

Outcomes Count

**Redesigning the community
Indicator of Relative Need (ioRN2)**

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Foreword

Everyone who seeks advice or support for their health or social care needs is unique and in our service and staff responses we should aim to reflect that uniqueness in the delivery of high quality person centred care. The Indicator of Relative Need or ioRN2 tool provides health and social care professionals the ability to describe and document individual care needs using a common language, in a systematic and consistent way which supports improved communication, service planning and care delivery. For these reasons we welcome this report on the re-design of the Indicator of Relative Need or ioRN2.

As the report describes, the redesign of ioRN2 has been co-produced by experienced health and social care professionals with backgrounds in nursing, social work and the allied health professions, in a partnership with information professionals from ISD. It is therefore no surprise that ioRN2 has emerged as a versatile yet straightforward tool for clinicians and practitioners of all disciplines.

With its focus on measurement of function, independence and outcome ioRN2 gives important and distinctive perspectives on people with care and support needs. This is information and insight to help deliver more personalised, targeted care and support in the community. It is information that contributes to our shared strategic goals of avoiding unnecessary admission to hospital and enabling better transition from hospital to home.

In an increasingly integrated system of health and social care delivery concise information that can be gathered by different professionals and shared with a common language across teams and individual practitioners has relevance and importance to all of us.

These are still early days for ioRN2 of course but its use is growing across Scotland and understanding of its potential is expanding. We must not limit our thinking about ways that the information from this tool will help us address our challenges now and in the future.

In our roles, which have strong interest in the key health and social care professions in the community and the wider health and care system, we are pleased to jointly commend this informative report and its recommendations to you. We anticipate that there will be wider adoption of ioRN2 and look forward to seeing the use made of the insight and intelligence it offers in the years ahead.

Fiona McQueen
Chief Nursing Officer
for Scotland

Iona Colvin
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July 2017

What is the Indicator of Relative Need or ioRN?

Health, social care and housing are the front line of challenges presented by an ageing population and a care profession under pressure. Dealing with these unprecedented challenges calls for good information that both supports front line staff and is useful to those who plan and organise care.

The Indicator of Relative Need or ioRN is a data collection tool designed by and for health and care professionals. By addressing function, need and, most importantly, outcomes it offers information that is essential for the transforming health and care of today and the future.

ioRN2, the main subject of this report, is a timely and necessary development of the original community ioRN. With its design and testing completed in 2015 ioRN2 is informative, straightforward to collect and practitioner friendly. It is used by an expanding range of health and care teams across Scotland. Experience shows it offers both universal information and a common language for health, social care and housing.

ioRN2 uses the answers to a specific set of questions which document a person's independence on important aspects of function. The questions are easily answered by a practitioner or a clinician who, following a comprehensive outcome-focused assessment, understands the person's needs. They relate to the person's mobility, how independently they carry out tasks like washing themselves or preparing a meal and aspects of mental well-being. A set of rules or 'algorithm' places the person into a discrete ioRN2 Group, depending on the answers to the questions in combination.

ioRN2 data can document key changes in an individual's care needs. At a big picture level these data are tailor made to chart the outcomes for groups of people receiving care.

ioRN2 offers a unifying and universal information and outcome tool for health and care in a multi-agency, integrated landscape.

About this report

The report comprises two main parts. In Part 1 we explain why and how the initiative to re-design the original community ioRN was carried out; and we document what is different about ioRN2.

In Part 2 we show examples of the outputs from ioRN2, supported by some from the original ioRN, to illustrate their potential to inform decision making. Among the analyses presented are the outcomes of care and support as evidenced by ioRN2.

We hope you will find the report interesting and informative. We also hope we provide sufficient detail to demonstrate the level of rigour, creativity and clarity of purpose that we brought to our task.

Most importantly perhaps, we hope that after reading the report you will feel inspired to actively join the many health and care professionals who value and use ioRN2. Only then will we consider the task fully completed.

Acknowledgements

The redesign of the community Indicator of Relative Need has only been possible due to the active support of many Health and Social Care professionals. These staff, in teams across Scotland, embraced the challenge of carefully recording the required data and providing constructive feedback on all aspects of the enhanced version of the ioRN – the ioRN2. We wish to thank each and every one of these busy professionals involved. We are also indebted to Margaret Whoriskey who, as Director of the Joint Improvement Team during most of the project life, offered encouragement, support and her personal endorsement at the launch event of ioRN2 at the Glasgow Science Centre in September 2015. Thanks are extended to Val De Sousa for giving us permission to use and present analyses of ioRN data from Clackmannanshire; and to colleagues at the Analytical Services Division for their publishing of original ioRN data that we use in some of the charts within this report. The endorsement in the early phase of the project by the Association of Directors of Social Work (now Social Work Scotland) was greatly appreciated and we hope their support has been justified by the final result. The parallel independent validation study of ioRN2 by Dr Miles Witham and his team at Dundee university was welcomed by the review working group and we believe their findings provide an independent vindication of our confidence in ioRN2. The in-depth knowledge and skills of Adam Redpath and Winona Samet, both of whom were coaxed out of their retirement, were invaluable throughout the project. Additional technical support at key points was given by a series of very able ISD professionals including Euan Paterson, Stephen Halcrow, Nikos Kavadas and Grant Ritchie. A wealth of subject matter expertise was provided directly by members of the review working group and, from time to time, by other professionals with specialist knowledge.

Bringing the actual report to publication has been assisted by many people and we would like to thank in particular Margaret Quinn, Alison Whyte and the Publications Unit at ISD for their able contribution.

Finally it is essential that we acknowledge that the data used in this report concern actual people. We owed them a duty to act with complete integrity, care and professionalism as public servants in the way we use their data. We hope all of them would agree this has been our approach throughout.

Peter Knight

On behalf of the ioRN Review Working Group

July 2017

Next Steps

A successor to the Review Working Group, an ioRN National Steering Group has been formed to provide implementation advice and to oversee the development of supporting resources. The Steering Group also provides a focal point for advice on other future developments that may follow.

A number of essential steps that have already been identified would enable ioRN2 to fully achieve its potential across the health and care landscape. Some of these proposals could happen relatively quickly whilst others will take longer. To deliver maximum benefit from ioRN2 members of the Review Working Group recommend:

1. As a minimum ioRN2 should be adopted as the standard tool in intermediate care and in reablement. But this is just a minimum and we recommend that ioRN2 should also be considered for use across all community services in Health, Social Care and Housing – whether in the NHS, social work, housing services and the Third sector.
2. Partnerships should investigate how best to computerise data collection in local systems. All new system developments should include ioRN2 as part of their design.
3. It is vital that the design of outputs is given equal attention to the design of data collection, to ensure that ioRN2 data are collected once but used widely.
4. Comprehensive training material should be developed, supported nationally and universally used.
5. ISD should ensure that a coordination and technical function is retained as part of its national remit.
6. In recognition of the benefits of standardised recording of information in Scotland other key national bodies, including Healthcare Improvement Scotland and the Care Inspectorate, NHS Education for Scotland and the Scottish Social Services Council, should consider how to promote ioRN2 as the universal tool for multiple purposes in all community and transitional settings, including the measurement of outcomes and in evaluation.
7. Organisations in the Third Sector should consider adoption of ioRN2 where this would be useful and appropriate.

Part 1

Background and Introduction

The re-design of the ioRN has occurred at an important time for everyone who is committed to delivering high quality care and support to older people and other adults with assessed needs. Rising complexity of care needs, changing public preferences and a workforce under increasing pressure are all happening now. The importance of using information and evidence to ensure the best decisions are made is now more widely understood than in the past.

In their critique of how far national data has kept pace with policy changes Audit Scotland (2014)¹ noted ‘Tools that can assess people’s care needs in the community in a standard way are not currently widely used’. Audit Scotland recommended that ‘The Scottish Government should work with NHS boards, councils and their partners to:use a consistent tool to assess dependency in older people.’ They observed ‘ This information is important to ensure that needs are met and to help inform planning future services’.

In this context ioRN2 has emerged and it could hardly have made a more timely entrance to the health and care landscape.

As a by-product of an outcome-focussed assessment ioRN2 offers concise person-centred data that can inform people’s care and support, be readily shared between professionals and measure the difference an intervention makes. Capable of being used, shared and understood across all sectors of care and support – in social work, NHS or housing, in integrated teams and across the voluntary sector – ioRN2 is especially relevant where integrated working is important.

The ‘ioRN concept’ and approach are themselves not entirely new: the original development of the community ioRN, initially known as the Resource Use Measure (or RUM)², was carried out during 2001-2003. A joint initiative led by the Scottish Government and ISD Scotland NHS and local authority staff in most parts of Scotland were actively involved in the design and testing. The original ioRN was subsequently introduced across a range of authorities in Scotland. With the advantage of looking back at the experience of over a decade of use it has been possible to identify aspects of ioRN that are the priority for review.

The Care Home or Augmented ioRN

A separate version of the ioRN was designed for use in care homes in 2008. It is widely used, in Scotland and elsewhere in the UK, in a Care Home Staffing Model³.

Discussions about a revised version of the community ioRN began in 2012. By the time of the launch of ioRN2 in September 2015 we had carried out a considered review of the strengths and weaknesses of the original ioRN, identified areas where improvement and design changes were necessary, and tested the revised ioRN in a number of teams across Scotland and analytically.

Re-design of the community ioRN has been led by a review working group that mainly comprised highly experienced health and social care professionals. An important feature of the working group was the involvement of analytical specialists who helped balance the practice knowledge available with the essential statistical expertise required for the challenging task. A list of the working group membership is shown in Annex 1.

The working group was established and led by Peter Knight, formerly the information lead for the Scottish Government's Joint Improvement Team (JIT), who now works within ISD. National support during most of the development phase fell to the JIT. Since April 2016 on-going national support has been provided through ISD.

Re-Design - Improving the community ioRN

The working group decided to largely retain the overall structure and method of the original community ioRN. The ioRN2 tool retained a high degree of familiarity to front-line practitioners and helped preserve much of the validity of the original version.

As noted earlier the relevance of the ioRN in transitional settings such as reablement and intermediate care has been accepted for many years. But the original ioRN had limitations in this regard and the working group identified this as a key issue.

Improving sensitivity was essential as a more sensitive tool would better demonstrate changes over time in the person's functional needs by comparing consecutive ioRN results. In re-ablement and intermediate care where the dedicated support given is time-limited and focussed on promoting recovery and independence a more sensitive ioRN would be an invaluable source of outcome data.

Sensitivity – a key issue for measuring outcomes

The question of sensitivity had been noted in 2010 in the context of the use demonstration project on intermediate care carried out within Fife. The subsequent report commented positively: 'the use of the indicator of relative need has provided a profile of the functional ability of people using intermediate care services and has a role in measuring outcomes' but it also noted the constraint that as people were already in the most functionally independent group (ioRN group A) on entry to the service any improvement achieved could not be measured⁴.

The working group members were mindful that previous use of the original ioRN had demonstrated that the distribution of people across the nine different ioRN Groups was in practice very uneven. While this is less of an issue where the Group is relatively uncommon (such as Group G) the existence of very large groups markedly diminishes the potential for the ioRN data to evidence changes that have happened over time [Group B typically comprised perhaps 40% of people receiving care with Group A close behind in size].

To address these issues the working group decided to explore whether Groups A and B could be split into a range of sub-categories that reflected different levels of need. If successful this could deliver the greater sensitivity that is useful at the very part of the range where the restoration of function and independence might be most evidenced.

A practical challenge for the working group was to create a coherent sub-division of groups A & B whilst retaining the existing ioRN questions. Meeting this challenge required a combination of understanding of practice and the application of the necessary statistical expertise.

