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Acknowledgements

The publication is based upon information collected from hospitals, care homes, and from individuals in their own homes throughout Scotland. ISD Scotland would like to thank the nursing and care staff who continue to provide the information upon which this report is based.
Introduction and background

1 Introduction and background

1.1 Introduction

This is the twelfth edition of a statistical publication: ‘Older People Services: Measuring Relative Need’. The information in this report is collected through a number of tools that measure the care needs and dependency of people in hospitals, care homes and community settings. The tool used in the hospital setting is Scottish Health Resource Utilisation Groups (SHRUGs) and Scottish Care Resource Utilisation Group (SCRUGs) in the care home setting. The Indicator of Relative Need (IoRN) is used for people in community settings.

The data contained in the report is collected by ISD staff working on the Joint Future Programme. The Joint Future Programme promotes awareness of the importance of health and care information that is used by the NHS, Local Authorities, the Care Commission, and COSLA.

The information collected under the Joint Future Programme of work has been used in a variety of ways. The information has contributed to the capacity planning process in partnership areas and has been used to monitor the implementation of Older People strategies in a number of NHS Board areas.

1.2 New developments

In the past year there have been major developments in two new projects:

- The Care Home Staffing Model
- Balance of Care/Continuing Care Census

The report contains information on the development of the Care Home Staffing Model. ISD in partnership with the Scottish Government, the Care Commission and COSLA developed a model to help inform the care hours provided by social care and nursing care staff. The model is currently being applied in several parts of Scotland to demonstrate its potential benefits in practice.

In July 2009 ISD published the second Balance of Care/Continuing Care census. It is intended that information from the census will support the need for information about shifting the balance of long term care for older people. This report can be found at the following address: http://www.isdscotland.org/isd/5910.html

It is hoped that this report will be of interest to all those involved in the delivery and management of care for older people in care homes, hospitals and their own homes.
Introduction and background

Comments and requests for additional information are welcomed and should be addressed to:

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1.3 Context: The Ageing of the Scottish Population

The office of The Register General for Scotland has projected that the number of people in Scotland aged 75 and over will increase by 21% from 2006 to 2016 and a further 60% by 2031. This equates to around 382,200 people aged 75 and over in 2006, increasing to around 691,900 people by 2031.

Figures 1 and 2 show the projected percentage change in the population broken down by NHS board and local authority areas.

Orkney NHS Board area is expected to have the greatest percentage rise (126%) in the population aged 75 and over from around 1,600 people in 2006 to approximately 3,600 people in 2031. Greater Glasgow & Clyde NHS Board area will have the lowest percentage increase of 46% changing the population aged 75 and over from around 84,900 in 2006 to around 123,500 in 2031.
**Introduction and background**

**Figure 2**

*Population projection changes from 2006 to 2016 & 2031, 75+, by Local Authority*

If we look at data broken down by local authority areas Aberdeenshire is expected to have the greatest percentage rise (156%) in the population, from around 16,500 people in 2006 to approximately 42,300 people in 2031. Glasgow City is estimated to have the smallest increase rise (19%), changing the population from approximately 39,400 people in 2006 to an estimated 46,700 people in 2031.

This significant change in our population will markedly increase our focus on how services for older people are delivered in the future. The need for good informative data to support planning and delivery of services will become increasingly important. The information presented in this report is designed to support service planning and delivery.
1.4 Information in this report

Information contained in this report has been collected from a range of settings: long stay care of the elderly hospital wards, from care homes and from individuals in their own homes across Scotland. This report contains information up to 31st July 2009.

Scottish Health Resource Utilisation Groups (SHRUGs) data

SHRUGs data is collected on patients in long stay care of the elderly hospital wards and patients in Psychiatry of Old Age (POA) facilities. Nationally, coverage of SHRUGs data is estimated at 75% of patients in long stay care of the elderly wards and 29% of POA patients. These results are detailed in Section 4.

Throughout this report the participating NHS Boards are each identified in tables and graphs by a unique letter. The NHS Boards to which these letters relate can be found in Appendix 2.

Scottish Care Resource Utilisation Groups (SCRUGs) data

Information on residents in care homes is collected via SCRUGs surveys that are requested by local agencies. Figures in this report are based on SCRUGs surveys that have been undertaken between February 2005 and May 2009 covering 13 local authorities and eight NHS Board areas, approximately 17% of the care home population across Scotland. These results are detailed in Section 5.

The Indicator of Relative Need (IoRN)

The IoRN is a practitioner-completed data instrument for classifying older people in their own homes, according to their relative need. It is gradually being introduced across Scotland in association with the implementation of Single Shared Assessment. Further information on the IoRN and some preliminary analyses are presented in Section 7.

Care Home Staffing Model (CHSM)

The CHSM is a tool that combines information on care hours and information on dependency to help inform staffing levels in care homes. The dependency of residents is measured using an augmented version of the Indicator of Relative Need. The tool is currently being tested in several partnership areas in Scotland. Further information on the CHSM is presented in Section 7.

Other information on older people’s services

Other information relating to older people’s service provision is available at the following Scottish Government websites:
http://www.scotland.gov.uk/Topics/Statistics/Browse/Health
http://www.jitscotland.org.uk/
2 Executive Summary

- This report contains information on the care needs and dependency of older people in a range of settings.

- Older people in long stay hospital wards generally had markedly higher care and dependency needs than residents in care homes. Around 53% of the 1255 hospital patients surveyed were classed as high dependency in the latest data collection period. 15% of the 5479 residents in the care homes surveyed in eight NHS board areas in Scotland were classed as having high dependency. (Chapter 4, Table 7, p15; Chapter 5, Figure 19, p25)

- Groupings of care and dependency levels of long stay older people in hospital vary between NHS Boards. The proportion of patients falling into the highest dependency group ranges from 20% to 69%. (Chapter 4, Figure 8, p17)

- A difference in general care needs exists between the NHS long stay care of the elderly and care homes. An illustration of this is that 46% of older people in hospital wards had a need for special care as defined by the SHRUGs questionnaire; for care homes the figure was 17%. (Chapter 4, Table 8, p17; Chapter 5, Figure 20, p26)

- The proportion of hospital patients classified within the highest dependency group has increased from 29% in the year ending March 2004 to 35% in the period between October 2008 and July 2009. (Chapter 4, Table 5, p12)

- A substantially higher percentage of hospital patients awaiting placement fell into the lowest dependency group compared to those not awaiting placement. (Chapter 4, Figure 16, p23)

- The percentage of patients with needs for special care and or clinically complex treatments has increased from 41% in the year ending March 2004 to 49% in the period between October 2008 and July 2009. (Chapter 4, Table 8, p17)

- It is important to note that the SHRUGs data represent a ‘snapshot’ of the position at a certain point in time. Because data is recorded at different times during the year in different hospitals, comparisons of data between NHS Boards should be made with caution.
3 The SHRUGs/SCRUGs and IoRN Methods

3.1 SHRUGs (Hospital patients)

SHRUGs is a method of allocating hospital patients to resource utilisation groups, and is based upon measurement of need for care and dependency. For the SHRUGs method currently applied in hospitals, care needs are described in terms of needs for special care, clinically complex treatments and behavioural difficulties. Dependency is described in terms of eating, use of the lavatory and transferring position. For details of all the SHRUGs variables see Appendix 3.

A variety of supplementary information is also collected for each individual including data on clinically complex conditions, incontinence, mental health problems and problems of communication.

