Care Home Staffing Project
Technical Report
February 2009

Please read in conjunction with the Stakeholder’s report:
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Thanks are also due to the many individuals involved in the Joint Future Implementation and Advisory Group, the Care Homes Staffing Project Reference Group, Development Group and the various Task Groups. In particular, we wish to thank the Care Commission and ISD staff that collected and analysed the data for the study.

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Further Information

It is hoped that the report will be of interest to all those involved in the delivery and management of care for older people in long term residential care. Comments and requests for additional information are welcomed and should be addressed to:

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Executive Summary

1. The Care Home Staffing Project described in this report was developed to investigate if and how the Indicator of Relative Need (IoRN) might be used in future to inform staffing levels within Care Homes for older people in Scotland.

2. The study was designed and conducted by Information Services Division (ISD) of NHS National Services Scotland with guidance from and in consultation with the stakeholders: Scottish Executive Health Department Joint Futures Unit (now the Scottish Government Partnership Improvement and Outcomes Division), Care Commission, Convention of Scottish Local Authorities, Scottish Care and Users and Carers representatives.

3. The study was divided into three parts: the Pre-Pilot study, Pilot study and Main study. The methodology proposed for the Main study was tried and tested during the earlier phases and this report is for the Main study.

4. The overall aims of the Pre-Pilot and Pilot studies were to identify a pragmatic method for reflecting staffing levels with the use of the IoRN groups of residents in care homes in Scotland; to identify the data items needed for the method of choice; to inform development of the tools to collect the data for the study.

5. The conclusion of an extensive review of the literature on this topic was that internationally, this is a specific area that is of great interest to both providers and regulators of care across the globe with a great deal of work being carried out in association with the question of informing staffing in care homes for older people; the conclusion is universally that more work needs to be done, however, we hope that this work will go some way towards helping to address this need.

6. Results showed that a pragmatic method that could be adopted in this setting was that of a combination of regression analysis and Data Envelopment Analysis (DEA) modelling; that the Information on the IoRN groups of residents together with other information, and information on staffing and care home characteristics could be collected and used to populate the staffing model. Due to concerns that information on quality of care being delivered in each care home was required to fully inform the model, and that it may not be readily available, a range of alternative methods were also explored as part of the Main study.

7. The resulting model permits the Care Home of interest to undertake a computer-based, self-administered, extended IoRN questionnaire (excel-based) which places their residents into groupings according to their dependency levels, and to enter the total number of care hours being delivered by the staff in their care homes during the past week. The model then computes the total Dependency Value for the Care Home and the total number of care hours per week that the staff in the care home might be expected to be delivering according to the average care staffing arrangements found in the sample used to populate the model.
8. The Development Group for the Main Study decided to adopt a threshold of 66% variance above and below this average value (known as the Conformance Zone) to provide a range of suggested staffing levels that may suit Care Homes according to local arrangements.

9. Results of the staffing model are presented to the Care Home to illustrate where their Care Home lies in relation to the Conformance zone and the 66% upper and lower margins on either side of it.

10. It was considered important that a range of staffing could be suggested by the model in order to allow for local interpretation and for it not to be too rigid or impossibly difficult to apply.

11. Also of note is that, although a considerable amount of detail was collected during the study to permit suggested staff mix, a decision was made by the stakeholders to leave the actual mix of staff providing the care hours for their residents to each Care Home to interpret themselves, according to a combination of regulations and pragmatic arrangements.

12. Implementation of the model has yet to be decided formally but it could be electronically via an internet link or perhaps by CD-rom distribution.

13. Further enhancements of the model that should be considered if it is to be used extensively include extending its validity in larger Care Homes (this study was based on homes with a maximum of 70 residents therefore use in larger homes is by extrapolation only); incorporation of a quality value from the Quality Assessment Framework once completed by the Care Commission; and further validation of the new algorithm developed for use with the extended IoRN.
Chapter 1

1.1 Introduction

14. The Care Home Staffing Project described in this report was developed to investigate if and how the Indicator of Relative Need (IoRN)\(^1\) might be used in future to inform staffing levels within Care Homes for older people in Scotland.

15. This report describes the work undertaken and the findings of the Main study carried out during 2006/7 in a range of Care Homes for older people in Scotland. For reasons of confidentiality, the identity of the Care Homes and their residents have not been disclosed in the report.

16. The project developed as a partnership initiative between the Scottish Executive Joint Future Unit\(^2\) (now the Scottish Government Partnership Improvement and Outcomes Division), the Care Commission\(^3\) and the Convention of Scottish Local Authorities (COSLA)\(^4\) with involvement from key stakeholders. The terms of reference for the project were agreed by the Joint Future Implementation and Advisory Group (Appendix 9), which led to the setting up of the Development Group (Appendix 10) and Reference Group (Appendix 11).

17. The Information Services Division of the National Health Service, National Services Scotland\(^5\) was commissioned to undertake the study and to report on the findings of it. This report serves to deliver the findings of the Main study associated with the project.

18. Permeating all the aims of the Main study, as was the case for both the Pre-Pilot and Pilot studies were the general aims of information science to develop robust methods that were simple, easy to understand, did not cause confusion and were as least time consuming as possible. In all aspects of the study the views of the numerous stakeholders were taken into consideration, as were the requirements of the Data Protection Act\(^6\) and the sensitivities and wishes of the Users and Carers. Communication was seen as an important aspect of the study and to this aim a communication strategy was developed and endorsed by the reference group to advise on the most efficient means of communicating the progress of the study with all interested parties.

19. The main approach to the study suggested by Information Services was tested during the Pre-Pilot and Pilot phases of the study and it was concluded from these early phases that a combination of Data Envelopment Analysis and regression analysis as an approach was a sensible and pragmatic one to proceed with but one which could not be fully explored without collecting a great deal more data, in particular information on the quality of care being delivered in the participating Care Homes.
1.2 Background

20. Due to a growing desire for a more sophisticated method of informing staffing in care homes for older people from a range of stakeholders this project was commissioned. A decision had been made at an early stage to adopt a combination of regression analysis and an econometric modelling approach for this exercise, that of Data Envelopment Analysis, as a great deal of development work has recently been carried out in this area. In addition, it is one that has been shown to be useful in similar settings and has standard published methods. It was considered that the proposed methods would lend themselves well to this task; the Methodology Task Group (MTG, Appendix 8) that had been formed for the Pre-Pilot and Pilot studies was reformed for the Main study and were continuously referred to on matters of methodology during the early stages of the study.

21. The information required to populate the model was collected during the Main study in a sample of Care Homes for older people that was representative of all sectors and had a wide geographical spread.

22. It was recognised from an early stage that this study could suggest changes to staff mix and hours worked in a Care Home that provided care for a group of residents characterised by their dependency in terms of their new LoRN groupings as calculated according to the newly developed algorithm devised during the study. It was also recognised that Care Homes are multi-dimensional organisations and we have only been able to capture a very high level of information; it is inevitable that many important, intangible factors will not have been captured in this exercise and these will not have been entered into the model that we have used. Apart from factors that are impossible to measure such as kindness, good will and excellent leadership, good management and dedication of staff there are sure to be other more tangible elements that have been omitted from the model. We have made a start with this model and hope that it will inspire this work to be taken forward and to be further refined in future.
Chapter 2

2.1 Literature Review

23. This review was conducted by Hazel Dench, ISD with the assistance of project team members at ISD.

2.1.1 Aim of Review

24. To review available literature on methods which are being used to help inform staffing levels in Care Homes for the elderly.

2.1.2 Search Methodology

25. To ensure that the literature search found a fully representative selection of articles, two main search methods were employed.

26. The first method involved an electronic search of 6 databases (PubMed, The Excerpta Medica database (EMBASE), British Nursing Index, Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Health Management Information Consortium (HMIC). The criteria for the search included that articles were published in the last five years (2002 - part 2007), were in the English language and that an abstract was available (with the exception of HMIC). Variations of key words were used to search for articles based on three combined concepts of staffing, care homes and older people.

27. The second method was an Internet search using the search engine, Google, to look for additional articles. The same combined concepts were used as for the database searching.

28. After the database search was completed, a more recently published article was identified. In addition to this article, the related articles function within the database was used to identify any further relevant articles.

2.1.3 Review of abstracts and articles

29. The abstracts of articles were distributed between a team of five analysts to review in order to assess their potential relevance for the Care Home Staffing Project. The full articles of relevant papers were then obtained and reviewed based on the results of the abstract review.

30. Once all relevant articles were reviewed the team of analysts met to discuss their findings.
2.1.4 Findings

31. A total of 26 relevant articles were found. Three key themes were identified through reviewing these relevant articles. *Resident Assessment Measures* refer to seven articles related to the use of assessment measures to classify the needs of residents and potentially for assisting in related staffing decisions. *Staffing Ratios/Time* includes twelve articles, which describe current staffing levels and or time spent/required for residents in care homes. *Government Reports and Guidance* contains a sample of seven pieces of guidance that has been issued for England and other health care systems by the Department of Health.

32. The findings for each theme and a general discussion of the review can be found in Appendix 14.

2.1.5 Conclusion

33. The findings of the literature review suggest a need for further investigation and the provision of a greater level of relevant (possibly statistical) information to enable the development of a method to help inform staffing levels in Care Homes for the elderly.
Chapter 3

3.1 DEA method

3.1.1 Introduction

34. Data envelopment analysis (DEA)\textsuperscript{10} is a linear programming based technique used for measuring the relative performance of organisational units (hospitals, universities, businesses, banks etc.) where the presence of multiple inputs and outputs makes comparisons difficult. Inputs are resources added to the organisation including staffing, costs, equipment, building and training costs. Outputs are the main product of the organisation and may include number of patients treated, number of students taught, number of products made or profits. It is clear that there are many various types of inputs necessary to produce any given output, hence the need for a complex analysis such as DEA. Each input might have greater or less importance on the final output depending on it’s weighting (in this model it is experience, reflected by relative pay). For example the number of staff at various grades will have a major effect on the number of residents cared for, therefore the number of staff must be subdivided into grades and weighted by relative pay to incorporate resource use.

3.1.2 Methodology

35. The most simple measurement of the outputs to inputs ratio is:

\[ \text{Ratio} = \frac{\text{Outputs}}{\text{Inputs}} \]

36. However, this is inadequate due to the existence of multiple inputs and outputs related to different resources, activities and environmental factors. Therefore a more pragmatic measure is:

\[ \text{Ratio} = \frac{\text{weighted sum of multiple outputs}}{\text{weighted sum of multiple inputs}} \]

where the Ratio is the Care Home Index Value.

37. The DEA model holds the outputs as constant and computes the equation below with the inputs given. The co-variables are then computed to maximise the ratio. This method therefore maximises the Index Value for each Care home within the bounds of 0 to 1. Therefore, this ratio can be considered a proportion.

\[ \text{Ratio for unit X} = \frac{u_1 + u_2 + u_3 \ldots}{v_1 x_1 y_1 + v_2 x_2 y_2 + \ldots} \]
Where

\( u_1 \) = number of residents at need level \( u \)
\( u_2 \) = number of residents at need level \( y \)
\( u_3 \) = number of residents at need level \( z \)

\( v_1 \) = weighting for staff level 1
\( x_1 \) = number of staff at level 1
\( y_1 \) = weighting determined by DEA to maximise ratio

\( v_2 \) = weighting of staff level 2
\( x_2 \) = number of staff at level 2
\( y_2 \) = weighting determined by DEA to maximise ratio

38. Once the ratios are computed they can then be compared. The form of comparison is based on those with the highest ratio forming a frontier which envelopes the remaining ratios which are below the frontier. This is demonstrated in the graph below.

39. For the purposes of describing the DEA methodology the frontier can be visualised in a graph format however, once many variables are introduced this can only be done via the DEA software\(^{11}\), Frontier Analyst, as it would necessitate many axes.

Reference: DEAzone\(^{10}\)
40. It is possible to determine the proportional increase necessary for a Care Home Index Value to reach the frontier (i.e. to be optimised). For example Care Home P_5 is not on the frontier. In order to reach the frontier it may move anywhere on the frontier, however it may reach the frontier with the fewest changes to its inputs by moving to point P’_5 rather than P”_5. The proportional change to reach P’_5 and proportional change necessary for each input variable is computed by the DEA model.

3.1.3 Aims

41. The aims of the model development phase of the study included:

- To determine what data items are needed for development of the model
- To explore the weightings required for the model
- To determine any potential short falls or limitations of the model

3.2 Regression method

42. Discussions at ISD led to the conclusion that multiple regression did provide a satisfactory means of calculating the numbers of staff, provided no information is needed on the relative proportions of staff in the various staff groups since a formula of the type:

\[ R = a \times S + b \times N \]

where R = Residents,
S = Care staff,
N = Nurses
a and b are the calculated coefficients,

43. However, it is acknowledged that information is in fact needed on the relative proportions of staff in the different types of staff groups.

44. It was agreed, in the discussions that followed that regression could only be used if there was a single staff variable and this would not explain the variability in staff between care homes with similar numbers of residents.

45. One possibility to explore was to use the characteristics of the residents to explain the variation in staff costs at the level of the individual resident. This could be achieved by using multiple regression or AiD/CART methods (as for RUGS/SHRUGS).
3.3 Residential Forum method

46. The Residential Forum was founded in 1994 on the initiative of Dame Gillian Wagner and with the support of the National Institute for Social Work. Its purpose is to promote the achievement of high standards of care for children and adults in nursing homes, residential homes and schools, and to contribute to improving the quality of service to the public. Members of the Forum are people of standing and experience drawn from the public, private and voluntary sectors, as well as some who can speak for service users and carers.

47. In February 2001, the Department of Health asked the Residential Forum to undertake a review of the staffing arrangements in care homes in preparation for the introduction of the National Minimum Standards.

48. There was an almost unanimous view that the existing systems of determining staffing requirements would need to be replaced in order to meet the National Minimum Standards being introduced in England and Wales.

49. The majority of those consulted urged the Residential Forum to take into account, as the major component of their work, the needs/dependency of service users and their research confirmed that this was the appropriate step to take. In addition they concluded that the layout of the building in which care was undertaken also had to form part of the equation as well as matters such as training and social/recreational activities.

50. The answers to their questions, alongside the consultative process, enabled them to develop a model, which those responsible for staffing matters in care homes can use to determine the care hours needed within the National Minimum Standards.

51. Analysts at ISD followed the Residential Forum Method using the information collected in the care homes visited for the study; results are presented in the results section later in this report.
3.4 Time – estimate method

3.4.1 Introduction

52. The Time Estimate Tool (TET) was developed as an alternative methodology for estimating staffing levels as part of the Care Home Staffing Project (CHSP). It is based on a concept devised and developed by Ken Nicholson, ISD. It differs from the main algorithm by looking at the residents as being individuals with individual needs. Where the main algorithm uses a tree methodology to best fit the residents into groups, the TET posits that each person has an individual care requirement per day.

53. The TET methodology assumes that on any given day a resident may receive care assistance in one of the four following themes, physical care, mental health care, medical care or social care. Using the same questions as the main algorithm with an additional fixed value the TET builds up a daily care hour requirement per resident and a home value using these four themes.

54. In addition using other techniques developed within the CHSP this Care Hour Value (CHV) for the home can be converted into a Total Hour Value (THV) incorporating management, admin and ancillary staff time.

(For sections 3.4.2. – 3.4.9 see appendix 13)

3.4.10 Conclusion

55. The Time Estimate Tool (TET) provided a valid and acceptable alternative method for predicting the staffing needs of care homes for older people, based on the information collected in this study. As with the Care Homes Staffing Project Main study it would be good to add information on the quality of care in the homes to present a complete picture of care provided.

56. The TET was assessed as a good predictor of the care hours required for the care homes in this study. The care hours for the majority of homes (77.2%) were found to be above the hours recommended by the TET.

57. There were a number of advantages with the TET over other methods of predicting care hours:

- Each variables’ contribution to the overall care hours can be seen in graphical form. This can be used to show where time is spent in a care home.

- The TET looks directly at the requirements of the individual resident. Due to this the TET can be applied to any care setting and to any type of patient or resident. However the three proxies (Medical, Social and Activities proxies, see page 112 for more
details) would need to be dealt with before covering hospital patients.

- The TET need not remain fixed. As time passes new methods and new legislation will alter the way care homes are run. Therefore the time values associated with the TET can be increased or decreased or additional variable could be added.

- The TET can be used in any setting and with any type of person to highlight the care requirements and the amount of time that would be required to care for them.

58. Please refer to Appendix 13 for further information on aspects of development of the TET tool.

59. This method, although not fully validated itself, was developed to a point where we were able to use it as an independent validation tool for the newly adapted algorithm and extended IoRN questionnaire.

3.5 Method currently in use by the Care Commission

60. Care home providers draw up a staffing schedule based on maximum occupancy and provide evidence on needs of residents for this. This is agreed with the Care Commission (CC) at the point of registration and is arrived at through negotiation. Once formally agreed this is monitored at inspections and other regulatory activities. In some areas the CC recommends Isaacs and Neville as a tool to indicate dependency/needs of residents and help inform minimum staffing levels. There is no standard method and the way staff schedules are calculated varies with the different care home providers.

61. In the case of care of homes registered prior to the establishment of the CC the staffing levels were accepted as a condition of registration and are currently being reviewed.

62. 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.

63. A more detailed discussion of the current methodology adopted, plus an example of a staffing schedule can be found in Appendix 12.
Chapter 4

4.1 Development of the IoRN questionnaire

64. The Indicator of Relative Need, or IoRN questionnaire (Appendix 2) was developed for use in the community setting and had to be adapted to use in the Care Home setting by expanding some of the questions to make them more relevant. The method for going about this was to look at each question in turn in a small group of staff familiar with the care needs of older people who normally reside in Care Homes. Suggested changes were then made to the questionnaire and brought to the methodology task group (Appendix 8) for discussion and agreement prior to testing in a sample of homes. Once tested, the results of the testing were fed back with recommendations to the methodology task group. Final changes, once agreed were then relayed to the Development group (Appendix 10) and Reference group (Appendix 11) prior to data collection proceeding.

65. The augmented IoRN was finally entitled the Care Home Staffing Project Questionnaire, or CHSP Questionnaire and can be found at Appendix 3.

4.2 Development of the staffing form

66. The development of the Care Home staffing form was initiated during the earlier stages of the study but we were aware that further refinements of the form were required to help with making it as clear as possible exactly what was wanted.

67. A great deal of feedback was gained from early data collections, which proved invaluable in helping to improve the guidelines and content on the form. The final version used in the study may be found in Appendix 4.

4.3 Collection of the staffing estimate for the revised algorithm

68. As we had changed the IoRN questionnaire by augmenting many of the questions we were aware that it would be necessary to revise the algorithm used to derive the grouping that the residents are placed in. In order to derive a new algorithm it was necessary to collect information on the ‘staffing estimate’. This is an estimate that the staff place on the total amount of staff time that each resident needs to be cared for compared to other residents in the Care Home.

69. The staff member who answered the CHSP questionnaire on the dependency of the residents was asked to think of the most dependent resident (A) and the least dependent resident (R) and to judge how much more resources they need to look after A than R – is it twice as much, or five times as much, or ten times as much etc? They are then asked to place all other residents in the home in between A and R on a continuum, using cards. The method for this process has been explicitly written up and can be found in Appendix 5.
Chapter 5

5.1 Development of the model

70. Fieldwork involving interviews by Care Commission and ISD staff in the participating Care Homes were conducted over the period from September 2006 to March 2007. In total some 122 Care Homes participated in the survey. The data collected included answers to a set of structured questions, including the existing IoRN questions, about all of the residents of the homes participating, which would form the basis of the adapted IoRN, viewed alongside details of the staff in the homes.

71. The Augmented IoRN splits the residents of the care home into eight discrete groups. Each group has a weight attached representing the relative dependency of the group. The group weighting represents the relative amount of staff time that is given, on average, to people until the specific characteristics defined for the group e.g. people in Group B will use, on average, more staff time than people in Group A, and so on. In any particular home it would be very unlikely that all the residents would be in the same adapted – IoRN groups and for this reason the overall home average weights vary from home to home depending on the mix of residents at the time of the survey. In Chart 1 the overall average weight for each of the homes is shown based on a resident in Group A assigned a weight of 1. 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.