The working group were given access by ISD to ioRN data that had been collected during the original ioRN development. This was supplemented by other data provided by Clackmannanshire Council.

ioRN Groups A and B: How they were split

The working group decided to split Group A into three sub-groups. These sub-groups involved a finer differentiation of the answers to the questions on activities for daily living, personal care and food preparation [see Annex 2].

For Group B the working group found it more difficult to identify natural “fault lines” to guide where a sub-division might best be done. An initial decision to sub-divide the group into four was based on needs as identified by the ioRN questions. The total score for personal care and food preparation (PCFP) questions was one factor considered.

Note that a refinement to split the B Group into three sub-divisions was subsequently made after the review following the piloting.

Other ioRN Groups

The working group decided there were no compelling arguments for changing the other groups (Groups C to I) at this time. They acknowledged however that a review of these groups may be necessary in the longer term, especially if there is a requirement to identify people with complex needs in a greater level of detail than the current ioRN2 permits.

Capturing the effects of mental well-being issues in ioRN2

Mental well-being may have important consequences for the type and intensity of support which a person needs. Past use of the original community ioRN had revealed inconsistencies in the way practitioners took account of mental well-being in answering the ioRN questions. The working group gave careful consideration to what might be done to improve the accuracy of the recorded answers. They concluded that, by ensuring that the answer choice to each question took account of the influence of the person’s mental well-being on their self-confidence and motivation for example (as well as their physical capability), greater accuracy and consistency would be achieved. To this end the existing Guidance for practitioners was reviewed and important clarification added.

In addition an important refinement was made that affected the Group code that is determined by the algorithm, again underlining the importance of mental well-being in the context of a person’s overall needs: behavioural needs or risk are now explicitly identified in the ioRN2 codes through the addition of a suffix ‘m’ as part of the Group description, for example ‘B2m’ – with the ‘m’ denoting a raised score on one or more of the behaviour and

risk questions. Note that initially this change was not deemed necessary for Groups C, and E - H as these Groups explicitly take mental well-being into account already - but this is under review.

Why this change was necessary

A combination of answers is used to determine the ioRN Group. The process for this starts with consideration of the answers to the 3 questions relating to activities for daily living (ADL). The answers are given a numerical value and combined. The combined “scores” are divided into three classes (Low, Medium or High) depending on the total value. When the person’s combined ADL score is ‘Low’ no account is taken of the behavioural support or risk answers – rather the focus then is on the person’s personal care and food preparation scores. Whilst this may have an advantage in enabling the discrete ioRN Groups to be chosen it also hides the presence of possible mental well-being support issue among people with low ADL scores.

The use of a suffix (or cipher) ‘m’ in ioRN2 is a simple way to deal with this anomaly.

A small presentationally beneficial change was also made to the answer options available for each of the six questions on mental well-being and risk. In ioRN2 the response to each of the questions is chosen from the following three options:

- Never
- Once or twice in the past four weeks
- More than twice in the past four weeks

In the original ioRN the first two options were combined into a single option.

Presentation and use of ioRN data

The working group were aware of the relatively limited use made of the original community ioRN data, even within teams that were completing ioRN records routinely. Some social work departments used ioRN to support decisions regarding admission to a care home, or access to other services. There were however relatively few examples of its wider uses such as for operational management or for planning. In some systems output data from the ioRN was difficult to access and this, in part, may explain its limited use.

As a demonstrator of what ioRN2 data might offer the pilot services were invited to provide a copy of the data they were collecting (at the end of the testing phase). These pilot data provide an opportunity to show different ways of presenting ioRN2 data. Examples of these are given in Part 2.

Testing of the design changes

As noted earlier, development of the original community ioRN was informed by the experience of a wide range of practitioners in health and social care. The working group recognised that it was equally important that the revised version of the tool was fully tested. To this end testing involved a range of practitioners and teams as described in Annex 3.

The different services delivered by these teams had in common that they were time-limited or 'transitional' in their purpose.

Data collection

Data collection for test purposes took place during 2014/15. The actual time period involved and the duration of the test varied. Sample sizes also varied markedly between the services involved.

Ways practitioners use to gather ioRN data are largely well-established. In general the process begins with an assessment carried out by a practitioner and, informed by the knowledge they have about the person, the practitioner then completes an ioRN2 questionnaire. As a rule of thumb, the extra time spent completing ioRN2 post assessment is around five minutes.



In all the services involved in the pilot a follow-up or review ioRN was also completed where appropriate. In a minority of cases no review ioRN2 was collected because for example readmission to hospital or the death of the person had intervened.

The exact means of gathering the completed ioRN2s varied from team to team:

- Within the Dumfries and Galloway STARS team and in Fife's ICASS the ioRN information was recorded on a paper ioRN questionnaire initially and subsequently entered by administrative staff into an ioRN2 EXCEL spreadsheet specially designed by ISD.
- In Midlothian an input screen was designed into the local system.
- In East Dunbartonshire the reablement team recorded the information directly into a form on the CareFirst system. This current form however does not automatically calculate the person's ioRN Group; this has to be done manually – a task that is carried out by the practitioner.

It is possible to determine the ioRN2 Group manually by following systematically the steps laid out in the instruction menu. An alternative approach, designed by ISD, uses an 'App' that is readily downloadable on to an electronic device such as a Smartphone. A link to the App is given in the Reference section.

The final revisions agreed

A key purpose of the pilot was to assess ioRN2 from the perspective of front-line practitioners and listening to and responding to their views was part of the way of working. The criteria for success included that health and care teams using ioRN2 should feel that the information gathered was useful.

In reviewing the success of the initial design account was taken of all comments received. This softer information was augmented by the analyses of the data that had been gathered during the pilot. The working group concluded that most of the changes had been beneficial.

The working group decided however that a refinement was necessary in the split of the original B Group into sub-groups: instead of the four sub-divisions initially agreed a better split would be achieved if Group B was sub-divided into three sub-groups (B1 to B3).

A full summary of the changes made to the original ioRN are:

- **Question wording:** A small change in wording has been made to one of the questions and answers to ensure that the person's degree of independence in mobility is recorded.
- **Improved Guidance:** The guidance for using the ioRN has been strengthened to emphasise consistently the importance of taking into account in the choice of answer the person's mental well-being as it relates to ADL and personal care tasks.
- **Improved sensitivity of ioRN Groups:** The original ioRN Group A has been divided into three sub-groups A1 to A3 and the original ioRN Group B has been divided into B1 to B3. These sub-divisions are ordered according to the scores for the different ADL, Personal Care and Food Preparation questions e.g. A3 has a higher score than A2, reflecting a greater need for support.
- **Mental well being issues** require more explicit recognition. To ensure that behavioural needs or risk that have been recognised are explicit in the ioRN2 Groups. In those cases where ADL is 'Low' the algorithm should add a suffix 'm' to the ioRN Group code (e.g. 'A2m') whenever a behavioural need or risk has been recorded.

A revised 'decision tree' diagram setting out the steps involved in assigning an ioRN2 Group is shown in Annex 5.

Conclusions on good practice for implementing ioRN2:

- The quality of ioRN2 data rests with the front-line practitioners in health, social care and housing involved in its collection. Staff benefit from training to ensure that they understand the purpose of ioRN2 from the outset and that they appreciate the importance to themselves and other users of following the Guidance each and every time. They should be encouraged to avoid the risk of error or bias due to the use of intuition or 'rapid decision making'.
- Ways to locally quality assure ioRN2 data should be part of the local implementation plan. Inter-rating is a tried and tested way of doing this and should be considered. It is known that a great deal of critical learning can be obtained from inter-rating. Half-hearted implementation will struggle to succeed in the long run and will lead to a loss of accuracy and confidence in the tool locally. Setting it up well at the start will deliver a tool that assists clinical thinking and decision making at every level. The prize of a tool that supports safe, risk enabling decision making is worth pursuing for social workers, AHPs and nurses alike.
- The Guidance for ioRN2 has been expanded and it addresses many of the weaknesses of the original ioRN: but the Guidance is not designed to sit unread on

a bookshelf - it is in everyone's interests that it is followed consistently and diligently to ensure good quality, accurate and consistent data are collected and available to support decision making.

- As is common with new kinds of data it takes time to explore all the potential of the outputs that could be produced. In this report we have endeavoured to show a wide range of possible insights that can be gained from ioRN2 data. These include analyses that come directly from ioRN2 data and other deeper potential analyses where ioRN2 data are aligned with other important information.
- We have shown that the ioRN2 data can be robustly presented at both the level of the individual and in aggregate. These different ways of showing validated ioRN2 data are important to promoting independent living, person-centred self support and practice that is outcome focussed. They also demonstrate how ioRN2 data can be widely used with people accessing support across health, social care and housing by practitioners, operational managers, commissioners and leaders at every level.
- The analyses shown below are illustrative and the actual use of data in real time depends on the kind of questions that need answers. The convenience of the ioRN2 as a contribution of measuring and describing the impact of interventions, variation in results achieved and understanding the characteristics of people referred to different services has been recognised in many operational settings.
- The piloting of ioRN2 revealed one specific limitation on ioRN2's scope: the ECSS found that with the case mix of a mainly younger group of people recovering from stroke and the purpose of the service the ioRN2 had not been able to fully demonstrate all the changes that the people in the service were achieving in their pathway to recovery.
- As soon as possible ioRN2 should be implemented into the standard systems that services use. We have realised how important it is that when ioRN2 is implemented in these systems the outputs must be considered at the same time as the inputs. Only then will the benefit of ioRN2 data be fully realised in helping drive the vision of health and social care in promoting independence, choice and shared control.

Part 2

The ioRN2 pilot results

Data about people receiving care and support is useful for many purposes and at a number of different levels – service or team, individual practitioner, manager or strategic planner. The analyses of ioRN2 data shown below reflect this variety of perspectives, interests and uses. They draw on the data collected during the ioRN2 testing and on other occasions as noted in the text.

Individual level

ioRN2 data are person-centred in that first and foremost they describe people. The ioRN2 questions are not however a substitute for an outcome-focussed assessment, nor do they cover everything that might be required to understand a person's needs. The answers to the ioRN2 questions are typically a by-product of an understanding of a person's functional characteristics, which are frequently identified in the course of a thorough Assessment or a Review of the person's needs.

The answers to the individual questions may be informative in their own right. They offer a snapshot in time of functional characteristics of the person receiving care and support. Where other information about the person is available this can be set alongside the ioRN2 data to provide a more complete picture of the person's needs. The working group recognised the importance of this and used the term 'modifier' to signify other complementary information that might be relevant for an individual. Information that might be classified as a 'modifier' would vary according to individual and context. An example of a modifier is whether the person lives alone or with others.

Measuring outcomes

When ioRN2 is repeated at an interval, such as at the start and end of a set of interventions, it provides a way to demonstrate the difference those interventions have made. As noted earlier the development of ioRN2 had this purpose as its main objective. Note that, as with all outcome measurement, factors that are not directly part of the intervention may influence the outcome. Nevertheless repeat use of ioRN2 shows how much the person has changed over time in functional terms. This information may complement how the person directly feels about their experience.

At its simplest, the changes in an individual may be shown by comparing the different answers to the individual ioRN questions (table 1). The table lists many of the ioRN2 questions and the responses (the letters are shorthand for the recorded answers) to each question. Comparing the initial ioRN2 column letters with the review ioRN2 column letters shows where a change, or otherwise has happened to the person's independence in regard to the particular aspect. In terms of the overall ioRN2 Group, this person has experienced a demonstrable improvement in function, moving from 'Group F' to 'Group B3'.