Data are obtained by interviewing care staff who know the patients well, and are entered directly onto a database held on a laptop computer. Interviewing on average takes approximately 90 minutes for 30 patients. Using trained interviewers to collect data helps to ensure that consistency of SHRUGs information across different data providers is achieved, allowing meaningful comparisons to be made between NHS Boards, as well as producing robust data at a national level.

Inter-rater reliability of SHRUGs data has been evaluated by separately asking two independent members of care staff the same questions about the same patients. In general the reliability of the SHRUGs instrument has been shown to be good (see Appendix 4).

The SHRUGs measure makes use of hierarchical methods of grouping data to generate five resource utilisation group categories. Each category can be described in terms which aims to be readily understood by care professionals.

It is important to note that the SHRUGs data represent a ‘snapshot’ of the position at a certain point in time. Because data is recorded at different times during the year in different hospitals, comparisons of data between NHS Boards should be made with caution.

Each patient is placed in a resource utilisation group according to their dependency and needs characteristics. Table 1 provides a summary of the groups.
The SHRUGs/SCRUGs and IoRN Methods

Table 1
SHRUGs resource grouping

<table>
<thead>
<tr>
<th>SHRUGs Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Low dependency; no behavioural difficulties</td>
</tr>
<tr>
<td>B</td>
<td>Low dependency; with behavioural difficulties</td>
</tr>
<tr>
<td>C</td>
<td>Moderate dependency; no needs for special care or clinically complex treatments</td>
</tr>
<tr>
<td>D</td>
<td>Moderate dependency; with needs for special care and/or clinically complex treatments or High dependency; no needs for special care or clinically complex treatments</td>
</tr>
<tr>
<td>E</td>
<td>High dependency; with needs for special care and/or clinically complex treatments</td>
</tr>
</tbody>
</table>

3.2 SCRUGs (Care Home residents)

Through consultation with members of social work departments and care staff from care homes, the SHRUGs system was reviewed during 1998 with a view to being adapted to better describe the dependency and care needs of residents in care homes. The result was SCRUGs (Scottish Care Resource Utilisation Groups). Data is collected in a similar way to that used for SHRUGs.

The SCRUGs algorithm consists of eight groups (see Table 2) showing greater discrimination in the relative use of staff resources than the existing five group SHRUGs algorithm currently used in hospitals. The dependency category is measured in terms of eating, toileting, transferring position and moving location. The scores for these four variables are combined to produce an Activities of Daily Living (ADL) score which are grouped into four dependency categories; low, low to moderate, moderate and high. In addition the behaviour module is applied to all ADL categories.

Table 2
SCRUGs resource grouping

<table>
<thead>
<tr>
<th>SCRUGs Group</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Low dependency; <strong>Neither</strong> Behaviour nor Special Care Needs</td>
</tr>
<tr>
<td>B</td>
<td>Low dependency; <strong>Either</strong> Behaviour or Special Care Needs</td>
</tr>
<tr>
<td>C</td>
<td>Low to moderate dependency; <strong>Neither</strong> Behaviour nor Special Care Needs</td>
</tr>
<tr>
<td>D</td>
<td>Low to moderate dependency; <strong>Either</strong> Behaviour or Special Care Needs</td>
</tr>
<tr>
<td>E</td>
<td>Moderate dependency; <strong>Neither</strong> Behaviour nor Special Care Needs</td>
</tr>
<tr>
<td>F</td>
<td>Moderate dependency; <strong>Either</strong> Behaviour or Special Care Needs <strong>OR</strong> High dependency; <strong>Neither</strong> Behaviour nor Special Care Needs</td>
</tr>
</tbody>
</table>
| G            | Moderate dependency; **Both** Behaviour and Special Care Needs **OR**
3.3 Indicator of Relative Need (IoRN)

The Indicator of Relative Need (IoRN), formerly known as Resource Use Measure (RUM), enables clients receiving services in the community to be classified into groups according to similar levels of relative need. Data collection is designed to be carried out directly by practitioners rather than by the interview method of SHRUGs and SCRUGs.

IoRN was developed building on two measures of need developed for use in different care settings - the SCRUGS measure, and Interval Need developed by Isaacs and Neville. The IoRN development combined an empirical analysis of resource use by clients in community settings with expert input from a range of professionals across Scotland.

Data on a number of clients receiving care at home (over 900), including data on services received, was supplied by practitioners and the best predictors of level of relative need identified. Like SCRUGs, the IoRN classification is a tree type algorithm. The main predictors were identified as follows:

- Activities of Daily Living (ADL) score – eating, transferring position and toileting - split into three groups of low, medium and high dependency
- for the low ADL group the score on personal care items - ability to prepare food, wash and dress - allows further refinement
- the medium ADL group was split by a measure of mental health and behaviour - whether certain problem behaviours were present
- the high ADL group was split according to whether help was required to maintain bowel function.

There are 9 IoRN groupings which range from A (low need) to I (high need). Unlike SHRUGs and SCRUGS there are no weights currently assigned to these groupings. The groupings are outlined in Table 3.
The SHRUGs/SCRUGs and IoRN Methods

Table 3

IoRN Groupings

<table>
<thead>
<tr>
<th>IoRN Groups</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Low ADL, Low personal care/food/drink preparation</td>
</tr>
<tr>
<td>B</td>
<td>Low ADL, Medium personal care/food/drink preparation</td>
</tr>
<tr>
<td>C</td>
<td>Medium ADL, No/low mental well being</td>
</tr>
<tr>
<td>D</td>
<td>Low ADL, High personal care/food/drink preparation</td>
</tr>
<tr>
<td>E</td>
<td>Medium ADL, Medium mental well being</td>
</tr>
<tr>
<td>F</td>
<td>High ADL, Low bowel management, No/low mental well being</td>
</tr>
<tr>
<td>G</td>
<td>Medium ADL, High mental well being</td>
</tr>
<tr>
<td>H</td>
<td>High ADL, Low bowel management, High mental well being</td>
</tr>
<tr>
<td>I</td>
<td>High ADL, High bowel management</td>
</tr>
</tbody>
</table>

Further information on the IoRN is outlined in Section 7.

A copy of the questionnaire and further information can be found at the following web address:


3.4 Care Home Staffing Model (CHSM)

The Care Home Staffing model combines information on residents needs using an augmented version of the community IoRN with care hours to help inform care homes with their staffing levels. The Augmented version was developed to reflect the higher dependency needs of residents in care homes.

Similar to the three tools described above the ADL score was the variable which explained most of the variance in care hours. In the case of low ADL group, the variable which explained most variance in care hours, were the mental health score. For those assigned to the medium ADL category, the best statistical predictor was also the mental health scale. In terms of the high ADL group, the first best predictor was mental health. For those in the high ADL group and low mental health category further subclassification was made in terms of low and high continence scores.

Further information on the CHSM is outlined in Section 7.
Hospital patients (SHRUGs data)

4 Hospital patients (SHRUGs data)

This section of the report presents information on SHRUGs data collected on patients in long stay care of the elderly hospital wards across Scotland, between October 2008 and July 2009. This section also presents selected information on SHRUGs data that has been collected on patients in Psychiatry of Old Age (POA) facilities.

4.1 Coverage of SHRUGs data collection

Ten NHS Boards across Scotland participated in the collection of SHRUGs data. ISD were unable to collect information in 4 NHS Boards within the above time period, due to circumstances out with ISD’s control. Within some NHS boards information was not collected in all continuing care hospitals. In the period between October 2008 and July 2009, SHRUGs data were collected on 1,255 patients from within these NHS Boards. When this information is compared with ISD (S)1 information on the number of occupied bed days this is the equivalent to an estimated 75% of all patients in long stay care of older people hospital wards throughout Scotland. The ISD (S1) figures relate to the period six months ending March 2009.

