Care Home Staffing Project Stakeholder Report
February 2009

Please read in conjunction with the Technical report:
CONTENTS

Overview and summary 3

Part 1 – the project brief 6

Part 2 – method overview 8

Part 3 – main findings 11

Part 4 – implementation, application and conclusion 17
Overview and summary

Introduction

1. Critical to the provision of a good quality service to older people in care homes is having the ‘right’ level of care staff to meet the needs of all the residents. Currently however there is no standard method for determining staffing levels, though agreement on staffing is a part of the Registration process. In this context, the Care Home Staffing Project was instigated. The aim of the project was to investigate if, and how, the dependency characteristics of older people resident in care homes can be used, alongside other information, to better inform consideration of staffing levels of care homes across Scotland.

2. The core objective of the project was to test whether care homes could apply the Indicator of Relative Need (IoRN), an existing instrument that uses responses to a set of standard questions to classify people into one of nine groups, in order to improve the criteria for judging appropriate staffing levels. The underlying assumption is that where residents in care homes have relatively high (or low) dependency needs then this should be reflected in the amount of care hours required.

3. In the pilot phase of the project it was found that the existing IoRN had limitations with regard to this novel application of the instrument. The main project brief was therefore extended to include the development of a modified version of the IoRN, a task that has been achieved and is described in this report.

4. The project was initiated and overseen by the Scottish Government, Care Commission, and the Convention of Scottish Local Authorities (COSLA). Representatives of these bodies, together with staff from the Information Services Division of NHS National Services Scotland (ISD) formed the Development Group for the project. A wider Reference Group allowed the involvement of the broader spectrum of stakeholders and included Scottish Care, professional bodies, and Users and Carers representatives. The methodology was designed by ISD, who also carried out the project fieldwork (with support from the Care Commission) and all analyses of the data.

Findings/products

5. Using data collected on residents in the participating homes ISD has developed a modified version of the IoRN. The modified IoRN questionnaire uses information about the characteristics of individual residents that should normally be known to care home staff. The new grouping algorithm developed by ISD has produced dependency groups that give a better spread across residents than the existing IoRN. The modified IoRN uses eight dependency groups, one fewer than the number in the existing IoRN.
6. Each of the eight dependency groups has a relative weight, based on a sliding scale from the least dependent group (Group A) to the most dependent group (Group H). For weights see Technical Report Appendix 16.

7. ISD has applied these weights to each of the residents in the participating care homes to calculate a composite dependency value that takes account of both the number and relative dependency of residents. The composite dependency values can then be compared with the overall care staffing hours provided in the homes. For weights see Technical Report Appendix 16.

8. Standard statistical techniques have been applied to show the read across from the composite dependency values to the current care staff hours. Central to this is the production of a statistical regression line that provides the ‘average’ association between the composite dependency values and the staff hours.

9. In line with findings from previous exercises of this kind, there is considerable residual variation in the pattern of staffing over and above that explained by the number and dependency of residents, as described by the modified IoRN. This might be because of differences in the skills and experience of staff in homes and/or on variation in the support and services offered in different homes. For this reason, the Development Group has recommended that ‘tolerance’ margins should also be offered.

10. There is no objective method for determining what these tolerances should be and the Development Group has proposed that these should be set such that two thirds (66.6%) of homes will be between the lower and upper margin of tolerance. The remainder will fall either below the lower margin, or above the upper margin. The area between the lower and upper margin has been termed the ‘Conformance Zone’.

‘Conformance Zone’ for care hours
Implementation and application

11. The development work is now essentially complete regarding a measure of dependency (the modified IoRN) and the association between composite dependency values for a home and care staff hours. Any care home should be able to calculate its current composite dependency value by applying the modified IoRN questionnaire to each resident. The care home can then see how its current care staff hours compares with the care homes that participated in the project.

12. ISD has designed and tested with a small number of homes a ‘proof of concept’ model (based on Microsoft Excel) that helps with the recording of the modified IoRN scores. It shows graphically and in tabular form the care staff hours that would be required to achieve ‘Conformance’, based on the data from this project. In the longer term, there may be benefits in developing a bespoke computer package to enable care homes to apply the modified IoRN to every resident, updating details as individuals change or as residents are admitted or discharged.