Table 1 Example of a report in a person's recorded functional independence

Change in ioRN2 Group:	Initial ioRN	Review ioRN
	Group Fm	Group B3
Change in individual domains: questions		
	Answer code	
	initial	review
ADL		
Q1 Eating	B	A
Q2 Mobility and transferring	C	B
Q3 Toileting	C	A
Personal care		
Q4 Washing hands & face	A	A
Q5 Complete wash	D	E
Q6 Washing hair	D	E
Q7 Getting dressed	D	A
Food and drink preparation		
Q8 Preparing main meal	D	E
Q9 Preparing light snack	D	C
Q10 Preparing hot drink	D	C

Note: The answers are shown in the table as a letter but could, if preferred, be expressed in full narrative form such as 'The person requires assistance with mobilising and transferring'. This could be programmed as an output from a computerised system.

What lies behind the overall improvement in function can be seen by looking at the individual answers to the ioRN2 questions. The main influence in the change in ioRN2 Group is that the person has become more independent on all three of the aspects of activities for daily living (ADL): especially on transferring and mobility and when using the toilet the person no longer required assistance from someone else.

S/he has also regained independence in getting dressed. The other aspects of personal care and food and drink preparation are less definite; by the review point the assessor has judged that assistance is required in having a complete wash, washing hair and in preparation of a main meal.

Note also the cipher m in the Initial ioRN2 Group ('Fm') is no longer present at the Review ('B3'). In this example this is because a Risk identified (and recorded in the MWB section of ioRN2) during the initial assessment concerned difficulties with medication. By the Review stage the person was managing their medication well and the Risk no longer existed.

Using graphical ways to summarise change.

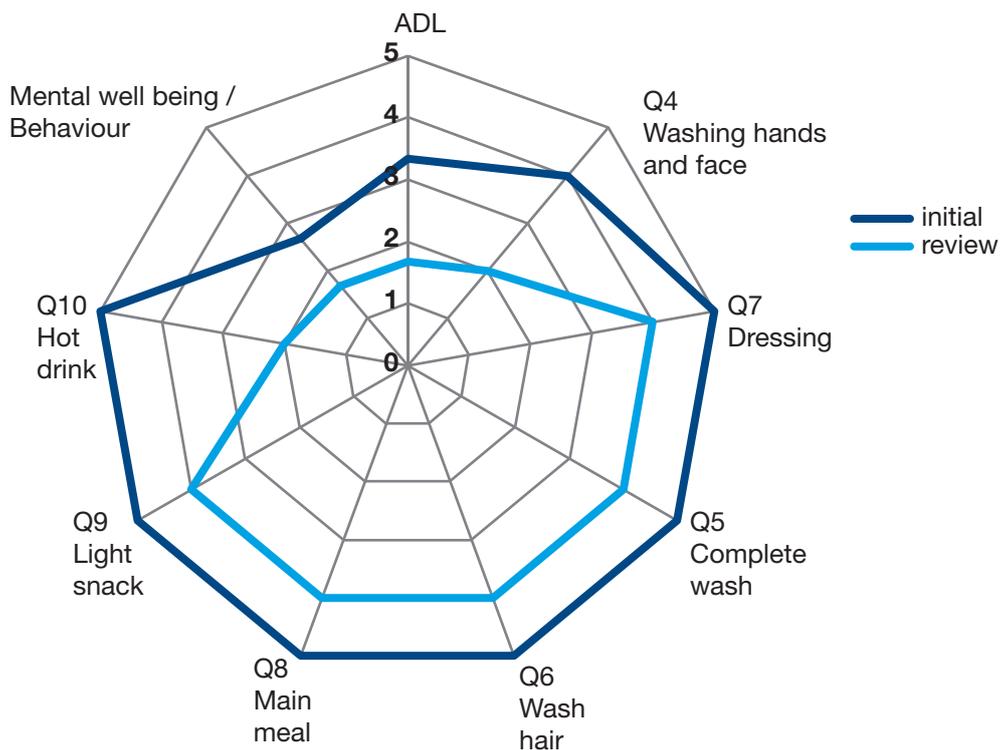
Alternative ways to summarise personal ioRN2 information can be envisaged. The examples shown below are Excel Radar Charts. Here the different sections represent values that are calculated using the scores in the ioRN2 questionnaire.

The two charts show details for two different people. Each illustrate the subject’s changing profile at two points in time – the blue lines on the chart show the summary at initial referral to the service and the red lines are a summary at a review point (for example, prior to discharge).

In this design a shift closer to the centre represents an improvement for any of the domains shown. In the first example every aspect of the person’s function shown in the chart has improved by the time of the review point, though in most examples the improvement has been small (Chart 1).

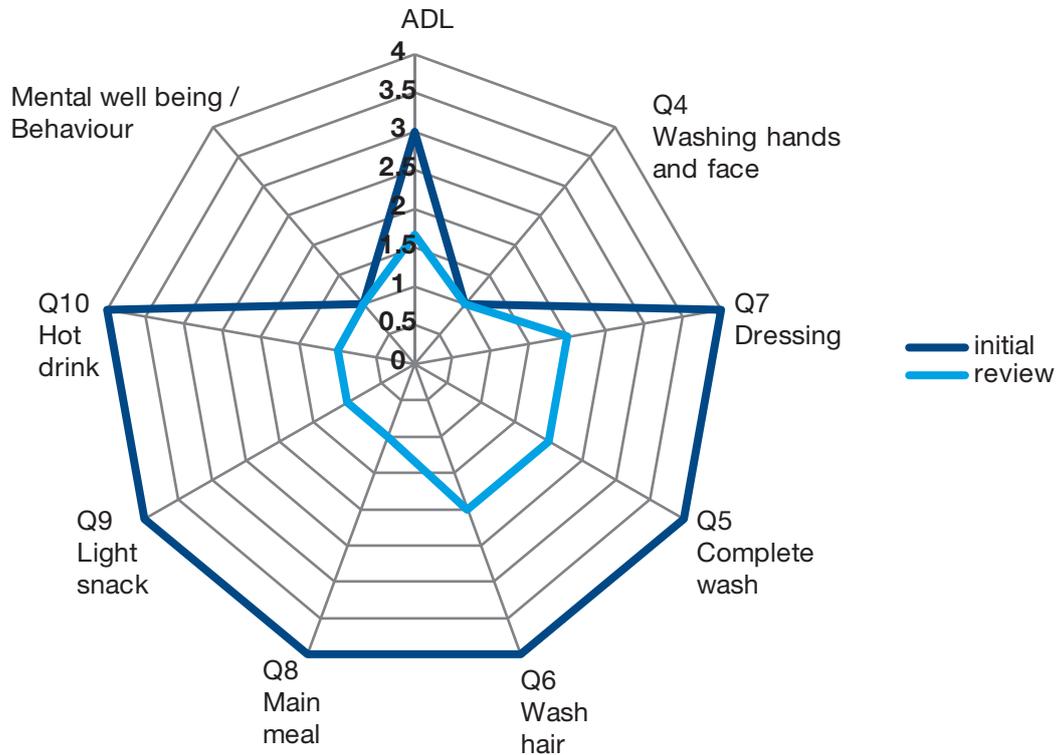
In the second example the person has experienced improvement in their independence in activities for daily living and in most of the personal care aspects (Chart 2).

Chart 1 Radar chart summary of a change in a person’s functional independence: example A



Note : ADL consists of eating a meal, mobilising & transferring and using the toilet.

Chart 2 Radar chart summary of a change in a person’s functional independence: example B



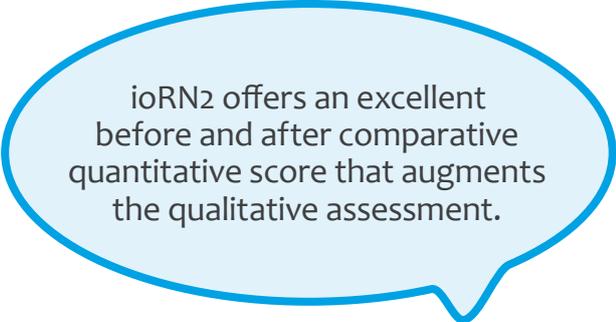
Note : ADL consists of eating a meal, mobilising & transferring and using the toilet.

Response to ioRN2 from professionals⁵.

These are a few comments by professionals involved in the pilot:



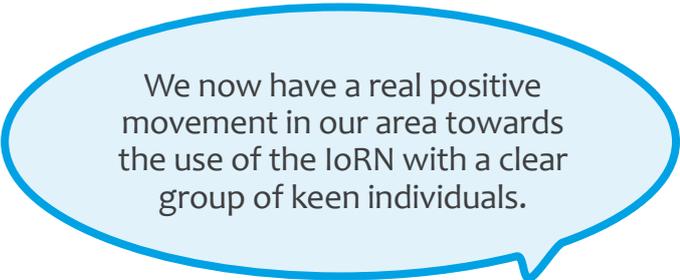
Coming from a Nursing background that did not use such a tool, it has shown me that using ioRN within a multidisciplinary team we can all focus on what's best for our service users.



ioRN2 offers an excellent before and after comparative quantitative score that augments the qualitative assessment.



[The ioRN2] influences the approach to enablement and strategies for improving independence.



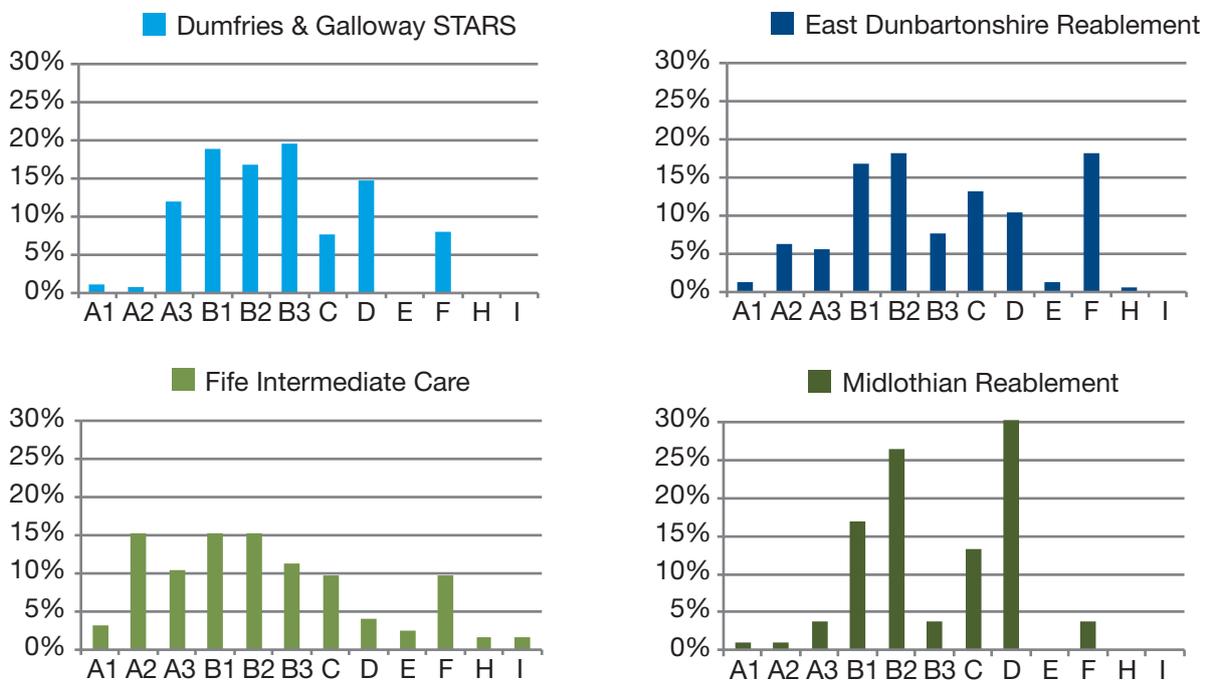
We now have a real positive movement in our area towards the use of the ioRN with a clear group of keen individuals.