Table 4

<table>
<thead>
<tr>
<th>Coverage of SHRUGs data collection; by data collection period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average daily number of patients in Scotland1</td>
</tr>
<tr>
<td>Number for whom SHRUGs data are available2</td>
</tr>
<tr>
<td>SHRUGs coverage</td>
</tr>
</tbody>
</table>

1 Average daily occupied beds during period and includes respite patients
2 Source: ISD(S)1 - for average number of occupied beds during data collection period. Please note this is provisional for the 2009 figures.

Figures for 2004 - 2009 include joint user and contractual hospitals for NHS Greater Glasgow & Clyde

There has been a steady fall in recent years in the number of beds for long stay care of older people in Scotland. From the year ending March 2004 until the period between October 2008 and July 2009 estimated coverage of SHRUGs data collection has fluctuated between 75% and 95% (Table 4).
Hospital patients (SHRUGs data)

4.2 Age and sex of patients

Figure 3
Patients aged 75 years and over
Percentages; in individual NHS Boards and all participating NHS Boards; data collected between October 2008 and July 2009

In the period between October 2008 and July 2009 the percentage of patients aged 75 years and over was 81%. The percentages ranged from 77% in NHS Grampian to 100% in NHS Highland. The majority of patients were female (67%), ranging from 56% in NHS Dumfries & Galloway to 73% in NHS Highland. It is important to note that some of the percentages are based on small numbers.

4.3 Proportions of patients in each SHRUGs group

Table 5
Patients in each SHRUGs group
Percentages; by data collection period

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>8</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>28</td>
<td>24</td>
<td>25</td>
<td>25</td>
<td>26</td>
<td>25</td>
</tr>
<tr>
<td>D</td>
<td>32</td>
<td>31</td>
<td>30</td>
<td>31</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>E</td>
<td>29</td>
<td>36</td>
<td>34</td>
<td>35</td>
<td>36</td>
<td>35</td>
</tr>
</tbody>
</table>
Hospital patients (SHRUGs data)

The proportion of SHRUGs patients allocated to SHRUGs group A has remained relatively stable between March 2004 and July 2009. In the past six data collection periods the proportion in group E (those of high dependency with a need for special care and/or clinically complex treatment) has increased from 29% to 35%.

**Figure 4**
Patients in each SHRUGs group and estimated resources utilised in each SHRUGs group
Percentages; data collected between October 2008 and July 2009

<table>
<thead>
<tr>
<th>SHRUGs Group</th>
<th>Percentage in Group</th>
<th>Estimated Resources Utilised</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>8%</td>
<td>5%</td>
</tr>
<tr>
<td>B</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>C</td>
<td>25%</td>
<td>19%</td>
</tr>
<tr>
<td>D</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>E</td>
<td>35%</td>
<td>46%</td>
</tr>
</tbody>
</table>

The relative amount of staffing resources can be estimated by applying the SHRUGs 'weights' to each of the SHRUGs groups (see Appendix 5 for a more detailed explanation). When the SHRUGs weight was applied to the 35% of patients who were assigned to group E, it was estimated that they would utilise 46% of the total available staffing resource. In contrast, the 8% of patients in group A would utilise only an estimated 5% (Figure 4; Appendix 1: Table 2).

### 4.4 Trends in casemix complexity

A summary measure of the overall resource utilisation across all five SHRUGs groups is the casemix complexity factor (CCF). The CCF is a statistical index of resource utilisation for a defined population of patients in long stay care of the elderly wards. It is an approximate indicator of the average amount of nursing staff resource utilised per patient for such a population. The CCF is calculated by multiplying the number of patients in each SHRUGs group by the ‘weight’ for that group; for example, if a hospital had 45 patients allocated to Group A, then the calculation would be 45 multiplied by 0.62 (i.e. 0.62 being the weighting factor for SHRUGs Group A). The result for each of the five groups is added together and the sum divided by the total number of patients in the population.
Casemix complexity factor\(^1\) for SHRUGs patients

In individual NHS Boards and for all participating NHS Boards; data collected between October 2008 and July 2009

\(\text{NHS Board} \quad \text{All NHS Boards} \quad (1.13)\)

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<tbody>
<tr>
<td></td>
<td>1.10</td>
<td>1.13</td>
<td>1.12</td>
<td>1.12</td>
<td>1.12</td>
<td>1.13</td>
</tr>
</tbody>
</table>
\end{tabular}
\end{table}

The CCF can only range between 0.62 and 1.47.

In the period between October 2008 and July 2009, the CCF among participating NHS Boards ranged from 1.06 in NHS Highland to 1.21 in NHS Fife with a figure of 1.13 for all NHS Boards (Figure 5; Appendix 1: Table 8).

Table 6
Casemix complexity factor for all SHRUGs patients;
by data collection period

The CCF has increased from 1.10 for the year ending March 2004 to 1.13 in the period between October 2008 and July 2009.
4.5 Distribution of patients within SHRUGs dependency variables

An activity of daily living score (ADL) is derived from SHRUGs data collected on patients in relation to eating, transferring position and use of the lavatory. The ADL score is calculated by adding together the individual scores that are recorded for each question that is asked in relation to eating, use of the lavatory and transferring position. This ADL score gives an indication of the level of dependency of each patient and is used as part of the SHRUGs grouping algorithm.

Table 7
Percentage of all patients within SHRUGs dependency variables by data collection period

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Eating</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>eats unaided</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>eats with help</td>
<td>38</td>
<td>32</td>
<td>37</td>
<td>34</td>
<td>41</td>
<td>39</td>
</tr>
<tr>
<td>requires feeding</td>
<td>24</td>
<td>25</td>
<td>25</td>
<td>26</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td><strong>Transferring Position</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>copes independently</td>
<td></td>
<td>10</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>needs the supervision or assistance of one person</td>
<td>22</td>
<td>21</td>
<td>23</td>
<td>23</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>needs the supervision or assistance of two or more persons</td>
<td>68</td>
<td>70</td>
<td>67</td>
<td>66</td>
<td>69</td>
<td>68</td>
</tr>
<tr>
<td><strong>Use of the lavatory</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>copes independently</td>
<td></td>
<td>8</td>
<td>7</td>
<td>8</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>needs help/direction/prompting</td>
<td>27</td>
<td>25</td>
<td>26</td>
<td>26</td>
<td>23</td>
<td>24</td>
</tr>
<tr>
<td>is completely dependent or does not use the toilet</td>
<td>65</td>
<td>68</td>
<td>66</td>
<td>67</td>
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<td>68</td>
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<tr>
<td><strong>Activities of Daily Living</strong></td>
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<td>low dependency (ADL = 3,4)</td>
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<td>10</td>
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<td>11</td>
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<tr>
<td>moderate dependency (ADL = 5,6,7)</td>
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<td>39</td>
<td>33</td>
<td>36</td>
<td>37</td>
<td>36</td>
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<tr>
<td>high dependency (ADL = 8,9)</td>
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<td>51</td>
<td>57</td>
<td>53</td>
<td>53</td>
<td>52</td>
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</table>

In the period between October 2008 and July 2009, 53% of all SHRUGs patients were classed as being of high dependency. (Table 7).
Amongst individual NHS Boards, the proportions of patients classed as being of low dependency ranged from 3% in NHS Grampian to 15% in NHS Dumfries & Galloway (Figure 6; Appendix 1: Table 3), and was 10% for all participating hospitals in the period between October 2008 and July 2009.