72. For a home an average value of 1 would only result if all the residents were in Group A (the least dependent) – all of the homes had an average of greater than 1.

73. The revised IoRN can be viewed by clicking on this link


74. It should be noted that the revised algorithm will need to be validated via extensive use in a large number of care homes for older people prior to being used routinely and it should be viewed as a recently developed instrument at this stage.
5.2 RSA scores

75. An additional piece of information that was made available by the Care Commission in November 2007 and presented to ISD 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 for other purposes, the benefit to this study is 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 we have limited the homes to those with a “Low” risk only. 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, however, it is recognised that would not be possible until late 2009 at the earliest.

5.3 Preliminary Analyses & Findings

5.3.1 Correction made to staffing details

76. A detailed analysis of the survey data was hampered by the difficulty in obtaining 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 have been made where necessary.
5.3.2 Correlating weighted residents with care staff numbers

77. The weighted number of residents was well correlated with the total care staff hours ($r^2 = 0.82$). Overall however that this was only a slightly better correlation than that found when the straight headcount of residents was used ($r^2 = 0.80$). This finding does not give grounds, on statistical evidence alone, for saying that the weighted residents are a better indicator of staffing needs than a headcount.

78. The substantial variations in resident characteristics across homes as demonstrated in Chart 1, and the consequences for the staffing of homes where residents are highly dependent however, justifies further effort to develop a model based on weighted residents.

79. Note, this element of weighted residents can be exchanged for a value known as the ‘Resident Dependency Value, RDV = (weighted resident x n)’.

80. Relationship between weighted residents and care staff hours.

81. Chart 2 shows a scatter plot of the weighted residents against the total care hours for each Care Home. The regression line, which indicates a “best fit” through the sample data, is also shown. NB the regression line was calculated based on homes with an RSA rank of “Low” only.

Figure 8

5.4 Relationship with other factors

82. Further analyses were conducted to see if other common factors that might explain at least part of the variation could be identified from the survey data.
These additional analyses included:

Provider
It was suggested by stakeholders at an early stage that Care Homes funded, managed and run by the three main providers may behave in a fundamentally different way to one another and perhaps should therefore be treated separately.

Based on the homes sampled, the provider had no apparent effect on the relationship between weighted residents and care hours (Chart 3). There was no evidence therefore to justify stratification of the sample according to this factor.

Figure 9
Sub-group analysis by Provider

5.5 Multi-unit homes

It was suggested that a home with multiple units may 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 was not possible to demonstrate a statistically significant difference in staffing levels over and above other factors.
Chapter 6

6.1 Residential Forum Results and Conclusions

85. It was clear from analysis of current staffing levels in Care Homes in Scotland that this method had been used to help inform the staffing levels in those homes. The Residential Forum has provided a staffing model that was developed for use in England and Wales; unfortunately it only provides guidance on total ‘care hours’ and does not look at the breakdown of different types of staff employed in care homes for the elderly.

86. It was for this reason that we concluded that it was too blunt an instrument to be of use in regularly informing staffing levels in Care Homes for older people as the discussions that we’d held with Stakeholders had led us to conclude that they were interested to know what is the optimum mix of grades of staff that should be employed for how many hours per week to care for any given number of residents in a specified dependency category.

87. Comparison of RF model results with our own model results indicated that the RF suggests similar but consistently lower staffing levels than our own model suggests.

6.2 Time-estimate Results and Conclusions

88. One exploratory idea tested in the course of the fieldwork was whether information on the time taken to do actual tasks could be estimated and used to reckon how much ‘actual’ care was needed for residents with certain characteristics. This independent method used estimates provided by Care Home staff for most of the tasks, augmented by some assumptions regarding other elements of care. While further work would be needed to develop this into a fully validated method, this “work in progress” (the Time Estimate Tool, TET) could nevertheless be used cautiously as an independent validator of the staff survey method reported here.

89. See Appendix 13 for further TET work.

6.3 Care Home Staffing Model Results and Conclusions

6.3.1 Results

90. Determination of the most appropriate model to use was facilitated by the conduct of a literature review and consultation with international experts in modelling techniques applied in health care settings. The experts contacted were based at the University of York Centre for Health Economics, England and at Monash University, Melbourne, Australia.
91. The conclusion of the literature review and consultation was that initially focus should be on specifying a DEA model\(^7\) as this type of modelling permits the use of multiple inputs and multiple outputs as well as indicating how a unit can reach the optimum operative index value. It was clear from the consultation that a combination of regression and Data Envelopment Analysis would lend itself particularly well to the study described here.

92. It is important to note that any model developed can only ever be as accurate as the original data collected. However, there are a number of other fundamental assumptions to the model including:

- That one unit of work for a staff member is equivalent between different staff members carrying out the same role
- The data collected is representative at that point in time
- All direct care staff shortages are filled by Bank or Agency staff

93. The model was developed to provide a minimum staffing level mix guide by Care Home for the point in time where data is collected. Staffing levels may be higher or lower during busy or quiet times (Day vs. Night). But the model will suggest the changes necessary for the Home to reach its optimal ratio. It is important to note that these results are model based and must be interpreted with logic and expertise. They may produce results, which can give us a guide to areas for improvement but may not be realistic or possible. For example the model may suggest that in order to optimise efficiency that a Care home should have 1.3 floors.

94. In order to achieve the best model and provide the most information, the number of Care Homes included should be maximised (ideally 3 times more homes than variables) and the number of variables included should be minimised. Therefore, it was necessary to aggregate some similar groupings or groupings with minimal or missing numbers during the specification of the model for this study.

6.3.2 Developing the Model

95. One possible way to use the available information is to develop a basic model that relates resident characteristics to total care staff for the home. One simple approach for such a model is to use the best-fit regression line. 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.
96. When the Development Group were referred to concerning this aspect of the process the group decided that the preference was for a threshold approach to be taken, as described below, to allow for more scope in application of the model.

97. The alternative approach is one that allows more scope for consideration of all relevant factors and produces some thresholds around the regression line within which staffing levels should fall. These thresholds would not necessarily be mandatory but could perhaps be used as a guide by individual Care Home Managers and could be used to inform agreement between homes and other Stakeholders.

98. Figure 10 presents an example of a threshold, lying between an upper and lower prediction interval of 66.6%. With a 66.6% level, two thirds of homes might be expected to lie inside the threshold intervals whilst one third will lie above or below the interval.

![Figure 10](image)

Scatter plot of care hours and weighted residents

99. Any threshold level can be selected for the model and a decision on this is itself a critical one. Table 6.1 shows the number of homes in the study sample that would fall outside of the limits depending on the prediction interval selected. For example, an 80% interval would mean wider thresholds and thus fewer homes outside of the threshold band than that occurring with use of the 66.6% interval that the project Development group decided to adopt for the model use.
100. Figure 10 also shows the position of a DEA frontier. The frontier is higher than the lower prediction level where the number of weighted residents is very small. 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.

101. Table 6.2 shows the difference in care staff hours for homes with different number of weighted residents according to the prediction level used.

### Table 6.2

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<th>Weighted Residents</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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The Effect of the Prediction Interval

**6.3.3 Validating the Model**

102. As described above, the survey has provided a wealth of information on staffing resident characteristics and characteristics of Care Homes. The original sample of homes were deemed acceptable insofar as they had no ‘complaints upheld’ or ‘outstanding requirements’ from the Care Commission perspective and the additional material supplied by the Care Commission (RSA level) has allowed the analysis and model development to focus on the homes in this sample at lowest risk of requiring regulatory support. Should a decision be made to adopt the staffing model in regular use then the extended IoRN with its updated algorithm would need to be further validated in a larger number of homes prior to routine use.
6.3.4 The Final Model

103. It was decided that the model illustrating the average value of the sample care homes should be labelled as the ‘average conformance’ in terms of staffing and that once the total weekly care staff hours (excluding breaks) have been entered into the model for the care home in question, along with the dependency information for the residents, a plot and a table is generated to show where the staffing is calculated to lie – this is then expressed as within the ‘conformance zone’, i.e. within the +/- 66% prediction level of the average, or to be above or below the upper or lower margins of the conformance zone.

104. A set of steps have been set out to assist users with interpretation of the output graph as shown below:

1. Look at the chart showing the care home staffing level conformance zone.
2. The red dot indicates the position of your care home on the chart.
3. If your care home lies between the red line and the green line it is within the conformance zone and if it actually lies on the blue line then it indicates average conformance.
4. If your home lies above the green line it is above the upper margin of the conformance zone and this indicates a higher than expected ratio of staff to residents.
5. If your home lies below the red line it is below the lower margin of the conformance zone and this indicates a lower than expected ratio of staff to residents.

Care Home Staffing Level Conformance Zone
105. Of note is that the dependency value shown on the x-axis of the output graph is a combination of the number of residents and their relative dependency. The model has been designed to be self-administered by staff in a Care Home setting and has extensive guidelines associated with it (Appendix 15).

Figure 12
Schematic of the Output that Care Homes receive

‘Conformance Zone’ for care hours
Chapter 7

7.1 Overview

107. There is no doubt that there are a number of interested parties awaiting the output from this project with some anticipation. There are a wide range of parties interested in having a tool that could help to inform staffing levels in Care Homes for older people in a more systematic manner than is currently available – these range from the current and prospective owners and providers of Care Homes to those that currently live and work in them, along with their relatives and friends, and of course, those who anticipate that they will at some point become residents of a Care Home. Additionally there is the interest from those that are tasked with regulating the quality of care provided within Care Homes, which is inextricably linked to the staffing provision within them.

7.2 Potential uses referred to by the Care Commission:

108. 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.

109. 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.

110. 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.

111. The use of the tool in contributing to the improvement agenda used in conjunction with Grades awarded following Regulating for Improvement inspections.

112. The benefits of an accepted tool where disputes over staffing arise or where Enforcement Action may be necessary to protect residents or to raise standards.

7.3 Conclusions and Recommendations

113. Our conclusion is that we have developed a working model designed to inform staffing in care homes in Scotland.

114. Future actions may include the incorporation of a quality marker for each Care Home from the Quality Assessment Framework and further validation of the algorithm.
115. Decisions on the mode of distribution of the model also need to be discussed and the practicalities of this to be thought through.

116. One issue to bear in mind is that the current model is based on a largest home of 70 residents with extrapolation to any homes larger than this, therefore homes with many more than 70 residents should be made aware that the model may not be as predictive for them as for smaller homes.

117. In August 2008 The Minister for Public Health approved the preparation of a business case to take forward implementation including costs for the development of an electronic version of this model and the management and governance arrangements of it. Approval was also given to approach the National Care Home Development Group to explore its potential as a Reference Group to advise on the implementation of the model within the context of the wider cost/quality agenda.
Chapter 8

References

1. Information on the SSA-IoRN is available from the ISD website http://www.isdscotland.org/isd/

Further information on the development of the SSA-IoRN and what is happening nationally can be obtained via the Scottish Executive Joint Future webpage at:


3. The Care Commission http://www.carecommission.com/


5. NHS National Services Scotland http://www.isdscotland.org/


10. Data Envelopment Analysis (www.deazone.com)


Appendix 1 – Project Plan

CARE HOMES STAFFING PROJECT

OUTLINE PROJECT PLAN

Version 3.8 10 January 2007
8. Outline Project Plan

8.1. Introduction

The Project described in this document was initiated to investigate whether it was possible to use information on the IoRN groups of residents of Care Homes for older people to help inform staffing levels in those homes.

The purpose of this document is to clearly set out everything connected with the Care Homes Staffing Project (CHSP) at its’ outset and to provide a source of reference for all the related groups and papers.

8.2. Intended audience and note of related documents

This document has been prepared with the intention that it will serve as a reference for all parties working in connection with the Care Homes Staffing Project to aid the smooth progress of the project from its’ initiation to completion.

8.3. Project Overview

Following the completion of the Pilot study into the feasibility of using the IoRN to inform staffing levels in Care Homes. The Reference Group reached the conclusion that it might be possible to use the econometric modelling technique of Data Envelopment Analysis to achieve this goal with an augmented version of the IoRN.

Given the number of variables used to build the model, estimates were made that data should be collected from a minimum of 45 Care homes in order to adequately populate the model.

A decision to proceed with the collection of data in these Care Homes and to go ahead with a main study was taken by the Health Minister.

Stakeholders Included the Scottish Executive Health Department Joint Futures Unit in partnership with the Care Commission and the Convention of Scottish Local Authorities, NHS National Services Scotland, Scottish Care, Users and Carers representatives, Association of Directors of Social Work, the Royal College of Nursing, NHS Education for Scotland and the Voluntary Sector.
8.4. Background and approach

A report describing the work undertaken and the findings of a Pre-Pilot study and Pilot study carried out during 2004 in a range of Care Homes for older people in Scotland is available at:

http://www.isdscotland.org/isd/info3.jsp?pContentID=2961&p_applic=CCC&p_service=Content.show

The project developed as a partnership initiative between the Scottish Executive Joint Future Unit, the Care Commission and the Convention of Scottish Local Authorities (COSLA) with involvement from other key stakeholders. The terms of reference for the project were agreed by the Joint Future Implementation and Advisory Group, which led to the setting up of a Development Group and Reference Group (membership listed in full in the Pilot study report).

The Information Services Division of National Services Scotland has been commissioned by the SEHD to oversee a larger study, utilising the methodology developed in the course of the pre-pilot and pilot studies described above.

The Care Commission will be responsible for identifying the participating care homes.

8.5. Scope

All parties involved with this project are clear that the outputs from the project may help inform staffing of care homes but will not provide a method to define standards for staffing levels in Care Homes. As the characteristics of Care Homes differ, results will have to be interpreted with caution. The agreed scope of the project is as follows:

The development of a method that uses an augmented version of the IoRN, together with other information (i.e. information on characteristics of the care homes and the staffing of them), to help inform the planning and management of staffing levels in participating care homes.
Project Initiation Document sign off

It is agreed that the scope of the project incorporates the following:

The development of a method that uses an augmented version of the IoRN, together with other information (i.e. information on characteristics of the care homes and the staffing of them), to help inform the planning and management of staffing levels in participating care homes.

………………………………… Date

………………………………… SEHD JFU representative

………………………………… (Print Name)

………………………………… Date

………………………………… Care Commission Representative

………………………………… (Print Name)

………………………………… Date

………………………………… COSLA representative

………………………………… (Print Name)

(Draft version 3.4 signed off between 28.09.06 and 11.10.06)
9. Project Aims and Objectives

9.1. Aims

The main aim of the study is to provide the stakeholders with a method to help inform staffing levels within Care Homes that uses an augmented version of the IoRN groups of the residents together with information on staff skill mix and other information pertaining to the care home.

Permeating all the aims of both the Pre-Pilot and Pilot studies were the general aims of information science to develop robust methods that were simple, easy to understand, did not cause confusion and not too onerous in terms of time taken to participate. It is intended to uphold these aims throughout the main study.

In all aspects of the development process the views of all stakeholders will be taken into consideration; particular attention will be paid to the sensitivities and wishes of the Users and Carers. The legal requirements of the Data Protection Act, 1998 will be adhered to.

9.2. Communication

Communication is as an important aspect of the study therefore a communication strategy, developed and agreed by the reference group for the pilot study, to advise on the most efficient means of communicating the progress of the study with all interested parties, will be further developed.

9.3. Objectives

To produce a model to help inform staffing levels in those care homes whose characteristics are used to build the model.

To further develop and validate the method using the Care Homes Staffing Project Questionnaire, SCRUGS algorithm questions, plus questions on other care needs data, collected from Care Homes, to inform staffing levels.

To further inform stakeholders in the uses of the technology in an ongoing manner.

10. Project organisation

10.1. The CHSP will be managed under the auspices of the Scottish Executive Health Department Joint Future Unit (SEHD JFU).

10.2. Project Management will be provided by ISD, guided by a Project Reference Group, and more specific guidance from
the Project Development Group.

10.3. Technical guidance will be provided by a Methodology Task Group (for membership see Appendix 1)

8. **Resources**

8.1. ISD will provide resources from the staff working on the Joint Future Programme.

8.2. As the econometric modelling methodology is evolving and the use of it in this manner is novel and highly specialised, the analysts at ISD will be linked to an international expert in the field of Data Envelopment Analysis based at the University of York Centre for Health Economics for specialist training, advice and support throughout the project.

8.3. The Care Commission have agreed to provide administrative support to the Development Group, The Reference Group and the Methodology Task Group as for the Pilot phase of the study; this has been agreed to be 14 hours per week.

8.4. Two members of staff from the Care Commission will be seconded to the project on a full time basis for 7 months. They will liaise with participating homes, act as interviewers to collect data from Homes and participate in related groups as appropriate. It is anticipated that the secondments will start in July 2006.

8.5. The Care Commission has agreed to provide a ½ day per week of professional advice for a maximum period of 10 months.

9. **Assumptions**

9.1. Professional input to the various groups associated with the project will be maintained throughout the project from all the stakeholders as required.

9.2. The Care Commission will provide the level of administrative support necessary to service the various groups associated with the project and assist with production of the project leaflets (to a maximum of 2d/week).

9.3. The Care Commission will provide staff to assist with interviewing and collecting staffing and care home characteristic data plus provide information on the standards achieved by the care homes to assist with populating the model (2 staff for 7 months from July 2006).

9.4. The SEHD JFU will facilitate meetings of the stakeholders and general progress of the study.
9.5. Existing expertise in interviewing and data collection within ISD DIG can be harnessed and data that is being collected for SCRUGS can be used for the CHSP with minimum additional effort where practical.

9.6. Existing DEA modelling expertise in ISD DIG remains in place and will be made available to the CHSP as required for the duration of the project.

9.7. Additional interviewers and analysts will be made available as and when required to contribute to the output of the project.

9.8. The Care Commission will provide details of Care Homes that have not been subject to any Requirements in the inspection year 2005/2006 to allow data collection to proceed in 100 Care Homes.

9.9. Sufficient Care Homes will be prepared to participate in data collection and to provide information on their Current Care Home characteristics and staffing levels to permit adequate population of the model (minimum of 45, optimum 100).

9.10. We are able to develop and validate a Care Homes Staffing Project Questionnaire.

9.11. Some Data from the Care Home Census may be used. It is acknowledged that some data is not well enough defined for the purposes of this project.

9.12. The new software, Banxia v.3 will be available and will prove to be fit for purpose.

10. Milestones


Meeting at SAH to discuss project resources with Care Commission and JFU partners.

Rowena Jacobs of the Centre for Health Economics at University of York gave expert seminar to CHSP Development Group and ISD analysts on Data Envelopment Analysis and its’ application to this project in Edinburgh.

Completion of the training in the use of the new modelling software at York University.

ISD visit to Care Commission to begin discussion of selection of Care Homes for potential inclusion in model.

10.2. End June 2006

Completion of setting up of files for main study.
a) Questionnaires for IoRN & SCRUGS, Care Home and Staffing information to be collected by interviewers (both ISD and Care Commission staff) and exported to excel spreadsheets. (Files to be set up by KN and RS at ISD)

b) Study data files for holding master copies of all study data to enter into the model to be set up on ISD server by HD. Interviewers will download their Care Home data to this master file at regular intervals where it will be checked for data quality and held in a secure and confidential area.

Review of additional data required to differentiate between those in most dependent group (IoRN Group ‘I’)

10.3. 1st July 2006

Two Care Commission staff available for training as interviewers at NHS National Services Scotland (Gyle Square) and for assisting with data collection

10.4. 22nd June 2006

Reference Group Meeting
Secure agreement with reference group for:

Content of Draft Outline Project Plan
Letter to go out from Care Commission inviting Homes to participate in study
Selection of Homes to participate in study
Expectations regarding product of study
Communication with stakeholders of broad project outline to inform detailed project plan.