Information at Team or Service level

ioRN2 data are readily aggregated and this valuable feature offers access to information at team or service level. Examples might be to understand the characteristics of referrals into a service or to gain insight into the complexity of people’s needs to ensure these are supported by the right people, in the right place at the right time. Having information that evidences Outcomes achieved, whether through the support of a single service or through integrated services may be very important.

An illustration of the role of ioRN2 data is shown below: the data gathered from the pilot shows the extent of the variation in the characteristics of people between and within the services involved (Chart 3).

Chart 3 Variation in ioRN2 Group at point of referral to four separate teams: percentage of referrals



Note:

- 1 No individuals were in Group G at the point of referral in these services.
- 2 We have combined some of the Groups due to small numbers in Groups E and H].

In practice interpretation of data such as shown above is best done at local level where knowledge of the make-up of the services and the pathways into the service will be fully understood. What is evident however is that:

- For the STARS service in Dumfries and Galloway the majority of people referred were in the range ioRN2 Groups A3 to D.
- For East Dunbartonshire Reablement team a substantial number, nearly one in five, were in the F group

- For ICASS in Fife referrals fall into a wide range of groups, reflecting the different teams involved.
- For Midlothian reablement two out of five referrals were in ioRN2 Groups B1 and B2; a further 30% were in the D group.

Measuring service outcomes using ioRN2

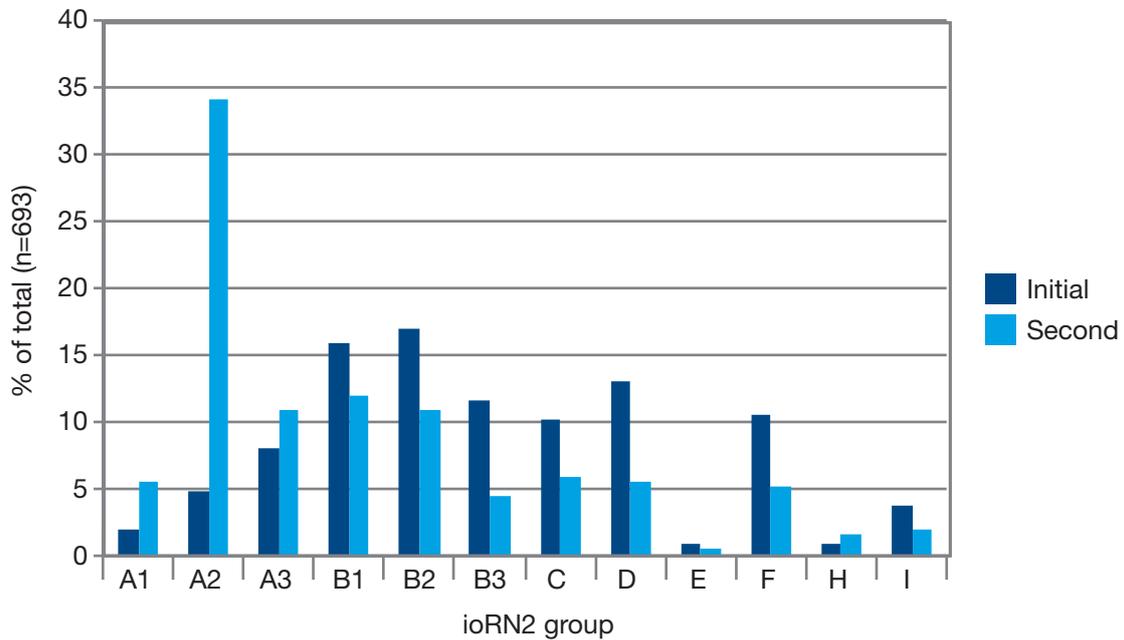
All of the teams involved in the piloting were involved at the transitional stage of the care pathway with a focus on recovery of independence. ioRN2 offers an objective way to evidence the service outcomes achieved - for example by collecting ioRN2 data at the beginning and the completion of the care delivered.

It is beyond the scope of this report to show the outcomes achieved by each of the individual services. Comparing results across different services has to be done with full awareness of similarities and differences between the services (for example the length of time that people were supported by the different teams varied, as shown in Annex 3).

The chart below shows the combined results of all of the participating services. It compares the distribution of ioRN2 groups at initial assessment (ie on entry into the service) and prior to discharge (Chart X). In summary what it reveals is:

- At initial assessment four out of five people in the sample were in a range of ioRN2 Groups from B1 to F. Around one person in every 20 was in ioRN2 Groups A1 or A2. One person in every 20 was in the highest need ioRN2 groups H and I.
- Prior to discharge the largest percentage of people by far were in Group A2. At initial assessment the largest percentage of individuals was in Group B2. This is clear evidence of a marked change in the function of people whilst under the care and support of these services.

Chart 4 Distribution of ioRN2 Groups at point of referral (initial) and prior to discharge (second): total sample

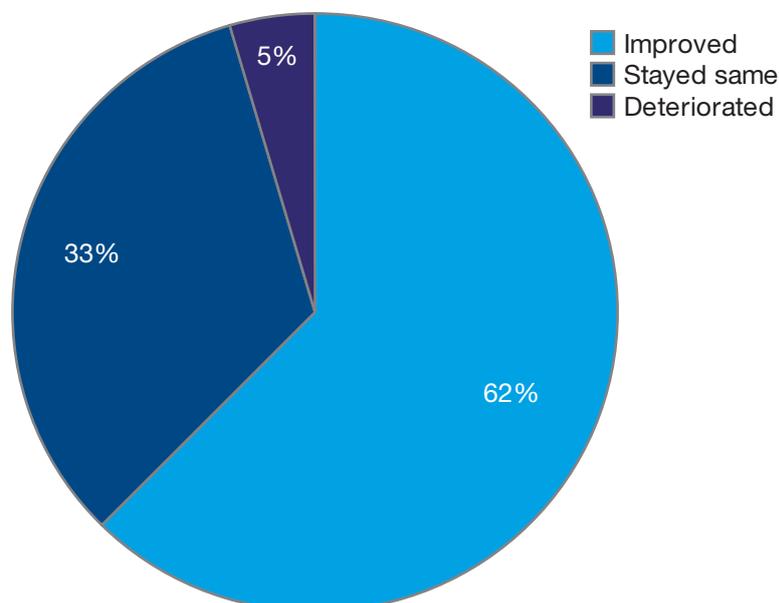


Note This analysis is restricted to people who had both an initial and Review ioRN2 completed.

The more simplified summary in Chart X shows the change in people’s function overall (as measured by ioRN2) i.e. it shows the percentage who improved, maintained their level of function, or who deteriorated.

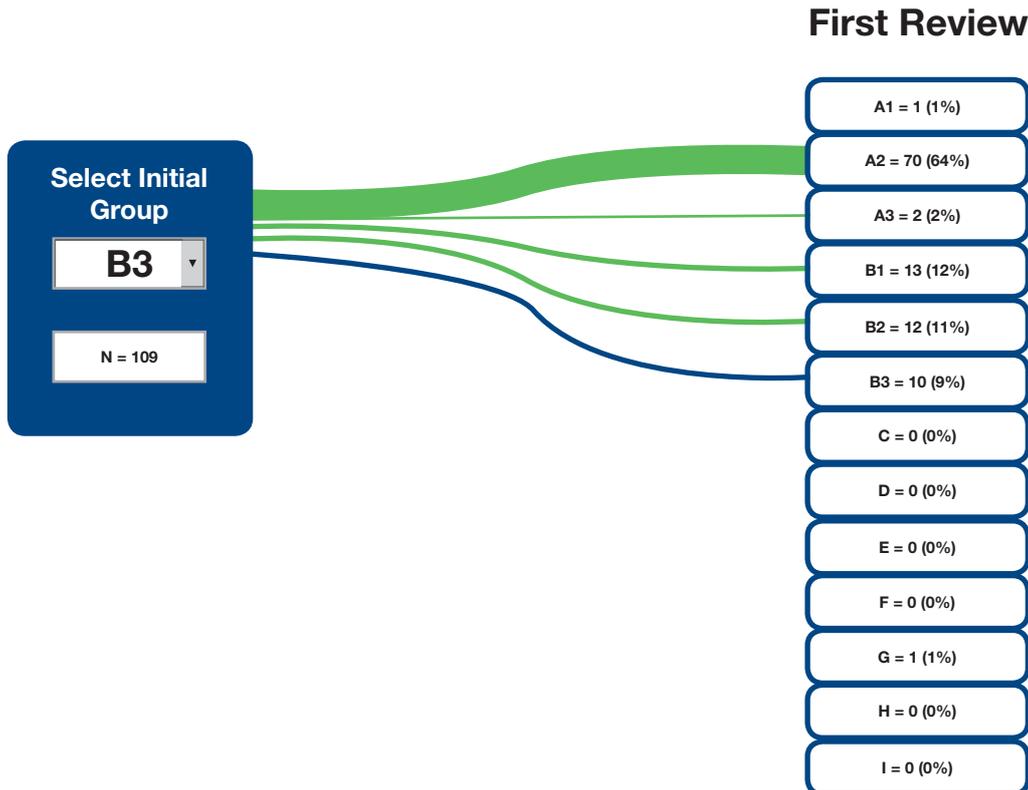
Three out of five people improved their function according to ioRN2. Most of the rest (about one third of the total) stayed in the same ioRN2 Group. The remaining 5% of people showed some deterioration in function.

Chart 5 Overall summary of changes in ioRN2 Groups between point of referral and prior to discharge



A more experimental way of presenting the outcome results is shown in Chart 6. The chart is illustrative of different ways information can be analysed and presented. It shows the different ioRN2 Groups at point of discharge for people who were in Group B3 when they were initially assessed by the service (Note this is an example - other initial Groups could be chosen).

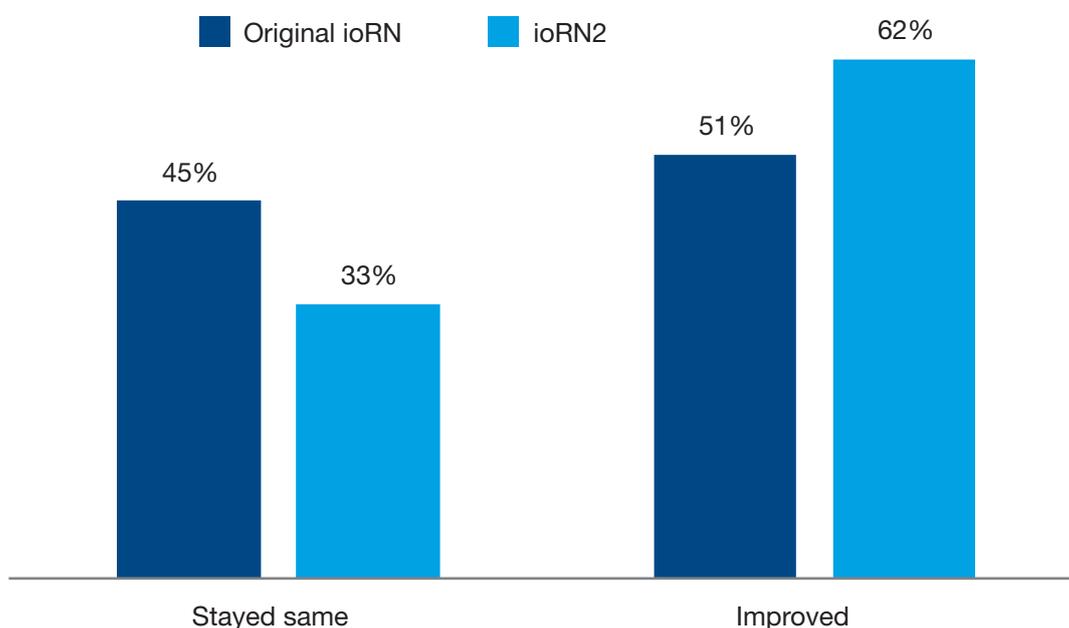
Chart 6 Example of change for a sample who were in Group B3 at point of referral (initial group)



Comparison of the sensitivity of ioRN2 and original ioRN

As noted earlier a key aim of the redesign of the ioRN was to find a way to re-shape the tool so it better evidences change in how independently a person functions after rehabilitation or reablement. In Chart G we compare the initial and review ioRN Groups using both the original ioRN and the ioRN2. What this comparison shows is that ioRN2 does evidence change for more people than revealed by the original ioRN. It shows that for this particular set of people around one in 10 who would have been reported as “stayed in the same ioRN Group” were now reported as having ‘improved’. This demonstrates that the increased sensitivity of ioRN2 is indeed providing a more complete account of what has actually occurred.

