

**Health Care Needs Assessment of Services for  
Adults with Rheumatoid Arthritis**

**PART B: Epidemiology of RA in Scotland**

**Scottish Public Health Network - July 2012**

## Table of Contents

<b>Preface</b> .....	<b>4</b>
<b>Author</b> .....	<b>4</b>
<b>1 Introduction</b> .....	<b>5</b>
1.1 Background .....	5
1.2 Aim of HCNA .....	5
1.3 HCNA methods .....	5
1.4 Format of this report .....	6
1.5 Scope of HCNA .....	6
<b>2 Methods</b> .....	<b>7</b>
2.1 Incidence and prevalence data .....	7
2.2 Primary care activity data .....	7
2.3 Secondary care activity data .....	8
2.4 Outcomes data .....	8
<b>3 Epidemiology of RA</b> .....	<b>9</b>
3.1 What is Rheumatoid Arthritis? .....	9
3.2 Who does RA affect? .....	9
3.3 What causes RA? .....	9
3.4 How is RA diagnosed? .....	10
3.5 How is RA treated? .....	10
3.6 Prevalence of RA in Scotland .....	10
3.7 Impact of ageing population on future prevalence of RA .....	12
3.8 Incidence of RA in Scotland .....	15
3.9 Primary care activity data .....	17
3.10 Secondary care activity data - Outpatient attendances .....	18
3.11 Secondary care activity data - Hospital admissions .....	21
3.12 Impact of RA on employment .....	22
3.13 Cost effectiveness of treatment for RA .....	24

<b>4</b>	<b>Summary.....</b>	<b>25</b>
<b>5</b>	<b>Recommendations .....</b>	<b>26</b>
	<b>REFERENCES.....</b>	<b>27</b>
	<b>ABBREVIATIONS USED.....</b>	<b>29</b>
	<b>GLOSSARY .....</b>	<b>30</b>
	<b>APPENDICES.....</b>	<b>34</b>

## **Preface**

This report forms part of a wider health care needs assessment (HCNA) of services for adults with rheumatoid arthritis (RA) in Scotland.

This report forms Part B of the wider HCNA report and describes the epidemiology of RA in Scotland. The following reports are also available:

- [Part A](#): which summarises the conclusions and recommendations of the HCNA;
- [Part C](#): which describes the corporate and comparative elements of the HCNA; and
- Part D: which considers the cost implications of developing the delivery of RA services in Scotland.

## **Author**

The data in this report was collated by ScotPHN, on behalf of the wider RA HCNA stakeholder group.

# 1 Introduction

## 1.1 Background

In 2002, the Public Health Institute for Scotland (PHIS) undertook a needs assessment of rheumatoid arthritis (RA).<sup>1</sup> Since then the evidence base and policy context have changed considerably. The Scottish Public Health Network (ScotPHN) was therefore asked by the Scottish Government to update the previous needs assessment to take account of the current epidemiology and recent advances in the understanding, treatment and care of people with rheumatoid arthritis.

## 1.2 Aim of HCNA

The aim of the updated health care needs assessment (HCNA) is to:

- review the epidemiology of rheumatoid arthritis in Scotland (including future trends);
- identify the views of stakeholders on current and future service provision;
- identify gaps in service provision and highlight priority areas for change; and
- make recommendations that will assist NHS Boards to plan and develop services for those with rheumatoid arthritis in their local area.

## 1.3 HCNA methods

The HCNA has been undertaken using the ScotPHN project methodology for health care needs assessment (described in more detail in [Part C](#) of the report) and has used elements of the following three approaches to needs assessment:

- *Epidemiological Needs Assessment*: describing the incidence and prevalence of the disease and baseline service activity;
- *Corporate Needs Assessment*: reporting the views of interested parties and stakeholders (including professionals and service users and their carers); and
- *Comparative Needs Assessment*: comparing and contrasting current RA services in Scotland with those provided elsewhere.

This report describes the epidemiological needs assessment and forms Part B of the overall report. The corporate and comparative elements of the needs assessment are described in [Part C](#). The cost implications are described in Part D and the HCNA's conclusions and recommendations are summarised in [Part A](#).

#### **1.4 Format of this report**

This report is intended to be a technical document. A patient version of the HCNA's overall findings will also be produced.

#### **1.5 Scope of HCNA**

Of note, the HCNA covers adults (aged 16 years and over) only.

## **2 Methods**

The purpose of the epidemiological element of the HCNA was to describe the epidemiology of rheumatoid arthritis in Scotland, including future scenarios.

During the process, the following issues were identified in relation to the data available.

### **2.1 Incidence and prevalence data**

It is important to note that there is no robust, epidemiological study of RA which directly relates to Scotland. Indeed, this is a recognised lack within the wider context of the evidence base for the condition. To address this, a review of the research literature was undertaken to identify new UK or international studies, published since the publication of the previous PHIS report in 2002, which could be used to inform an updated epidemiological statement. Unfortunately, little epidemiological research has been published during this period. Within the UK, the work of the research team associated with the Arthritis Research UK funded Norfolk Arthritis Register (NOAR) remains the only major source of epidemiological data. As a result, the basis of the descriptive epidemiology presented here is primarily based on studies derived from NOAR.

Given the current lack of Scottish RA data, consideration should be given to developing robust Scottish epidemiological data (e.g. by establishing a Scottish Registry for RA) to examine the epidemiology of RA and its consequences in Scotland. However, this would require additional resources which, in the current difficult economic climate, are likely to be difficult to achieve.

### **2.2 Primary care activity data**

Discussion with the Information Services Division (ISD) of NHS National Services Scotland did not identify any useable primary care data on which to base estimates of primary care activity for RA. RA is not currently contained within the Quality and Outcomes Framework (QOF) and it was not possible to generate robust data from the

Practice Team Information (PTI) database. Data from England and Wales has therefore been used instead.

### **2.3 Secondary care activity data**

Securing data on service use specific to RA is not straight-forward. Whilst ISD publish activity data on rheumatology outpatient attendances and day case and inpatient admissions (as part of the Scottish Morbidity Record) this is not specific to RA. As a general indicator of rheumatology activity, however, these data have been included in the descriptive epidemiology.