10.5. August 2006

Letter sent out to participating Care homes in Scotland to let them know that the study is going ahead, that they will be asked to participate in it and asking them to give ISD every assistance in progressing this important piece of work – to be drafted by ISD and sent out by the CC with a project leaflet for further information

Completion of training of interviewers from Care Commission and ISD in IoRN interview plus additional questions and care home characteristics and staffing form to complete all data collection required for study.
10.6. August 06 – Mar 07
Start of data collection and population of model
Part of the data collection process will involve validation of an augmented version of the IoRN as this instrument was originally developed for grouping residents living in the community it is not sensitive for more dependant individuals living in Care Homes (where approximately 50% are in the most dependant Group, I).

Ideally data will be collected from 100 Care Homes, however a minimum of 45 Care homes (or operative units) to populate the model as there are 15 variables and the approximate guide for operation of the model is that a minimum of 3 X the number of variables is required.

Intention is to use 2 Care Commission interviewers in addition to ISD interviewers where necessary over a 5-6 month period.

QA will be built into the data collection process as well as feedback of the results to the Care Homes.

10.7. March 2007
Completion of data collection

10.8. Following data collection will be the population of the DEA model – this should be operating at optimum level by the end of June 07.

10.9. The Banxia DEA model will be checked against a simpler version generated using different, more basic software such as excel this will ensure that the Banxia model is operating as anticipated prior to adding additional factors for environmental weightings (essential to permit reasonable sample size where many subgroups exist).

10.10. May – June 2007
Calculation of new CHSPQ algorithm groupings

10.11. June 2007
Finalising weightings to assign to all possible variables in the model – this is only possible once all data is collected as it is only at this stage that the influence of the various weightings becomes apparent and can be disregarded as of little influence or retained as important.

Finish checking results and figures. Send Results out to all Care Homes that participated.

write up study results

8. Products

8.1. Initial Data Envelopment Analysis model to help inform staffing of participating Care Homes in Scotland.

8.2. Model will be computer-based in an electronic form using Banxia software and will only apply to the Care Homes used to populate the model, not to other Care Homes.

8.3. Care Home Staffing Project Questionnaire

8.4. New algorithm for care homes

8.5. Report on the Development

8. Dependencies

8.1. Achieve a fully populated model as described in the timescale shown.

8.2. The resources are made available when needed and the Care Homes provide the information necessary to populate the model in a transparent and accurate manner.

9. Risk assessment and mitigation of risks

A risk assessment process was worked through by the Methodology Task Group prior to the start of the main study in July 2006, according to standard process of the NHS National Services Scotland in order to develop a Risk Register.

Risk score is calculated as a product of (Likelihood x Impact) in 5 categories of People; Financial; Managerial/Operational, Technical, and Political/External

Score = 1-10 Negligible; 11-15 Watch; 16-20 Manage; 21 – 26 Manage Firmly

See Appendix 2 for Risk Register

Barbara Graham
Project Manager
January 2007
## Methodology Task Group Membership

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<th>Organisation</th>
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<td>0131 275 6320</td>
<td><a href="mailto:barbara.graham@isd.csa.scot.nhs.uk">barbara.graham@isd.csa.scot.nhs.uk</a></td>
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<tr>
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<td>Care Commission</td>
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<td><a href="mailto:lesley.toner@carecommission.com">lesley.toner@carecommission.com</a></td>
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<tr>
<td>Katie Wood</td>
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<td>Local Authority</td>
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<td><a href="mailto:eleanor.cunningham@edinburgh.gov.uk">eleanor.cunningham@edinburgh.gov.uk</a></td>
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<tr>
<td>Joe Walker</td>
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<td>0141 945 1523</td>
<td><a href="mailto:WALKEJOS@BUPA.com">WALKEJOS@BUPA.com</a></td>
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<tr>
<td>Description</td>
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<td>Owner of risk</td>
<td>Assessment-likelihood X impact</td>
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<td>-------------</td>
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<td>---------------</td>
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</tr>
</tbody>
</table>
| 1. PEOPLE  | Key people being unavailable: Marion Mullen, Barbara Graham, Winona Samet, Adam Redpath, Pete Knight | Delay to project progress, Loss of expert knowledge | PK | MM 1x5 = 5  
BG 2x5 = 10  
WS 2x5 = 10  
AR 2X5 = 10  
PK 2x5 = 10 | Deputies- ensure are identified and briefed  
Liz Norton  
Margaret Quinn  
David Miekle  
Not yet identified  
David Knowles | Recognised succession planning issue for AR.  
Who has tree software (other than Margaret Macleod)? readiness to advise should we need them if AR not available. |
| 2. FINANCE  | Sufficient funds available to meet running costs of project | Don't secure funding. If unforeseen costs come in we may not have the funds to meet them | DK | 2x5 = 10 | Establish budget  
And monitor it | Secure adequate funding |
| 3. TECHNICAL | Further analytical tools/range of complex methods | Results do not adequately inform staffing levels. | PK | 3x5 = 15 | Keep under review  
Conduct literature search  
Approach systematically | Brainstorm Document |
| Ask right questions/collect correct data | Some gaps in our data may become apparent. Information collected may be of poor quality and thus undermine model | MTG/BG | 3x4 = 12 | Ensure the MTG discuss and agree the questions  
Report back to homes to check and validate results & to check quality | Discuss all questions at MTG and agree quality.  
Ensure controls are in place |
<p>| Collect high quality information | | MTG/BG | 4x3 = 12 | | |
| Methodology requires that not all variables needed to make the method work may be available | Unavailability of key variable e.g. quality could jeopardise model integrity | Ref Gp | 5x4 = 20 | Explore methods other than DEA that place a lower reliance on such variables as quality | Test a range of other methods (and seek expert advice where required). |</p>
<table>
<thead>
<tr>
<th>4. POLITICAL/EXTERNAL</th>
<th>Stakeholders do not remain committed to the project</th>
<th>Stakeholders withdraw cooperation or other initiatives take higher priority and may create the perception that a model is no longer required</th>
<th>Dev.Gp.</th>
<th>PK</th>
<th>2x5 = 10</th>
<th>Dev.Gp. has regular assessment of other initiatives along with stakeholders</th>
<th>Lead officers make sure this is discussed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>We are required under FOI to disclose information gathered from care homes</td>
<td>Potentially care homes withdraw their participation from the project</td>
<td>3x4 = 12</td>
<td>FOI Act Precedents that have been set Agreed message</td>
<td>Inform teams on response Seek expert advice where required</td>
<td></td>
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<tr>
<td>5. MANAGERIAL/OPERATIONAL</td>
<td>Are there sufficient resources allocated to the project</td>
<td>Insufficient resources to complete or to proceed as we would wish</td>
<td>BG</td>
<td>3x4 = 12</td>
<td>Review against plan</td>
<td>Project plan agreed</td>
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</table>
## Appendix 2 – IoRN Questionnaire

### CLIENT DETAILS (Please complete in BLOCK CAPITALS)

<table>
<thead>
<tr>
<th>Name:</th>
</tr>
</thead>
</table>
| Gender: | 0 – Not Known 1 – Male 2 Female 8 Other Specific 9 Not Specified  
| Date of Birth: |  
| Unique Person Identifier |  
| CHI Number |  
| NI Number |  
| Postcode of Permanent Residence |  
| Date of Completion: |  
| SSA-IoRN Group |  

### Single Shared Assessment – Indicator of Relative Need (SSA-IoRN)

**General guidelines for completion of the Single Shared Assessment – Indicator of Relative Need (SSA-IoRN) questionnaire**

- The “Client Details” box above is to allow you to enter appropriate identifiers for the person who is the subject of the SSA-IoRN questionnaire and score.
- Answer the questions based on your most recent assessment of the person’s health and social care needs drawing on mental health as well as physical needs.
- If a person’s needs fluctuate between two categories, select the higher of the two codes, e.g., if the person’s needs fluctuate between options 3 and 4 for a particular question, select 4.
- Answer all questions.
GUIDELINES FOR QUESTIONS 1-3

Activities of daily living are often affected by the individual's associated mental health needs. In responding to these questions please draw on the person's mental health needs as well as their physical needs. This may be most relevant to Option D, the response related to 'requires encouragement, prompting and supervision'.

Q1: When eating a meal, the person...
This question relates to a person's ability to obtain appropriate nutrition. This question does not concern the person’s ability to cook or prepare meals.
Select A: if the person eats using ordinary utensils without help, prompting or supervision, even if the meal must be prepared by someone else.
Select B: if the person eats without help, prompting or supervision, but uses special or adapted utensils.
Select C: if the person requires food to be cut up or its consistency to be modified in order to eat.
Select D: if the person has difficulties eating a meal because of frailty, disability or lack of awareness and so requires prompting supervision and guidance, e.g. the client can physically eat a meal without difficulty but because of their mental health needs requires their meal to be placed in front of them to prompt them to eat.
Select E: if the person requires physical assistance from another person in bringing utensils to the mouth.
Select F: if, because of injury, disability or illness, the person must receive nutrition intravenously, by gastrostomy or by syringe.

Q2: When transferring from bed to a chair or wheelchair, the person...
This question relates to a person’s ability to transfer from a position of lying down to a position of sitting in a nearby chair.
Select A: if the person is able to transfer independently and safely without the use of any equipment or adaptations, e.g. bedrail, specially adapted chair.
Select B: if the person is able to transfer independently but only with the use of equipment or adaptations e.g. bedrail, specially adapted chair or chair specially selected (bought or supplied).
Select C: if the person requires physical assistance from one person, irrespective of whether equipment is required.
Select D: if the person requires encouragement, prompting or supervision, but does not require physical assistance; OR if the person uses any equipment or adaptation that requires one person to set it up or to supervise its use; OR if the person requires observation because of a risk or fear of falling; OR if the person has difficulties transferring because of frailty, disability or lack of awareness.
Select E: if the person requires the physical assistance of two people, irrespective of whether equipment is required.
Select F: if the person is confined to bed and/or does not sit in a chair because of illness, injury or physical disability.

Q3: When using the toilet or commode, the person...
This question relates to a person’s ability to use the toilet / commode, that is to transfer on and off the toilet / commode, adjust clothing and maintain perineal hygiene. This question does not concern continence and bowel function (covered by question 12). But it does cover how the person manages a catheter or colostomy. It also does not concern a person’s ability to get to the toilet / commode, only the ability to use it once they are there.
Select A: if the person is able to use the toilet or commode independently without the use of any equipment or adaptations, e.g., raised toilet seat, hand rails, etc.
Select B: if the person is able to use the toilet or commode independently, but only with the use of equipment or adaptations e.g., raised toilet seat, hand rails. This includes those persons who independently manage a catheter or colostomy.
Select C: if the person requires minimal physical assistance from one person to use the toilet or commode, but performs the majority of the tasks himself / herself, e.g., if the person needs a small amount of assistance in transferring on and off the toilet, or in adjusting clothing.
Select D: if the person requires encouragement, prompting or supervision to use the toilet or commode because of a lack of motivation, fear of falling, confusion or memory loss, but does not require physical assistance; OR if the person uses any equipment or adaptation that requires one person either to set it up or to supervise its use; OR if the person has difficulties using the toilet because of frailty, disability or lack of awareness.
Select E: if the person requires assistance with all aspects of using the toilet.
Select F: if the person does not use the toilet or alternative receptacle because of physical disability or injury, or because he / she requires assistance to manage their catheter or colostomy.
Activities of Daily Living and Mobility

1. When eating a meal, the person ...
   - A Eats without assistance ................................................................. 1
   - B Eats without assistance using equipment ....................................... 1
   - C Eats with help, e.g., cutting up or puréeing food .............................. 2
   - D Eats with encouragement, prompting or supervision ....................... 2
   - E Requires complete assistance ..................................................... 3
   - F Receives nutrition by tube or infusion ........................................... 3

2. When transferring from bed to a chair or wheelchair, the person ...
   - A Transfers independently ............................................................... 1
   - B Transfers independently using equipment or adaptations .................. 1
   - C Needs the assistance of one person .............................................. 2
   - D Requires the encouragement, prompting or supervision of one person 2
   - E Needs the assistance of more than one person (with or without equipment) 3
   - F Does not transfer from bed to chair (e.g., confined to bed, etc.) .......... 3

3. When using the toilet, the person ...
   - A Is independent .............................................................................. 1
   - B Is independent with catheter or colostomy and equipment or adaptations 1
   - C Needs assistance .......................................................................... 2
   - D Requires encouragement, prompting or supervision ....................... 2
   - E Requires complete assistance ..................................................... 3
   - F Does not use the toilet ............................................................... 3

<table>
<thead>
<tr>
<th>ADL Score</th>
<th>Score</th>
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</thead>
<tbody>
<tr>
<td>Q 1 - Eating</td>
<td></td>
</tr>
<tr>
<td>Q 2 – Transferring</td>
<td></td>
</tr>
<tr>
<td>Q 3 – Toileting</td>
<td></td>
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<tr>
<td>Total ADL Score (Q1 + Q2 + Q3)</td>
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</tbody>
</table>
GUIDELINES FOR QUESTIONS 4-7

Personal care tasks are often affected by the individual's associated mental health needs. In responding to these questions please draw on the person's mental health needs as well as their physical needs. This may be most relevant to Option D, the response related to 'requires encouragement, prompting and supervision'.

Q4: Is the person able to wash his / her face and hands?
This question relates to a person’s ability to maintain good personal hygiene by washing his / her face and hands. It includes the ability to turn taps on and off, and adjust water temperature to avoid scalding. (See below for guidance on each option.)

Q5: Is the person able to give himself / herself a complete wash, bath or a shower?
This question relates to a person’s ability to wash in a bath or shower (including getting into or out of the bath or shower) or give himself / herself a complete wash by other means. It includes the ability to turn taps on, adjust water temperature to avoid scalding, and turn taps off again to prevent flooding. (See below for guidance on each option.)

Q6: Is the person able to wash his / her own hair?
This question relates to a person’s ability to wash his / her own hair, using soap or shampoo, irrespective of whether they do so in the shower / bath or over a sink. (See below for guidance on each option.)

Q7: Is the person able to dress / undress himself / herself?
This question relates to a person’s ability to put on, take off, secure and unfasten all garments in a manner appropriate for the weather. It also includes, the ability to adjust and fasten garments following use of the toilet, and as appropriate, the ability to put on and take off any braces, artificial limbs or other surgical appliances. (See below for guidance on each option.)

For all questions 4-7:
Select A: if the person requires no help, prompting or supervision from another person to perform the task AND does not require equipment or adaptations to do so.

Select B: if the person requires no help, prompting or supervision from another person to perform the task, but uses equipment or adaptations to do so.

Select C: if the person is able to perform the task, but because of frailty, disability or recent injury, finds it difficult to do so, even if using equipment or adaptations; OR if the person has difficulty with one aspect of the task (e.g., putting on socks and shoes, getting into a bath), even if they have no difficulty with another aspect (e.g., putting on trousers or shirt, washing themselves once in the bath).

Select D: if the person:
- lacks confidence or motivation to perform the task, but is able to do so when prompted or encouraged. This includes, for example, someone who requires clothing to be laid out for them, but is able to dress themselves once this has been done; OR
- will not perform the task without someone present because of a fear of falling, a phobia or other anxiety disorder; OR
- has forgotten how to perform the task, or is unable to perform it safely because of cognitive impairment or confusion. This includes, for example, someone who may leave the bath water running if they are not reminded to turn off the tap.

Choose this option if the person generally does not require physical assistance with the task, but nevertheless (for whatever reason) often requires someone to be present in order to perform it themselves.

Select E: if the person:
- requires physical assistance or support from others (for whatever reason), even if it is minimal; OR
- requires physical assistance for one aspect of the task (e.g., putting on socks and shoes, getting into a bath), even if they require no assistance for another aspect (e.g., putting on trousers or shirt, washing themselves once in the bath); OR
- does not perform the task because of disability.
Personal care

4. Is the person able to wash his / her hands and face?

- **A** Without difficulty ........................................................................................................... 1
- **B** Without difficulty using equipment or an adaptation .................................................... 2
- **C** Has difficulty, even if using equipment or an adaptation .............................................. 3
- **D** Requires prompting, guidance, supervision or encouragement .................................. 4
- **E** Cannot do without assistance from others ................................................................... 5

5. Is the person able to give himself / herself a complete wash, a bath or a shower?

- **A** Without difficulty ........................................................................................................... 1
- **B** Without difficulty using equipment or an adaptation .................................................... 2
- **C** Has difficulty, even if using equipment or an adaptation .............................................. 3
- **D** Requires prompting, guidance, supervision or encouragement .................................. 4
- **E** Cannot do without assistance from others ................................................................... 5

6. Is the person able to wash his / her own hair?

- **A** Without difficulty ........................................................................................................... 1
- **B** Without difficulty using equipment or an adaptation .................................................... 2
- **C** Has difficulty, even if using equipment or an adaptation .............................................. 3
- **D** Requires prompting, guidance, supervision or encouragement .................................. 4
- **E** Cannot do without assistance from others ................................................................... 5

7. Is the person able to dress / undress himself / herself?

- **A** Without difficulty ........................................................................................................... 1
- **B** Without difficulty using equipment or an adaptation .................................................... 2
- **C** Has difficulty, even if using equipment or an adaptation .............................................. 3
- **D** Requires prompting, guidance, supervision or encouragement .................................. 4
- **E** Cannot do without assistance from others ................................................................... 5

continue and score on page 7…
GUIDELINES FOR QUESTIONS 8 - 10

Food / drink preparation tasks are often affected by the individual’s associated mental health needs. In responding to these questions please consider and draw on the person’s mental health needs as well as their physical needs. This may be most relevant to Option D, the response related to 'requires encouragement, prompting and supervision'.

Q8: Is the person able to prepare, cook and serve himself / herself a main meal?
This question relates to a person’s ability to prepare a hot meal for himself / herself. It includes the ability to operate any appliances required (microwave, cooker, oven), and to obtain appropriate nutrition. (See below for guidance on each option.)

Q9: Is the person able to prepare himself / herself a light snack (e.g. sandwich)?
This question relates to a person’s ability to prepare himself / herself a snack between mealtimes. No cooking or use of electrical equipment e.g. cooker / grill required. (See below for guidance on each option.)

Q10: Is the person able to prepare himself / herself a hot drink (e.g. cup of tea)?
This question relates to a person’s ability to boil a kettle, and pour the water into a teapot or coffee pot and cup, without injury or scalding. (See below for guidance on each option.)

For all questions 8-10:
Select A: if the person requires no assistance, prompting or supervision from another person to perform the task AND does not require equipment or adaptations to do so.

Select B: if the person requires no assistance, prompting or supervision from another person to perform the task, but uses equipment or adaptations to do so.

Select C: if the person is able to perform the task, but because of frailty, disability or recent injury, finds it difficult to do so, even if using equipment or adaptations.

Select D: if the person:
- lacks confidence or motivation to perform the task, but is able to do so when prompted or encouraged; OR
- has forgotten how to perform the task, or is unable to perform it safely or appropriately without supervision because of cognitive impairment or confusion. (This includes, for example, a person who may be physically able to cook, but who might leave a pot on a lit burner and walk away from it, or who might eat out-of-date food. It also includes someone who is physically able to shop, but who cannot do so appropriately without supervision); OR
- is physically able to perform the task, but usually neglects himself / herself because of a mental health need or cognitive impairment.

Select this option if the person generally does not require physical assistance with the task, but nevertheless (for whatever reason) often requires someone to be present in order to perform it themselves.