Chart 7 Comparison between original ioRN and ioRN2 in showing overall change in people's needs



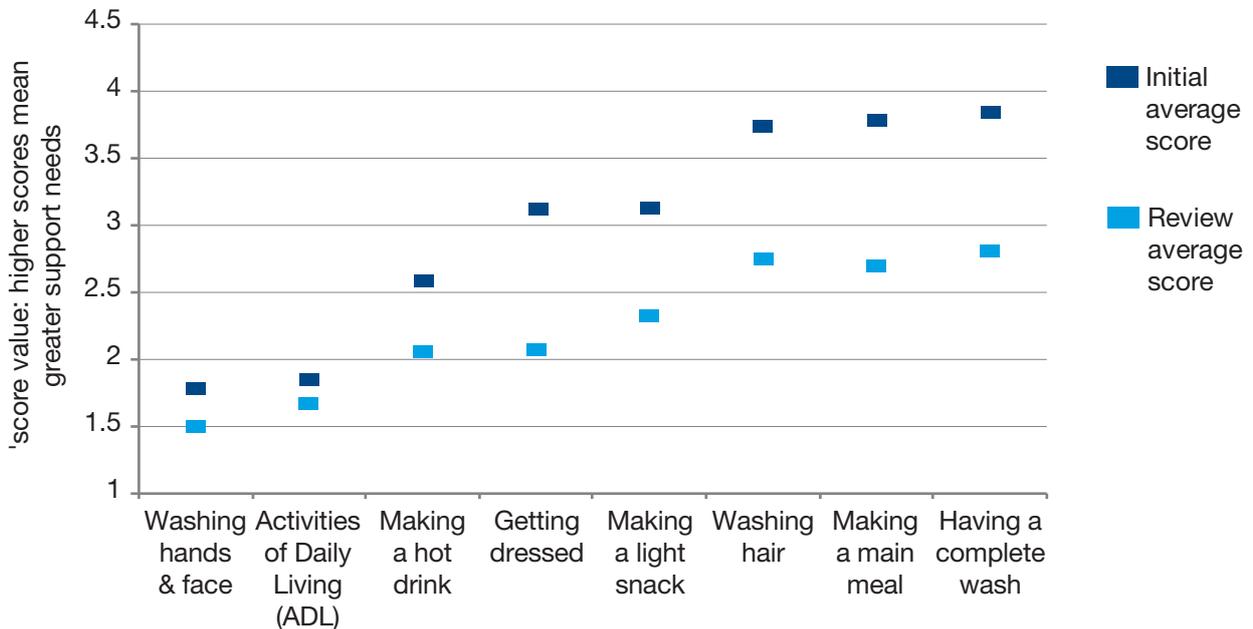
What changes do the ioRN2 questions reveal?

The ioRN2 grouping method begins by considering the level of independence of a person in terms of activities of daily living (ADL). This uses three questions in the ioRN questionnaire that concern eating, mobilising and transferring, and toileting. If the person has a low score on ADL (ie they are relatively independent) personal care/food and drink preparation are the next set of factors that are considered in determining the ioRN2 Group. In other words the questions on behavioural support needs and risk are not directly used in determining the Group when the ADL score is low. Note that where behavioural support needs or risk are also recorded the modifier 'm' is added to the ioRN2 Group code (for example A3m).

Thus for people who have low ADL needs at both initial and review stages a change in ioRN2 Group occurs when some of the answers to the personal care/food and drink preparation questions have changed. It is interesting to examine in detail the data on these activities to see what specifically changes during the care and support offered by intermediate care and reablement. Caution is needed in interpreting this as the different personal care activities themselves inevitably vary in difficulty – for example when a person's function is deteriorating they may find that achieving a complete wash more difficult than, say, washing hands and face. This aspect of changing function has also been highlighted by the company ADL Smartcare Limited and demonstrated through its product LifeCurve™⁶.

The ioRN2 data confirm the intuitively obvious feature that the amount of change that occurs is related to the level of needs that are identified at the start. For example washing hands and face are least problematic for people in general at the point of entry into a service - and improvements are relatively small. By contrast having a bath or washing all over is more difficult for many but the scope for improvement is somewhat greater.

Chart 8 Change in independence scores recorded for individual activities (higher number=greater support needs)



Behavioural needs and risk

ioRN2 contains five distinct questions on behaviours that may have support needs. These questions relate to issues that may arise when the person's mental well-being is affected by certain mental health problems such as dementia (or other forms of cognitive impairment), anxiety, depression, schizophrenia, etc. Other issues such as alcohol or drug dependencies or acquired brain injury, can result in the behavioural signs and symptoms asked about. The responses to the questions will inevitably be subjective to some degree. However, in all cases, they should be based on the professional assessment of the assessing practitioner. In some cases, the presentation of a sign or symptom may not particularly pose a problem to the person or to anyone else. NB the questions do not constitute a mental health assessment.

A single explicit question to cover any risk that has been identified during an assessment is also included.

The behavioural questions relate to:

- Agitation/restlessness – for example pacing or unable to settle to a task
- Disturbance/Disruption – for example waking spouse during the night
- Verbal Aggression – towards others, animals or objects
- Restiveness – active refusal to cooperate with essential care
- Key relationships – significant people to the person
- Risk – for example fire, medication, disorientation, self-neglect, abuse

In the original community ioRN the answers to these questions have been used to determine the final Group when the ADL score is either ‘medium’ or ‘high’. Thus Groups E and H comprise people who have raised scores on these questions. As discussed earlier, in a further refinement in ioRN2 the presence of behavioural or risk issues can be explicitly identified when the ADL score is ‘low’ (by adding the modifier ‘m’ to the code).

ioRN2 thus offers an opportunity to identify explicitly and quantify the presence of behavioural needs and risks for everyone assessed.

The number of people with one or more reported behavioural support needs or risks was relatively small in the sample available - at initial assessment 87 out of 737 people (12%) had issues (Chart 9a).

The second piechart below (Chart 9b) shows which ioRN2 Groups had behavioural support needs or risks recorded for the people in the sample. Group I had the largest number of individuals with this characteristic and over half were individuals with high ADL scores (see Groups E to I in the chart).

Chart 9a Proportion with a recorded behavioural need or risk

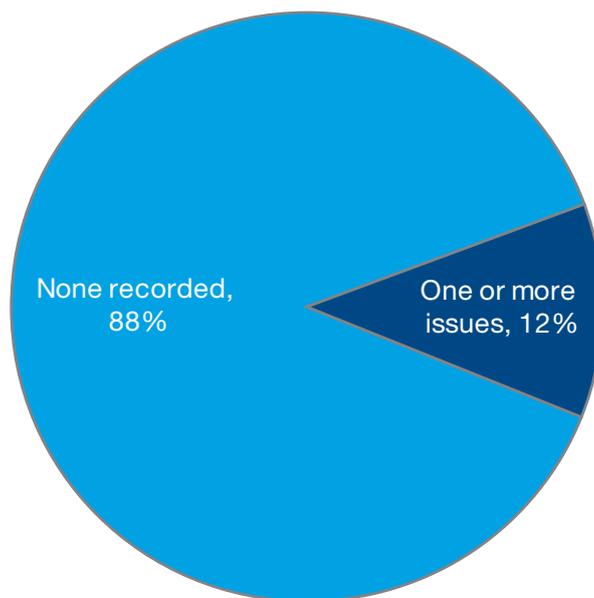
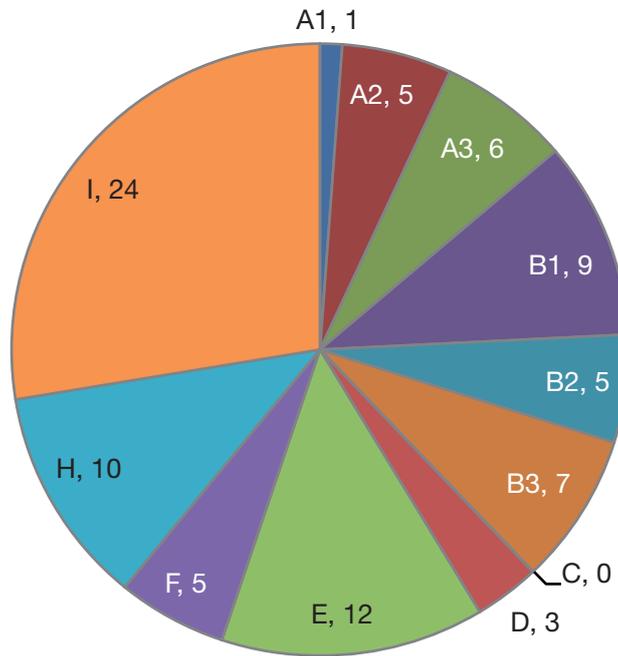


Chart 9b Number in sample with a recorded behavioural need or risk: by ioRN2 Group

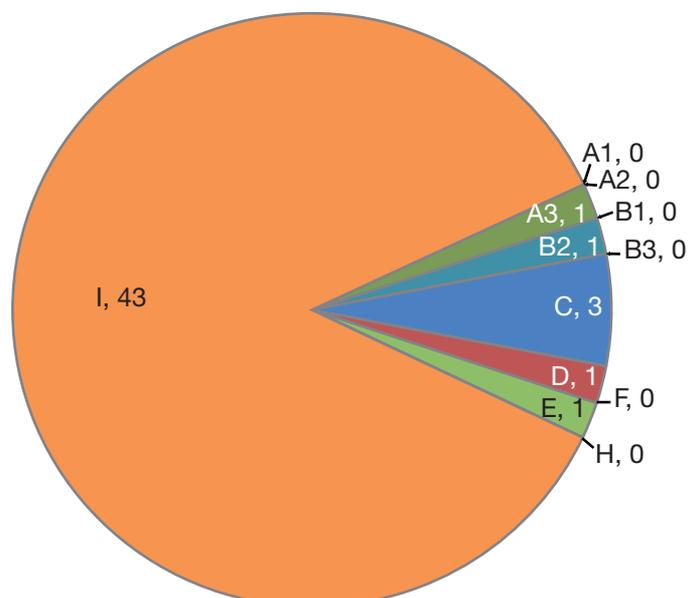


Bowel management

Difficulties with bowel management have important implications for people and are commonly associated with a more general deterioration in physical health. In the ioRN2 grouping methodology the question on bowel management is actually used to determine the exact ioRN2 Group for people who have a high ADL score (i.e. high support needs in regard to eating, mobilising and transferring, and toileting). Where ADL scores are low or medium however the presence of bowel management issues does not affect the final ioRN2 Group.

The analysis of the ioRN2 data affords an opportunity to investigate the presence of bowel management issues across individuals in each ioRN2 Group to check whether the case for using the information with high ADL only has validity. What we find is that bowel management issues are rarely recorded in people who are in more functionally independent groups such as A1 to B3 – fewer than one person in 50 in these groups had bowel management issues reported (Chart K). Thus although bowel management can be an issue for otherwise more functionally independent people this appears from our sample to be relatively uncommon.