### **2.4 Outcomes data**

Little outcome data is available. Scottish audit data from the Clinical Audit of Care in Rheumatoid Arthritis (CARA)<sup>2</sup> and the Scottish National Audit of Early RA (SNARE)<sup>3</sup> is discussed in [Part C](#) of the HCNA report.

## **3 Epidemiology of RA**

### **3.1 What is Rheumatoid Arthritis?**

Rheumatoid arthritis is a disease of the joints and may involve other organs of the body. It causes swelling, stiffness and pain in joints, which can result in difficulties with many aspects of everyday life such as washing and dressing, housework, cooking and gardening, participation in hobbies and sport, walking, childcare and the ability to work effectively.

Untreated, rheumatoid arthritis can cause irreversible joint damage, tendon rupture and loss of muscle. These gradually affect the range of movement of joints, affecting quality of life. More general effects such as fatigue, weight loss and fever can also be experienced. Lung involvement (e.g. pleural effusion or interstitial pneumonia) can cause breathlessness. Other problems may include inflammation in the eye (scleritis) or heart (pericarditis), and patients with rheumatoid arthritis have an increased risk of ischaemic heart disease, some malignancies and fractures due to osteoporosis.

The health impact of RA is described further in [Part C](#) of the report.

### **3.2 Who does RA affect?**

Overall, the occurrence of RA is two to four times greater in women than men.<sup>4</sup> There can be a family history of the disease, or other autoimmune conditions. It can develop at any age, unlike some other forms of rheumatic disease, but has a peak incidence in the 5th and 6th decades of life (i.e. in a patient's 40s and 50s).

### **3.3 What causes RA?**

The exact cause of RA is not known. It appears that, in someone who is genetically susceptible, an environmental trigger initiates a complex series of changes in the immune system. Instead of being able to tell the difference between its own body tissues and foreign tissue, the immune system becomes dysfunctional and creates a response to the body's natural tissues. This is called 'autoimmunity' and is manifest

by inflammation in the joints and tendons, producing symptoms of pain, stiffness and swelling.

### **3.4 How is RA diagnosed?**

The European League Against Rheumatism (EULAR) and the American College of Rheumatology (ACR) have recently updated the diagnostic criteria for RA (Appendix 1). These use a combination of a patient's symptoms, examination findings and blood tests to make the diagnosis. No one single 'test' can diagnose the condition. The diagnosis of RA is discussed further in [Part C](#) of the report.

### **3.5 How is RA treated?**

The treatment of RA includes both drug treatments and non-drug approaches (e.g. patient education, physiotherapy, occupational therapy and podiatry) with early identification and treatment leading to better patient outcomes. The treatment of RA is discussed further in [Part C](#) of the report.

### **3.6 Prevalence of RA in Scotland**

It is difficult to ascertain current levels of prevalence of RA in Scotland. The largest study of prevalence remains the Norfolk based NOAR study which monitored both primary and secondary care to capture new cases. Table 1 shows the estimated number of men and women (aged 20 years and over) with RA in Scotland by NHS Board area. These estimates are based on prevalence figures developed by Arthritis Research UK using NOAR data (given in Appendix 2) applied to General Register Office (GRO) population estimates for Scotland in 2009.

**Table 1: Estimated number of men and women (aged 20 years and over) with rheumatoid arthritis in 2009, by age group and NHS Board area**

NHS Board Area	Men								Women							
	Population	Age (years)						Total*	Population	Age (years)						Total*
		20-34	35-44	45-54	55-64	65-74	75+			20-34	35-44	45-54	55-64	65-74	75+	
Ayrshire & Arran	175,871	6	5	150	141	203	257	761	191,289	36	32	475	434	520	574	2072
Borders	54,538	1	2	49	46	67	90	255	58,142	9	10	149	138	167	180	652
Dumfries & Galloway	71,849	2	2	62	64	97	130	357	76,661	12	12	195	188	236	260	903
Fife	175,422	7	5	147	132	183	237	711	187,963	39	32	447	406	467	531	1923
Forth Valley	140,770	5	4	119	104	142	173	547	150,613	31	27	360	316	368	383	1485
Grampian	270,863	11	8	235	202	256	349	1059	274,117	60	48	673	578	629	738	2726
Greater Glasgow & Clyde	576,389	27	16	483	376	501	671	2074	622,637	156	108	1530	1150	1404	1679	6026
Highland	153,070	5	4	136	130	180	232	688	157,460	26	27	405	383	442	486	1768
Lanarkshire	270,451	10	8	231	190	259	320	1019	291,764	61	53	730	588	708	722	2862
Lothian	399,208	19	12	319	259	337	476	1422	427,023	117	76	979	793	892	1076	3933
Orkney	9,829	0	0	9	8	13	14	45	10,131	2	2	26	24	29	30	112
Shetland	11,214	0	0	10	9	12	14	46	10,996	2	2	28	24	27	30	112
Tayside	192,960	8	5	159	147	214	307	839	206,590	43	33	492	449	538	663	2218
Western Isles	12,854	0	0	12	11	16	21	61	13,326	2	2	32	31	40	50	157
<b>SCOTLAND*</b>	<b>2,515,288</b>	<b>101</b>	<b>72</b>	<b>2120</b>	<b>1821</b>	<b>2479</b>	<b>3291</b>	<b>9883</b>	<b>2,678,712</b>	<b>596</b>	<b>465</b>	<b>6522</b>	<b>5501</b>	<b>6466</b>	<b>7402</b>	<b>26952</b>

Calculated by applying Arthritis Research UK prevalence rates (Appendix 2) to General Register Office for Scotland mid-2009 Population Estimates

Source: <http://www.arthritisresearch.org> Accessed 21/01/2011

Symmons D, Turner G, Webb R, Asten P, Barrett E, Lunt M et al. The prevalence of rheumatoid arthritis in the United Kingdom: new estimates for a new century. *Rheumatology* 2002; 41(7): 793-800<sup>5</sup>

\* Totals stated may vary slightly from the numbers given within the table due to rounding error

Table 1 shows:

- An estimated 36, 835 adults in Scotland have RA;
- RA is two to three times more common among women than men (with an estimated 9,883 men having RA compared with 26,952 women); and
- The prevalence of RA increases considerably with age.