Select E: if the person:
- requires physical assistance from others to perform the task (for whatever reason); OR
- requires physical support from others to perform the task (for whatever reason), even if it is minimal (e.g. flask left containing hot drink)
- can not perform the task without assistance because of a lack of training (e.g., someone who needs prepared meals to be provided because they do not know how to cook, but who is able to reheat the meals once provided); OR
- does not perform the task because of disability.
Food / Drink Preparation

8. Is the person able to prepare, cook and serve himself / herself a main meal?  Food / Drink Score

- A Without difficulty ................................................................. 1
- B Without difficulty using equipment or an adaptation ................... 2
- C Has difficulty, even if using equipment or an adaptation ............. 3
- D Requires prompting, guidance, supervision or encouragement ....... 4
- E Cannot do without assistance from others ............................... 5

9. Is the person able to prepare himself / herself a light snack (e.g. sandwich)?  Food / Drink Score

- A Without difficulty ................................................................. 1
- B Without difficulty using equipment or an adaptation ................... 2
- C Has difficulty, even if using equipment or an adaptation ............. 3
- D Requires prompting, guidance, supervision or encouragement ....... 4
- E Cannot do without assistance from others ............................... 5

10. Is the person able to prepare himself / herself a hot drink (e.g. cup of tea)  Food / Drink Score

- A Without difficulty ................................................................. 1
- B Without difficulty using equipment or an adaptation ................... 2
- C Has difficulty, even if using equipment or an adaptation ............. 3
- D Requires prompting, guidance, supervision or encouragement ....... 4
- E Cannot do without assistance from others ............................... 5

**Personal Care / Food / Drink Score**

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<thead>
<tr>
<th>Question</th>
<th>Score</th>
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<tbody>
<tr>
<td>Q4 – Washing Hands / Face</td>
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<tr>
<td>Q5 – Complete Wash</td>
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</tr>
<tr>
<td>Q6 – Washing Hair</td>
<td></td>
</tr>
<tr>
<td>Q7 – Dress / Undress</td>
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<tr>
<td>Q8 – Main Meal</td>
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<td>Q9 – Light Snack</td>
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<td>Q10 – Hot Drink</td>
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<tr>
<td>Total Personal Care / Food / Drink Score (Q4+Q5+Q6+Q7+Q8+Q9+Q10)</td>
<td></td>
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</table>
GUIDELINES FOR QUESTION 11

Q11: Has the person exhibited any of the following behaviours in the last four weeks?

When answering question 11, please consider the possible impact of any of these behaviours on the person’s activities of daily living, personal care and food/drink preparation needs. This is to ensure the person’s needs as a whole are reflected in each section, and a recognition that there may be overlaps across sections.

This question relates to the behavioural signs and symptoms of mental health problems such as dementia (or other forms of cognitive impairment), anxiety, depression, schizophrenia, etc. It also covers behavioural problems which may result from alcohol or drug dependencies, or acquired brain injury. Tick one box for each behaviour to indicate how often the behaviour has occurred in the last four weeks. Focus only on the last four weeks, even if the person has displayed a certain behaviour frequently in the past, but not in the last four weeks. It is recognised that the successful treatment and management of certain mental illnesses may result in a reduction in the frequency of some behavioural problems.

For each behaviour A-C, indicate how often it has occurred in the last four weeks. If it has not occurred or has occurred less than three times, select option 1 — ‘Never, or less than three times’. If option 1 selected, when assigning score, score 1. Choose option 2 — ‘three times or more’ — even if the behaviour has occurred irregularly in the last four weeks, or if it has occurred only in certain contexts (the examples below detail where behaviours may occur in certain contexts). If option 2 selected, when assigning score, score 2.

For each behaviour D-F, indicate whether or not it has occurred at all in the last four weeks. Choose option 1 – ‘No’, if it has not occurred at all in the last four weeks. If option 1 selected, when assigning score, score 1. Choose option 2, ‘Yes’ — even if the behaviour has occurred three times or more in the last four weeks, or if it has occurred only in certain contexts (the examples below detail where behaviours may occur in certain contexts). If option 2 selected, when assigning score, score 2.

Answer the questions exactly as they are stated. The responses to the questions will clearly be subjective in nature. However, in all cases, they should be based on the professional assessment of the assessing practitioner. If a person presents a particular behaviour, please indicate this by ticking the appropriate box. In some cases, the presentation of a behaviour may not particularly pose a problem to the person or others; indicate the frequency with which the behaviour is presented, irrespective of whether it poses a problem to the person or to others.

The following examples are provided to reduce any ambiguity in the questions.

Qstn A: Agitation/Restlessness — Agitation/Restlessness may include, for example, pacing, unable to sit for a period of time or unable to settle to a particular task.

Qstn B: Disturbance/Disruption — Disturbance/Disruption may include, for example, a person waking a spouse / relative during the night or a person making excessive contact with family/neighbours for no reason.

Qstn C: Verbal aggression — Verbal aggression may be directed towards other people, animals or objects.

Qstn D: Resistiveness — Resistiveness may include not only a person’s active refusal to co-operate with their care, but also to situations where a person apparently agrees to receive care, but then is consistently out when the care worker arrives, etc.

Qstn E: Relationships — Key relationships are considered to be those which are significant to the person, or which are necessary for their care. They may include individuals such as a spouse, a daughter or son, a carer, a member of the social work services team, a nurse or a doctor, for example.

Qstn F: Risk — Risk of harm might include, for example, dangers relating to accidental explosion, fire, poisoning (including medication, food or carbon monoxide poisoning), disorientation out with the home, self neglect leading to reduced activity, abuse (e.g. emotional, verbal, physical, financial, sexual) etc.
Mental Well-being and Behaviour

11. Has the person exhibited any of the following behaviours in the last four weeks? (Please tick one box for each behaviour, the scores for the questions are simply the value of the box ticked, either 1 or 2.)

A. Agitation/Restlessness
Is the person agitated or restless?
1 □ Never, or less than three times in the last four weeks
2 □ Three times or more in the last four weeks

B. Disturbance/Disruption
Has the person disturbed or disrupted other people?
1 □ Never, or less than three times in the last four weeks
2 □ Three times or more in the last four weeks

C. Verbal aggression
Is the person verbally aggressive?
1 □ Never, or less than three times in the last four weeks
2 □ Three times or more in the last four weeks

Sub Total Score (QA + QB + QC) □

D. Resistiveness
Is the person unco-operative or resistant to help with their care?
1 □ No
2 □ Yes

E. Relationships
Has the person had difficulty with key relationships?
1 □ No
2 □ Yes

F. Risk
Has the person’s behaviour constituted a risk of harm to themselves or to others?
1 □ No
2 □ Yes

Sub Total Score (QD + QE + QF) □

Mental Well-being / Behaviour Score
Sub Total Score (QA+QB+QC) plus Sub Total Score (QD+QE+QF) Score □
GUIDELINES FOR QUESTION 12

Q12: Does the person require any of the following interventions or treatments relating to bowel management?

These questions relate to the person’s need for assistance with bowel management for both day or night. Please tick one box. If the person requires no intervention or treatments for bowel management, select A

Question 12 relates to a person’s ability to maintain a healthy bowel function. It includes the care required to prevent both constipation and faecal incontinence. If a person is incontinent only in certain situations or circumstances, indicate how often this occurs.

Select A: if the person is fully continent, does not require, or rarely requires assistance from another person OR if the person is independent with pads or other continence aids, equipment or adaptation OR if the person requires a prompt to take the oral medication on a daily basis to maintain healthy bowel function such as laxatives, forming agents e.g. methylcellulose or antimotility drugs e.g. codeine phosphate. OR if the person requires prompting, supervision or assistance to maintain a healthy bowel function or to manage problems relating to faecal incontinence, but on average, less than once a week.

Select B: if the person requires prompting, supervision or assistance to maintain a healthy bowel function or to manage problems relating to faecal incontinence, on average, more than once a week OR if the person requires assistance at least once a week during the day or night for stoma care.
12. Does the person require any of the following interventions or treatments relating to bowel management? *(Please tick one box)*

Provision of assistance, guidance, prompting or supervision to maintain bowel function

A  □  Never or less than once a week, on average

B  □  More than once a week, on average

<table>
<thead>
<tr>
<th>Bowel Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low / No Bowel Management</td>
</tr>
<tr>
<td>High Bowel Management</td>
</tr>
</tbody>
</table>

Note: Score not required, only one question relating to bowel management

If option A, place client in low/no bowel management group.

If option B, place client in high bowel management group.

Assigning Client to SSA-IoRN Grouping
The purpose of completing the SSA-IoRN is to allow practitioners to assign their client to a SSA-IoRN grouping. There are only two steps to this process: Step 1 is to allocate the ADL group (low, medium or high). Step 2 works out the SSA-IoRN group – this is done by following the instructions in one of the boxes below.

Please refer to the diagram on page 13 when allocating SSA-IoRN grouping.

Step 1

To allocate client to a low, medium or high ADL group, please refer to the total ADL score calculated on page 3.

<table>
<thead>
<tr>
<th>ADL Score (see page 3)</th>
<th>ADL Group</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Low</td>
<td>Go to Box 1</td>
</tr>
<tr>
<td>4</td>
<td>Medium</td>
<td>Go to Box 2</td>
</tr>
<tr>
<td>5 - 9</td>
<td>High</td>
<td>Go to Box 3</td>
</tr>
</tbody>
</table>

Step 2

Box 1
For Low ADL Group – refer to total personal care / food/ drink score calculated on page 7.

<table>
<thead>
<tr>
<th>Personal Care / Food / Drink Prep Score (see page 7)</th>
<th>SSA-IoRN Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 - 14</td>
<td>A</td>
</tr>
<tr>
<td>15 - 27</td>
<td>B</td>
</tr>
<tr>
<td>28 - 35</td>
<td>D</td>
</tr>
</tbody>
</table>

Box 2
For Medium ADL Group – refer to total mental well-being and behaviour score calculated on page 9.

<table>
<thead>
<tr>
<th>Mental Well-being Score (see page 9)</th>
<th>SSA-IoRN Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>C</td>
</tr>
<tr>
<td>7 - 9</td>
<td>E</td>
</tr>
<tr>
<td>10 - 12</td>
<td>G</td>
</tr>
</tbody>
</table>

Box 3
For High ADL Group – refer to bowel management response on page 11. Only if option A selected - Refer to Mental Well-being Score (see page 9)

<table>
<thead>
<tr>
<th>Bowel Management response (see page 11)</th>
<th>SSA-IoRN Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>F</td>
</tr>
<tr>
<td>B</td>
<td>H</td>
</tr>
</tbody>
</table>

Please record client SSA-IoRN grouping in box.
Appendix 3 – CHSP Questionnaire

Care Home Staffing Project

A revised questionnaire suitable for use in care homes for older people has been designed based on the Indicator of Relative Need (IoRN). The revised questionnaire has taken account of the increased dependency of residents of Care Homes, compared to the client group that the IoRN was designed for (living in the community); additional questions have been added to the original IoRN questionnaire. The questionnaire has been designed, tested and validated during the course of the study on over 3,300 care home residents.
Augmented IoRN

June 2008
General Guidelines

• It is important that you know the person well, that’s why we ask the questions over the last seven days. So if you just think about the last seven days with each question.

• Please respond to these questions based on your professional judgement as to the person’s ability to perform the task regardless of whether or not the opportunity exists for them to do so or whether or not they choose to do so.

• Answer the questions based on the person’s health and social care needs drawing on mental health as well as physical needs.

• If person’s needs fluctuate between two differing categories, choose the one that has applied most often out of the last 7 days.
Question 1 – Eating

This question relates to a person’s ability to obtain appropriate nutrition. When eating a meal, the person:

1 – Eats without help, prompting or assistance with or without using special/adapted utensils

2 – Eats with some help to modify the texture or size of the food OR Eats with encouragement, prompting or supervision
   i.e. needs food cutting up, pureeing, does not generally need physical help but needs someone present in order to perform the task, because the person lacks confidence/ motivation

3 – Requires complete assistance OR Receives nutrition by tube or infusion
   i.e. needs physical assistance from another person in bringing utensils to the mouth or is fed by gastrostomy, intravenously or by syringe
Guidelines

This question relates to a person’s ability to obtain appropriate nutrition. e.g Is the person motivated to eat? are they aware it’s lunchtime?

Select 1:
- If the person eats using ordinary utensils or adapted utensils without help, prompting or supervision, even if the meal must be prepared by someone else.

NB If the person can physically eat a meal without difficulty but because of their mental health needs requires their meal to be placed in front of them to prompt them to eat select 2

Select 2:
- If the person requires food to be cut up or its consistency to be modified in order to eat.
  - If the person has difficulties eating a meal because of frailty, disability or lack of awareness and so requires prompting supervision and guidance.
  - If the person needs staff to give an initial prompt to start eating a meal but then needs little further help with the meal.
  - If the person needs frequent prompts to encourage them to continue to eat, or repeatedly needs to be encouraged to sit down at the table.

Select 3:
- If the person requires physical assistance in bringing utensils to the mouth.
  - If, because of injury, disability or illness, the person must receive nutrition intravenously, by gastrostomy or by syringe.
  - If the person will not eat.
Question 2 – Transferring Position

When transferring from a position of lying down to a position of sitting in a nearby chair or wheelchair the person:

1 – Transfers independently and safely with or without using equipment or adaptations
e.g. bed assist rail, adapted chair, selected chair

2 – Needs the physical assistance OR Encouragement, prompting or supervision of one person
i.e. needs observation because of lack of awareness or risk/fear of falling or needs equipment or adaptation set up or its use supervised

3 – Needs the physical assistance of two or more people OR Does not transfer from bed to chair
e.g. confined to bed
Guidelines

This question relates to a person’s ability to transfer from a position of lying down to a position of sitting in a nearby chair:

Select 1:
• If the person is able to transfer independently and safely with or without the use of any equipment or adaptations, e.g. bed assist rail, specially adapted chair.

Select 2:
• If the person requires physical assistance from one person, irrespective of whether equipment is required.
  • If the person requires encouragement, prompting or supervision, but does not require physical assistance.
  • If the person uses any equipment or adaptation that requires one person to set it up or to supervise its use.
  • If the person requires observation because of a risk or fear of falling.
  • If the person has difficulties transferring because of frailty, disability or lack of awareness.

Select 3:
• If the person requires the physical assistance of two or more people, irrespective of whether equipment is required.
  • If the person is confined to bed and/or does not sit in a chair because of illness, injury or physical disability.
When moving from one location to another within the home or from bedroom to the lounge the person:

1 – **Moves independently and safely with or without using equipment or adaptations**
   
   e.g. stick, walking frame, calliper, wheelchair

2 – **Needs the physical assistance OR Encouragement, prompting or supervision of one person**
   
   i.e. needs an initial prompt or supervision because of lack of awareness or risk/fear of falling or needs equipment or adaptation set up but no further help.

3 – **Requires the physical assistance of two or more people OR Does not move location**
   
   e.g. confined to bed
Guidelines

This question relates to a person’s ability to move around the home.

Select 1:
- If the person is able to move independently and safely with or without the use of any equipment or adaptations, e.g. stick, walking frame, calliper or wheelchair (manual or electric).

Select 2:
- If the person requires physical assistance from one person, irrespective of whether equipment is required.
  - If the person requires encouragement, prompting or supervision, but does not require physical assistance.
  - If the person uses any equipment or adaptation that requires one person to set up or to supervise its use.
  - If the person requires observation because of a risk or fear of falling.
  - If the person has difficulties transferring because of frailty, disability or lack of awareness.

Select 3:
- If the person requires the physical assistance of two or more people, irrespective of whether equipment is required.
  - If the person is confined to bed and/or does not move in a chair because of illness, injury or physical disability.
Question 4 – Toileting

This does not include moving to the toilet/commode OR continence.

When using the toilet/commode (transferring on and off, adjusting clothing and attending to perineal hygiene) the person:

1 – Is independent with or without a catheter, colostomy or continence pad
   e.g. raised toilet seat, hand rails

2 – Needs physical assistance, complete assistance OR
   Encouragement, prompting or supervision from one person
   i.e. performs majority of the tasks, needs some assistance in transferring or adjusting clothing, positioning continence pad or needs an initial prompt or supervision because of lack of awareness or risk/fear of falling or needs equipment or adaptation set up but no further help.

3 – Requires complete physical assistance from two or more people
   OR Does not use the toilet OR Requires assistance to manage their catheter or colostomy
Guidelines

This question relates to a person’s ability to use a toilet or commode.

Select 1:
- If the person is able to use the toilet or commode independently with or without the use of any equipment or adaptations, e.g., raised toilet seat, handrails, etc. This includes those persons who independently manage a catheter or colostomy or continence pads.

Select 2:
- If the person requires minimal physical assistance from one person to use the toilet or commode, but performs the majority of the tasks themselves, e.g., if the person needs a small amount of assistance in transferring on and off the toilet, or in adjusting clothing (including positioning of continence pad).
- If the person requires encouragement, prompting or supervision to use the toilet or commode because of a lack of motivation, fear of falling, confusion or memory loss, but does not require physical assistance.
- If the person uses any equipment or adaptation that requires one person either to set it up or to supervise its use.
- If the person has difficulties using the toilet because of frailty, disability or lack of awareness.

Select 3:
- If the person requires complete assistance with all aspects of using the toilet.
- If the person does not use the toilet or alternative receptacle because of physical disability or injury, or because they require assistance to manage their catheter or colostomy or continence pad.
Question 5 – Dressing

Is the person able to put on, take off, secure and unfasten all garments in an appropriate manner including following the use of the toilet, putting on and taking off braces, artificial limbs or other surgical appliances:

1 – **Dresses without difficulty with or without using equipment or an adaptation**
   e.g. hand rails, shoe horn

2 – **Needs physical assistance, complete assistance OR**
   **Encouragement, prompting or supervision from one person**
   i.e. needs physical help with one or more aspect of the task (e.g. putting on socks, fastenings) or needs someone present in order to start the task, because the person lacks confidence/motivation or has a fear of falling or other anxiety or has forgotten how to perform the task.

3 – **Requires complete physical assistance from two or more people**
   i.e. needs physical help with one or more aspect of the task due to disability even if it is minimal, or does not perform the task because of disability
Guidelines

This question relates to a person’s ability to dress appropriately.

Select 1:
• If the person is able to dress independently with or without the use of any equipment or adaptations, e.g., handrails, etc.

Select 2:
• If the person has difficulty with one aspect of the task (e.g., putting on socks and shoes), even if they have no difficulty with another aspect (e.g., putting on trousers or shirt).
  • If the person lacks confidence or motivation to perform the task, but is able to do so when prompted or encouraged. This includes, for example, someone who requires clothing to be laid out for them, but is able to dress themselves once this has been done.
  • If the person will not perform the task without someone present because of a fear of falling, a phobia or other anxiety disorder.
  • If the person has forgotten how to perform the task, or is unable to perform it safely because of cognitive impairment or confusion.

Select 3:
• If the person requires physical assistance or support from others (for whatever reason), even if it is minimal.
  • If the person requires physical assistance for one aspect of the task (e.g., putting on socks and shoes), even if they require no assistance for another aspect (e.g., putting on trousers or shirt).
  • If the person does not perform the task because of disability.
Question 6 – Continence

Which of the following statements have applied to this person in the last 7 days:

The person is incontinent of urine:

A1 – Never

A2 – More than once a week but not daily

A3 – Once in each 24-hour period

A4 – Two or three times in each 24-hour period

A5 – Four times or more in each 24-hour period

The person is incontinent of faeces:

B1 – Never

B2 – More than once a week but not daily

B3 – Once in each 24-hour period

B4 – Two or three times in each 24-hour period

B5 – Four times or more in each 24-hour period
### Guidelines

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What if incontinence pads are worn?</td>
<td>What would happen if there was no intervention?</td>
</tr>
<tr>
<td>What if the person is catheterised/? has a urosheath?</td>
<td>How often is the person actually wet? e.g. has it bypassed?</td>
</tr>
<tr>
<td>Deliberate soiling/wetting?</td>
<td>Point out that the question asks how often they are actually incontinent irrespective of why this happens.</td>
</tr>
<tr>
<td>How would you classify dribbling?</td>
<td>Is it sufficient to cause a change of clothes or attention? If yes then counts as incontinence.</td>
</tr>
<tr>
<td>What if the person is regularly taken to the toilet and therefore don’t soil themselves?</td>
<td>How often are they actually incontinent?</td>
</tr>
<tr>
<td>How would you classify slight soiling of attention?</td>
<td>Is it sufficient to cause a change of clothes for clothes?</td>
</tr>
<tr>
<td></td>
<td>If yes, then choose the category that best reflect how often.</td>
</tr>
<tr>
<td>What if the persons are given suppositories and only soil themselves after having them?</td>
<td>Point out that the question asks how often the person is incontinent irrespective of why this happens.</td>
</tr>
<tr>
<td>What if the person has a colostomy/ileostomy?</td>
<td>Although this question is quite separate from that of toileting, if a person has a stoma, colostomy or ileostomy that is malfunctioning or leaking causing incontinence, the appropriate response should be made above.</td>
</tr>
</tbody>
</table>
Mental Health Guidelines

At this stage give them these Guidelines emphasising the change in timescale from seven days to thirty days.