13. Use of such a tool would enable an established home to self-assess how far its existing care staff hours differed from ‘average’ Conformance (the regression line), whether the care home’s staffing lay inside or outside the ‘Conformance Zone’, etc. Where changes in resident characteristics happen, the implications on levels of care overall can be assessed.

14. The full potential of this tool has yet to be determined and this is best achieved through its use in real life. Further applications may depend on decisions by the Care Commission and/or local authorities regarding how they might wish to use the tool as intelligence in any discussions with care homes over staffing levels. Potential uses suggested by the Care Commission include:

- The provision of parameters to inform / facilitate agreement on initial staffing levels at the point of Registration – and throughout the process of admitting residents up to and including full capacity.

- Application of the tool in individual units within care homes (for example dementia units) to inform differing staffing levels that may be required for specialist needs.

- Provision of a tool that can be used by Providers to evidence to the Care Commission that staffing levels are informed at all times by the relative dependency of the residents in any care home.

- The use of the tool in contributing to the improvement agenda, used in conjunction with Grades awarded following Regulating for Improvement inspections.
• The benefits of a widely accepted tool where disputes over staffing arise or where Enforcement Action may be necessary to protect residents or to raise standards.

15. In the longer term, there may be other potential benefits of the new version of the IoRN, such as contributing to discussions on future models for reimbursement, or providing better understanding of the population served by care homes. These would require further consideration by relevant stakeholders.
Part 1 – the project brief

Background

16. Delivering good quality services efficiently and effectively through appropriate levels and skill mix of staff is a key challenge for care homes in Scotland. Providing the confidence that this challenge is being addressed is important to current and future residents, and their relatives, as well as to the Commissioners of services and the Care Commission.

17. In this context, the Care Commission initiated discussion with the Scottish Government, with COSLA and with representatives of Care Home providers on whether a more structured approach to informing staffing levels could be developed for Scotland. In particular the Care Commission were keen to explore whether dependency characteristics (based on the Indicator of Relative Need – ‘IoRN’) of older people resident in care homes could be used, alongside other information, to better inform staffing levels of care homes in Scotland.

18. Following the initial discussions, it was agreed that a formal project, titled the Care Home Staffing Project, should be established to investigate the possibilities and to make recommendations as appropriate if a method that was robust, acceptable and pragmatic could be found.

Use of the IoRN

19. The core objective of the project was to test whether care homes could apply the Indicator of Relative Need (IoRN), an existing instrument that uses responses to a set of standard questions to classify people into one of nine (“iso-resource”) groups, in order to improve the criteria for judging appropriate staffing levels. The underlying assumption is that where residents in care homes have relatively high (or low) dependency needs then this should be reflected in the amount of care hours required.

Governance arrangements

20. The project was initiated and overseen by the Scottish Government (formerly, Scottish Executive), Care Commission, and the Convention of Scottish Local Authorities. Representatives of these bodies, together with staff from ISD formed the Development Group for the project. An overarching Reference Group allowed the engagement of a wider spectrum of stakeholders and included Scottish Care, professional bodies, and users and carers representatives.
21. The methodology development was led by ISD, who also carried out the project fieldwork (with support from the Care Commission) and all analyses of the data. ISD had provided the information expertise on the original project to develop the existing IoRN and has extensive experience of gathering dependency information on Care Home residents through the use of Scottish Care Resource Utilisation Groups (SCRUGS).

22. In all aspects of the study, the views of the various stakeholders were taken into consideration, as were the requirements of the Data Protection Act and the sensitivities and wishes of the Users and Carers.
Part 2 – method overview

Setting the scene – the current approach used by the Care Commission

23. At present, the Care Commission draw up a minimum staffing schedule. This is based upon the care service provider’s evidence of needs and generally on a service operating at maximum occupancy. This is agreed with the Care Commission at the point of registration and is arrived at through negotiation. Once formally agreed this is monitored at inspections and other regulatory activities. There is no standard method and the way staff schedules are calculated varies with the different care home providers.

24. In the case of care homes registered prior to the establishment of the Care Commission, the staffing levels were accepted as a condition of registration and staffing is regularly reviewed.

25. Any changes to the staffing schedule are agreed through a legal process. If homes are not meeting their staffing schedule, they may have a requirement made against them or enforcement action can be taken where suitable improvements are not made.