38% of all SHRUGs patients were classed as being of moderate dependency. The proportions among individual NHS Boards ranged from 26% in NHS Fife to 67% in NHS Highland (Figure 7; Appendix 1: Table 3).
There was considerable variation among individual NHS Boards in the proportion of patients classed as being of high dependency, in the period between October 2008 and July 2009. This varied from 20% in NHS Highland to 69% in NHS Fife (Figure 8; Appendix 1: Table 3), giving a figure of 53% for all participating hospitals within NHS Boards.

### 4.6 Distribution of patients within SHRUGs care need variables

Nearly half (49%) of patients across Scotland had a need for special care or clinically complex treatments. (Table 8; Appendix 1: Table 4).

#### Table 8

<table>
<thead>
<tr>
<th>Percentage of patients with SHRUGs special needs;</th>
<th>March 2004 %</th>
<th>April 2005 %</th>
<th>May 2006 %</th>
<th>July 2007 %</th>
<th>August 2008 %</th>
<th>July 2009 %</th>
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<td>44</td>
<td>46</td>
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<td>Clinically complex treatment</td>
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<td>11</td>
<td>11</td>
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<td>41</td>
<td>47</td>
<td>46</td>
<td>49</td>
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<td>13</td>
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<td>16</td>
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<td>more than one occasion each week</td>
<td></td>
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When comparing information from the previous data collection period, it can be seen that the percentage of patients with needs for special care and/or clinically complex treatments has remained the same at 49%. The proportion of patients with behavioural difficulties requiring immediate intervention on more than one occasion each week, has risen from 9% to 12%.
Among individual NHS Boards the proportions of patients with needs for special care and/or clinically complex treatments varied considerably, from 42% in NHS Tayside to 67% in NHS Highland (Figure 9; Appendix 1:Table 4).

4.7 Distribution of patients with mental health problems

In response to feedback from participants in SHRUG/SCRUGs interviews, new mental health questions have been developed. These questions have been piloted over the past three years and this section presents preliminary analysis of selected mental health questions.
Hospital patients (SHRUGs data)

Among individual NHS Boards the proportions of patients with problems with depression varied, from 29% in NHS Grampian to 80% in NHS Borders and NHS Highland (Figure 10), giving a figure of 60% for all participating hospitals within NHS Boards.

Figure 11

**SHRUGs patients with problems with anxiety**

Percentages of all patients; by individual NHS Boards and for all participating NHS Boards; data collected between October 2008 and July 2009

58% of all SHRUGs patients were recorded as having problems with anxiety. The proportions among individual NHS Boards ranged from 46% in NHS Grampian to 87% in NHS Borders (Figure 11).

Figure 12

**SHRUGs patients with problems with cognitive function**

Percentages of all patients; by individual NHS Boards and for all participating NHS Boards; data collected between October 2008 and July 2009
Hospital patients (SHRUGs data)

Amongst individual NHS Boards, the proportions of patients classed as having problems with cognitive function ranged from 57% in NHS Grampian to 93% in NHS Dumfries & Galloway, and was 77% for all participating hospitals within NHS Boards in the period between October 2008 and July 2009 (Figure 12).

4.8 SHRUGs and Psychiatry of Old Age

In the period between October 2008 and July 2009 SHRUGs data were collected on 561 patients from Psychiatry of Old Age (POA) facilities in 6 NHS Boards, equivalent to approximately 29% of this population in Scottish hospitals.

4.8.1 Proportions of patients in each SHRUGs group

Table 9
Patients in each SHRUGs group – POA patients
In individual NHS Boards and all participating NHS Boards; data collected between October 2008 and July 2009

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<thead>
<tr>
<th>NHS Board</th>
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<th>G</th>
<th>H</th>
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<th>S</th>
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<td>12</td>
<td>42</td>
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</tbody>
</table>

The proportion of patients falling into group E, the highest dependency group, ranged from 12% in NHS Highland to 42% in NHS Grampian. 24% of patients were in SHRUGs group D (Moderate dependency; with needs for special care and/or clinically complex treatments or High dependency; no needs for special care or clinically complex treatments). The lowest proportion fell into SHRUGs group B (low dependency with behavioural difficulties) (Table 9).
4.8.2 Case mix complexity factor

*Figure 13*

Casemix complexity factor for SHRUGs – POA patients

In individual NHS Boards and all participating NHS Boards; data collected between October 2008 and July 2009

The CCF can only range between 0.62 and 1.47.

In the period between October 2008 and July 2009, the CCF among participating NHS Boards ranged from 0.93 in NHS Highland to 1.17 in NHS Grampian with a figure of 1.04 for all participating NHS Boards. (Figure 13).

4.8.3 Distribution of patients with mental health problems (POA)

The new mental health questions have also been piloted with POA patients. This section presents preliminary analysis of selected pilot mental health questions.

*Figure 14*

SHRUGs patients with problems with anxiety - POA

Percentages of all patients; by individual NHS Boards and for all participating NHS Boards data collected between October 2008 and July 2009
Amongst individual NHS Boards, the proportions of patients classed as having problems with anxiety ranged from 28% in NHS Tayside to 84% in NHS Highland, and was 54% for all participating NHS Boards in the period between October 2008 and July 2009 (Figure 14).

Figure 15
**SHRUGs patients with problems with cognitive function - POA**
Percentages of all patients; by individual NHS Boards and for all participating NHS Boards data collected between October 2008 and July 2009

91% of all POA SHRUGs patients were recorded as having problems with cognitive function. The proportions among individual NHS Boards ranged from 84% in NHS Greater Glasgow & Clyde to 100% in NHS Fife and NHS Grampian (Figure 15).
4.9 Proportion of long stay care of the elderly patients in each SHRUGs group – awaiting placement

Figure 16
Proportion of patients in each SHRUGs groups awaiting placement
Percentages; a data collected between October 2008 and July 2009

The highest proportion of patients (35%) awaiting placement were in group C (patients of moderate dependency with no needs for special care and/or clinically complex treatments). The definition for awaiting placement for SHRUGs over the past few years has been "residents who are awaiting placement to supported accommodation, e.g. care homes".
Residents in care homes (SCRUGs data)

According to the latest Care Home Census published by the Scottish Government in March 2008, there were 37,829 places in homes intended for older people occupied by 33,140 residents. The purpose of the Care Home Census is to present national figures for care homes for adults in Scotland. The results from the most recent census can be found at the following website:
http://www.scotland.gov.uk/Publications/2009/02/20094539/0

Section 5 of the report presents information on the dependency and care needs of residents in a sample of care homes. This data was collected using SCRUGs.

5.1 Coverage of SCRUGs data collection

In the period between February 2005 and May 2009 data were collected in relation to 5,479 people in care homes. This covers 13 local authority areas (See appendix 2) and approximately 17% of all residents in care homes. Where there has been more than one SCRUGs survey in any one area in this time period, only data from the most recent survey has been used. SCRUGs surveys are carried out following requests from partnership areas. The coverage of SCRUGs surveys is not as comprehensive as SHRUGs long stay care of the elderly collections.

5.2 Age and sex of residents

Figure 17
Age breakdown of residents in care homes
percentages; data collected between February 2005 and May 2009

The largest proportion of residents in care homes (51%) were in the age group 85 years and older and 72% of residents in care homes were female.
5.3 Proportions of residents in each SCRUGs group

The percentage of residents in care homes falling into group A (the lowest dependency group) was 28% (Figure 18). The percentage falling into the three highest dependency groups (F, G and H) was 28%.

