpatient care is mentioned throughout the different documents at the webpage and at the manual: http://www.edesdeproject.eu/instrument.php. It is mentioned at the instrument (eg page 24). We have not identified where the reference is missing so we are revising all the documents again. As said we will add a statement saying that the 2011 docs at the webpage are preliminary.

- The role of the decimal identifier remains unclear. It is unclear what is mentioned with code in the manuscript.

The decimal identifier was requested for coding purposes and as part of the ontology criteria of the classification system. It will be used at HiS and in the analysis of semantic interoperability.

- Labels are missing for some descriptors.

All the descriptors coded as MTCs have a label. We have clarified at the result section that not all levels of the hierarchy/taxonomy tree are associated to a label. Labels identify the 6 main branches and the final 89 MTC codes.

- Axes S does not cover the domain completely, because a class “other” is missing.

The granularity of the hierarchy follows a taxonomy tree so it can be extended further for specific uses such as rehabilitation, employment or self-support. A formal ontology classification system should have mutually exclusive categories arranged on a hierarchy. Ideally a second criterion is that children categories are independently defined covering the whole extension of the parent domain. Within this context a perfect formal ontology system will not include any category ‘Other’ or ‘Non-x’. In the case of self-support the two sub-branches satisfied the requirements made by the experts at the nominal groups including representatives from family and user organizations. Other sub-branches required ‘Other’ and ‘Non-x’ categories as in Outpatient care.

- The descriptors use abbreviations inconsistently, for example “Med. intens.”

The abbreviations are not part of the classification system that includes a decimal coding system (DESDE-LTC coding), its formal description and a label (MTC code). As the project included 6 different working groups for completing the tasks it may be the case that some abbreviations do not coincide at the different docs uploaded at the webpage. We will check this at the webpage.
Different characteristics are used for the definition of classes on the same level. That establishes a logically difficult construct, e.g. there is something like “Home & mobile” which is contrasted with “non-mobile”. If mobility is the relevant characteristic, “Home” is not needed. If not, there must be something like “Home & non-mobile”, “Not home & mobile”, and “Not home & not-mobile”.

The classification does not use different characteristics for defining different classes. Mobile services include ‘Home services’ which is an additional descriptor related to this type of care (descriptor ‘d’). The wording ‘home’ was added to the name of the category due to a request from experts to improve reliability and user-friendliness as the naming ‘mobile’ was not directly understood by raters and decision makers.

A coding of intermediate levels is permitted. How to deal with levels that do not have a label? How is it possible to make analysis on the terminal level if some information is available solely on an intermediate level?

The alphanumeric classification refers to the final 89 labels or final MTC codes. The code of intermediate levels is permitted as an aggregate of codes at a final level. For example in a previous study D1-D4 referred to both categories which were aggregated to simplify the data analysis. Aggregation is a characteristic of the hierarchical classification systems. The 6 codes A, I, S, O, D, R are not MTC labels but only a reference to the main six branches. As said the only MTC codes are the final labels of the hierarchical tree and every one of them correspond to one decimal LTC code.

The decimal identifiers could be optionally extended by characters representing additional information. This is a bad solution impeding an automatic processing of the codes. Additional information should be represented through additional items.

The judgement on the solution depends on the perspective. From a purely formal ontology perspective the best option is to integrate all the descriptors in the hierarchical taxonomy. However if these 12 descriptor are introduced in the taxonomy, the number of resulting categories will increase substantially the number of final codes and make the classification system very difficult to handle. Furthermore these additional codes may or may not appear in a specific service whilst the other characteristics of a service are attributional to name, label and provide de decimal code of the MTCs. These additional descriptors have been added by recommendation of experts and public officers to improve the usability of the system for grouping services in the data analysis.

Why is “other intensity” the contrast of “high intensity” in D0 and D1, but “low intensity” in all other parts of day care.

‘Other intensity’ includes both medium and low intensity services. In the preliminary version of the instrument these three branches appeared in this branch. The group decided that calling ‘low’ the intensity of care provided at
Day Hospitals was misleading particularly when compared to the intensity of care in ‘Sheltered Employment’ (D4) or in Social Rehabilitation Centres’ (D3) As this could generate misunderstanding it was decided to call ‘Other’ the ‘non-high intensity care’ delivered in D1. The labels preserve the original coding of ESMS as much as possible. This allows for a better comparison con previous systems (ESMS, DESDE) but it also generates some inconsistencies. For example there is a D0 code but not an O0 code

Beyond the major concerns there are several minor essential revisions needed.

e) “Local evidence (from the specific setting” should be “Local evidence from the specific setting”.

Corrected.

f) “settings, need” should be “settings, needs”.

Corrected.

g) Please describe the methods used in the preparation of the beta version of DESDE-LTC.

In order to improve the clarity of the method section we prefer not to introduce here a detailed explanation of the development of the beta version. To avoid confusion we have suppressed any reference to the beta version and refer here to the preliminary version. The full explanation of the development of DESDE-LTC is available at the webpage.

“sufficiently. . Finally” should be “sufficiently. Finally”.

Corrected.

h) In the section about the development of DESDE-LTC, an “original instrument” is mentioned. Please name the instrument.

This section has been deleted.

i) Feasibility analysis: Provide reference values for the figures if possible.

Reference values have been provided.

j) Impact analysis: Organize the result’s section about the impact analysis according to the introduced steps screening, scoping, appraisal.

The results section has been ordered according the introducing sections (screening, scoping, appraisal).
REFERENCES