Care should be taken to not over-interpret these crude estimates as they are based on figures from NOAR and may not fully reflect the position in Scotland (since the epidemiology of the NOAR population may not accurately reflect that of the Scottish population). However, these are the best estimates available at present.

Of note, the National Institute for Health and Clinical Excellence (NICE) use an overall prevalence estimate for RA of 0.8% of all adults aged 18 years and over in their cost estimates.<sup>4</sup> This is also based on data from Symmons et al 2002.<sup>5</sup> The cost calculations in Part D of this HCNA use the NICE prevalence figure of 0.8%, to ensure consistency with previous NICE cost calculations.

There is very little data on the prevalence of rheumatoid arthritis in ethnic minorities.

### **3.7 Impact of ageing population on future prevalence of RA**

Looking to the future, as the Scottish population as a whole ages, the prevalence of RA will increase. Table 2 provides estimates of the projected numbers of adults with RA in 2010, 2015 and 2020. These prevalence estimates simply reflect the impact of the population changes which are predicted by the GRO to occur in Scotland over the next ten years. Table 2 shows that the number of adults in Scotland with RA is expected to rise from 37,539 in 2010 to 42,505 in 2020 (i.e. a 13% increase over 10 years).

As the Scottish population ages the number of people with RA will increase. This is likely to be most pronounced in areas where the population over the age of 65 years

is expected to grow considerably. More detailed information on the projected prevalence of RA by age group and NHS Board area is provided in Appendix 3.

**Table 2: The projected number of men and women aged 16 years and over with rheumatoid arthritis in 2010, 2015 and 2020, by NHS Board area**

NHS Board Area	2010				2015				2020		
	Males	Females	Total*		Males	Females	Total*		Males	Females	Total*
Ayrshire & Arran	778	2107	2885		853	2227	3079		908	2300	3209
Borders	261	665	926		293	723	1017		320	771	1091
Dumfries & Galloway	364	919	1283		402	973	1375		429	1007	1436
Fife	731	1965	2696		817	2117	2934		888	2229	3117
Forth Valley	562	1514	2076		628	1641	2270		680	1742	2422
Grampian	1088	2789	3877		1225	3012	4237		1343	3203	4546
Greater Glasgow & Clyde	2098	6094	8192		2223	6304	8527		2324	6430	8754
Highland	706	1812	2518		788	1961	2749		863	2077	2940
Lanarkshire	1038	2915	3953		1147	3121	4268		1231	3272	4503
Lothian	1457	4013	5470		1620	4325	5945		1767	4593	6361
Orkney	46	116	162		53	127	180		58	137	195
Shetland	47	114	161		54	122	176		60	131	191
Tayside	859	2261	3120		941	2394	3336		1008	2488	3496
Western Isles	62	159	220		67	168	235		72	174	246
<b>SCOTLAND*</b>	<b>10096</b>	<b>27444</b>	<b>37539</b>		<b>11112</b>	<b>29216</b>	<b>40328</b>		<b>11951</b>	<b>30554</b>	<b>42505</b>

Calculated by applying Arthritis Research UK prevalence rates (Appendix 2) to General Register Office for Scotland mid-2009 Population Estimates

Source: <http://www.arthritisresearch.org> Accessed 21/01/11

Symmons D, Turner G, Webb R, Asten P, Barrett E, Lunt M et al. The prevalence of rheumatoid arthritis in the United Kingdom: new estimates for a new century. *Rheumatology* 2002; 41(7): 793-800<sup>5</sup>

\* Totals stated may vary slightly from the numbers given within the table due to rounding error

### **3.8 Incidence of RA in Scotland**

Again there is little current data on the incidence of rheumatoid arthritis in Scotland.

Table 3 shows the estimated annual number of new cases of RA by age, sex and NHS Board in Scotland. These estimates have been calculated using incidence rates developed by Arthritis Research UK using NOAR data (Appendix 4) applied to GRO population estimates for Scotland for 2009. As with the prevalence estimates, these incidence estimates must be treated with a degree of caution since they are derived from NOAR data and are likely to be subject to variation based on diagnostic and presentation biases. As such, the numbers given may underestimate the true incidence in any given area. Be that as it may, they still provide useful information and show that an estimated 549 men and 1302 women in Scotland develop RA each year.

Of note, current incidence rate estimates for RA vary. NICE, for example, estimate that 1.5 males and 3.6 females per 10,000 population become affected by RA annually.<sup>4</sup> In this report, we have used the Arthritis Research UK rates (Appendix 4) to allow calculation of age-specific estimates for each Board in Table 3. However, the NICE rates have been used in the economic analysis in Part D, to ensure consistency with previous NICE cost calculations.

For the purposes of planning, incidence rates for RA (including the peak age of onset) appear to be stable (unlike RA prevalence which is predicted to rise considerably over the next ten years).

Although the number of new cases of RA may be relatively low compared with other conditions, given the chronic nature of RA and the effectiveness of early treatment, the numbers are important.