Overview of the task

26. The task was to develop a new method that would improve on the current approach, would be robust in terms of good information science, and would be pragmatic enough to gain the active support in due course of all stakeholders. For this to happen it was important to base any proposals firmly on actual data, not on a theoretical model. For this reason, the resident characteristic information had to be drawn from real life examples. And as it was also recognised that factors other than the characteristics of the current residents might be relevant to staffing needs, data on certain home-specific factors were also collected from the participating care homes.

Selection and participation of sample care homes

27. The involvement of a significant number of care homes for older people was essential to gather the large amount of data that would inform the model. Staff in the participating homes provided insightful advice during the course of the project and, of course, were essential in gathering all the necessary data. The project could not have happened without this active support and we acknowledge with thanks the contribution of everyone involved.

28. The sample care homes were from all sectors and had a wide geographical spread. In the absence of better quality measures, at the time of their selection none of the care homes had any outstanding serious issues according to the Care Commission. During the analysis stage of the project, some further restrictions were placed on the data to improve the sample.
Gathering details of existing staffing

29. A form was specifically designed to gather detailed staff hours data, by category of staff, for each participating home. The staffing form was initially designed during the pilot phase of the project but in the light of experience, it was necessary to refine the design of the form to improve clarity.

30. It proved difficult to gather comparable staffing details from every participating home. An analysis of outliers revealed variation in the ways that some homes had classified their staff and additional work had to be carried out by ISD to ensure that the staff counts were as comparable as possible. With help from care home staff the outliers were reviewed and corrections made where necessary.

Development of the IoRN

31. In the more general use of the IoRN there is a presumption an assessor who carries out a comprehensive assessment (e.g. a Single Shared Assessment) will have gained sufficient insight into the functional ability of the older person to enable them to answer the structured questions that comprise the IoRN. The prior assumption regarding care home residents is that senior care home staff will have a similar understanding of the characteristics of the residents living in their care homes.

32. The development of the original IoRN was informed largely by information on a large sample of people who were assessed while they were living at home in the community. Because of the selection process already inherent in care home placement, the categorisation in care homes is very skewed towards the more dependent categories and thus placing a high proportion in the highest IoRN dependency group. The consequence of having a large proportion in the highest IoRN group is that the variation in care staff input to this group cannot be explained in terms of a variation in relative dependency. This problem was evident during the small scale pilot phase.

33. Another important finding revealed during the pilot phase was that, in practice, care home staff could not always confidently answer some of the IoRN questions – in particular those related to ‘personal care’ where it might be difficult to make an accurate or meaningful assessment of ability in a residential setting where services are readily available.

34. Because of these concerns, the main project brief was extended to include the development of a modified version of the IoRN, a task that has been achieved and described below.
35. The approach used to develop the modified IoRN was similar to the approach used to develop the original IoRN. Data were gathered on some three and a half thousand residents, drawing on the knowledge of the care home managers and other key staff. Specialist staff from ISD and staff assigned from the Care Commission administered the data collection process in each home. The purpose was to gather details on every resident that could be used to determine a final set of questions that, in combination, would provide the best explanation of the variation in staff time input. Most of the details required were the same as in the IoRN. A few additional questions approved by an advisory group were also included after due testing.

36. Staff time inputs were estimated using a standard ‘ranking’ technique. This involved asking the care home interviewee to rank the residents on a sliding scale according to the amount of staff time normally required to support the residents.

37. The interviewer-based fieldwork was conducted over the period from September 2006 to March 2007. In total, some 122 care homes participated in the survey.

38. After extensive testing and refinement by ISD a modified version of the IoRN was developed and approved by the Development Group. This new tool meets the important goal of providing better discrimination (compared with the existing IoRN) of the residents with higher care needs.

39. The modified IoRN uses eight dependency groups, one fewer than the number in the existing IoRN. Each group is associated with a numerical weight that quantifies relatively the average dependency of the group, defined by staff time. Thus if Group A has a weight of 1, Group B has a weight of 1.42 reflecting the larger amount of staff time, on average, required to provide care for people in that more dependent group. More details on the relative weights for each group is provided in the accompanying Technical Report. For weights see Technical Report Appendix 16.