Chart 10 Number in sample with bowel management issues in last week recorded: by ioRN2 Group



Note that Urinary continence is not addressed explicitly within the ioRN2 questions. The reason for this is that ioRN2 is not an Assessment and by design does not cover every issue that is relevant to the person's independence or needs. Urinary continence is important but in the original design work was found to make no material difference to determination of the ioRN2 Group.

Potential to use ioRN2 data alongside other information

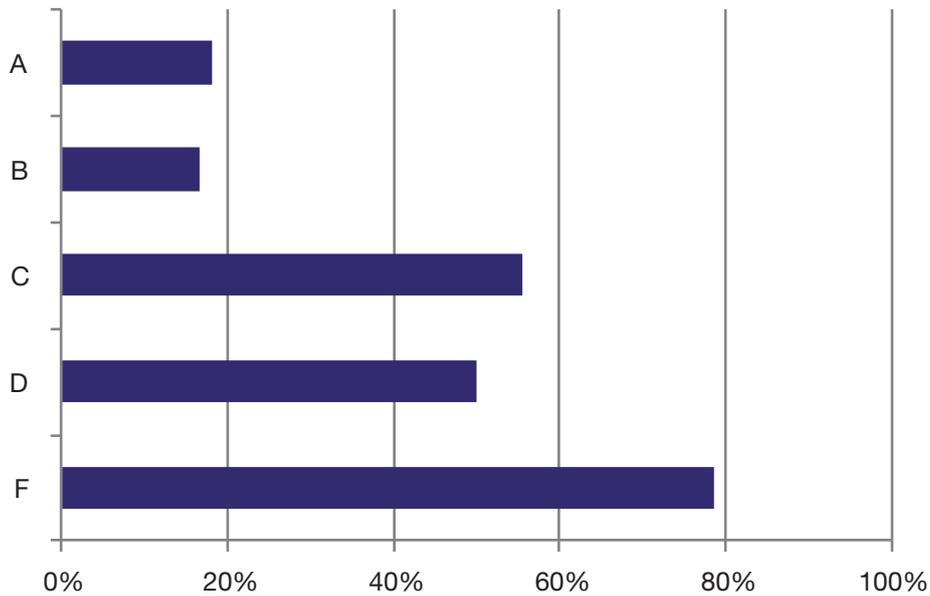
While the person-centred information provided by ioRN2 has value in itself it is also worthwhile to see ioRN2 data as a component part of the set of information about people seeking help or support. ioRN2 data might for example be useful for stratifying the population when some other issue is the main subject of enquiry. An example of this might be a local review of the equity of access to home care across an area.

Conversely it may be necessary to know about other attributes of the person to interpret a change in an ioRN2 group that happens. For example the person may have a specific set of health or social conditions that are long term or anticipated to worsen over time.

The examples below draw on different sources but each is illustrative of the potential of aligning ioRN data with other information to bring greater insight and evidence to bear on the challenge and complexities in health and social care.

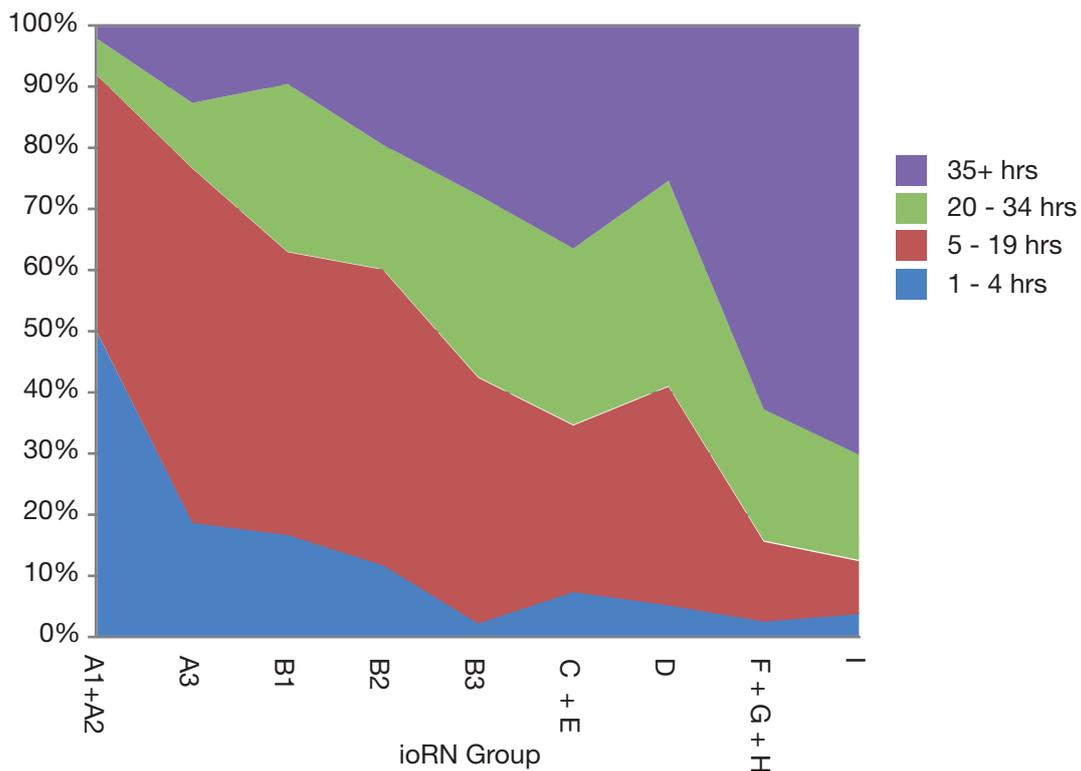
The STARS service recorded information on carers as part of a small set of additional information ('modifiers'). The analysis below shows that people identified as in ioRN2 Group F, with high needs in ADL, were most likely to have a carer.

Chart 11 Percentage of people in initial ioRN2 Group who have an unpaid Carer: STARS team



Clackmannan Council and partner health staff collected original community ioRN data along with other associated data for many years and the chart below shows what they found regarding estimated hours of care provided by unpaid carers. The data show that estimated hours of informal care are generally correlated with increasing need as defined by the ioRN Group (Chart 12).

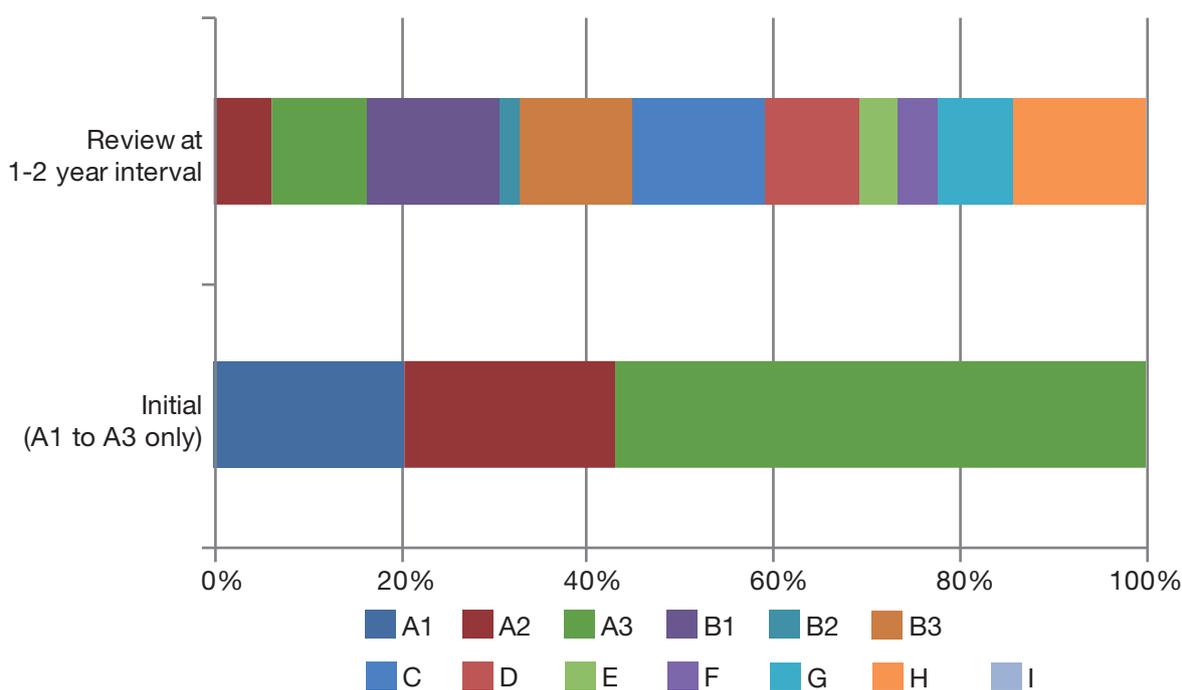
Chart 12 Estimated hours per week of care given by unpaid Carers in Clackmannanshire: cumulative percentage by ioRN2 Group summary



Changing functional needs of people living with dementia

The Clackmannan data also included an indicator of a known diagnosis of dementia. The analysis in Chart 13 below uses data on 49 people in Clackmannanshire who were initially assessed as in ioRN Group A (Note we have used the ioRN2 sub-divisions A1 to A3). The upper bar shows how the ioRN assessment had changed for these people living with dementia 1-2 years later. This analysis provides some insight into a deterioration in function reported for this cohort.

Chart 13 People living with dementia in Clackmannanshire: Percentage initially in ioRN2 Groups A1-A3 and when reviewed 1- 2 years later



Relationship between functional needs and home care hours provided

A relationship between a person’s assessed needs and the hours of home care that are provided should be well correlated. The analyses below, using individual-level ioRN data collected by six local authorities and published by the Scottish Government⁷, offer some objective evidence of the relationship in practice.

The individual charts below are illustrative of the possible different perspectives on the data that show the variation in home care hours provided according to the ioRN Groups of the people receiving the care.

Chart 14 shows the numbers of people in each of the different sub-divisions of ioRN Group and hours of home care. This highlights the issue mentioned earlier that the by far the largest single Group overall in terms of numbers of people is Group B. Group A is also relatively large but most commonly have small packages of care hours.

The other two charts show the proportions of the ioRN Groups receiving different amounts of care hours (Chart 15) and the proportions within similar volumes of care split by the ioRN Group reported (Chart 16).

Chart 15 for example shows that more than half of people in ioRN Group A have low levels of home care. By contrast those in Groups F/G/H and in Group I have high levels of home care provided.

In the analysis in Chart 16, splitting the different amounts of home care according to the ioRN Group of the people receiving the care, the pattern is less well-defined. People receiving the different amounts of home care vary across all of the ioRN Groups. More than half of those receiving less than 4 hours of home care are however in ioRN Groups A or B and a similar proportion of those receiving 15 hours or more are in ioRN Groups F to I.