**Table 3: Estimated number of new cases of rheumatoid arthritis in males and females in 2009, by age and NHS Board area**

NHS Board Area	Men							Women						
	Population	Age (years)					Total *	Population	Age (years)					Total *
		15-44	45-54	55-64	65-74	75+			15-44	45-54	55-64	65-74	75+	
Ayrshire & Arran	175,871	5	8	10	12	7	42	191,289	23	26	23	19	6	97
Borders	54,538	1	3	3	4	2	14	58,142	7	8	7	6	2	30
Dumfries & Galloway	71,849	2	3	5	6	3	19	76,661	8	11	10	9	3	40
Fife	175,422	5	8	10	11	6	39	187,963	23	25	21	17	5	92
Forth Valley	140,770	4	6	8	8	5	31	150,613	19	20	17	14	4	73
Grampian	270,863	8	13	15	15	9	59	274,117	35	37	30	23	7	133
Greater Glasgow & Clyde	576,389	17	26	27	29	18	117	622,637	83	84	61	52	17	296
Highland	153,070	4	7	9	11	6	37	157,460	18	22	20	16	5	82
Lanarkshire	270,451	8	12	14	15	8	58	291,764	37	40	31	26	7	142
Lothian	399,208	13	17	19	20	12	81	427,023	60	54	42	33	11	199
Orkney	9,829	0	0	1	1	0	2	10,131	1	1	1	1	0	5
Shetland	11,214	0	1	1	1	0	3	10,996	1	2	1	1	0	5
Tayside	192,960	5	9	11	12	8	45	206,590	24	27	24	20	7	102
Western Isles	12,854	0	1	1	1	1	3	13,326	1	2	2	1	1	7
<b>SCOTLAND *</b>	<b>2,515,288</b>	<b>72</b>	<b>114</b>	<b>132</b>	<b>145</b>	<b>86</b>	<b>549</b>	<b>2,678,712</b>	<b>341</b>	<b>359</b>	<b>290</b>	<b>238</b>	<b>74</b>	<b>1302</b>

Calculated by applying Arthritis Research UK incidence rates (Appendix 4) to General Register Office for Scotland mid-2009 Population Estimates

Source: <http://www.arthritisresearch.org> Accessed 21/01/2011

Wiles N, Symmons DPM, Harrison B, Barrett E, Barrett JH, Scott DGI et al. Estimating the incidence of rheumatoid arthritis - Trying to hit a moving target? *Arthritis Rheum* 1999; 42(7): 1339-46<sup>6</sup>

\* Totals stated may vary slightly from the numbers given within the table due to rounding error

### 3.9 Primary care activity data

As discussed in section 2.2, ISD does not have robust Scottish data on primary care activity for RA. Data from England and Wales has therefore been used instead in this assessment.

In England and Wales, NICE has estimated that in a “standard” GP practice of 10,000 people (with 8,000 being adults over the age of 18 years) there will be 8 people per year referred for RA assessment (0.1% of the adult population), of which 2 will be diagnosed with the condition (0.025% of the adult population).<sup>4,7</sup> NICE estimate that at any given time 0.8% of the adult population over 18 years will be in ongoing management for RA, equating to 60 people per year in the standard practice. The impact of these estimates for NHS Boards in Scotland is shown in Table 4.

**Table 4: Estimated number of people being assessed for RA, diagnosed with RA or in ongoing treatment for RA each year, by NHS Board area**

<b>NHS Board Area</b>	<b>RA Assessment</b>	<b>RA Diagnosis</b>	<b>RA Ongoing care</b>
Ayrshire & Arran	294	73	2,348
Borders	90	23	720
Dumfries & Galloway	120	30	961
Fife	289	72	2,310
Forth Valley	229	57	1,833
Grampian	436	109	3,486
Greater Glasgow & Clyde	959	240	7,675
Highland	250	62	1,996
Lanarkshire	441	110	3,531
Lothian	665	166	5,318
Orkney	16	4	128
Shetland	17	4	139
Tayside	321	80	2,567
Western Isles	21	5	169
<b>SCOTLAND</b>	<b>4,148</b>	<b>1,037</b>	<b>33,183</b>

Source: NICE (2010). Determining local service levels for a service for the diagnosis and management of rheumatoid arthritis in adults: Benchmarks for a standard population.<sup>7</sup> Calculated using General Register Office for Scotland mid 2009 Population Estimates.

### **3.10 Secondary care activity data - Outpatient attendances**

Table 5 and Table 6 present ISD SMR00 data on outpatient attendances for Rheumatology as a specialty. Table 5 shows the total number of attendances and Table 6 shows the number of new patient attendances. Of note:

- Data is shown by NHS Board of treatment (not Board of residence);
- The data do not separate out RA from other reasons to attend a Rheumatology outpatient clinic. As a general rule of thumb, clinical experience suggests that RA accounts for up to 75% of a rheumatologist's outpatient workload;
- The data covers consultant-led clinics only. Clinics led by a nurse or allied health professionals are not included in the data shown; and
- The quality of the data available is variable and data for some Boards should be treated with a high degree of caution.

As with all activity data, care needs to be exercised in its interpretation, particularly when comparing different geographical areas. For example, in areas with a higher recorded activity, the data may reflect a fully developed rheumatology service provision or simply a wider catchment area for what service provision exists. Equally, in smaller health board areas, the relatively low levels of attendance may be a reflection of smaller populations being served or of a more generalist approach to care with fewer patients being seen by a specialist in rheumatology rather than a general physician.

The quality of the data for some Boards limits its interpretation. However, what is clear from the data is that, across Scotland as a whole, both the number of new patients attending Rheumatology outpatient clinics and the total number of attendances has grown over the ten years of reported activity.

Additional data on the return/new ratio and DNA (did not attend) rates are provided in Appendix 5 and Appendix 6 respectively. A summary of SMR00 data collated by Board is provided in Appendix 7.