5.4 Distribution of residents within SCRUGs dependency variables

For each resident an activity of daily living score (ADL) is derived from SCRUGs scores for eating, transferring position, use of the lavatory and moving location. The ADL score is calculated by adding together the individual scores which are recorded for each of these questions. This ADL score gives an indication of the level of dependency of each patient and is used as part of the SCRUGs grouping algorithm.
Residents in care homes (SCRUGs data)

The proportions of residents classed as being of low dependency was 37% and 20% were classified as being of low to moderate dependency (Figure 19). 15% of residents were classed as being of high dependency.

5.5 Distribution of residents within SCRUGs care need variables

The majority of residents in participating homes did not have needs for special care or clinically complex treatments, nor did they exhibit behavioural difficulties as defined in SCRUGs (Figure 20; Figure 21).

Figure 20
Residents with needs for special care and/or clinically complex treatments and/or other special care needs and/or clinically complex conditions percentages; data collected between February 2005 and May 2009

17% of SCRUGS residents had a need for special care, and 2% of the residents had clinically complex treatments.

Figure 21
Residents in care homes exhibiting behavioural difficulties percentages; data collected between February 2005 and May 2009

11% of residents in care homes had a behavioural difficulty which required immediate intervention by a member of staff on more than one occasion in the week preceding the interview. The percentage of residents requiring extra...
Residents in care homes (SCRUGs data)

staff time in preventing the occurrence of problem behaviour at time of interview was 13%.
6 Comparisons of patients/residents in hospitals and care homes

The information that is shown in this section is based on hospitals and care homes within two NHS Board areas and four partnership areas. The SCRUGs data collected on 1,636 residents from within care homes was compared with SHRUGs data collected on 397 patients in long stay care for the elderly wards. The data was collected between November 2007 and May 2009. The data contained in this section is not representative of all SCRUGs and SHRUGs data collected.

6.1 Distribution of residents within SHRUGs/SCRUGs dependency variables

Figure 22
Comparison of residents for SHRUGs/SCRUGs dependency variable: ‘eating’
Percentages; data collected between November 2007 – May 2009

When residents in care homes were compared with those in hospitals, proportionally more residents (63%) were able to eat unaided, while proportionally more patients in hospitals (39%) required complete assistance with eating (Figure 22).
Comparisons of patients/residents in hospitals/care homes

Figure 23
Comparison of residents for SHRUGs/SCRUGs dependency variable: ‘use of lavatory’
Percentages; data collected between November 2007 – May 2009

A relatively small percentage of patients (8%) in hospitals coped independently when using the lavatory compared to 31% in care homes (Figure 23). 63% of patients in hospitals and 36% of residents in care homes, were completely dependent on staff or did not use the toilet.

Figure 24
Comparison of residents for SHRUGs/SCRUGs dependency variable: ‘transferring position’
Percentages; data collected between November 2007 – May 2009

63% of hospital patients and 34% of residents in care homes needed the assistance or supervision of two or more persons transferring position (Figure 24).
Comparisons of patients/residents in hospitals/care homes

6.2 Distribution of residents within each Activities of Daily Living (ADL) Group

The proportion of residents with a high dependency in terms of ADL characteristics was 41% in hospitals compared to 18% in care homes (Figure 26). A relatively small proportion of patients in hospitals (7%) were found to have a low dependency in terms of ADL characteristics.
7 Indicator of Relative Need (IoRN)

7.1 Development of the IoRN

The IoRN has been developed in partnership with the Scottish Government/ISD and local partnerships (including staff from social work departments and NHSScotland).

The IoRN enables clients receiving services in the community to be classified into groups with similar levels of relative need. The IoRN was developed from the SCRUGs measure and the Interval of Need (Isaacs and Neville, 1978) measure. Data on a number of clients receiving care at home (over 900), including data on services received, was supplied by practitioners and the best predictors of level of relative need identified. Like SCRUGs, the IoRN classification is a tree type algorithm. The main predictors were identified as follows:

- Activities of Daily Living (ADL) score - split into three groups of low, medium and high dependency
- for the low ADL group the score on personal care items - allows further refinement
- the medium ADL group was split by a measure of mental health and behaviour - whether certain problem behaviours were present
- the high ADL group was split according to whether help was required to maintain bowel function.

The practitioners checked the classification of the clients and the IoRN was adjusted where required. The Indicator of Relative Need (IoRN), previously known as the Resource Use Measure (RUM), is now being rolled out and implemented across Scotland. The plan for full implementation assumes that all Single Shared Assessment’s (SSA) of people aged 65 and over in Scotland will have an IoRN grouping assigned.

The main aims of the IoRN are to support service delivery at an individual, local and national level by providing information to:

1. Assist individual practitioners in managing their case load
2. Enable local managers to prioritise and allocate workload
3. Aid Council and NHS partnerships in planning and budgeting
4. Allow Scottish Government service monitoring and policy development, including information on access to services and the balance of care.

Data from Partnerships who have implemented the IoRN has been collected and analysed to illustrate how the data could potentially be used to inform planning at a local level. Examples of some of the analyses are presented below.
Indicator of Relative Need (IoRN)

Figure 27
Number of clients in each IoRN group, Site A

This chart allows managers and practitioners to see the profile of the caseload for their team.

Figure 28
Number of clients in each IoRN group, by gender

Other data gathered alongside the IoRN can be used, over time, to monitor trends and when combined with population data could be used to assess the implications for planning of services in terms of population change.

The analyses shown above simply use the IoRN score in an elementary way. It has been recognised however that combined with other core information more sophisticated use of the data is possible.
Figure 29 shows the unpaid carers provision by the IoRN group and can be used to help build a picture of what support is available to older people in a particular IoRN group.

Table 10 shows an example of the type of services being provided to those in particular IoRN groups at Site D.

Further details on the IoRN can be obtained by contacting Margaret Quinn at: margaret.quinn@nhs.net
7.2 Care Homes Staffing Model

Background

The culmination of several years of careful research work, involving over one hundred care homes for older people across Scotland, has led to the development of a model for informing the care hours provided by social care and nursing care staff. The finished model is now ready to be applied in several parts of Scotland to demonstrate its potential benefits in practice.

The development of the model was overseen by a Reference Group that included the Care Commission, COSLA and Scottish Care. The research and development phase was funded by the Scottish Government and the Information Services Division of NHS National Services Scotland (ISD) led the design of the model.

A ‘proof of concept’ electronic tool that uses this information and allows any care home to calculate its own current dependency level has been designed by ISD (using Microsoft EXCEL). Using the tool, care home managers should easily be able to apply the augmented IoRN to every resident, updating details as individuals change or as residents are admitted or discharged. If the initial implementation phase demonstrates the practical benefits of the approach then consideration may be given to the development of more functionally advanced software to support the model.

Demonstration Phase of Implementation

The aim of the Demonstration Phase is to test the model more extensively and discussions are in hand with several areas in Scotland that have expressed a willingness to act as ‘demonstrator sites’. The National Care Home Contracting Group chaired by COSLA is acting as an expert reference group for the demonstration phase. It has representation from all the key stakeholders including the Care Commission who is supporting and will be fully involved in the next phase.