- The next set of questions refer to the last four weeks rather than seven days.
- The responses to the questions will clearly be subjective in nature. However, in all cases, they should be based on the professional judgement of the respondent.
- If a person presents a particular behaviour, please indicate this. In some cases, the presentation of certain behaviours may not pose a problem to the person or others.
- Indicate the frequency with which the behaviour is presented, irrespective of whether it poses a problem to the person or to others.
- Please remember that these questions are over the last four weeks.
- Focus only on the last four weeks, even if the person has displayed certain behaviours frequently in the past, but not in the last four weeks. It is recognised that the successful treatment and management of certain mental illnesses may result in a reduction in the frequency of some behavioural problems.
Question 7 – Verbal Aggression

Is the person verbally aggressive towards other people, animals or objects…

1 – Never, or less than three times in the last four weeks

2 – More than once a week but not daily

3 – Once a day, on average

4 – More than once a day

5 – Throughout the day
Question 8 – Co-Operation

Is the person uncooperative or resistant to help with their care...

Such as:
  • refusal to co-operate with their care
  • or because of cognitive impairment and/or confusion will only co-operate with treatments/interventions such as medications when given repeated explanation and encouragement

1 – Never, or less than three times in the last four weeks
2 – More than once a week but not daily
3 – Once a day, on average
4 – More than once a day
5 – Throughout the day
Guidelines

Resistiveness may include not only a person’s active refusal to co-operate with their care, but also to situations where a person apparently agrees to receive care, but then is consistently unavailable at the time the care is due to be delivered or who because of cognitive impairment and/or confusion will only co-operate with treatments/interventions such as medications when given repeated explanation and encouragement.
Question 9 – Risk

Has the person’s behaviour constituted a risk of harm to themselves or others including dangers relating to accidental explosion, fire, poisoning (including medication, food), scalding, disorientation in the home, wandering, absconding, falls, inappropriate sexual behaviour, abuse (e.g. emotional, verbal, physical, financial, sexual) etc…

1 – Never, or less than three times in the last four weeks

2 – More than once a week but not daily

3 – Once a day, on average

4 – More than once a day

5 – Throughout the day
Question 10 – Immediate Intervention

Have there been episodes of a problem behaviour so severe, risky or disruptive that care staff have had to drop what they are doing to intervene immediately including accidental explosion, fire, poisoning (including medication, food or carbon monoxide poisoning), scalding, wandering, absconding, falls, inappropriate sexual behaviour, abuse (e.g. emotional, verbal, physical, financial, sexual) etc…

1 – Never, or less than three times in the last four weeks

2 – More than once a week but not daily

3 – Once a day, on average

4 – More than once a day

5 – Throughout the day
Appendix 4 - Care Home & Staffing Form

Care Home Staffing Project Care Home & Staff Form v.9 (11/2006)
(Please see the attached EXAMPLE to help in filling this out)

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>Salary or Mid-point salary scale £ (note 2)</th>
<th>Total number of staff working during the week (note 3)</th>
<th>Total weekly time excluding unpaid breaks (hours) (note 4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of visit: ___________________   Name:____________________
Location code:                   Unit:_____________________
Care commission No:_______________ Postcode:_________________

All Staff inputs for week preceding date of visit for Unit - this includes all staff that work at the Care home whether or not they are directly paid by the Care home: if staff time is split between units please estimate the time spent in unit

PLEASE SEE NOTES

Name of Contact:_________________________
email:_________________________________
phone:_________________________________
fax:___________________________________
<table>
<thead>
<tr>
<th>Management staff (note 5)</th>
<th>Midpoint Salary £</th>
<th>Total number of staff working during the week</th>
<th>Total weekly time (hours) excluding breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank Staff (Nursing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agency Staff (Nursing)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank staff (care staff)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agency staff (care staff)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>District Nurse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Psychiatric Nurse</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other Health/Care Professionals</th>
<th>Midpoint Salary £</th>
<th>Total number of staff working during the week</th>
<th>Total weekly time (hours) excluding breaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Occupational Therapist</td>
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</tr>
<tr>
<td>Physiotherapist</td>
<td></td>
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<tr>
<td>Chiropodist</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Activities coordinator</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Other staff (specify)</td>
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<tr>
<td>Other Health/Care Professionals cont.</td>
<td>Midpoint Salary</td>
<td>Total number of staff working during the week</td>
<td>Total weekly time (hours) excluding breaks</td>
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<td>---------------------------------------</td>
<td>-----------------</td>
<td>---------------------------------------------</td>
<td>------------------------------------------</td>
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<tr>
<td>Other staff (specify)</td>
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<tr>
<td>Other staff (specify)</td>
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<tr>
<td>Other staff (specify)</td>
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<tr>
<td>Other staff (specify)</td>
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<td></td>
<td></td>
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<tr>
<td>(not covered)</td>
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<td></td>
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<tr>
<td>Absent posts (note 7)</td>
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<td></td>
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<tr>
<td>(not covered)</td>
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<tr>
<td>(not covered)</td>
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<tr>
<td>Sleep In</td>
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<tr>
<td>Sleep In</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Voluntary workers and relatives:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approximate total hours caring input per week:</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

CARE HOME CHARACTERISTICS
**Number of residents (on day):**

**Number of vacancies (on day):**

Number of floors in Unit:

Type of Unit:__________________________________

Number of floors in Care Home:

Number of Units in Care Home:

Do you have the below specialist equipment (please tick appropriate box):

- Sensor pads (beds, chair, floor):  Yes ☐  No ☐
- Nurse/carer call systems:    Yes ☐  No ☐
- Panic Button:               Yes ☐  No ☐
- Fall and movement sensors:  Yes ☐  No ☐
- Electronic tags/pendants:    Yes ☐  No ☐
- Entry or exit alarm systems: Yes ☐  No ☐
- Locked entry or exit doors:  Yes ☐  No ☐
- CCTV/Video surveillance:    Yes ☐  No ☐

**IF** you have specialist beds e.g. respite beds, please fill out table below.

<table>
<thead>
<tr>
<th>Type of bed</th>
<th>Number of bed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Are there lifts in your unit that can be used for residents?  Yes ☐  No ☐

Number of lifts:  

Any special circumstances of the facility or the area that may have an impact on your staffing levels? (please specify below).

Please note here if you buy in catering, domestic, maintenance or gardening services on a contract basis, indicate approximately what you pay for these services on a monthly or weekly basis.
PLEASE RETURN TO THE INTERVIEWER DURING THEIR VISIT OR POST TO:
Care Home Staffing Project Team, ISD Data Intelligence Group, Gyle Square,
1 South Gyle Crescent, Edinburgh EH12 9EB.

TEL: 0131 275 6695 IF YOU HAVE ANY QUERIES REGARDING COMPLETION OF THIS FORM.

THANK YOU FOR TAKING THE TIME TO PROVIDE US WITH THIS INFORMATION
Notes to accompany Care Home Staffing Project: Care Home & Staff Form

1. **Functional Classification** should be completed for all staff. Registered Nurses, Level 1 should be classified as N1, Registered Nurses, Level 2 should be classified as N2. Please see the next page for a list of staff functional classifications to use.

2. **Salary or Mid-point salary scale** (where known)
   Please record the actual rate of pay (if a single value) or the mid point of the salary range here – you can use an hourly rate (e.g. £6/hr) or a sessional rate (e.g. £40/sess), or a monthly or annual salary (e.g. £800/month or £7000/yr) – whichever is easiest and makes most sense for you – but please specify what you are recording for each grade.

3. **Total number of staff working during the week** – please fill this in for each grade of staff to show the number of individuals irrespective of whether they are part time or full time.

4. **Total weekly time excluding unpaid breaks** – this should show that actual number of hours in total that all the staff of each grade worked during the week – this should exclude the unpaid time for breaks and handover but should include any paid breaks and any overtime (paid or not).

5. **Management Staff** - this section should be used to record all management time, using the appropriate functional classification. Where a manager's (or deputy's) time is divided between management and direct care, the direct care time should be recorded in the earlier section of the form. Where appropriate a combination of functional and nursing classifications can be used (for example C5C for management time and N1 for nursing input).

6. **Vacant posts** (not covered) should be noted if other staff are not filling in the hours for them – if they are, then please put in their hours under the relevant staff section in addition to their own hours.

7. **Absence** (not covered) should be noted where a member of staff is on holiday, off sick, on training etc – and their hours are **not** being filled by other members of staff, but they are still being paid.
<table>
<thead>
<tr>
<th>Code</th>
<th>Functional category</th>
<th>Function description</th>
<th>Sub-categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>N1</td>
<td>Registered Nurse</td>
<td>Registered Nurses, Level 1 should be classified as N1.</td>
<td></td>
</tr>
<tr>
<td>N2</td>
<td>Registered Nurse</td>
<td>Registered Nurses, Level 2 should be classified as N2.</td>
<td></td>
</tr>
</tbody>
</table>
| C0   | Administrative worker | Ancillary staff whose main remit is to provide administrative, clerical and business support and who normally have little direct, and no unsupervised contact with service users. | C0A – Secretarial/clerical  
C0B – Finance/Accounts  
C0C – Human Resources/Training  
C0X – Other Administrative |
| C1   | Ancillary worker    | Ancillary staff whose main remit is not providing care but who normally have direct, often unsupervised contact with service users. | C1A – Catering  
C1B – Domestic Services  
C1C – Portering  
C1D – Gardening  
C1E – Building Maintenance  
C1X – Other Ancillary |
| C2   | Level 2 Care worker | Staff who provide direct personal physical, emotional, social or health care and support to service users and are accountable for dealing with routine aspects of a care plan or service. These staff usually have no supervisory responsibility. | C2A – Routine Care/Support Work (other than Home Care, Care Home and AHP assistance))  
C2B – Home Care  
C2C – Routine Care/Support Work (Care Home)  
C2D – Allied Health Profession assistance  
C2X – Other Level 2 Care work |
| C3   | Level 3 Care worker | Staff who supervise the delivery of particular aspects of care and services in a particular setting which usually involves supervising other staff on a day-to-day basis (eg. Meals Supervisor, Chargehand, Day Care Instructor, Senior Care Assistant). Staff may also contribute to the assessment of care needs, the development/implementation of care plans and the monitoring/evaluation of the delivery of care and services, as required. | C3A – Senior Care worker (Other than Day care/Care home)  
C3B – Senior Care worker (Day care)  
C3C – Senior Care worker (Care home)  
C3X – Other Level 3 Care work |
<table>
<thead>
<tr>
<th>Code</th>
<th>Functional category</th>
<th>Function description</th>
<th>Sub-categories</th>
</tr>
</thead>
</table>
| C4   | Level 4 Care worker| Staff responsible for the assessment of care needs, the development/implementation of care plans, the delivery of care and services and the monitoring/evaluation of the delivery of care and services within a specific setting. Staff work with minimal supervision, are likely to but don’t necessarily supervise other staff and may be designated to take charge of a discrete service delivery area in the absence of the person with continuing responsibility. | C4A – Social Worker  
C4B – Deputy Unit/Project Manager  
C4C – (Senior) Allied Health Professional  
C4X – Other Level 4 Care work |
| C5   | Unit/Project manager| Staff with continuing responsibility for the management of care and service provision in a discrete service delivery area (eg a single service care home, a service delivery unit in a care home with multiple services, a specific project involving a number of professional staff, a social work team). Staff are responsible for monitoring and maintaining standards of care and the management/deployment of staff and other resources in that service delivery area. | C5A – Senior Social Worker/Team Leader  
C5B – Project Manager  
C5C – Care Home manager (single service)  
C5D – Other Service Delivery Unit Manager  
C5X – Other Unit/Project Manager |
| C6   | Group manager      | Staff with continuing overall responsibility for the management of care and service provision in two or more discrete service delivery areas (eg a group of care homes, a care home comprising a number of service delivery units, a number of projects, a number of social work teams). Staff are responsible for monitoring and maintaining standards of care, setting aims and objectives and the management/deployment of staff and other resources across those service delivery areas. | C6A – Service Delivery Unit Group Manager  
C6B – Project Group Manager  
C6C – Care Home Group manager (single home with multiple services, or group of homes)  
C6X – Other Group Manager |
| C7   | Director/Chief Executive | Staff with the highest level of continuing overall responsibility for the management of care and service provision in the organisation. Staff at this level have a given place on the organisation’s governing body (eg the management board) with a major say in overall strategic direction, organisational policy and the deployment of financial, human and physical resources. | C7A – (Deputy) Director of Social Work/Chief Social Work Officer  
C7B – (Deputy) Director of Independent Social Care Organisation  
C7C – Care Home Owner (single or group)  
C7X – Other Director/Chief Executive |
Staffing Estimate Interview Script IoRN-CH (v2)
Staffing Estimate Interview

Introduction

a. This is part of the study we are carrying out in this home to test a measure of resident characteristics.

b. Some of your residents will use up more staff time than others.

What we want to do is to find out your estimates of the relative amount of time that is required to care for each resident.

Example

First of all I will show you an example of the approach we will be following.

Give respondent card.
Example Card

Suppose we have five residents:

John    Mary    William    George    Sarah

I would begin by asking:

“Who uses the most staff resources?”

Answer: Mary

I would then ask:

“Who uses the least staff resources?”

Answer: George

The next question would be:

“How much more resources does Mary use when compared with George. Two times? Three times? Four times? Five times? etc.”

Answer: Four times

So what we would have is a scale of 1 to 4 with Mary at the top end and George at the bottom.

1X   2X   3X   4X
George Sarah John Mary

I would then ask you to consider all the other residents. And what we would end up with would be something like this:

1X   2X   3X   4X
George Sarah John Mary
Part 1

a. We’re going to use the same kind of approach to quantify the amount of staff resource which is used for each resident in this home.

b. The first thing I would like to do is to check that I have the names of all the residents in this home.

or (if you already have the residents’ names written on the cards)

Could I just check that I have the names of everyone in this home.

c. For all the questions I am about to ask, I would like you to concentrate on the last seven days.
Part Two

a. Now, thinking about care staff time, which resident do you think uses the most staff resources.

Prompt them to consider all aspects of care when thinking about their residents

(You can accept more than one name)

b. And which resident uses the least staff resources?

(You can accept more than one name)

c. Now, thinking about .......... and ............... could you tell me how much more resources .......... uses than ........

(if you remember in the example it was expressed as ‘so many times more’)

Do not prompt initially. If the respondent has difficulty you may prompt by asking, “is it two times, three times, four times, or more?”.

d. What I can now do is put .......... under the ........ times marker and ........... under the 1 times marker.

So I can now put the (whole integer) cards in between to act as a guide for when we are considering the other residents. If you want I can put markers in for half increments or even quarter increments (point to the appropriate markers).

If the ratio between the highest and lowest is two or less use the half and quarter increment cards.
e. So thinking about the amount of staff resources needed for ...........

pick any of the other resident’s cards at random

is the amount of resources required for ....... about the same ....... (highest) or about the same as ............ (lowest), or some point in between ?

Where would you put them ?

Then pick the card for another resident at random and repeat i.

Continue this until all residents have been scored.

Part Three

a. So you have said that takes up the least amount of care staff resources, that ....... takes x times that amount, that ........ takes y times that amount (etc.) ........ and ......

takes the most amount of staff time.

b. Do you think that does reflect the relative amount of time spent on each person ?

If the respondent replies “no”, then give them the opportunity to change the placing on the board.

On the left hand side of each residents’ card mark down the relevant score they have been given.

Finally, thank your interviewee for their responses and remove the resident names from the cards before leaving.
Dear

RE: CARE HOME STAFFING PROJECT (CHSP)
Further to the recent interview with thanks again for taking the time to complete the CHSP dependency questionnaire and the staffing form.

I now enclose two documents to help us with validation of the data. The first document contains the responses you provided from the dependency questions on behalf of your residents (e.g., transferring position, eating, using the toilet, personal care and mental health questions).

The second document provides a summary of the information you provided on the staffing form. This document shows the hours and total staff employed for each functional classification in the week preceding the date of the interview. We would be interested to know if this is a typical week for your unit in terms of staffing input and if not the reason why. We would also like to confirm that the information provided includes paid breaks and paid handovers but excludes unpaid breaks and unpaid handovers.

I would also be very grateful if you could read through the two documents to identify whether there are any inaccuracies or inconsistencies. I would be very grateful if you could complete the attached form and return to us in the enclosed pre-paid envelope. We will then produce an interim report which will provide a summary of the dependency and care needs of your residents. If you have any queries with enclosed information please do not hesitate to contact Kathy McGregor on 0131 275 6551.

Thank you again for your time and input.

Yours sincerely,

Kathy McGregor
Senior Development Officer
1. Is this a typical week for your unit in terms of staffing input?