**Table 5: Outpatient and A&E Summary by NHS Board of Treatment. Rheumatology: Total Attendances**

NHS Board of Treatment	Financial Year Ending 31st March									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 <sup>p</sup>
Ayrshire & Arran	156	159	176	113	0	0	0	0	0	0
Borders	0	0	81	0	1,117	1,140	1,240	1,172	1,145	823
Dumfries & Galloway	2,475	2,352	2,412	2,888	3,049	3,234	3,903	4,032	3,706	3,668
Fife	3,827	4,504	4,977	7,001	5,405	4,613	4,573	4,874	5,341	5,906
Forth Valley	2,515	2,335	2,345	2,502	2,083	2,020	2,356	2,768	3,379	3,258
Golden Jubilee National Hospital	x	x	x	x	..	0	0	0	0	0
Grampian	8,671	8,690	8,919	9,097	9,129	9,389	9,138	9,097	9,234	9,519
Greater Glasgow & Clyde	34,081	35,868	36,576	33,896	32,525	35,090	36,377	37,471	39,257	39,687
Highland	1,720	1,668	1,693	1,788	1,823	1,826	2,684	3,418	3,475	3,708
Lanarkshire	10,031	8,970	9,214	9,660	9,666	10,245	10,840	10,840	10,840	10,840
Lothian	9,589	10,519	10,856	10,794	9,840	10,397	10,051	10,660	11,225	12,328
Orkney Islands	86	87	113	134	121	158	141	93	146	214
Shetland Islands	133	268	516	654	662	587	696	957	1,205	902
Tayside	6,705	6,684	6,710	7,252	6,997	6,077	6,687	6,296	8,088	8,370
Western Isles	0	0	0	0	0	0	0	0	0	0
<b>NHS Scotland</b>	<b>79,989</b>	<b>82,104</b>	<b>84,588</b>	<b>85,779</b>	<b>82,417</b>	<b>84,776</b>	<b>88,686</b>	<b>91,678</b>	<b>97,041</b>	<b>99,223</b>

Source: ISD(S)1, SMR00. As at December 2010. Accessed 21/2/12.

x = not applicable      .. = not available      p = provisional

ISD notes re data issues: Outpatient data for the Golden Jubilee National Hospital for the year ending 31st March 2005 is not currently available due to system problems. There are long standing unresolved data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley.

Additional notes: In addition to the caution from ISD above re data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley, data for other Boards (e.g. Ayrshire & Arran) should also be treated with caution.

**Table 6: Outpatient and A&E Summary by NHS Board of Treatment. Rheumatology: New Patients**

NHS Board of Treatment	Financial Year Ending 31st March									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 <sup>p</sup>
Ayrshire & Arran	37	19	37	26	0	0	0	0	0	0
Borders	0	0	19	0	269	300	283	313	294	198
Dumfries & Galloway	512	454	434	541	526	552	659	691	695	749
Fife	713	786	865	1,311	985	1,076	954	1,264	1,199	1,322
Forth Valley	576	503	485	654	530	604	775	684	767	709
Golden Jubilee National Hospital	x	x	x	x	..	0	0	0	0	0
Grampian	1,874	1,958	1,907	1,945	1,935	2,039	2,028	2,041	2,318	2,384
Greater Glasgow & Clyde	4,864	4,874	4,994	4,352	4,562	5,646	5,535	6,538	6,814	6,845
Highland	262	269	281	311	318	358	547	662	797	759
Lanarkshire	1,655	1,508	1,711	1,689	1,822	1,728	1,728	1,728	1,728	1,728
Lothian	2,738	3,056	2,814	2,751	2,465	2,798	3,178	3,518	3,684	3,792
Orkney Islands	27	34	41	53	27	53	49	31	58	50
Shetland Islands	54	72	151	150	109	93	132	184	241	191
Tayside	1,151	1,188	1,249	1,454	1,348	1,336	1,493	1,276	1,815	2,107
Western Isles	0	0	0	0	0	0	0	0	0	0
<b>NHS Scotland</b>	<b>14,463</b>	<b>14,721</b>	<b>14,988</b>	<b>15,237</b>	<b>14,896</b>	<b>16,583</b>	<b>17,361</b>	<b>18,930</b>	<b>20,410</b>	<b>20,834</b>

Source: ISD(S)1, SMR00. As at December 2010. Accessed 21/2/12.

x = not applicable      .. = not available      p = provisional

ISD notes re data issues: Outpatient data for the Golden Jubilee National Hospital for the year ending 31st March 2005 is not currently available due to system problems. There are long standing unresolved data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley.

Additional notes: In addition to the caution from ISD above re data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley, data for other Boards (e.g. Ayrshire & Arran) should also be treated with caution.

### 3.11 Secondary care activity data - Hospital admissions

Table 7 shows the total number of Continuous Spells of Treatment (CIS) in hospital for Rheumatology as a specialty for all Scottish Boards combined. It shows a slight reduction in the overall inpatient activity (all patient types) from 2005/06 to 2009/10, with a fall in emergency inpatient admissions but a rise in elective inpatient admissions (a description of how these terms are defined is provided in the glossary). However, the data do not separate out RA from other rheumatological reasons for admission and this should be borne in mind when interpreting the data.

**Table 7: Continuous Spells of Treatment (CIS) in hospital for Rheumatology for Scotland (all Boards), by financial year**

	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010 <sup>p</sup>
Day Cases	5017	5140	5208	3927	4695
Elective Inpatients	1054	1169	1232	1329	1238
Emergency Inpatients	623	460	429	445	313
Transfers	6	12	13	14	8
All Patient Types	6700	6781	6882	5715	6254

Source: ISD SMR01 data. Accessed 5/3/12. p = provisional. Inpatient activity data for individual NHS boards is available from the ISD website ([www.isdscotland.org](http://www.isdscotland.org))

**Note:** the data in the table should be interpreted cautiously due to concerns that it does not accurately represent the true level of rheumatology activity (see text below).

The data in Table 7 is based on SMR01 data from ISD. However, during the needs assessment, concern was expressed by some clinicians that the data does not accurately reflect the true level of rheumatology inpatient/day case activity. For example, patients admitted with RA related problems may have their admission coded under general medicine or other acute specialities, leading to an underestimation of the number of in-patient admissions for rheumatology. The number of rheumatology day cases is also thought to be underestimated. The data in

Table 7 should therefore be interpreted cautiously and consideration should be given to how future data collection can be improved\*.

### **3.12 Impact of RA on employment**

One of the important consequences of RA is loss of employment due to increased pain and disability. It is estimated that up to 40% of patients lose their jobs within five years of being diagnosed with RA, three quarters for reasons directly related to their arthritis.<sup>8</sup>

Table 8 shows the estimated number of people of working age who are newly diagnosed with RA in Scotland in a particular year (in this example, 2009) who will subsequently leave work prematurely due to RA, using work disability incidence data from a UK study by Barrett et al.<sup>9</sup> As shown, the proportion stopping work varies during the course of the disease, with many stopping work early in the course of their disease. Of those working at the time of diagnosis, a third (33%) will have stopped within 5 years due to their condition.