The demonstration phase of the project will involve working with commissioners, providers and regulators to test how the model is applied in “real life”. The main objectives of the phase are as follows:

- To set up demonstration sites under the auspices of the local authority involving a mix of care homes provided by local authority, voluntary and private agencies.
- To test out the practical application of the model to demonstrate and evaluate its potential uses for commissioners, providers, and regulators.
- To consider options for quality assuring the information in the model.
Indicator of Relative Need (IoRN)

Time Frame and Outcomes

The demonstration stage of the project began in May 2009.

Further information on the development of the Care Home Staffing Model can be found at the following website:
http://www.isdscotland.org/isd/2961.html

For further information about the project please contact

Kathy McGregor
Senior Development Officer
Information Services Division
NHS National Services Scotland
Area 54A
Gyle Square
1 South Gyle Crescent
Edinburgh EH12 9EB

Telephone: 0131 275 6551

Email: k.mcgregor2@nhs.net
NHS Board Tables
## Appendix 1

### 1 Cumulative age and sex distribution of patients in care of the elderly long stay wards - October 2008 - July 2009

<table>
<thead>
<tr>
<th>NHS Boards</th>
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<th>B</th>
<th>F</th>
<th>G</th>
<th>H</th>
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1 Age as at date of SHRUGs interview.
2 Percentage of patients in care of the elderly long stay wards, percentage of resources utilised within each SHRUGs Resource Use Group; and Casemix Complexity Factor - October 2008 - July 2009

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<th>334</th>
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Casemix Complexity Factor

1 Calculated using weights (see appendix 5)
### Appendix 1

#### 3 Percentage of patients in care of the elderly long stay wards, by dependency variable and dependency category

**October 2008 - July 2009**

<table>
<thead>
<tr>
<th>NHS Boards</th>
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<th>H</th>
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<td>200</td>
<td>61</td>
<td>296</td>
<td>60</td>
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</tbody>
</table>

**Eating (%)**

- eats unaided  
  - 39 47 47 21 41 73 36 36 28 63
- eats with help  
  - 22 20 27 23 23 7 16 11 28 18 11
- requires feeding  
  - 40 32 27 56 36 20 49 52 35 53 26

**Use of lavatory (%)**

- copes independently  
  - 7 7 13 6 9 7 10 2 7 3 11
- needs help/direction/prompting  
  - 24 33 27 17 30 20 21 25 20 17 26
- is completely dependent or does not use the toilet  
  - 68 60 60 77 61 73 70 74 73 80 63

**Transferring Position (%)**

- copes independently  
  - 10 12 13 7 12 13 11 2 8 2 11
- needs the supervision or assistance of one person  
  - 22 25 33 15 27 20 18 26 19 22 19
- needs the supervision or assistance of two or more persons  
  - 68 63 53 78 61 67 72 72 73 77 70

**Activities of Daily Living (%) 1**

- low dependency (ADL = 3, 4)  
  - 10 11 13 6 12 13 12 3 9 3 15
- moderate dependency (ADL = 5, 6, 7)  
  - 38 45 40 26 42 67 31 38 35 33 48
- high dependency (ADL = 8, 9)  
  - 53 44 47 69 46 20 58 59 56 63 37

---

1 The activities of daily living (ADL) score is calculated by adding together scores from answers to questions about eating, toileting and transferring position.
# Appendix 1

## 4 Percentage of patients in care of the elderly long stay wards, by need for special care, clinically complex treatment and behavioural difficulty - October 2008 - July 2009

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## Appendix 1

5 Percentage of patients in care of the elderly long stay wards, by supplementary variables

**October 2008 - July 2009**

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Appendix 1

Table: 6 Percentage of patients in care of the elderly long stay wards, by emotional support and behaviour variables
October 2008 - July 2009

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<td>5</td>
<td>10</td>
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### Appendix 1

7 Percentage of patients in care of the elderly long stay wards allocated, and percentage of resources utilised by, SHRUGs resource use group

<table>
<thead>
<tr>
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<td>% of resources utilised</td>
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<tr>
<td>Resource use group:</td>
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<td></td>
<td></td>
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### Appendix 1

8 Casemix complexity factor (CCF) - patients in care of the elderly long stay wards

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<thead>
<tr>
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<th>August 2008</th>
<th>July 2009</th>
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<td>G</td>
<td>1.11</td>
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<tr>
<td>H</td>
<td>1.09</td>
<td>1.06</td>
</tr>
<tr>
<td>L</td>
<td>1.17</td>
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<tr>
<td>Y</td>
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Appendix 2

Appendix 2.1
Participation of NHS Boards in SHRUGs data collection – Long Stay Care of the Elderly

NHS Boards participating in SHRUGs data collection in the period between October 2008 and July 2009

<table>
<thead>
<tr>
<th>NHS Board</th>
<th>Board</th>
<th>Number of Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHS Ayrshire and Arran</td>
<td>A</td>
<td>161</td>
</tr>
<tr>
<td>NHS Borders</td>
<td>B</td>
<td>15</td>
</tr>
<tr>
<td>NHS Dumfries &amp; Galloway</td>
<td>Y</td>
<td>27</td>
</tr>
<tr>
<td>NHS Fife</td>
<td>F</td>
<td>86</td>
</tr>
<tr>
<td>NHS Grampian</td>
<td>N</td>
<td>61</td>
</tr>
<tr>
<td>NHS Greater Glasgow &amp; Clyde</td>
<td>G</td>
<td>334</td>
</tr>
<tr>
<td>NHS Highland</td>
<td>H</td>
<td>15</td>
</tr>
<tr>
<td>NHS Lanarkshire</td>
<td>L</td>
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<tr>
<td>NHS Lothian</td>
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<tr>
<td>NHS Tayside</td>
<td>T</td>
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Appendix 2.2
Participation of NHS Boards in SHRUGs data collection – Psychiatry of Old Age

NHS Boards participating in SHRUGs data collection in the period between October 2008 and July 2009

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<thead>
<tr>
<th>NHS Board</th>
<th>Board</th>
<th>Number of Patients</th>
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<td>F</td>
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</tr>
<tr>
<td>NHS Grampian</td>
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<tr>
<td>NHS Greater Glasgow &amp; Clyde</td>
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<tr>
<td>NHS Highland</td>
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<tr>
<td>NHS Lothian</td>
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<td>163</td>
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<tr>
<td>NHS Tayside</td>
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## Appendix 2.3

**Participation of NHS Boards/Local Authorities in SCRUGs data collection - in the period February 2005 – May 2009**

<table>
<thead>
<tr>
<th>NHS Boards/Local authorities</th>
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<tr>
<td>NHS Greater Glasgow &amp; Clyde</td>
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<tr>
<td>Inverclyde</td>
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<tr>
<td>Renfrewshire</td>
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</tr>
<tr>
<td>West Dunbartonshire</td>
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<td>Total</td>
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<tr>
<td>NHS Highland</td>
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</tr>
<tr>
<td>Argyll &amp; Bute</td>
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<tr>
<td>NHS Forth Valley</td>
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<tr>
<td>Falkirk</td>
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<tr>
<td>NHS Grampian</td>
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<tr>
<td>Aberdeenshire</td>
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<td>Moray</td>
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<td>Total</td>
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<td>NHS Lothian</td>
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<td>East Lothian</td>
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<td>City of Edinburgh</td>
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<td>Total</td>
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<tr>
<td>NHS Shetland</td>
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<tr>
<td>NHS Orkney</td>
<td>95</td>
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<tr>
<td>NHS Western Isles</td>
<td>59</td>
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</table>
Appendix 3