   YES/NO (Please circle)

If NO please state the reason why:

2. Can you confirm that the information provided includes paid breaks & paid handovers but excludes unpaid breaks and unpaid handovers

   YES/NO (Please circle)

If NO can you state the additional hours below:

If you could complete the attached form and return to us in the enclosed pre-paid envelope.
Name of Home - Collection Of Care Home Staffing Project Data

October 2006

Resident Code: PH01

Eating - Eats with encouragement, prompting or supervision - C. Requires additional nutritional supplements throughout the day in order to receive appropriate nutrition
Transferring Position - Transfers independently and safely using equipment or adaptations
Moving Location - Requires encouragement, prompting or supervision of one person - B. Requires encouragement, prompting or supervision of one person throughout until the move is completed
Toileting - Needs physical assistance
Washing hands and face - Cannot do without physical assistance from others
Complete wash - Requires prompting, guidance, supervision or encouragement - B. Requires prompting, guidance, supervision or encouragement throughout until the task is completed
Washing hair - Cannot do without physical assistance from others
Dressing - Requires prompting, guidance, supervision or encouragement - A. Requires minimal prompting, guidance, supervision or encouragement but is then independent
Making A Light Snack - Without difficulty
Preparing A Hot Drink - Cannot do without physical assistance from others
Making A Main Meal - Cannot do without physical assistance from others
Cognitive Impairment - Mild but definite forgetfulness
Communicating Needs - Yes – verbally understood by most people
Bowel Management - More than once a week but not daily
Recreational Activities - Can participate independently in a range of activities provided the activity is initially set up for them
Conditions/Interventions/Treatments - BMI of less than 20
Urinary Incontinence - Two or three times in each day
Faecal Incontinence - More than once a week but not daily
Anxiety - Never, or less than three times in the last four weeks
Disruption - During the Day - Never, or less than three times in the last four weeks
Disruption - During the Night - Never, or less than three times in the last four weeks
Verbal Aggression - Once a day, on average
Uncooperative - Throughout the day
Difficulty with Relationships - Yes
Behaviour which puts them at Risk - More than once a week but not daily
Immediate Intervention for Behaviours - Never, or less than three times in the last four weeks
Monitoring Behaviour - Yes – this requires little or no extra time

Resident Code: PH02

Eating - Eats with encouragement, prompting or supervision - A. Eats with minimal encouragement, prompting or supervision
Transferring Position - Needs the physical assistance of one person with or without equipment
Moving Location - Requires encouragement, prompting or supervision of one person - B. Requires encouragement, prompting or supervision of one person throughout until the move is completed
Toileting - Requires complete physical assistance from one person
Washing hands and face - Requires prompting, guidance, supervision or encouragement
Complete wash - Cannot do without the physical assistance from one person
Washing hair - Cannot do without physical assistance from others
Dressing - Cannot do without the physical assistance from one person
Making A Light Snack - Without difficulty
Preparing A Hot Drink - Cannot do without physical assistance from others
Making A Main Meal - Cannot do without physical assistance from others
Cognitive Impairment - Marked forgetfulness to the point that some activities are disrupted
Communicating Needs - Yes – verbally understood by most people
Bowel Management - More than once a week but not daily
Recreational Activities - Can participate independently in a range of activities provided the activity is initially set up for them
Urinary Incontinence - Two or three times in each day
Faecal Incontinence - More than once a week but not daily
Anxiety - Never, or less than three times in the last four weeks
Disruption - During the Day - Never, or less than three times in the last four weeks
Disruption - During the Night - Never, or less than three times in the last four weeks
Verbal Aggression - Never, or less than three times in the last four weeks
Uncooperative - Never, or less than three times in the last four weeks
Difficulty with Relationships - No
Behaviour which puts them at Risk - Never, or less than three times in the last four weeks
Immediate Intervention for Behaviours - Never, or less than three times in the last four weeks
Monitoring Behaviour - No, this is not required

Etc. – these responses are given for every resident that is in the home
## Appendix 8 - Methodology Task Group Membership

<table>
<thead>
<tr>
<th>Name</th>
<th>Organisation</th>
<th>Telephone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>
## Appendix 9 - Membership of the Joint Future Implementation Advisory Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kevin Woods (Jt Ch)</td>
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</tr>
</tbody>
</table>
Appendix 10 - Membership of the Development Group

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<th>email</th>
</tr>
</thead>
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</tr>
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<td>David Meikle, SEHD</td>
<td><a href="mailto:david.meikle@gsi.gov.uk">david.meikle@gsi.gov.uk</a></td>
</tr>
<tr>
<td>Marion Mullan, Care commission</td>
<td><a href="mailto:Marion.Mullan@carecommission.com">Marion.Mullan@carecommission.com</a></td>
</tr>
<tr>
<td>Margaret Quinn, ISD</td>
<td><a href="mailto:margaret.quinn@isd.csa.scot.nhs.uk">margaret.quinn@isd.csa.scot.nhs.uk</a></td>
</tr>
<tr>
<td>Winona Samet, SEHD (Chair)</td>
<td><a href="mailto:winona.samet@scotland.gsi.gov.uk">winona.samet@scotland.gsi.gov.uk</a></td>
</tr>
</tbody>
</table>
## Appendix 11 - Membership of the Reference Group

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ian Buchan</td>
<td><a href="mailto:BuchanAssociates@AOL.com">BuchanAssociates@AOL.com</a></td>
</tr>
<tr>
<td>Janette Clark, CCPS</td>
<td><a href="mailto:jclark@hsha.org.uk">jclark@hsha.org.uk</a></td>
</tr>
<tr>
<td>Evelyn Devlin, Local Authority</td>
<td><a href="mailto:Evelyn.Devlin@southlanarkshire.gsx.gov.uk">Evelyn.Devlin@southlanarkshire.gsx.gov.uk</a></td>
</tr>
<tr>
<td>J Forteath, Local Authority</td>
<td><a href="mailto:ForteathJ@angus.gsx.gov.uk">ForteathJ@angus.gsx.gov.uk</a></td>
</tr>
<tr>
<td>Harry Garland, COSLA (Chair)</td>
<td><a href="mailto:Harry.garland@orkney.gov.uk">Harry.garland@orkney.gov.uk</a></td>
</tr>
<tr>
<td>Barbara Graham, ISD</td>
<td><a href="mailto:barbara.graham@isd.csa.scot.nhs.uk">barbara.graham@isd.csa.scot.nhs.uk</a></td>
</tr>
<tr>
<td>Peter Knight, ISD</td>
<td><a href="mailto:Peter.Knight@isd.csa.scot.nhs.uk">Peter.Knight@isd.csa.scot.nhs.uk</a></td>
</tr>
<tr>
<td>Ian Macmaster, Scottish Care</td>
<td><a href="mailto:ian.macmaster@scottishcare.org">ian.macmaster@scottishcare.org</a></td>
</tr>
<tr>
<td>Joan McGregor, Four Seasons</td>
<td><a href="mailto:joan.mcgregor@fshc.co.uk">joan.mcgregor@fshc.co.uk</a></td>
</tr>
<tr>
<td>Kathy McGregor, ISD</td>
<td><a href="mailto:Kathy.McGregor@isd.csa.scot.nhs.uk">Kathy.McGregor@isd.csa.scot.nhs.uk</a></td>
</tr>
<tr>
<td>David Meikle, SEHD</td>
<td><a href="mailto:David.Meikle@scotland.gsi.gov.uk">David.Meikle@scotland.gsi.gov.uk</a></td>
</tr>
<tr>
<td>Marion Mullan, Care Commission</td>
<td><a href="mailto:marion.mullan@carecommission.com">marion.mullan@carecommission.com</a></td>
</tr>
<tr>
<td>Margaret Quinn, ISD</td>
<td><a href="mailto:Margaret.Quinn@isd.csa.scot.nhs.uk">Margaret.Quinn@isd.csa.scot.nhs.uk</a></td>
</tr>
<tr>
<td>Winona Samet, SEHD</td>
<td><a href="mailto:winona.samet@scotland.gsi.gov.uk">winona.samet@scotland.gsi.gov.uk</a></td>
</tr>
<tr>
<td>Daniel Stoddart, Scottish Social Services Council</td>
<td><a href="mailto:daniel.stoddart@sssc.uk.com">daniel.stoddart@sssc.uk.com</a></td>
</tr>
<tr>
<td>Lesley Toner, Care Commission</td>
<td><a href="mailto:lesley.Toner@carecommission.com">lesley.Toner@carecommission.com</a></td>
</tr>
<tr>
<td>Alex Wilson</td>
<td><a href="mailto:alex.wilson@barchester.com">alex.wilson@barchester.com</a></td>
</tr>
<tr>
<td>Katie Wood, Care Commission</td>
<td><a href="mailto:Katie.Wood@carecommission.com">Katie.Wood@carecommission.com</a></td>
</tr>
</tbody>
</table>
Appendix 12 - Care Commission Method Sample Staffing Schedule

Regulation of Care (Scotland) Act 2001
Staffing Schedule

This staffing schedule is attached in respect of Condition Number 2 of the Certificate of Registration of: 1st February 2006

St. Aganacia’s Care Home

“A provider shall, having regard to the size and nature of the service, the statement of aims and objectives and the number and needs of the service users, ensure that at all times suitably qualified and competent persons are working in the care service in such numbers as are appropriate for the health and welfare of services users.” SSI 114/2002 Regulation 13

The minimum number of direct care / support hours delivered to service users over a 24 hour period at full occupancy shall be deployed as shown below:

The provider shall ensure that the needs of the service users are being met at all times. This may require an increase in staffing at given times above that set out in the table below.

<table>
<thead>
<tr>
<th>Times</th>
<th>Minimum number of staff assuming full occupancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RNs/Senior Care Staff</td>
</tr>
<tr>
<td>Early</td>
<td></td>
</tr>
<tr>
<td>7.00 – 12.00</td>
<td>1</td>
</tr>
<tr>
<td>Lunchtime</td>
<td></td>
</tr>
<tr>
<td>12.00 – 14.00</td>
<td>1</td>
</tr>
<tr>
<td>Late</td>
<td></td>
</tr>
<tr>
<td>14.00 – 21.00</td>
<td>1</td>
</tr>
<tr>
<td>Night</td>
<td></td>
</tr>
<tr>
<td>21.00 – 7.00</td>
<td>1</td>
</tr>
</tbody>
</table>

100% of the person in charge’s time (or person acting in their absence) shall be supernumerary.

Date of Issue: 30th January 2006
CS2003011184
Appendix 13 - Time Estimate Method Appendices

Time Estimate Method for Informing Staffing in Care Homes

Outline
To use time values to provide a minimum staffing level in hours per week.

Proposal
To use a selection of ADL (Activities of Daily Living), clinical and mental health questions to profile a residents’ time requirements over a week and so build up a picture of the home as a whole.

Requirements
Data for required questions – Collected as part of the project
Additional Time values – These would need to be collected for robustness purposes

The times used in the example below are from anecdotal evidence collected in the field and estimates based on experience.

Questions Used
- Eating
- Toileting + Continence
- Moving + Transferring
- Dressing
- Washing Hands/Face + Bathing
- Anxiety + Disruption + Risk
- Activities
- Medical Treatments/Conditions/Interventions
- Co-operation

This consists of 14 questions at present and they represent 9 groups, it might be possible to merge these questions into 9 to fit the groupings.

Method
For each answer there would be a time value associated with it (in minutes). In addition a frequency for each can be calculated (for example Eating – three meals a day). The following shows how this might be calculated:

Note that Co-operation is used as a multiplier as a way of estimating the behavioural impact on assisting residents. This might not be adequate enough to represent this element and other mental health indicators might be required.
3.4.2 Background

To give a background to the TET what follows is a comparison of the data collected in the study with some of the papers from the Literature Search. During the literature search two papers were found to support the findings of the TET.

- I-chuan Li and Teressa Jeo-chen Yin (2005). Care needs of residents in community-based long-term care facilities in Taiwan. Journal of Clinical Nursing; 14, 711-718

Overview of Papers

Shih/Hartzema/Tolleson-Rinehart look at the use and costs of caring activities with varying facilities nursing, intermediate care and residential settings. They also compare the difference in activity time on whether the activity is completed by a nursing assistant or not. There is also a particular focus on urinary incontinence in respect of cost savings. Li/Yin look at long-term care facilities and undertake a survey of activities undertaken within the homes. The study highlights various areas such as incontinence, turning and medication that take up nursing assistants time.

Both studies include times in minutes associated with various activities. The times garnered from their research and comparable to times from the CHSP.

It should be noted that the times from Li/Yin are amalgamated times divided by the number of residents and is therefore a mean of the time undertaken on a daily basis not on a per activity basis. The Shih/Hartzema.Tolleson-Rinehart paper estimates a mean per activity variable by location and member of staff. It is therefore difficult to directly compare the values from each paper, as the details of what they represent are not clearly defined. In both papers there is no consideration for dependency needs. The TET values listed are averages of those that require assistance, and exclude those that do not require any assistance.

Comparison of Papers with Data Collected

Eating
The TET value of 37.5 minutes per day per resident matches well with the Li/Yin paper at 38.5 minutes and when the score is taken per meal the value does not compare well with Shih/Hartzema/Tolleson-Rinehart at 22 minutes on average. However the TET assumes three meals a day and a mixed ability average.
Dressing
The values from the TET compare well with the Shih/Hartzema/Tolleson-Rinehart paper, at 12.5 minutes per activity as opposed to an average of 10. There was a variable for dressing in the Li/Yin paper but this was not quoted in the paper.

Bathing
The value given in Li/Yin compares very well with the proxy used in the TET. The value from Yin/Lin of 21.2 minutes per day is likely to be an average for the residents over a week, though it might be a daily value. The TET value is an average over a week given as a daily value. Shih/Hartzema/Tolleson-Rinehart list bed bathing rather than general bathing, these also give an average value of 19.25 and 20.50 minute per bath. This compares well even given the relative frequencies (possibly one bath per week) that might be taking place. It was found during collection of the TET that there is considerable variation in the time taken to bath residents.

Incontinence Care
Dealing with individual incidences of incontinence as an average the TET value of 10 minutes compares well with the average from Shih/Hartzema/Tolleson-Rinehart of 9.13 or 11.58 minutes depending on the staff member. Li/Yin does cover catheter care and pad changing but these do not cover changing clothes and hygiene.

Take to Bathroom
This again shows good correlation with the Shih/Hartzema/Tolleson-Rinehart value of 11.67 and 7.93 minutes compared to the TET value of 10.00 minutes. There is a discrepancy between the nursing and non-nursing staffing of 3 minutes. Again however with the Li/Yin paper the variable was collected but not reported on.

Medical
As the values for the medical conditions were of great variability and based on generalised questions this variable does not appear as an individual value in the TET. From the Li/Yin paper they receive 52.5 minutes per resident per day for medication. However there will be medical activities occurring in care homes, therefore further work would need to be done to incorporate a realistic value for medical input. There will be variation in medical care between the different settings (nursing, residential and mixed).

Conclusion
Overall these papers gave some backing to the findings of the TET questionnaire and highlighted that it is a valid approach to this area of work.
3.4.3 Collection

For the TET methodology extra information was required to see if there were consistent minute values for the various activities undertaken within the homes. Therefore a TET questionnaire was developed (Appendix 13) and administered in 26 homes with 4 homes providing two questionnaires from two different members of staff.

The TET questionnaire covers 10 questions from the CHSP questionnaire that are directly related to the daily activities of residents and that cover the four themes of the TET methodology. With each question in the TET questionnaire the respondent was asked to give the average time it would take to complete the described activity where relevant. This data was then collated in SPSS for analysis.

Three methods of analysis were employed:
- Median/Mean Comparison
- Skewness/Kurtosis
- Correlation (Pearson’s and Spearman’s)

Table 3.4.3.1: Median/Mean

<table>
<thead>
<tr>
<th>Physical Care</th>
<th>Valid</th>
<th>Mean</th>
<th>Median</th>
<th>Diff %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Food</td>
<td>29</td>
<td>6.17</td>
<td>4.00</td>
<td>35.2</td>
</tr>
<tr>
<td>Minimal Assistance with Eating</td>
<td>28</td>
<td>9.27</td>
<td>7.75</td>
<td>16.4</td>
</tr>
<tr>
<td>Complete Assistance with Eating</td>
<td>28</td>
<td>25.00</td>
<td>20.00</td>
<td>20.0</td>
</tr>
<tr>
<td>Tube Feeding</td>
<td>9</td>
<td>11.17</td>
<td>12.00</td>
<td>7.5</td>
</tr>
<tr>
<td>Some Assistance Toileting</td>
<td>30</td>
<td>5.80</td>
<td>5.00</td>
<td>13.8</td>
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<tr>
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<td>6.88</td>
<td>5.50</td>
<td>20.0</td>
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<td>Complete Assistance Toileting</td>
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<td>13.30</td>
<td>12.50</td>
<td>6.0</td>
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<tr>
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<td>29</td>
<td>10.14</td>
<td>10.00</td>
<td>1.4</td>
</tr>
<tr>
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<td>30</td>
<td>11.30</td>
<td>10.00</td>
<td>11.5</td>
</tr>
<tr>
<td>Complete Assistance Dressing</td>
<td>30</td>
<td>20.88</td>
<td>20.00</td>
<td>4.2</td>
</tr>
<tr>
<td>Some Assistance Transferring (Encouragement)</td>
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<td>4.00</td>
<td>3.4</td>
</tr>
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<td>30</td>
<td>5.52</td>
<td>5.00</td>
<td>9.4</td>
</tr>
<tr>
<td>Complete Assistance Transferring (Hoisting)</td>
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<td>11.73</td>
<td>10.00</td>
<td>14.8</td>
</tr>
<tr>
<td>Some Assistance Moving (Encouragement)</td>
<td>30</td>
<td>4.90</td>
<td>4.50</td>
<td>8.2</td>
</tr>
<tr>
<td>Minimal Assistance Moving (Pushing Chair)</td>
<td>30</td>
<td>3.28</td>
<td>2.75</td>
<td>16.2</td>
</tr>
<tr>
<td>Complete Assistance Moving (Walking)</td>
<td>29</td>
<td>8.86</td>
<td>10.00</td>
<td>12.8</td>
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<tr>
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<td>29</td>
<td>5.64</td>
<td>5.00</td>
<td>11.3</td>
</tr>
<tr>
<td>Minimal Assistance Washing Hands</td>
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<td>5.80</td>
<td>5.00</td>
<td>13.8</td>
</tr>
<tr>
<td>Complete Assistance Washing Hands</td>
<td>30</td>
<td>8.07</td>
<td>6.00</td>
<td>25.6</td>
</tr>
</tbody>
</table>
Table 3.4.3.1 shows the different variables collected, with the number of respondents who answered them, the mean and median of the variable and the percentage difference between the mean and median. The results suggest that in the majority of cases there is good correlation between the results. However there are a number of variables where the difference is greater than 20% and these were considered to have too much variation and were not included in the modelling process.

Table 3.4.3.2: Skewness/Kurtosis

<table>
<thead>
<tr>
<th>Physical Care</th>
<th>Skewness</th>
<th>Std. Error</th>
<th>Kurtosis</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cutting Food</td>
<td>2.09</td>
<td>0.43</td>
<td>5.58</td>
<td>0.85</td>
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<td>Minimal Assistance with Eating</td>
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<td>0.44</td>
<td>1.40</td>
<td>0.86</td>
</tr>
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<td>0.62</td>
<td>0.44</td>
<td>-0.77</td>
<td>0.86</td>
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<tr>
<td>Tube Feeding</td>
<td>0.16</td>
<td>0.72</td>
<td>-1.87</td>
<td>1.40</td>
</tr>
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<td>Physical Care</td>
<td>Skewness</td>
<td>Std. Error</td>
<td>Kurtosis</td>
<td>Std. Error</td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>----------</td>
<td>------------</td>
<td>----------</td>
<td>------------</td>
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<td>0.43</td>
<td>0.96</td>
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<td>0.44</td>
<td>-0.15</td>
<td>0.86</td>
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<td>2.43</td>
<td>0.83</td>
</tr>
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<td>2.51</td>
<td>0.85</td>
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<td>0.19</td>
<td>0.83</td>
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<td>0.43</td>
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<td>0.83</td>
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<td>0.43</td>
<td>-0.62</td>
<td>0.83</td>
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<tr>
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<td>1.05</td>
<td>0.44</td>
<td>1.63</td>
<td>0.86</td>
</tr>
<tr>
<td>Some Assistance Moving</td>
<td>2.31</td>
<td>0.43</td>
<td>6.92</td>
<td>0.83</td>
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<td>0.43</td>
<td>-0.12</td>
<td>0.83</td>
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<td>0.58</td>
<td>0.43</td>
<td>-0.04</td>
<td>0.83</td>
</tr>
<tr>
<td>Some Assistance Washing Hands</td>
<td>0.91</td>
<td>0.43</td>
<td>0.58</td>
<td>0.85</td>
</tr>
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<td>3.49</td>
<td>0.43</td>
<td>15.45</td>
<td>0.83</td>
</tr>
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<td>1.01</td>
<td>0.43</td>
<td>0.11</td>
<td>0.83</td>
</tr>
<tr>
<td>Some Assistance Bathing</td>
<td>1.12</td>
<td>0.46</td>
<td>1.89</td>
<td>0.90</td>
</tr>
<tr>
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<td>0.43</td>
<td>0.18</td>
<td>0.83</td>
</tr>
<tr>
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<td>0.45</td>
<td>-0.01</td>
<td>0.87</td>
</tr>
<tr>
<td>Social Care</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Setting up Activities</td>
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<td>5.91</td>
<td>0.95</td>
</tr>
<tr>
<td>Encouragement Activities</td>
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<td>0.97</td>
</tr>
<tr>
<td>Complete Assistance with Activities</td>
<td>1.08</td>
<td>0.52</td>
<td>1.13</td>
<td>1.01</td>
</tr>
<tr>
<td>Mental Health Care</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Calming Anxious Residents Per Incident</td>
<td>4.73</td>
<td>0.43</td>
<td>23.66</td>
<td>0.83</td>
</tr>
<tr>
<td>Calming Disruptive Residents Per Incident</td>
<td>1.26</td>
<td>0.44</td>
<td>1.89</td>
<td>0.86</td>
</tr>
<tr>
<td>Dealing with Risk per Incident</td>
<td>3.36</td>
<td>0.47</td>
<td>13.35</td>
<td>0.92</td>
</tr>
<tr>
<td>Additional Time for Passive Co-operation</td>
<td>1.75</td>
<td>0.44</td>
<td>3.51</td>
<td>0.86</td>
</tr>
<tr>
<td>Additional Time for Resistive Co-operation</td>
<td>2.08</td>
<td>0.44</td>
<td>6.23</td>
<td>0.86</td>
</tr>
<tr>
<td>Additional Time for Aggressive Co-operation</td>
<td>1.74</td>
<td>0.44</td>
<td>3.66</td>
<td>0.86</td>
</tr>
<tr>
<td>Medical Care</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Bedbound</td>
<td>0.84</td>
<td>0.46</td>
<td>-0.08</td>
<td>0.89</td>
</tr>
<tr>
<td>Pain Management</td>
<td>2.77</td>
<td>0.45</td>
<td>8.80</td>
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<tr>
<td>Low BMI</td>
<td>1.81</td>
<td>0.48</td>
<td>2.96</td>
<td>0.93</td>
</tr>
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<td>Infection</td>
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<td>0.46</td>
<td>7.33</td>
<td>0.90</td>
</tr>
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<td>Physical Care</td>
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<td></td>
</tr>
<tr>
<td>Physiotherapy</td>
<td>1.11</td>
<td>0.54</td>
<td>1.62</td>
<td>1.04</td>
</tr>
</tbody>
</table>
Table 3.4.3.2 shows the variable with Skewness and Kurtosis with their errors. Here again the results are positive, with low values in both methodologies and error values within acceptable boundaries. However there are those that stand outside the boundaries and again these have been removed.