Of note, the estimates given in Table 8 assume that all adults aged 16-64 years who are diagnosed with RA in a particular year are working at the time of diagnosis. This will not however be the case since a large proportion of people will not be working at the time of diagnosis (e.g. students, full time carers, the unemployed, those who have retired early etc). This should be borne in mind when interpreting the estimates and the figures adjusted as required to take account of local data regarding disability benefit recipients, for example. In future, the impact of the Welfare Reform Act 2012 (which replaces the Disability Living Allowance with a Personal Independence Payment) may make such adjustments more problematic.

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\* ScotPHN is currently collating locally collected data from Fife which will be compared against the data presented in Table 7, to try to estimate the degree to which the data in Table 7 may underestimate the number of rheumatology inpatient admissions & day cases. This analysis was not available at the time of publishing this report, but will be available from the ScotPHN office in due course.

**Table 8: Estimated premature stopping of work among those newly diagnosed with RA in 2009 (for adults aged 16-64 years), by NHS Board area**

	Number of new cases of RA (aged 16-64)	Work disability rates & number affected by...				
		Year 1 14%	Year 2 26%	Year 5 33%	Year 10 39%	
<b>Men</b>						
<b>NHS Board Area</b>						
Ayrshire & Arran	23	3	6	8	9	
Borders	7	1	2	2	3	
Dumfries & Galloway	10	1	3	3	4	
Fife	22	3	6	7	9	
Forth Valley	18	3	5	6	7	
Grampian	35	5	9	12	14	
Greater Glasgow & Clyde	71	10	18	23	28	
Highland	21	3	5	7	8	
Lanarkshire	34	5	9	11	13	
Lothian	49	7	13	16	19	
Orkney	1	0	0	0	1	
Shetland	2	0	0	0	1	
Tayside	24	3	6	8	9	
Western Isles	2	0	0	1	1	
<b>SCOTLAND *</b>	<b>319</b>	<b>45</b>	<b>83</b>	<b>105</b>	<b>124</b>	
<b>Women</b>						
<b>NHS Board Area</b>						
Ayrshire & Arran	72	10	19	24	28	
Borders	22	3	6	7	9	
Dumfries & Galloway	29	4	8	10	11	
Fife	69	10	18	23	27	
Forth Valley	56	8	15	18	22	
Grampian	103	14	27	34	40	
Greater Glasgow & Clyde	228	32	59	75	89	
Highland	60	8	16	20	24	
Lanarkshire	109	15	28	36	42	
Lothian	155	22	40	51	61	
Orkney	4	1	1	1	2	
Shetland	4	1	1	1	2	
Tayside	75	11	20	25	29	
Western Isles	5	1	1	2	2	
<b>SCOTLAND *</b>	<b>990</b>	<b>139</b>	<b>257</b>	<b>327</b>	<b>386</b>	

Work disability rates are taken from cohort 1 of the following study: Barrett EM, Scott DG, Wiles NJ, Symmons DP. The impact of rheumatoid arthritis on employment status in the early years of disease: a UK community-based study. *Rheumatology* 2000; 39(12):1403-9.<sup>9</sup>

The number of new cases of RA by Board in 2009 was calculated by applying Arthritis Research UK incidence rates (Appendix 4) to Scottish GRO mid-2009 population estimates.

Please note: The estimates shown assume a 100% employment rate at the time of diagnosis – this is unlikely to be the case, however, and the estimates given in the table should be adjusted as required to take account of local employment rates.

\* Totals stated may vary slightly from the numbers given within the table due to rounding error.

### **3.13 Cost effectiveness of treatment for RA**

Early recognition of rheumatoid arthritis is a crucial component of good patient care. Without timely assessment, both the human and financial cost of rheumatoid arthritis can be high: delays in treatment are associated not only with greater joint damage and morbidity related to RA but also greater work instability and socioeconomic cost.<sup>10</sup> A recent health economic analysis by the National Audit Office (NAO) suggests that investment in the early diagnosis and treatment of RA results in medium term savings.<sup>11</sup>

The cost implications of developing the delivery of RA services in Scotland is discussed further in Part D of the HCNA report.

## 4 Summary

- There is no robust, epidemiological study of RA which directly relates to Scotland. Data from the Norfolk Arthritis Register (NOAR) has therefore been used in this report to estimate the prevalence and incidence of RA in Scotland.
- RA is two to four times more common among women than men.
- RA can develop at any age but tends to have a peak incidence in the 5th and 6th decades (i.e. in a patient's 40s and 50s).
- Over 36,000 adults in Scotland have RA.
- The prevalence of RA increases considerably with age. Looking to the future, as the Scottish population ages, the number of people with RA will also increase. The number of adults with RA in Scotland is predicted to rise from 37,539 in 2010 to 42,505 in 2020 (i.e. a 13% increase over 10 years).
- There are over 1800 new cases of RA in Scotland every year. Early diagnosis and treatment can significantly improve outcomes.
- At any given time, 0.8% of the adult population over 18 years will be in ongoing management for RA.
- The number of outpatient attendances (both new patient and total attendances) for Rheumatology as a specialty (i.e. for all reasons including RA) has increased over the last ten years.
- Nationally, there has been a slight reduction in the overall inpatient activity for Rheumatology as a specialty from 2005/06 to 2009/10, with a fall in emergency inpatient admissions but a rise in elective inpatient admissions.

This data is not specific to RA, however, and concerns have been raised as to whether current routinely collected hospital admission data accurately reflects rheumatology day case and in-patient activity. The data should therefore be interpreted with caution.

- Work disability is an important consequence of RA and often occurs early on in the disease. Up to 40% of patients lose their jobs within five years of being diagnosed with RA, three quarters for reasons directly related to their arthritis.
- Health economic analysis by the National Audit Office suggests that investment in the early diagnosis and treatment of RA results in medium term savings (the cost implications of developing the delivery of RA services in Scotland is discussed further in Part D of the report).