40. The revised IoRN can be viewed by clicking on this link http://www.isdscotland.org/isd/files/CHSP%20Questionaire.pdf

Developing the analytical approach

41. Early ideas on possible ways that the dependency information could be applied to inform staffing were tested during the pilot phase of the project. In particular, it was thought that an existing econometric method, Data Envelopment Analysis, and regression analysis were possible candidate approaches. The much larger coverage of the main fieldwork phase of the project allowed these approaches to be explored and tested further. The final proposed version uses both techniques. More detail about DEA is available in the Technical Report.
Regulatory Support Assessment (RSA) scores

42. An additional piece of information that was made available by the Care Commission in November 2007 as a potential proxy measure for quality of care is that of the Regulatory Support Assessment (RSA) scores. These provide a rating of “High”, “Medium” or “Low” as a risk assessment banding for each home, the risk being the need for regulatory support. While these categories have been created by the Care Commission to support decisions around intensity of inspection/ regulatory support, the benefit to this project was that the categories offer a further refinement on the selection of the homes that form the basis of a staffing model. Thus for certain analyses only homes with a “Low” risk were included. In the future, if desired, it may be possible to update this model using data from homes selected according to quality criteria from the Quality Assessment Framework.
Part 3 – main findings

43. As mentioned earlier each of the eight modified IoRN groups has an associated weight value. Applying the appropriate weight to each individual resident in a care home and summing across all the residents in the home provides the composite dependency value for the home. For weights see Technical Report Appendix 16.

44. Chart 1 shows the average weight for each of the participating homes – this average is simply the composite dependency value divided by the actual number of residents in the home. The chart ranks the care homes according to the average weight for the home and shows that the averages vary markedly across the participating homes. There is no “typical” care home in this respect. For weights see Technical Report Appendix 16.

45. Note that for a home an average weight of 1 would only result if all the residents were in Group A (the least dependant) – all of the homes had an average of greater than 1. For weights see Technical Report Appendix 16.

Chart 1

Correlating weighted residents with care staff numbers

46. The composite dependency values were well correlated with the total care staff hours ($r^2 = 0.82$). Overall however this was only a slightly better correlation than that found when the headcount of residents was used ($r^2 =0.80$). The reason for this counter-intuitive finding may lie in two other factors observed in the data: firstly, in general, the larger homes had higher than average composite dependency values; and secondly there is evidence that these larger homes had lower care staff hours than a purely linear increase would suggest should be the case. Whether this reflects economies
of scale in the larger homes or some other factor is beyond the scope of this project.

**Relationship between the composite dependency values and care staff hours**

47. Chart 2 shows a scatter plot of the composite dependency values against the total care hours for each care home. The regression line, which indicates a “best fit” through the sample data, is also shown. The RSA rank is indicated through the colour of the points. Note that the regression line was calculated based on homes with an RSA rank of “Low” only.

**Chart 2**

![Scatter plot of care hours and composite dependency value](chart)

48. The regression line is a type of average and its use would mean that approximately half of care homes would have total care staffing levels higher than this level, while approximately half would be lower. It is important to stress therefore, depending on how strictly the model was applied, many homes would need to increase staffing to achieve the level indicated by the regression line.

49. In line with findings from previous exercises of this kind, there is considerable residual variation in the pattern of staffing over and above that explained by the number and dependency of residents, as described by the modified IoRN. This might be because of differences in the skills and experience of staff in homes and/or on variation in the support and services offered in different homes. When the Development Group discussed this aspect, it decided that the preference was for a threshold approach to be taken. This would allow for more flexibility in practical application.
50. There is no objective method for determining what the tolerance should be and the Development Group has proposed that these should be set such that two thirds (66.6%) of homes will be between the lower and upper margin of tolerance. The remainder will fall either below the lower margin, or above the upper margin.

51. Chart 3 presents the proposed threshold, lying between an upper and lower prediction interval of 66.6%.

Chart 3

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<th>Prediction Level</th>
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53. Chart 3 also shows the position of a DEA frontier (labelled DEA Threshold). The frontier is higher than the lower prediction level where the homes are very small (and thus the composite dependency value is low). This is intuitively valid since the lower prediction interval itself would produce unmanageably low estimates of the staffing needed for a very small home that is operating 24 hours a day, seven days a week.