Table 3.4.3.3 Summary of Appendix 13

<table>
<thead>
<tr>
<th>Method</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson's and Spearman's Over 0.60</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>Pearson's and Spearman's Over 0.50</td>
<td>23</td>
<td>77</td>
</tr>
<tr>
<td>Pearson's Over 0.60</td>
<td>16</td>
<td>53</td>
</tr>
<tr>
<td>Spearman's Over 0.60</td>
<td>21</td>
<td>70</td>
</tr>
</tbody>
</table>

Table 3.4.3.3 summarises the correlations between the responses in Appendix 13. Though there is a low percentage for correlations over 0.60 there is a good percentage for those over 0.50 showing good quality. With Spearman’s showing a good quality in response. The variables used in the main algorithm have a good Pearson’s and Spearman’s correlation.

3.4.4 Additional Analysis

The re-test interviews that took place as part of the main part of the study indicated quality responses in some questions and poorer responses in others. As a result, though some of the answers from the TET study indicated good values to attach to questions some of these were removed due to their poor Interater Reliability. Please see this section of the main report regarding this analysis.

3.4.5 Algorithm Overview

The basic concept behind the TET is that individual residents have an amount of care time provided for them each day. To calculate this time it was proposed that there would be consistent activities that are undertaken every day, and that if you could assign times for each activity an overall time could be calculated for each resident over the week. This time should be consistent with the care hours provided by the home.

Residents are unique in their care time requirements; therefore with each question there are multiple responses and for each response there would be a time attached over an average day. However within the remit of this project a full time management study was not possible. Therefore average times for selected activities were collected from the care staff directly.

The questions used were those used for the main algorithm. These questions were all had good correlations with re-test data and the time values collected from the questionnaire. The following questions were used in the algorithm; they are broken down into the four themes:

<table>
<thead>
<tr>
<th></th>
<th>1.69</th>
<th>0.51</th>
<th>3.16</th>
<th>0.99</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>0.27</td>
<td>0.47</td>
<td>-1.03</td>
<td>0.92</td>
</tr>
<tr>
<td>Small Wound Care</td>
<td>0.99</td>
<td>0.48</td>
<td>0.30</td>
<td>0.93</td>
</tr>
<tr>
<td>Large Wound Care</td>
<td>0.34</td>
<td>0.54</td>
<td>-1.28</td>
<td>1.04</td>
</tr>
<tr>
<td>Complicated Wound Care</td>
<td>1.88</td>
<td>0.55</td>
<td>3.93</td>
<td>1.06</td>
</tr>
<tr>
<td>Theme</td>
<td>Question</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------</td>
<td>-----------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Care</td>
<td>Eating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Movement &amp; Transferring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Toileting &amp; Incontinence Urinary/Faecal</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dressing</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bathing Proxy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health Care</td>
<td>Immediate Intervention</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Verbal Aggression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Co-operation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical Care</td>
<td>Medical Input – Part of adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Care</td>
<td>Social Input – Part of adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Activities input – Part of adjustment</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3.4.6 Algorithm Assumptions and Assignments

To create the final algorithm a number of logical assumptions were made regarding the frequency of certain activities that a resident would undertake in an average day. The assumptions are listed below:

- Eating – 3 Meals a day
- Movement and Transferring – 5 times a day
- Toileting – 4 times a day
- Dressing – 2 times a day
- Incontinence – That each incident requires changing pads or clothes the value used is that for dressing with a small reduction
- Bathing – 7 minutes a day per resident
- Where the question has a frequency the following values have been used to covert to a weekly value:
  - Never, or less than three times in the last four weeks = 0
  - More than once a week but not daily = 0.5
  - Once a day, on average = 1
  - More than once a day = 2.5
  - Throughout the day = 4

These assumptions could skew the values for individuals who have higher or lower frequencies than these, however over the home they will average out. In addition to these assumptions an adjustment value for each home was added to represent Social Input, Activities Input, Medical Input and other activities that have not been covered by the main questions.
Table 3.4.6.1 Assigned Times

<table>
<thead>
<tr>
<th>Theme/Question</th>
<th>Answer (Mins)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Physical Care</td>
<td></td>
</tr>
<tr>
<td>Eating</td>
<td>0</td>
</tr>
<tr>
<td>Movement</td>
<td>0</td>
</tr>
<tr>
<td>Transferring</td>
<td>0</td>
</tr>
<tr>
<td>Toileting</td>
<td>0</td>
</tr>
<tr>
<td>Incontinence Urinary</td>
<td></td>
</tr>
<tr>
<td>Dress 1</td>
<td>0</td>
</tr>
<tr>
<td>Dress 2</td>
<td>0</td>
</tr>
<tr>
<td>Dress 3</td>
<td>0</td>
</tr>
<tr>
<td>Incontinence Faecal</td>
<td></td>
</tr>
<tr>
<td>Dress 1</td>
<td>0</td>
</tr>
<tr>
<td>Dress 2</td>
<td>0</td>
</tr>
<tr>
<td>Dress 3</td>
<td>0</td>
</tr>
<tr>
<td>Dressing</td>
<td>0</td>
</tr>
<tr>
<td>Bathing Proxy</td>
<td></td>
</tr>
<tr>
<td>Mental Health Care</td>
<td></td>
</tr>
<tr>
<td>Verbal Aggression</td>
<td>0</td>
</tr>
<tr>
<td>Risk</td>
<td>0</td>
</tr>
<tr>
<td>Co-operation</td>
<td>0</td>
</tr>
<tr>
<td>Immediate Intervention</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 3.4.6.1 shows the values assigned to each answer for the questions used. The values are based on the frequency assumptions and the values from Table 3.4.3.1. Some of the values are higher than those in Table 3.4.3.1 after assumptions have been accounted for. This is because they are connected to the questions and the multiplier is fixed. However the differences are small.

The TET explains the dependency variance of the care hours provided by a home. When compared with the care hours collected during the study there is a good relationship. However there is a gap between the TET value and study care hours. This gap can be explained by standard procedures that are undertaken by the care staff that are not directly related to the number of residents in the home and to activities such as medication and recreational activities that are provided for all residents. Therefore an adjustment value was required.

This value was obtained by taking the average difference between the Care hours and TET hours for those homes with an RSA (Regulatory Support Assessment) of low. This value is 242 hours and has been added as a constant for each resident relative to the care home size.

From the values the following can be calculated:

- Daily Time Value – Per resident – can be checked easily by the staff for authentication, could be used with caveats and further development as an individual resident tool.
- Weekly Time Value – Per resident – assumption that they remain the same throughout the week, the same assumption as the questionnaire.
• Home Weekly Value – Overall value for Care – this gives the total care hours required for the group of residents present in the home.
• Time Estimate Tool Grouping – Each resident can have between no hours and 11.2 hours per day. Each value is rounded to give their TET grouping. So the groups go from 1 to 12 or A to L.

3.4.7 Validation of Groupings and Hours

This sections covers the validation methods used. Spearman’s was used as the non-parametric technique and Pearson’s as the parametric technique for comparing the variables. The TET shows the dependency of the residents on a scale from 1 to 12 and gives a value for the amount of care hours required to care for the residents in a care home. The TET was compared with the following:

• Staffing Estimate from the main study – relative dependency
• Validation visits after the main study – relative dependency
• Care Hours from the main study – direct care hours

Table 3.4.7.1 Comparison of TET to the Overall Staffing Estimate

<table>
<thead>
<tr>
<th>Method</th>
<th>TET to Staffing Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman’s</td>
<td>0.62</td>
</tr>
<tr>
<td>Pearson</td>
<td>0.57</td>
</tr>
<tr>
<td>Eta Squared</td>
<td>0.85</td>
</tr>
</tbody>
</table>

Table 3.4.7.1 shows the correlation values between the TET groups and the Overall Staffing Estimate values given as a proportion of time. This shows good correlations between the estimate and the TET. Eta Squared shows that only 15% of residents were placed in the wrong dependency group.

Table 3.4.7.2 Comparison of TET with Staffing Estimate per home

<table>
<thead>
<tr>
<th>Home</th>
<th>Pearson's</th>
<th>Kendall’s</th>
<th>Spearman’s</th>
<th>Good</th>
<th>Moderate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>0.79</td>
<td>0.64</td>
<td>0.78</td>
<td>86.1%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Mean</td>
<td>0.77</td>
<td>0.64</td>
<td>0.76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3.4.7.2 shows the TET compared with the Staffing Estimate from each home. The table shows the median and mean values for each of the correlation methods. These show good correlations and show that the TET can be used to measure relative dependency of residents in care homes.

The percentages Good and Moderate indicate the proportion of homes with a Good correlation where Pearson’s and Spearman’s are over 0.60 and a Moderate correlation where they are over 0.40. This shows the TET can work as a relative dependency tool.
Table 3.4.7.3 Comparison of TET with Validation Estimates

<table>
<thead>
<tr>
<th>Method</th>
<th>Overall</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman's</td>
<td>0.72</td>
<td>0.67</td>
<td>0.77</td>
<td>0.68</td>
<td>0.81</td>
<td>0.41</td>
<td>0.86</td>
<td>0.58</td>
</tr>
<tr>
<td>Pearson</td>
<td>0.72</td>
<td>0.72</td>
<td>0.78</td>
<td>0.69</td>
<td>0.68</td>
<td>0.41</td>
<td>0.83</td>
<td>0.56</td>
</tr>
<tr>
<td>Residents</td>
<td>220</td>
<td>24</td>
<td>32</td>
<td>37</td>
<td>26</td>
<td>25</td>
<td>41</td>
<td>35</td>
</tr>
<tr>
<td>Dependency</td>
<td>4.9</td>
<td>4.8</td>
<td>5.2</td>
<td>3.0</td>
<td>5.4</td>
<td>7.5</td>
<td>3.9</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Table 3.4.7.3 shows the correlation values of the TET against the seven validation sites and as a whole. This shows good correlation overall and within five of the homes.

Table 3.4.7.4 Comparison of TET with Care Hours

<table>
<thead>
<tr>
<th>Method</th>
<th>Hours from Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spearman's</td>
<td>0.78</td>
</tr>
<tr>
<td>Pearson</td>
<td>0.86</td>
</tr>
</tbody>
</table>

Table 3.4.7.4 shows the correlations between the TET overall hours and the Overall Care Hours from the study. This shows good correlations with each of the TET values.
Figure 3.4.7.5 shows the values from the TET compared to the study care hours, this illustrates how well the two sets of values are correlated. The line that extends from the origin represents those homes where their care hours match the prediction exactly. The second line is the R Sq line. The difference between them shows the effect of dependencies.

3.4.8 Summary of Validation

Questions
The questions chosen were those for the main algorithm. These questions have values attached that have good correlations.

Timings
The timings collected using the TET questionnaire vary in their values. However those questions that were selected due to their accuracy have a good correlation in values and correlate well with the two academic papers Li/Jin 2005 and Shih/Hartzema/Tolleson-Rinehart 2003.

TET Values
When compared with the care hours collected from the study the TET predicted hours have good correlation with the original staffing estimate. They compare well with the validation process and with the overall care hours. With the majority of homes falling within good staffing levels.

3.4.9 Examples of Use
The following give examples of how the TET can be used.
The overall average dependency of all the homes in the study is 3.1 with a minimum of 1.5 and a maximum of 5.4. These compare with 2.8 in homes with no nurses and 4.4 in homes with more than 10 hours of nursing care. In Private care homes the dependency is 3.2, in Local Authority homes it is 3.0 and 2.9 in Voluntary homes.

Figure 3.4.9.1 – Allocation of Care per Day against Dependency

Figure 3.4.9.1 shows the hours per day required to care for their residents against the dependency of the home. The x-axis shows the dependency where 1.5 is low and 5.4 is high. The twelve homes shown here represent the six most dependent and six least dependent homes for the purpose of comparison. The chart shows the time taken to undertake tasks.

Figure 3.4.9.2 - Percentage allocation of Care per Day against Dependency of the Home

Figure 3.4.9.2 shows the proportion of care for each theme on a daily basis. The twelve homes shown here represent the six most dependent and six least dependent homes for the purpose of comparison. The mental health component is greater in the most dependent homes and the personnel care (washing and dressing) is higher in the lower dependency homes.
Figure 3.4.9.3 shows the breakdown of care hours predicted by the TET for a care home from the study by resident. This shows that resident 18 requires nearly seven times as much care as resident 1. It also shows where the time is being spent with each resident. Resident 15 requires 3.6 hours a day to deal with mental health needs, whereas resident 13 requires 2 hours for toileting.

Table A13.1: For both Night and Day (These values are estimated for the example)

<table>
<thead>
<tr>
<th>Answer</th>
<th>Time (Mins)</th>
<th>Frequency</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eating*</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Toileting</td>
<td>5</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>Continenence - Urinary</td>
<td>4</td>
<td>2.5</td>
<td>Dress 37.5</td>
</tr>
<tr>
<td>Continenence - Faecal</td>
<td>4</td>
<td>2.5</td>
<td>Dress 37.5</td>
</tr>
<tr>
<td>Moving</td>
<td>4</td>
<td>12</td>
<td>162</td>
</tr>
<tr>
<td>Transferring</td>
<td>4</td>
<td>15</td>
<td>With Move</td>
</tr>
<tr>
<td>Dressing</td>
<td>5</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Washing Hands/Face</td>
<td>4</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Bathing</td>
<td>5</td>
<td>6</td>
<td>Per Week 6</td>
</tr>
<tr>
<td>Anxiety</td>
<td>2</td>
<td>0.5</td>
<td>8</td>
</tr>
<tr>
<td>Disruption - Day</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Disruption - Night</td>
<td>4</td>
<td>2.5</td>
<td>8</td>
</tr>
<tr>
<td>Risk</td>
<td>1</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Activities</td>
<td>4</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Medical Treatments</td>
<td>1</td>
<td>10</td>
<td>Per Treatment 10</td>
</tr>
<tr>
<td>Co-operation</td>
<td>1</td>
<td>1</td>
<td>Multiplier 1</td>
</tr>
</tbody>
</table>

Total Per Day 388  
Total Per Week 2716  
Hours Per Day 6.5  
Hours Per Week 45.3
*This includes setting up and preparation time.

Table A13.1 shows an example where a resident requires a minimum of 45.3 hours input per week based on these activities of daily living. This resident is from the study and has a SCRUGs group of 6. This value can then be aggregated with the other residents in a home to provide a staff time for a week. So if we assume that all 15 residents in a home required 45.3 hours of input the total would be 679 hours per week care hours required.

Table A13.2

<table>
<thead>
<tr>
<th></th>
<th>Cal</th>
<th>Real</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home 1</td>
<td>360</td>
<td>365</td>
<td>101</td>
</tr>
<tr>
<td>Home 2</td>
<td>400</td>
<td>308</td>
<td>77</td>
</tr>
<tr>
<td>Home 3</td>
<td>335</td>
<td>458</td>
<td>137</td>
</tr>
<tr>
<td>Home 4</td>
<td>569</td>
<td>399</td>
<td>70</td>
</tr>
<tr>
<td>Home 5</td>
<td>894</td>
<td>508</td>
<td>57</td>
</tr>
<tr>
<td>Home 6</td>
<td>733</td>
<td>691</td>
<td>94</td>
</tr>
</tbody>
</table>

Table A13.2 shows the six homes with 15 residents from the study. The table shows their calculated hours based on the method with their real care hours. The ratio shows how much the real hours compare with the example. Based on this method Home 1 is meeting the minimum values and Home 6 would probably be with an error margin. Whereas Homes 2, 4 and 5 would need more staff and Home 3 could potential reduce staff.

Potential

- With this method it is possible to see whether there is a need for an increase or decrease of care hours.
- It does not include a staffing value – where an hour of a senior carer would be more efficient than carers. This would have to be studied separately.
- It would show where the care time was going – allowing for improvement in toileting/movement methods. e.g. they use a hoist to move residents when it might be easier using a wheelchair and require less time.
- It could highlight which residents use more care time. – These timings could be grouped to give IoRN scores.
- It could be moved into other settings – hospital, community
- A quality element could be incorporated into the timings and frequencies.

Conclusions

- This is an alternative method of informing staffing levels.
- The range of output values is broad allowing the full complexity of care homes to be made clear.
- With more refinement it might be possible to have as little as nine questions to provide this data.
- With only nine questions it would be possible to increase the frequency of collection and so provide high quality trend data.
- This trend data would be invaluable for the long term planning of elderly care and could inform on good practice methods.
- This is a simple and effective method that is clear and understandable to all. The transparency could make it eventually a robust and powerful tool.
Figure 13

Scatter plot of care hours and weighted residents

- Polynomial Regression
- 66.6% Upper prediction level
- DEA Threshold
- 66.6% Lower prediction level
- TET RSA Rank = Low
- TET RSA Rank = Medium
- TET RSA Rank = High
Appendix 14 - Literature Review

Theme 1: Resident Assessment Measures

Carpenter et al\(^1\) looked at whether the combined use of the Minimum Dataset Resident Assessment Instrument (MDS/RAI) and Resource Utilisation Groups version 3 (RUG-III) ‘could be used as a method of identifying and reimbursing registered nursing care needs in long term care’. They found that while the approach could provide a basis for a reimbursement system it could not be used to inform ‘how much registered nurse care time a resident should receive’.

Brizioli et al\(^2\) examined whether the RUG-III tool, could be used within the Italian Health Care system. Their findings suggest that when RUG-III is applied in intermediate and long term care institutions in Italy, it provides a ‘robust’ prediction of nursing and rehabilitation resources that are used by elderly residents. In addition findings suggest that by implementing RUG-III in Italy, they could improve ‘the management and quality control’ of long-term care.

Francesconi et al\(^3\) sampled 93 nursing homes in Tuscany, to ‘assess whether a case mix classification system could provide useful information to help monitor, evaluate and better plan long term residential care services for the frail elderly in Tuscany’. 3981 residents were assessed using the RUG-III questionnaire and were grouped into 44 RUGs. In addition, ‘facility specific case mix indices were calculated using the RUG specific weights previously validated in Italy’. The authors found ‘no significant association between type of facility, level of fees, or extent of staff in the nursing homes and their case mix indices’. The authors concluded that the ‘RUG-III can provide information on types of nursing homes residents and their care needs. This is useful for monitoring and evaluating long term care services for the elderly, and allows for more effective planning and allocation of staffing and financial resources.’