## **5 Recommendations**

- The planning of future RA services should take into account the impact that the ageing of the Scottish population will have on the need for services (with an ageing population leading to an increase in the prevalence of RA and an accompanying increase in the need for services).
- Consideration should be given to how data collection for rheumatology hospital admissions (day cases and inpatients) can be improved.

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## ABBREVIATIONS USED

ACR	American College of Rheumatology
CARA	Clinical Audit of Care in Rheumatoid Arthritis
CIS	Continuous Inpatient Stay
EULAR	European League Against Rheumatism
GP	General Practitioner
GRO	General Register Office for Scotland
HCNA	Health Care Needs Assessment
ISD	Information Services Division
NAO	National Audit Office
NICE	National Institute for Health and Clinical Excellence (previously known as the National Institute for Clinical Excellence)
NHS	National Health Service
NOAR	Norfolk Arthritis Register
PHIS	Public Health Institute for Scotland
PTI	Practice Team Information
QOF	Quality and Outcomes Framework
RA	Rheumatoid Arthritis
ScotPHN	Scottish Public Health Network
SMR	Scottish Morbidity Record
SNARE	Scottish National Audit of Early RA
UK	United Kingdom

## GLOSSARY

<p>Continuous Inpatient Stay (CIS)</p>	<p>A continuous inpatient stay is an unbroken period of time that a patient spends as an inpatient. It is calculated using SMR01 data.</p> <p>An SMR01 is generated for patients receiving care in the General/Acute specialties as an inpatient or day case. An SMR01 episode is generated when a patient is discharged from hospital but also when a patient is transferred between hospitals, significant facilities, specialties or to the care of a different consultant.</p> <p>Probability matching methods are used to link together individual SMR01 hospital episodes for each patient, thereby creating "linked" patient histories – called a Continuous Spell of Treatment in hospital. Within these patient histories, SMR01 episodes are grouped according to whether they form part of a continuous spell of treatment (whether or not this involves transfer between hospitals or even Health Boards).</p> <p>The number of Continuous Spells of Treatment can therefore be a more useful measure of inpatient activity than the total number of episodes.</p> <p>Full data definitions are available from the ISD data dictionary <a href="http://www.datadictionaryadmin.scot.nhs.uk">www.datadictionaryadmin.scot.nhs.uk</a></p>
<p>Day case</p>	<p>This is when a patient makes a planned attendance to a specialty for clinical care, sees a doctor or dentist or nurse (as the consultant's representative) and requires the use of a bed</p>

	<p>or trolley in lieu of a bed. The patient is not expected to, and does not, remain overnight.</p> <p>Full data definitions are available from the ISD data dictionary <a href="http://www.datadictionaryadmin.scot.nhs.uk">www.datadictionaryadmin.scot.nhs.uk</a></p>
<p>Incidence</p>	<p>The number of <i>new</i> cases of a disease that occur in a defined population during a specified period of time (expressed as a rate) e.g. the number of new cases of RA per 1000 population per year.</p> <p>Note: Incidence measures the number of <i>new</i> cases of a disease (not the number of existing cases). It's a useful measure of the risk of developing the disease and is useful, for example, to help plan the services required to manage new cases. It doesn't measure the total burden of the disease within a population, however, for which prevalence is a better measure (see below).</p>
<p>Inpatient</p>	<p>This is when a patient occupies an available staffed bed in a hospital and:</p> <ul style="list-style-type: none"> <li>• EITHER - remains overnight whatever the original intention OR</li> <li>• at admission, is expected to remain overnight but is discharged earlier.</li> </ul> <p>Inpatient admissions can be further broken down into;</p> <ul style="list-style-type: none"> <li>• Emergency admissions (this occurs when, for clinical reasons, a patient is admitted at the earliest possible time after seeing a doctor. The patient may or may not be admitted through Accident &amp; Emergency);</li> <li>• Elective (planned) admissions (this is when the patient</li> </ul>

	<p>has already been given a date to come to hospital for some kind of procedure); and</p> <ul style="list-style-type: none"> <li>• Transfers (where a patient will already have been admitted to hospital and is either transferred between specialties or hospital, and will be part of the same continuous inpatient stay).</li> </ul> <p>Full data definitions are available from the ISD data dictionary <a href="http://www.datadictionaryadmin.scot.nhs.uk">www.datadictionaryadmin.scot.nhs.uk</a></p>
Need	The capacity to benefit from an intervention.
Prevalence	<p>The total number of cases of a disease in a given population at a particular point in time e.g. the number of people with RA per 1000 population at a specific point in time.</p> <p>Note: Prevalence is a useful indicator of the ‘burden of disease’ within a population (particularly for long term conditions such as RA) as it takes account of the duration of the disease.</p>
SMR00	<p>SMR00 is part of the Scottish Morbidity Record (SMR) datasets collated by ISD and considers Outpatient Attendances.</p> <p>An SMR00 is generated for outpatients receiving care in the specialties listed when:</p> <ul style="list-style-type: none"> <li>• they attend a consultant or other medical outpatient clinic; or</li> <li>• they meet with a consultant or senior member of his/her team outwith an outpatient clinic session (including the patient's home).</li> </ul> <p>For joint specialty clinics, an SMR00 is completed for each involved specialty unless there is an agreed main specialty, in</p>

	<p>which case only one SMR00 need be completed.</p> <p>If the patient is a new outpatient then the attendance is a new outpatient attendance, otherwise it is a follow-up (return) outpatient attendance.</p> <p>Full data definitions are available from the ISD data dictionary <a href="http://www.datadictionaryadmin.scot.nhs.uk">www.datadictionaryadmin.scot.nhs.uk</a></p>
SMR01	<p>SMR01 is part of the Scottish Morbidity Record (SMR) datasets collated by ISD and considers inpatient and day case activity for General/Acute specialties.</p> <p>Full data definitions are available from the ISD data dictionary <a href="http://www.datadictionaryadmin.scot.nhs.uk">www.datadictionaryadmin.scot.nhs.uk</a></p>