54. Table 2 shows the difference in care staff hours for homes with different number of weighted residents according to the tolerance values (“prediction level”) used. The table shows for illustration the staff hours at the 80% prediction level as well as the preferred 66.6% level. For weights see Technical Report Appendix 16.

### Table 2

<table>
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<tr>
<th>Composite dependency value for home</th>
<th>DEA Frontier</th>
<th>Lower 80% prediction level</th>
<th>Lower 66.6% prediction level</th>
<th>Average predicted care hours</th>
<th>Upper 66.6% prediction level</th>
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**Presentation of the approach**

55. The Development Group realised that it was important that the findings of the project were described in a ‘non-judgemental’ way. The original goal was to produce a model that would inform consideration of staffing, not dictate levels. For this reason, the group approved the following terminology:

- The area between the upper and lower margins would be termed the ‘Conformance Zone’.
- A home that lies on the regression line could be termed as being at average conformance.
- Homes that lie outside of the Conformance Zone would be either above the upper margin or below the lower margin.
56. Chart 4 below illustrates this visually. A home that had applied the modified IoRN to its residents and calculated its composite dependency level could plot its position on the chart depending on the care hours that it provided.

Chart 4

‘Conformance Zone’ for care hours

Relationship with other factors – care homes with multiple units

57. It was suggested that a home with multiple units might need to be staffed in a different way to one that consists of a single unit. Of the homes in the study, only 16 were found to have been structured as multiple units. An analysis of the data revealed that although the mean number of care hours per week per resident was 28 hours in homes with multiple units compared with 27 hours per resident in homes in single units, with so few multi-site homes in the sample it is not possible to demonstrate a statistically significant difference in staffing levels over and above other factors.
Part 4 – implementation, application and conclusion

58. A working tool has been designed and tested to inform staffing in care homes in Scotland but requires further development. The development of a definitive, bespoke, electronic solution needs to be considered as part of the implementation phase and is beyond the scope of this project.

59. Implementation also has to be considered within the wider cost quality agenda with support for the consistent application across Scotland. The National Care Home Development Group being led by COSLA is considering the wider care home agenda. This Group has been approached and has agreed to act as a sounding board to seek wider stakeholder engagement as part of the implementation phase.

60. ISD carried out an extensive review of the literature on this topic during the course of this project. The conclusion is that, internationally, this is a theme which is of great interest to both providers and commissioners and regulators of care. It is hoped that the outcome of this project will go some way towards helping to address the need in Scotland for a more systematic and objective way of determining the levels of care staff in care homes for older people.

61. There are in Scotland a wide range of stakeholders interested in having access to methods that would help inform staffing levels in care homes. These include (current and prospective) owners and providers of care homes, staff who manage and deliver the care, and, of course, the people who live in care homes, along with their relatives and friends.

62. Over and above these immediate stakeholders there is the interest from those that are tasked with commissioning care home services; or regulating the quality of care provided within existing care homes, a focus which is inextricably linked to appropriate levels of staffing.

63. By way of illustrating the potential uses of the tools developed during this project, the Care Commission have suggested uses might include:

- The provision of parameters to inform / facilitate agreement on initial staffing levels at the point of Registration – and throughout the process of admitting residents up to and including full capacity.

- Application of the tool in individual units within care homes (for example dementia units) to inform differing staffing levels that may be required for specialist needs.

- Provision of a tool that can be used by Providers to evidence to the Care Commission that staffing levels are informed at all times by the relative dependency of the residents in any care home.

- The use of the tool in contributing to the improvement agenda, used in conjunction with Grades awarded following Regulating for Improvement inspections.
The benefits of a widely accepted tool where disputes over staffing arise or where Enforcement Action may be necessary to protect residents or to raise standards.

64. In the longer term, there may be other potential benefits of the new version of the IoRN, such as contributing to discussions on future models for reimbursement, or providing better understanding of the population served by care homes. These would require further consideration by relevant stakeholders.

65. This concludes the development phase and meets the requirements of the original brief. Taking forward the findings and conclusions in practical ways is the next vital step and if this is to be done effectively it will necessarily involve the same stakeholders that have contributed to the development of the tools described above.