Chart 14 Numbers in sample receiving different hours of home care by original ioRN Group (summary)

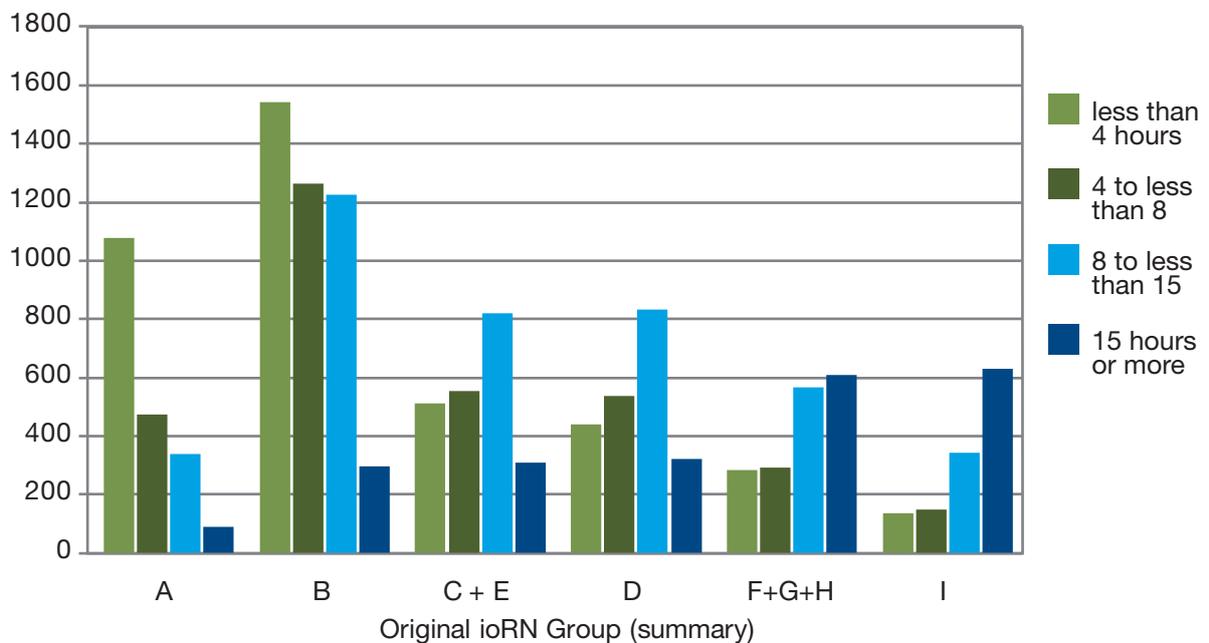


Chart 15 Percentage receiving different hours of home care by original ioRN Group (summary)

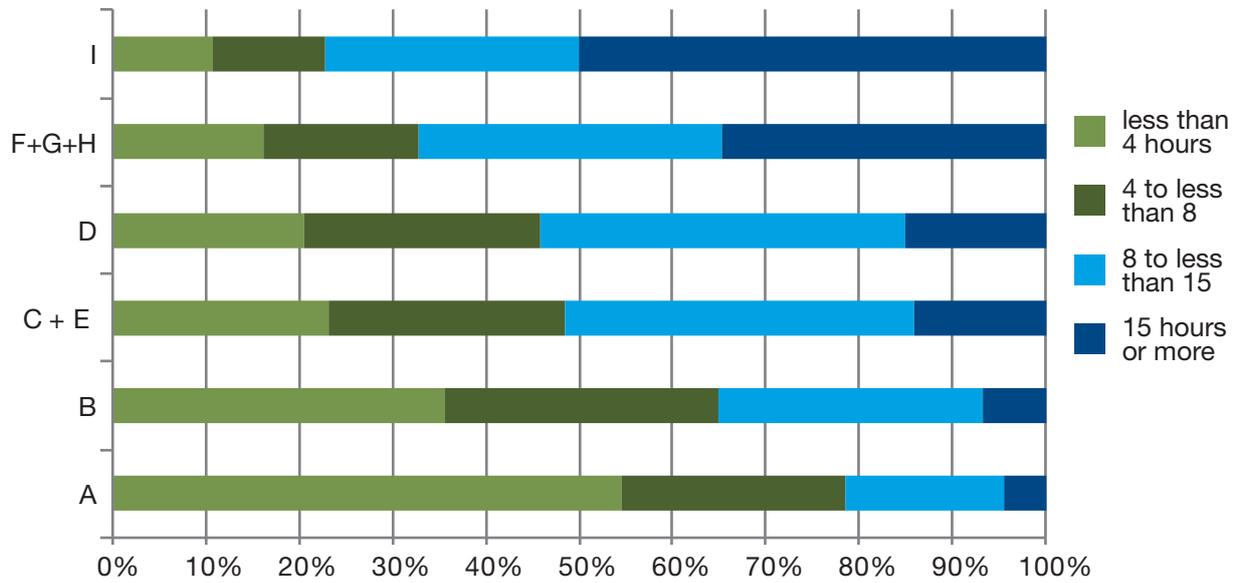
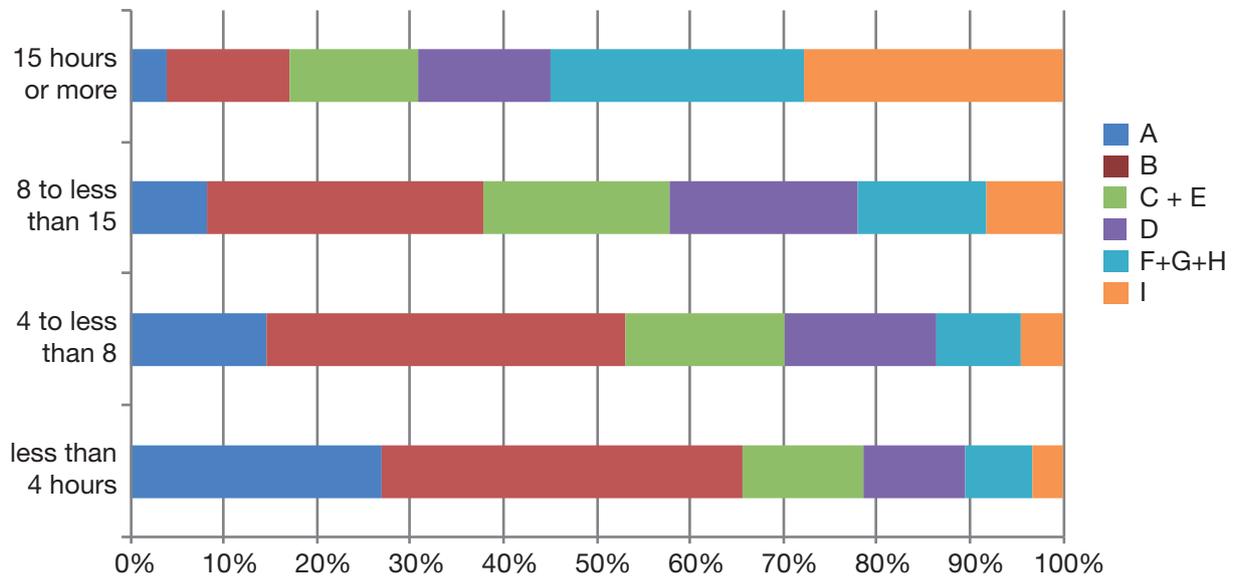


Chart 16 Percentage in each original ioRN Group (summary) by hours of home care provided



Annexes

Annex 1: Professionals involved in the ioRN2 Review Working Group

Wendy Thomson*Dumfries and Galloway

Anne McAlpine*Fife

Anthea Fraser*Midlothian

Susan Frodsham*East Dunbartonshire

Linda GibsonEdinburgh City

Janette GilroyInverclyde

Gail MacNamara*Falkirk

Josephine WightEast Renfrewshire

Margaret CallanderNHS Lothian

Lee McGuinnessNHS Lothian

Mike CrosslandEdinburgh City

Lillian BarrettClackmannanshire

Lyn JardineMidlothian

Gillian CrosbyEdinburgh City

Hilary BensonAberdeen

Robin PatersonMoray

Hamish FraserMidlothian

Merv GrangerEast Renfrewshire

Adam RedpathJoint Improvement Team

Winona SametJoint Improvement Team

Alec DavidsonJoint Improvement Team

John OwensJoint Improvement Team

Nikos KavadosISD

Euan PattersonISD

Stephen HalcrowISD

Deanna CampbellISD

Shona MacIntoshScottish Government

Convenor of Review Working Group:

Peter Knight*Joint Improvement Team /ISD

Dr Miles Witham, Dundee University also contributed to the deliberations of the Review Working Group.

* current members of the ioRN National Steering Group

Annex 2: Splitting the A and B Groups

Group A

Group A in the original ioRN comprises service users who have a low Activities of Daily ADL score and a low score on the Personal Care and Food and Drink Preparation (PCFP). The working group determined that the most rational way to split the A group A was to base sub groups on whether service users were:

1. Completely independent on all the ADL and PCFP questions.
2. Independent on all the and PCFP questions with the use of equipment or adaptations for some functions.
3. Having difficulty or requiring encouragement or help for some of the PCFP functions.

This formulation of sub-groupings was found to have a sound basis in the original study data in that it a) provided a reasonable number of cases in each sub-group and b) that the mean costs of care were consistent with the level of need identified by the sub groupings- i.e. highest mean cost in A3 and lowest in A1.

Group B

The subdivision of ioRN group B was initially into 4 groups based on two principles- a) the overall score for the PCFP section and b) whether or not the service user had an actual need for assistance recorded in any of the answers in the section. The analysis of the original study data did not give an obvious indication of the best way to split group B. The working group felt however that a need for assistance placed the service user in a different category when looking at their needs for services. However, there was a case for thinking that the total score for the section might be a more reliable indicator of level of overall need. The following 4 groups were proposed and piloted:

1. A low score¹ (15-21) on PCFP questions and none of the questions answered indicating a need for assistance to perform the function (i.e. no questions answered at E).
2. A low score with two or more questions answered at E (need for assistance recorded).
3. A high score (22-27) but one or no questions answered at E (need for assistance recorded).
4. A high score AND two or more questions answered at E.

At the conclusion of the pilot feedback suggested the four level split did not add value. An analysis of the pilot data also showed that this split had little merit in terms of balancing numbers in each sub-group. There was no evidence to say which of the groups B2 and B3 should have a higher level of dependency and the working group decided a better course was to combine these two sub-groups. With a renumbering of the subsequent three B sub groups model there was a logical progression in level of need (relabelled B1 through to B3).

1 Score based on questions in the PCFP section scored at A=1 to E=5 summed over the 7 questions in the section.

Annex 3: Teams involved in the Pilot

The services that supported the fieldwork through the collection of data are shown below.

Dumfries & Galloway Short term Assessment re-ablement Service (STARS) – Health & Social Care Partnership

Staff Professions	Aim of Service
Nursing, Occupational Therapy, Occupational Therapy Assistants, Physiotherapy, Health & Social Care Support Workers	To maximise potential of individuals to regain or retain skills necessary for independent daily living through a 6 week Reablement pathway. Using IoRN2 within the service for all clients on admission and discharge to support setting desired outcomes across Health and Social Care. To support collaborative use of IoRN2 across H&SC service user pathways to describe outcomes.

East Dunbartonshire Homecare Reablement Service

Staff Professions	Aim of Service
Occupational Therapists, Home Care Organisers, Occupational Therapy Assistant, Home Carers	The Homecare Reablement Service provides support for clients in the 65+ age group to maximise their potential to regain skills for independent living through a 6-8 week Reablement Pathway, using the ioRN2 as a measure of progress. The Reablement Service is currently under review and in the process of being re-designed. The re-design aims to extend the reablement service beyond Homecare by developing an integrated, multi-disciplinary approach to service delivery. This will include an Intermediate Care Service for the 65+ age group, which will be delivered by the Community Rehab Team in order to support people upon discharge from hospital prior to returning home.

Edinburgh Community Stroke Services (ECSS) and Community Occupational Therapy Rehabilitation Service

Staff Professions	Aim of Service
ECSS: Multi Disciplinary Integrated Team	To provide Post Stroke Care / Post Hospital Stroke Rehabilitation for clients with mild to moderate impairment after stroke. 16 + age group seeing approx 200 clients per year.
Occupational Therapists	To provide Home Based Rehabilitation for clients with Neuro – progressive conditions e.g. MS. To support the maintenance of function and independent living to prevent admission to residential care.

Edinburgh Step Down

Staff Professions	Aim of Service
Occupational Therapists, Physiotherapists Social workers, GPs, Geriatricians, Pharmacists	To provide support to clients who are medically ready for hospital discharge but unable to be discharged directly home. High level support provided in a care home setting (52 places) allowing clients to contribute to their own assessment and recovery to allow decisions to be made out with the hospital environment as to whether permanent care home placement is necessary. 65+age group.