SHRUGs Interview Questions

Dependency questions; SHRUGs algorithm

Eating
When eating a meal the patient…
1 eats unaided
2 eats with help
3 requires feeding
4 is fed by tube or infusion

Use of the toilet
When using the toilet the patient…
1 copes independently
2 needs help/direction/prompting
3 is completely dependent or does not use the toilet

Transferring from bed/chair/standing
When transferring from bed to a chair, or from chair to standing the patient…
A copes independently
B needs the supervision or assistance of one person
C needs the supervision or assistance of two or more persons

Special needs questions; SHRUGs algorithm

Needs for special care which have been present over the last 7 days
Does the patient have one or more of the following special care needs which have been present within the last 7 days…

Comatose and does not respond to painful stimuli
Fed by nasogastric tube/gastrostomy
Intravenous infusion
Regular suction
Tracheostomy care
Swallowing problems requiring speech therapy guidance of a healthcare professional e.g. speech therapist, GP, dietician
Pressure sores with overt ulceration of the skin requiring a dressing, debridement or application of skin preparation daily
Ulcers of leg requiring at least a daily dressing or application of skin preparation
Wound/scald/burn/skin care with infection/complication/necrotic tissue
Comfort measures for the dying patient

Clinically complex treatments
Has the patient received one or more of the following clinically complex treatments within the last 7 days

Chest physiotherapy, continuous or intermittent oxygen, nebulised therapy
Transfusion (blood products)
Intravenous delivery of medication (excluding insulin)
Subcutaneous infusion, e.g. by syringe driver
Appendix 3

**Behaviour - Immediate intervention of problem behaviour**

*Are there ever episodes of problem behaviour so severe, risky, or disruptive that staff have to drop what they’re doing and intervene immediately?*

1. no
2. once this week
3. more than once this week but not daily
4. once a day (on average)
5. more than once a day on average

**Supplementary questions; SHRUGs interview**

**Moving location**

*When moving from one location to another the resident*

A. copes independently
B. needs the supervision or assistance of one person
C. needs the supervision or assistance of two or more persons

**Other needs for special care**

*Does the patient have one or more of the following special care needs which have been present in the last 7 days …*

- Comfort measures for the post-operative patient, including regular turning, eye care, mouth care and skin care
- Comfort measures for the acutely ill patient, including regular turning, eye care, mouth care and skin care
- Patient with infestation/infection requiring barrier nursing

**Clinically complex conditions**

*Does the patient have one or more of the following clinically complex conditions …*

- Severe congestive cardiac failure
- Unstable diabetes
- Recurrent fits
- Parkinson’s disease with severe on-off fluctuations

**Other clinical conditions**

*Does the patient have one or more of the following clinical conditions …*

- Dementia
- Hip fracture
- Chronic Obstructive Pulmonary Disease
- Stroke
- Heart Disease
- Problems with mobility
- Cancer

**Behaviour - Preventing problem behaviour**

*Do staff take action or tailor and adapt the patient’s daily routine in order to prevent the occurrence of problem behaviours?*

1. no - this is not required
2. no - staff do not have time to do this
3. yes - this requires little or no extra staff time
4. yes - this requires extra staff time
Appendix 3

Behaviour – Co-operation
This question is about whether the patient is unco-operative or resistant to help to the extent that staff have to spend more time with the physical aspects of care (e.g. feeding, dressing or transferring). Would you describe the patient as:

1 actively co-operative
2 passively co-operative - allows things to be done for them
3 actively unco-operative, or, resists help

Dressing
When dressing the patient…
A copes independently
B needs the supervision or assistance of one person
C needs the supervision or assistance of two or more persons

Urinary/Faecal incontinence
The resident is incontinent of urine/faeces:

1 never
2 once this week
3 more than once this week but not daily
4 one or two times in each 24 hour period
5 three or more times in each 24 hour period

Recreational activities
In your professional opinion is the patient able to take part in recreational activities

1 can independently initiate and take part in recreational activities OR choose not to participate
2 can participate independently in a range of activities provided the activity is initially set up for them
3 needs physical assistance and/or prompt, supervision or encouragement to participate in any recreational activity but does not require one to one assistance throughout the activity
4 needs complete and individual assistance throughout to participate in any recreational activity
5 unable to participate in any activity

Communication skills
Does the patient communicate his/her needs

1 yes verbally and understood by most people
2 yes verbally and understood only by those who know him/her well
3 yes non verbally
4 no
Appendix 3

Mental Health Questions

Depressed mood
*To what extent has the person shown symptoms of low or depressed mood?*

1 – No evidence of problem

2 – Occasional low mood, or low self-esteem, e.g. loss of interest and/or pleasure and lack of energy but maintains most aspects of daily activity

3 – Depressed mood is present more often than not, e.g. tearful causing significant interference in daily functioning OR expressed feelings of guilt, self-blame OR feeling that they are of no use to anyone and would rather be dead

4 – Depressed mood is continuous and persistent, e.g. very tearful, with little or no capacity to engage in daily activities, or expression of persistent and intense feelings of guilt, self-blame, hopelessness, inferiority or self-loathing

Anxiety
*To what extent has the person shown symptoms of anxiety, phobia, panic or other stress-related disorders?*

1 – No evidence of problem

2 – Occasional bouts of anxiety, e.g. worrying, feelings of tension or fear but do not affect daily activities.

3 – Frequent bouts of anxiety e.g. worrying, fear or tension of sufficient intensity to affect daily activities, regularly avoids certain situations and may frequently express distress, or appear to be distressed

4 – Continuous bouts of anxiety, e.g. repetitive experiences of intense worrying to the point where the person is unable to engage in ordinary daily activities

Cognitive function
*Does the person show evidence of cognitive impairment?*

1 – No evidence of problem OR occasional minor forgetfulness

2 – Mild but definite forgetfulness, e.g. definite problems learning new information such as names, recollection of events, or mild problems with orientation, or sometimes confused about simple decisions.

3 – Marked forgetfulness to the point that some activities are disrupted, e.g. cannot find objects, newly learned information rapidly lost; occasional failure to recognise familiar individuals; has lost the way in a familiar place

4 – Consistent forgetfulness causing restriction or incapacity, e.g. consistently loses way, loses objects, forgets plans or consistent disorientation in time, place and/or person or consistently unable to recognise or to name close friends or relatives
Appendix 3

Aggression
*Does the person show evidence of verbal/physical aggression?*

1 – No evidence of problem

2 – Occasional Aggression, e.g. irritability, quarrels, abusiveness but generally calm and not requiring any specific action.

3 – Noticeable aggression, e.g. over-activity, or loss of inhibition, requiring persuasion and encouragement.

4 – Aggressive gestures, e.g. pushing or pestering others or threats or verbal aggression or severe problems relating to verbal/physical aggression
Appendix 3

SCRUGs Interview Questions

Dependency questions; SCRUGs algorithm

Eating
Use of the toilet
Transferring from bed/chair/standing
Moving location

Behavioural questions; SCRUGs algorithm

Behaviour - immediate intervention of problem behaviour
Behaviour - preventing problem behaviour

Needs for special care questions; SCRUGs algorithm

Needs for special care which have been present within the last seven days
Other needs for special care which have been present within the last seven days
Clinically complex treatments
Clinically complex conditions

Supplementary variables;
Dressing

Behaviour - co-operation
Urinary and faecal incontinence
Communication skills
Recreational activities
Other clinical conditions
Mental Health Questions
Appendix 3

IoRN Questions

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

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

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

4. Is the person able to wash his / her hands and face?
A Without difficulty
B Without difficulty using equipment or an adaptation ............................................................
C Has difficulty, even if using equipment or an adaptation ......................................................
D Requires prompting, guidance, supervision or encouragement ..........................................
E Cannot do without assistance from others ..............................................................................