Dellefield\(^4\) described three examples of the use of RUG –III as a staffing tool used by staff working in US Veterans Health Administration nursing homes. She concluded that those nurses who used RUG III as a staffing tool found that it was of benefit for use with non-psychiatric residents. The tool was found to be useful in that it allowed comparison between actual staffing levels in units and the staffing levels corresponding with the RUG-III staffing benchmark levels. Therefore the data could be used to make a case for more additional staff if the actual staffing levels in units fell below the nationally recognised benchmarks. However the author also highlights that RUG-III as a staffing tool will not provide an antidote to the challenges of balancing ‘nurse staffing levels, workload and quality of care’. In addition, it is stressed that patient classification tools will not replace the need for ‘professional nursing judgement’ in making staffing decisions.
Chen et al\textsuperscript{5} sampled nursing staff and residents in a ‘public hospital based nursing home’ to investigate the differences in times that nurses spent caring for residents. The functional status of the Residents and actual manpower needed to meet residents’ care needs were assessed using the ‘Typology of the Aged with Illustration (TAI)’ assessment measure. The study results recommend the establishment of a ‘resident classification system for use in long term care facilities’ in order to assist with manpower allocation and resource utilisation within the facility.

Clifford et al\textsuperscript{6} describe the development of a new index, The Psychological Resistance to Activities of Daily Living Index, (PRADLI) and look at it’s reliability. The authors concluded that the index could be used by staff to assess residents’ resistance to Activities of Daily Living (ADL).

Adams-Wendling\textsuperscript{7} compared the relationship between the hours per resident day nursing using the RUGS-III classification system with workload estimates of the GRASP System which is an established patient classification system. The results indicate that the staff time measurements used to develop RUG reflect the workload estimates provided by a methodology such as the GRASP system.

**Theme 2: Staffing Ratios/ Time**

Horn et al\textsuperscript{8} examined how nursing home resident’s outcomes were affected by the amount of direct nurse care they received in particular residents at risk from developing pressure ulcers. The authors concluded that after controlling for a number of factors, ‘more direct registered nursing (RN) time per resident per day was strongly associated with better outcomes’. The authors emphasise that there is a need for further research to confirm their findings.

Harrington and Swan\textsuperscript{9} looked at factors, which predict total nurse and registered nurse hours per resident per day in all Nursing Homes in California. They concluded that registered nurse hours are negatively associated with staff turnover and positively associated with the case mix of residents (based on resident’s need for help with activities of daily living). The adequacy of current staffing levels were not investigated.

McGregor et al\textsuperscript{10} investigated direct care and support staff staffing ratios in ‘not-for-profit’ and ‘for profit’ publicly funded nursing homes in British Columbia, where ‘Nursing homes are grouped by levels of care according to the residents case mix’. The results showed that ‘not-for profit’ facilities, adjusted for size and level of care, were associated with higher staffing levels both for direct care and support staff.

Harrington\textsuperscript{11} looks at standards for nurse staffing in care homes in the United States and the District of British Columbia. At the time of the study, discussions were being carried out at Federal Government level about staffing standards; many states had established their own staffing standards. The results of an Internet survey showed almost half the states had greater staffing requirements for licensed nurses than the requirements set by the Federal Government. The authors indicate that Federal standards for nursing homes ‘lag’ behind those in many states.

Mueller et al\textsuperscript{12} examine state staffing standards in the United States and the District of British Columbia and explore whether these are related to actual staffing levels in nursing homes. Information on nurse staffing was taken from the Centres for Medicare and Medicaid Services Online Survey, Certification and Reporting (OSCAR database/file). The authors developed a number of models, which explored relationships between staffing
standards and actual staffing, taking into account a number of factors including the size of the nursing home, type of ownership of the home, and a ‘resident acuity score derived from resident characteristics from the OSCAR file’. They conclude that ‘the variance in facility staffing was much greater within than between states’ and in addition indicate that ‘resident acuity’ is linked to staffing. The authors discuss that ‘some facilities may treat staffing standard minimums as if they are maximums, and lower their staffing accordingly’. In addition they highlight that ‘determining the appropriate required staffing level is challenging’ and note that more research is required in order to provide states with guidance in order to determine ‘nurse staffing standards’.

Darton et al\textsuperscript{13} undertook a survey in England aimed at identifying factors linking the costs of care homes and the characteristics and populations in care homes. They also estimated staffing ratios for care staff split into residential homes and dual registered and nursing homes. ‘For residential homes mean estimated staffing ratios for care staff ranged from 22 to 24 hours per place per week, compared with about 30 hours per place per week in dual registered and nursing homes’. In terms of staff with nursing qualifications ‘dual registered and nursing homes had the equivalent of just over one nurse for every four places. Private residential homes had the equivalent of one nurse for every ten places and in the case of local authority and voluntary homes they found it to be equivalent of one nurse for every 20 places’.

Harrington et al\textsuperscript{14} analyzed 1998 inspection data of nursing homes which represented almost all nursing homes in the United States. In addition to comparing ‘deficiency citations’ issued by inspectors, the study also assessed nurse staffing ratios, as an ‘indicator of quality’ where residents case-mix was measured by an ADL index. One of the results from the study indicated that nurse staffing ratios were lower in ‘investor-owned’ homes.

Akinci and Krolikowski\textsuperscript{15} looked at nurse staffing levels in nursing homes in Northeastern Pennsylvania and compared these to ‘state and national averages’. In addition they looked at the relationship ‘between nurse staffing and quality of patient care provided to nursing home residents’. The findings of the study indicated that ‘RN ratios in the Northeastern Pennsylvania nursing homes were better than those of state and national averages. This study also confirms that the quality of care is negatively affected when nurse staffing levels are reduced’. The authors highlighted that one of the ‘future challenges’ includes, ‘developing nurse staffing models that support excellent patient outcomes’.

Li and Yin \textsuperscript{16} looked at the characteristics of residents who use the services provided by nursing assistants and ‘service intensity’ of nursing assistants in community based long term care facilities in Taiwan using a descriptive survey method. The study indicated that most activities, which are performed by nursing assistants, are related to residents ADL ability. In addition, they spend ‘almost as much time on complex nursing’, which is normally provided by Registered Nurses in nursing homes. The authors highlighted a need for a nursing assistant training programme to ensure quality of services provided.

Laine et al\textsuperscript{17} ‘explored patient and ward level determinants of wage adjusted nursing time in long term care wards for the elderly’. The authors’ results indicated that there was a significant difference between wards. 20-25% of patients’ nursing time was explained by a combination of patients’ physical functioning, cognition and RUG III (22 categories). Differences in wage adjusted nursing time were not explained by variables associated with the operational environment of the ward.
Shih et al\textsuperscript{18} undertook a prospective study in North Carolina, USA to look at resource use and costs in caring activities of residents in long term care facilities with urinary incontinence (UI). Incremental labour costs for residents with UI are equal to $13.57 to treat per day. The authors suggest that their findings could be used to obtain the saved costs of treating UI.

Simmons and Schenelle\textsuperscript{19}, described the staff time required to provide assistance to residents in nursing homes who needed three types of assistance to improve oral food and fluid intake and examined whether physically dependent residents as defined by RUGs require more staff time. The results of the study indicated that ‘residents who needed only supervision and verbal cuing required just as much staff time as those who were physically dependent on staff for eating.’ The authors concluded that the ‘RUGS system likely underestimates staff time required to provide feeding assistance care that improves oral intake’.

**Theme 3: Government Reports and Guidance**

The Residential Forum\textsuperscript{20} developed a staffing model for use in England and Wales, which takes into account the number, and dependency of residents (service users), the layout/design of the care home and in addition includes other factors such as residential activities and training of staff. The Residential Forum state that the model can be used to provide ‘robust’ indications of what staffing arrangements should be to meet the needs of residents, which will assist providers of care for older people, registration and inspection staff and service users and their relatives. We were particularly keen to identify any other methods that were in use in other areas to inform staffing levels in Care Homes for older people and were therefore very pleased to find this reference. This group were asked by the Department of Health in England in 2001 to undertake a review of the staffing arrangements in care homes in preparation for the introduction of the National Minimum Standards.

The Residential Forum took into account the dependency of the residents as part of their work and they also found it important to take account of the layout of the building in which care took place, training of the staff and social and recreational activities. They derived a model for those responsible for staffing matters in care homes to use to determine care hours needed within the National Minimum Standards, however they did not differentiate between different types of care staff and they did not account for any other staff employed in the care home providing non-care functions, for these reasons we felt that the model was of limited use.

The Department of Health for England has issued national minimum standards for Care Homes for Older People, which were first published in 2001\textsuperscript{21} and second and third editions were published in subsequent years. The standards published in 2003 include stipulation that ‘the ratios of care staff to service users must be determined according to the assessed needs of residents, and a system operated for calculating staff numbers required, in accordance with guidance recommended by the Department of Health’ (standard 27.3).

A letter\textsuperscript{22} from the Department of Health for England to the National Care Standards Commission in 2002 stated that new applicants for registration of care homes should use the guidance set out by the Residential Forum. However, it is highlighted that ‘this guidance should be treated as illustrative and used flexibly’. The use of this approach was further mentioned in a further letter in 2003\textsuperscript{23}.
In 2004, the Ministry of Health, New Zealand issued a consultation document on the staffing regulations for aged residential care facilities\textsuperscript{24}. The Age Related Residential Care (ARRC) Contract (2006)\textsuperscript{25} stipulates the minimum requirements for staffing levels for Rest Homes and Private Hospitals with Aged Care within New Zealand. Rest Homes and Private Hospitals are broadly comparable to what were previously referred to as Residential Homes and Nursing Homes in the UK. Of interest is that The ARRC stipulates that all facilities should have at least one Registered Nurse on staff for Rest Homes and that there should always be at least one Registered Nurse on duty for a Private Hospital. A further point of interest is that is stipulates that Management staff should have current relevant qualifications.

In 1999, the Canadian Union of Public Employees (CUPE), the Nova Scotia Department of Health and ‘Ocean View Manor nursing home’ formed a task force to make recommendations for the implementation of a workable resident-staff ratio for the use in Nursing Homes in Nova Scotia. Their work, which was published in 2002\textsuperscript{26} involved a review of relevant literature, comparisons between long term care in Nova Scotia with rest of Canada, a survey of Canadian nursing home staffing standards and detailing next steps and recommendations. Their findings from this literature review indicated a lack of empirical research on the development of staff ratios for long term care, whilst the research which does exist is anecdotal. The report indicates that there will be a second phase of the study, which will follow research projects in Canada and the US, which are looking at the establishment of staffing ratios. In addition, this phase will include a survey to record current staffing levels and roles amongst other variables. The authors conclude by stating that a single resident to staff ratio cannot be applied to all care settings. Factors which contribute to staffing levels include, experience and education of staff amongst others. The authors did stress that this report represented research only and should not be interpreted as the report of the Resident Staff Ratio Committee.

2.5. Discussion

There were a number of articles which were identified as being associated with staffing care homes for the elderly but were beyond the scope of this literature review. These articles were mainly concerned with the quality of care homes but other topics included; specific medical conditions in relation to staffing levels, the impact of changes in staffing policy, the need for nursing staff in care homes and the requirement of specialist nurses.

Relevant articles came from a number of countries, including the United States, Canada, Taiwan, New Zealand, Italy and England. It is important to note that no articles were cited in relation to care homes within Scotland.

Of the seven papers within theme 1, Resident Assessment Measures, none provided details of methods that could be used specifically to inform staffing levels. Five of the studies were concerned with the use of RUG-III; Carpenter et al\textsuperscript{1} identified an approach for a reimbursement system, the study by Brizoli et al\textsuperscript{2} stated that RUG-II could be used for prediction of resources which would be used by residents, Francesconi et al\textsuperscript{3} concluded that RUG-III ‘allows for more effective planning and allocation of staffing’, Dellefield\textsuperscript{4} highlighted that benchmark staffing levels provided by RUG-III could be compared with current levels and Adams-Wendling\textsuperscript{7} compared RUGS-III workload estimates with the GRASP classification scheme. Whilst Chen et al\textsuperscript{5} recommended the use and development of a resident classification system to assist in manpower planning. Clifford et al\textsuperscript{6} developed an index to be used to assess residents ‘resistance’ to ADLs.
The twelve papers concerned with Staffing Ratios/Time (theme 2) only looked at what current staffing ratios/time were within Care Homes and did not progress to look at what these levels should be. Horn et al\textsuperscript{8} looked at how patient outcomes were affected by staff time. The study by Harrington and Swan\textsuperscript{9} examined the relationship between registered nursing hours; staff turnover and case mix of residents. Three papers McGregor et al\textsuperscript{10}, Darton et al\textsuperscript{13} and Harrington et al\textsuperscript{14} all compared staffing ratios in for profit (investor owned) and not for profit care homes. Harrington\textsuperscript{11} conducted comparisons of Federal and State staffing standards. Mueller et al\textsuperscript{12} determined whether staffing standards in 50 states and the District of Columbia were related to actual nursing home staffing levels. Akinci and Krolikowski\textsuperscript{15} looked at nurse staffing levels in nursing homes in North-eastern Pennsylvania and compared these to ‘state and national averages’. In addition, they looked at the relationship between nursing staffing and quality. Li & Yin\textsuperscript{16} looked at ‘service intensity’ of nursing assistants and Laine et al\textsuperscript{17} ‘explored determinants of nursing time’. Two studies looked at residents with more specific conditions, Shih et al\textsuperscript{18} looked at incremental costs of residents with UI, whilst Simmons and Schenelle\textsuperscript{19} looked at the time required to assist residents who need help to improve oral and fluid intake.

The final theme, Government Reports and Guidance (theme 3), contained a number of reports and letters. The Residential Forum\textsuperscript{20}, a staffing model developed for use in England and Wales, only provides guidance on ‘care hours’ and does not look at the breakdown of different types of staff employed in care homes for the elderly. Further evidence\textsuperscript{21, 22, 23} was sourced from the Department of Health for England, supporting its use. Work has also been carried out in New Zealand to provide regulations on staffing in aged residential facilities\textsuperscript{24, 25}

A report\textsuperscript{26} of a task force, formed to make recommendations for resident-staff ratios for Nursing Homes in Nova Scotia highlighted that there was a lack of empirical research on the development of staff ratios. A further phase of work led by the task force, will explore staffing ratios further.

2.6. Conclusion

Our findings suggest a need for further investigation and provision of a greater level of relevant statistical information to enable the development of a method to help inform staffing levels in Care Homes for the elderly.

References:

20. Residential Forum (2002). Care Staffing in Care Homes for Older People
22. Jacqui Smith, Minister of State (2002). Letter to National Care Standards Commission: Guidance on Staffing Levels in Care Homes
26. Research and Recommendations of the Taskforce on Resident/Staff Ratio in Nursing Homes (2002), The Resident Staff Ratio Committee, Department of Health (Nova Scotia) and The Canadian Union of Public Employees (CUPE), February 2002
Appendix 15 - Model Guidelines

Guidance Sheet

Installing “Questionnaire” on Computer

Please read and follow these guidelines in order.

1. Open CD drive on computer.
2. Place CD in drive.
3. Open CD in windows explorer.
4. Move “CHSP – Questionnaire” to a folder of your choice on the computer.
5. Open “CHSP – Questionnaire” by double clicking on the icon.

Completing The Questionnaire

Please read and follow these guidelines in order.

1. The sheet “Residents” should be open. If not, click on “Residents” at the bottom left of the screen.
2. Type in the name of your home to the right of “Home Name”.
3. Type in the date you are completing the questionnaire to the right of “Date”.
4. Type in the direct care hours provided by Class 2 Care Workers (Routine Care/Support Work) or Equivalent over the last week to the right of “Class 2 Care Workers”.
5. Type in the direct care hours provided by Class 3 Care Workers (Senior Care Worker) or Equivalent over the last week to the right of “Class 3 Care Workers”.
6. Type in the direct care hours provided by Class 4 Care Workers (Deputy Unit/Project Manager) or Equivalent over the last week to the right of “Class 4 Care Workers”.
7. Type in the direct care hours provided by Registered or Enrolled Nurses or Equivalent over the last week to the right of “Registered or Enrolled Nurses”.
8. Type in the direct care hours provided by Any other staff that provide Care Hours over the last week to the right of “Any other staff time spent providing direct care”.
9. Type in the name or code number of each resident next to the numbers under “Resident/Code”.
10. Click on “General” tab at the bottom on the left. Read the guidelines for completing the questions.
11. Click on “Q1”. Read the question on the left. Once you have read and understood the question type the number associated with the answer next to the name of the appropriate resident. Start with the first resident and use the return key to move down through the residents.
12. Click on “Q2” and repeat the procedure for “Q1”, then repeat for “Q3”, “Q4”, “Q5”, “Q6” and “Q7”.
13. Click on “MH” and read the guidelines for the Mental Health Questions.
14. Click on “Q7” and repeat the procedure for “Q1”, then repeat for “Q8”, “Q9” and “Q10”.
15. Then click on “Output” to see the results of the Questionnaire.
16. In “Output” there are two tables.
17. Table 1 “Care Hours” shows the care hours worked in your Care Home and the care hours that make up the conformance zone.
18. The first number is the lower margin care hours for the conformance zone.
19. The second number is the average care hours for the conformance zone.
20. The third number is the upper margin care hours for the conformance zone.
21. Table 2 “CHSP Group” shows the breakdown of residents into the CHSP Algorithm groups. The higher the group the more dependent the resident.
22. Click on “Output Chart” tab.
23. This chart shows the care home staffing level conformance zone.
24. The red dot indicates the position of your care home on the chart.
25. If your care home lies between the red line and the green line it is within the conformance zone and if it actually lies on the blue line then it indicates average conformance.
26. If your home lies above the green line it is above the upper margin of the conformance zone and this indicates a higher than expected ratio of staff to residents.
27. If your home lies below the red line it is below the lower margin of the conformance zone and this indicates a lower than expected ratio of staff to residents.
## Appendix 16 - Group Weightings

### Group Weightings

<table>
<thead>
<tr>
<th>Group</th>
<th>Description</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Low Activity of Daily Living Score + Low Mental Health Score</td>
<td>1.00</td>
</tr>
<tr>
<td>B</td>
<td>Low Activity of Daily Living Score + High Mental Health Score</td>
<td>1.42</td>
</tr>
<tr>
<td>C</td>
<td>Medium Activity of Daily Living Score + Low Mental Health Score</td>
<td>1.50</td>
</tr>
<tr>
<td>D</td>
<td>Medium Activity of Daily Living Score + Medium Mental Health Score</td>
<td>1.68</td>
</tr>
<tr>
<td>E</td>
<td>Medium Activity of Daily Living Score + High Mental Health Score</td>
<td>1.89</td>
</tr>
<tr>
<td>F</td>
<td>High Activity of Daily Living Score + Low Incontinence Score + Low Mental Health Score</td>
<td>2.02</td>
</tr>
<tr>
<td>G</td>
<td>High Activity of Daily Living Score + Low Mental Health Score + High Incontinence Score</td>
<td>2.11</td>
</tr>
<tr>
<td>H</td>
<td>High Activity of Daily Living Score + High Mental Health Score</td>
<td>2.18</td>
</tr>
</tbody>
</table>
Method for Calculating Augmented IoRN

Low ADL
Total score <= 7
- Low MH <= 5
  - Low incontinence <= 4
    - High MH > 6
      - High incontinence > 4
        - Group H (2.18)
    - Low MH <= 4
      - Medium MH 5 to 6
      - High incontinence > 4
      - Group G (2.11)
  - High MH > 5
    - Low incontinence > 4
    - Group F (2.02)

Medium ADL
Total score 8 - 10
- Medium MH 5 to 6
  - Low MH <= 4
    - Low incontinence <= 4
    - Low MH <= 5
      - Group A (1.00)
    - High MH > 6
      - High incontinence > 4
      - Group H (2.18)
  - Low MH <= 4
    - Group D (1.68)

High ADL
Total score > 10
- High incontinence <= 4
  - Low MH <= 6
    - Group C (1.50)
  - High MH > 6
    - Group B (1.42)
- Low incontinence > 4
  - High MH > 6
    - Group E (1.89)