Falkirk – Housing with Care Re-ablement Service (HWCRS)

Staff Professions	Aim of Service
Occupational Therapist, Physiotherapist, Reablement Carers, District Nurses, GPs, Hospital Consultants, Discharge Hub and Pharmacy	Step down: To provide a time limited half way to home environment promoting confidence and independence to regain lost skills/ mobility following hospitalisation e.g. Post Op, Post CVA, Persistent Infections. Step up: To prevent Hospital/Care Home admission and promote confidence and independence as above.

Fife - Integrated Community Assessment and Support Service (ICASS)

Staff Professions	Aim of Service
Nurses, Occupational Therapists, physiotherapists, rehab support workers	<p>ICASS provides</p> <ul style="list-style-type: none"> ● An alternative to being admitted to an acute hospital ● Support and a timely discharge from hospital ● rehabilitation ● and promotes independent living wherever possible ● and improves anticipatory care pathways <p>The Multi Disciplinary Intermediate Care Teams & Hospital at Home services work with the person, family and carers to achieve as much independence as possible in everyday tasks.</p>

Midlothian Re-ablement Team

Staff Professions	Aim of Service
Occupational Therapists, Care support workers	To maximise potential of individuals to regain or retain skills necessary for independent daily living through a 6 week Reablement pathway. Using ioRN2 within the service with all clients on admission and discharge to support setting desired outcomes across H&SC service user pathways.

The table shows the numbers of service users whose ioRN Group was collected after the initial and review assessment.

ioRN2 Initial and review assessment numbers by participating service

Service	Initial ioRN2		Review ioRN2	
	N	%	N	%
D&G STARS	278	31	249	36
East Dunbartonshire Homecare Reablement	198	22	146	21
Fife-ICASS	164	18	124	18
Midlothian Re-ablement Team	148	17	107	16
Edinburgh Step Down	40	4	26	4
Falkirk- HWCRS	21	2	16	2
Edinburgh - ECSS	44	5	15	2
Total	893	100	683	100

Notes:

- 1 The reasons for non completion of the review assessment were not systematically recorded, but were reported to be mostly due to non completion of the reablement or rehabilitation due to hospital and care home admission, the person dying, moving to another area, or otherwise withdrawing from the service.
- 2 Due to data management constraints the IORN2 group only was supplied for analyses from Midlothian.

Average age of service users

The average age of people referred to the participating services during the course of the pilot phase is shown in the table below. There are similarities with the Falkirk, Edinburgh Step-down and East Dunbartonshire referrals in the range 82-87, D&G STARS and Fife ICASS at 79. The Edinburgh ECSS had a much lower average age (64).

Mean age of service users by service team	
	Mean age years
D&G STARS	79
East Dunbartonshire Homecare Reablement	82
Edinburgh Step Down	84
Falkirk- HWCRS	87
Fife-ICASS	79
Edinburgh – ECSS	64
Midlothian Re-ablement Team	80
All	79
	N=891

Time elapsing between reporting of initial and second ioRN

This varies across the different teams and between individuals. The analysis below shows the variation by team as the average (mean) elapsed time from initial to second ioRN. For the seven teams combined the overall average was just over four weeks. The shortest (the D&G STARS team) reported an average of just under three weeks whilst a much longer average elapsed time was reported at the Edinburgh Community Stroke Service (ECSS) where the programme mainly provides specialist rehabilitation to people who are recovering from stroke.

Mean time (days) between initial and second ioRN team	
	Mean time (days)
D&G STARS	20
East Dunbartonshire Homecare Reablement	28
Edinburgh Step Down	52
Falkirk- HWCRS	51
Fife-ICASS	32
Edinburgh - ECSS	89
Midlothian Re-ablement Team	35
All	30
	N=670

Annex 4: Criteria for the review

In summary, the working group agreed that the design of the community ioRN2 should be based on the following criteria:

1. The fundamental design of the original ioRN should be retained where possible. This included the questions and the general approach to using the answers in combination to assign people to ioRN Groups.
2. The changes made to the design and the supporting Guidance should address the known weaknesses in the original ioRN and should be the minimum necessary to achieve the desired improvements.
3. The redesign should be tested in practice, involving a mix of different services across Scotland and staff from different disciplines.
4. Outputs from the community ioRN data should be produced using historic data supplemented in due course by prospective ioRN2 data from the pilots in order to provide exemplars of ways that ioRN data can be analysed and presented to support actionable results.

Annex 5: Relationship between IORN and other measures

There exist a wide range of measures for professionals to draw upon to summarise a person's function. These tools may have particular validity for different purposes and environments. It is beyond the scope of this project to assess all of these tools and to study what overlaps or differences in design exist between them and ioRN2. Two studies, one formal and one opportunistic, are relevant however and are described below.

An independent validation of ioRN2

A validation study of ioRN2 carried out by the University of Dundee reported in 2016 (Canny et al, 2016)⁸. This independent project was led by Dr Miles Witham and supported by funding from the Joint Improvement Team. This project included a prospective study of the use of the ioRN2 alongside comparator tools (Barthel ADL, Nottingham Extended ADL and Townsend Disability Scale).

The study sample involved some 90 people receiving care in three different settings and assessed twice with a gap of around 8 weeks. Among its findings were that 'responsiveness coefficients in participants reporting overall change were equal to or better than comparator tools'.

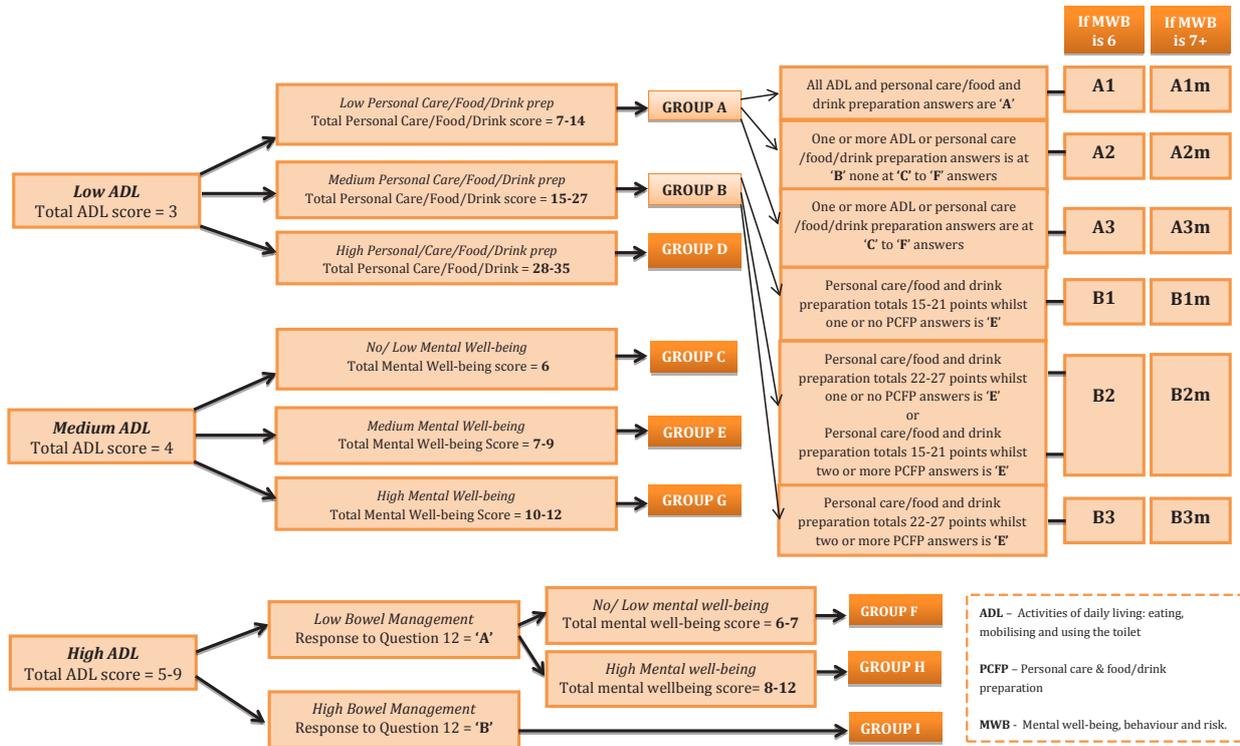
A full account of this study and a second part that used retrospective ioRN data alongside data on care home admission, hospital admission and death is reported here^{ref 6}.

Comparison of operational tools with ioRN2 in one pilot team

The Edinburgh Community Stroke Service (ECSS), one of the services that piloted ioRN2, routinely measures the functional ability of its service users using a range of tools, including the Barthel Index, the Rivermead Mobility Index and the Stroke Impact Scale (SIS). During the period when the ioRN2 was being tested in the service measurements for each of these tools were carried out at the initial assessment and then at review alongside the ioRN. The data were compiled to allow correlation to be done between the score on the Barthel, the Rivermead Index, the relevant domains of the SIS (i.e. ADL, including mobility) and ioRN2. A good correlation between these tools and ioRN2 would offer a limited prospective validation of the ioRN2.

Due to the nature of the service the number of cases available to check the correlation were small, but the correlations were positive and statistically significant. The SIS ADL and mobility domain scores both correlated significantly with ioRN2 [based on 28 cases]. The Rivermead and Barthel measures both correlated well with ioRN2 [based on 23 cases for Barthel and 27 cases for Rivermead].

Annex 6: Community Indicator of Relative Need ioRN2 Grouping Diagram



Community ioRN Grouping Diagram with enhanced categories

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References

1. Audit Scotland. Reshaping care for older people. February 2014 pages 37, 43 http://www.audit-scotland.gov.uk/uploads/docs/report/2014/nr_140206_reshaping_care.pdf
2. A report on the development of a Resource Use Measure (RUM) for Scotland <http://www.gov.scot/Publications/2003/09/18119/26039>
3. Information Services Division Care Home Staffing Model <http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Care-Homes/Staffing-Model>
4. Fraser Mitchell, Claire Dobson, Anne McAlpine, Siobhan Dumbreck, Ian Wright, Fiona Mackenzie “Lessons from a demonstrator project in Fife”, Journal of Integrated Care. Vol 19 Issue: 1. pp 26-26
5. Scottish Government Integration Blog <https://blogs.gov.scot/integrating-reshaping-care/2015/01/22/>
6. ADL Smartcare Limited ADL LifeCurve™ <http://www.adlsmartcare.com/#LifeCurveArea>
7. Scottish Government Home Care Public Release Files <http://www.gov.scot/Topics/Statistics/Browse/Health/Data/HomeCare/HSC-Datasets-HCPRF>
8. Canny, A., Robertson, F., Knight, P. et al. BMC Geriatr (2016) 16: 147. doi:10.1186/s12877-016-0321-3. An evaluation of the psychometric properties of the Indicator of Relative Need (IoRN) instrument.

Useful current resources

- A. ISD Indicator of Relative Need <http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Dependency-Relative-Needs/In-the-Community/>

This web page is a dynamic collection of resources including a copy of the ioRN2 questionnaire, explanation of its algorithm and previous presentations.

- B. Information Services Division The changing functional needs and dependency of people living in care homes: Evidence from use of the Indicator of Relative Need in Scotland

<http://www.isdscotland.org/Health-Topics/Health-and-Social-Community-Care/Publications/2017-02-28/2017-02-28-The-changing-functional-needs-and-dependency-of-people-living-in-care-homes-Report.pdf?50033205748>

This is a report on the levels of dependency found in a set of Scotland’s care homes. Dependency is measured using a different version of the ioRN known as the Augmented ioRN.