5. Is the person able to give himself / herself a complete wash, a bath or a shower?
A Without difficulty .....................................................................................................................
B Without difficulty using equipment or an adaptation ............................................................
C Has difficulty, even if using equipment or an adaptation ......................................................
D Requires prompting, guidance, supervision or encouragement ..........................................
E Cannot do without assistance from others ..............................................................................

6. Is the person able to wash his / her own hair?
A Without difficulty .....................................................................................................................
B Without difficulty using equipment or an adaptation ............................................................
C Has difficulty, even if using equipment or an adaptation ......................................................
D Requires prompting, guidance, supervision or encouragement ..........................................
E Cannot do without assistance from others ..............................................................................

7. Is the person able to dress / undress himself / herself?
A Without difficulty .....................................................................................................................
B Without difficulty using equipment or an adaptation ............................................................
C Has difficulty, even if using equipment or an adaptation ......................................................
D Requires prompting, guidance, supervision or encouragement ..........................................
E Cannot do without assistance from others ..............................................................................
Appendix 3

8. Is the person able to prepare, cook and serve himself / herself a main meal?
   A Without difficulty .................................................................
   B Without difficulty using equipment or an adaptation .........................................................
   C Has difficulty, even if using equipment or an adaptation ..................................................
   D Requires prompting, guidance, supervision or encouragement ..............................................
   E Cannot do without assistance from others ...........................................................................

9. Is the person able to prepare himself / herself a light snack (e.g. sandwich)?
   A Without difficulty .................................................................
   B Without difficulty using equipment or an adaptation .............................................................
   C Has difficulty, even if using equipment or an adaptation ......................................................
   D Requires prompting, guidance, supervision or encouragement ............................................
   E Cannot do without assistance from others ...........................................................................

10. Is the person able to prepare himself / herself a hot drink (e.g. cup of tea)
    A Without difficulty ................................................................................................................................
    B Without difficulty using equipment or an adaptation ........................................................................
    C Has difficulty, even if using equipment or an adaptation ..............................................................
    D Requires prompting, guidance, supervision or encouragement ................................................
    E Cannot do without assistance from others .................................................................................

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 week

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

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
   1 No
   2 Yes
Appendix 4

Validity and reliability of SHRUGs data

Validity and reliability of the SHRUGs algorithm

Inter-rater reliability of the SHRUGs data was evaluated by separately asking two independent members of care staff the same questions about the same patients. Testing was carried out at a number of different hospital sites for a total of 1,402 patients, with the second interview carried out within 48 hours of the first. For the individual variables included in SHRUGs the percentage consistency of response between interviewees ranged from 68% to 86%. Overall the level of consistency achieved for the five SHRUGs resource use categories was 67% (weighted kappa = 0.60). When the 606 cases for which full cost information is available were classified into low, medium and high categories of cost, there was a consistency of 62% between the test and retest samples (weighted kappa = 0.52).

Testing for significant differences among the five case mix groupings for 606 patients was completed using the Kruskal-Wallis one-way Analysis of Variance. Based on the overall ranking of costs for each patient, the differences between the five resource use groupings were significant (p<0.0001).

The extent to which variation in cost is explained by SHRUGs data was determined using linear regression methods with transformed patient costs as the dependent variable. Overall, the five categories explain 35% of the variance in costs when linear regression methods were applied. The results obtained for Diagnosis Related Groups typically fall in the range from 30% to 35%.

The SHRUGs weights were confirmed as accurate by testing the calibration on a separate geriatric long stay population of 411 patients.

Validity and reliability of the SCRUNGs algorithm

The SCRUNGs algorithm was developed from a sample of 592 geriatric long stay patients from within two trusts during May 1996 to February 1997.

The SHRUGs weights were validated on a separate geriatric long stay population of 863 patients.

Kruskal-Wallis one-way Analysis of Variance was again applied to test for significant differences among the eight case mix groupings for the 592 patients. The differences between the eight resource groups were found to be significant (p<0.0001).
Linear regression was applied and could explain 37% of the variance in cost over the 8 resource use groups.

Validity and reliability of SCRUGs

An identical method of testing was used to evaluate the inter-rater reliability of the SCRUGs data. Testing was on 148 residential care residents. For the individual variables included in SCRUGs the percentage consistency of response between interviewees ranged from 34% to 93%. Overall the level of consistency achieved for the SCRUGs resource use categories was 58%.

Retest analysis: Percentage consistency of response for SCRUGs variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Percentage consistency</th>
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<td>Eating</td>
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<td>Toileting</td>
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<tr>
<td>Transferring position</td>
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<tr>
<td>Moving location</td>
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<tr>
<td>Immediate intervention of problem behaviour</td>
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<td>Prevention of problem behaviour</td>
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<td>Monitoring problem behaviour</td>
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</tr>
<tr>
<td>Faecal incontinence through the night</td>
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<tr>
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<td>Communication skills</td>
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<td>Hearing impairment</td>
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<td>Emotional support - Engaging in activities</td>
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<td><strong>SCRUGs group</strong></td>
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</tbody>
</table>

*Italic type indicates supplementary variables (i.e. these are not used to assign residents to SCRUGs groups)*
Appendix 5

Method of deriving relative weights for SHRUGs

To arrive at the groupings and weights, estimates were made of the level of care resources utilised for each patient by asking a trained member of ward staff to make estimates of relative resource use for each patient. The staff concerned were asked to identify the patient who used the greatest amount of qualified nurse time and the patient who used the least amount of qualified nurse time during the 7 days preceding the interview. The respondent was then asked to estimate the relative amount of time utilised by these two patients as a ratio. The other patients in the ward were then ranked using an interval scale within this range. The same process was then applied to the use of unqualified staff time. The relative weightings for each patient were then applied to the costs of qualified and unqualified nursing staff attributed to each ward by the management of the hospitals concerned.

Patients with similar resource costs were then grouped together and the characteristics of patients in each group were examined. These groupings ranged from one which described patients with no problems of behaviour and who had low dependency, to one which included patients with high dependency who needed special care. One category included both patients with a need for special care and moderate dependency, and patients with no need for special care and high dependency.

The cost information on each patient was then used to derive a cost weight for each of the five resource use groupings relative to an overall average of 1.00. Where the average resources used by all patients is equivalent to 1.00 unit of cost, patients of low dependency with no behavioural difficulties (Group A) would require on average an estimated 0.62 units, while patients of high dependency and needs for special care or clinically complex treatments (Group E) would require on average an estimated 1.47 units.

Development of the SCRUGs algorithm

Identical procedures were applied to arrive at the SCRUGs groupings and weights.

As before, individual dependency and needs characteristics were examined to show those variables which showed the greatest variation in terms of cost and therefore predictive of resource use. These variables were used to develop eight resource utilisation groups. The groupings ranged from one which described residents of low dependency, with no behavioural problems or needs for special care to one which described residents of high dependency, with both behavioural problems and needs for special care.
Appendix 5

The cost information on each resident was used to derive a cost weight for each of the eight resource groupings relative to an overall average of 1.00. Where the average resources used by all residents is equivalent to 1.00 unit of cost, those residents of low dependency with no behavioural problems or needs for special care (Group A) would cost on average 0.50 of this, while residents of high dependency, with both behavioural problems and a need for special care (Group H) would cost on average 1.43.