## APPENDICES

### Appendix 1: The 2010 ACR-EULAR classification criteria for rheumatoid arthritis

	Score
Target population (Who should be tested?): Patients who	
1. have at least 1 joint with definite clinical synovitis (swelling) <sup>*</sup>	
2. with the synovitis not better explained by another disease <sup>†</sup>	
Classification criteria for RA (score-based algorithm: add score of categories A–D; a score of ≥6/10 is needed for classification of a patient as having definite RA) <sup>‡</sup>	
A. Joint involvement <sup>§</sup>	
1 large joint <sup>¶</sup>	0
2-10 large joints	1
1-3 small joints (with or without involvement of large joints) <sup>#</sup>	2
4-10 small joints (with or without involvement of large joints)	3
>10 joints (at least 1 small joint) <sup>**</sup>	5
B. Serology (at least 1 test result is needed for classification) <sup>††</sup>	
Negative RF <i>and</i> negative ACPA	0
Low-positive RF <i>or</i> low-positive ACPA	2
High-positive RF <i>or</i> high-positive ACPA	3
C. Acute-phase reactants (at least 1 test result is needed for classification) <sup>‡‡</sup>	
Normal CRP <i>and</i> normal ESR	0
Abnormal CRP <i>or</i> abnormal ESR	1
D. Duration of symptoms <sup>§§</sup>	
<6 weeks	0
≥6 weeks	1

\* The criteria are aimed at classification of newly presenting patients. In addition, patients with erosive disease typical of rheumatoid arthritis (RA) with a history compatible with prior fulfillment of the 2010 criteria should be classified as having RA. Patients with longstanding disease, including those whose disease is inactive (with or without treatment) who, based on retrospectively available data, have previously fulfilled the 2010 criteria should be classified as having RA.

† Differential diagnoses vary among patients with different presentations, but may include conditions such as systemic lupus erythematosus, psoriatic arthritis, and gout. If it is unclear about the relevant differential diagnoses to consider, an expert rheumatologist should be consulted.

‡ Although patients with a score of <6/10 are not classifiable as having RA, their status can be reassessed and the criteria might be fulfilled cumulatively over time.

§ Joint involvement refers to any *swollen* or *tender* joint on examination, which may be confirmed by imaging evidence of synovitis. Distal interphalangeal joints, first carpometacarpal joints, and first metatarsophalangeal joints are *excluded from assessment*. Categories of joint distribution are classified according to the location and number of involved joints, with placement into the highest category possible based on the pattern of joint involvement.

¶ "Large joints" refers to shoulders, elbows, hips, knees, and ankles.

# "Small joints" refers to the metacarpophalangeal joints, proximal interphalangeal joints, second through fifth metatarsophalangeal joints, thumb interphalangeal joints, and wrists.

\*\* In this category, at least 1 of the involved joints must be a small joint; the other joints can include any combination of large and additional small joints, as well as other joints not specifically listed elsewhere (e.g., temporomandibular, acromioclavicular, sternoclavicular, etc.).

†† Negative refers to IU values that are less than or equal to the upper limit of normal (ULN) for the laboratory and assay; low-positive refers to IU values that are higher than the ULN but ≤3 times the ULN for the laboratory and assay; high-positive refers to IU values that are >3 times the ULN for the laboratory and assay. Where rheumatoid factor (RF) information is only available as positive or negative, a positive result should be scored as low-positive for RF. ACPA = anti-citrullinated protein antibody.

‡‡ Normal/abnormal is determined by local laboratory standards. CRP = C-reactive protein; ESR = erythrocyte sedimentation rate.

§§ Duration of symptoms refers to patient self-report of the duration of signs or symptoms of synovitis (e.g. pain, swelling, tenderness) of joints that are clinically involved at the time of assessment, regardless of treatment status.

#### Reference:

The American College of Rheumatology

[http://www.rheumatology.org/practice/clinical/classification/ra/ra\\_2010.asp](http://www.rheumatology.org/practice/clinical/classification/ra/ra_2010.asp)

## Appendix 2: Prevalence rates for RA (produced by Arthritis Research UK)

This appendix provides details of the prevalence rates for RA produced by Arthritis Research UK, using data from the Norfolk Arthritis Register (NOAR).

### How many existing cases of rheumatoid arthritis are there in the UK?

Age	Males (%)	UK estimate	Females (%)	UK estimate
16–44	0.02*	2,500	0.12	15,100
45–64	0.58	42,900	1.67	126,900
64–74	1.14	27,100	2.56	67,800
75+	2.18	39,100	2.99	85,700
Total adult population	0.44	106,500	1.16	297,600

Source: Symmons D, Turner G, Webb R, Asten P, Barrett E, Lunt M et al. The prevalence of rheumatoid arthritis in the United Kingdom: new estimates for a new century. *Rheumatology* 2002; 41(7):793–800.

\* Males aged 16–44 weren't included in the survey. This figure was calculated by assuming that the female:male ratio of rheumatoid arthritis in the 16–44 age group is the same as that observed in NOAR for the incidence of rheumatoid arthritis in the same age group.

<http://www.arthritisresearchuk.org/arthritis-information/data-and-statistics/rheumatoid-arthritis.aspx> Accessed 07/02/12

**Appendix 3: Projected prevalence of RA among men and women aged 16 years and over by age and NHS Board area (2010, 2015, 2020)**

2010	16-44		45-64		65-74		75+		TOTAL*
	Males	Females	Males	Females	Males	Females	Males	Females	
<b>SCOTLAND</b>	<b>199</b>	<b>1207</b>	<b>3993</b>	<b>12232</b>	<b>2514</b>	<b>6501</b>	<b>3390</b>	<b>7503</b>	<b>37539</b>
Ayrshire & Arran	13	79	293	921	205	527	267	580	2885
Borders	<5	22	97	292	69	169	91	181	926
Dumfries & Galloway	5	28	127	387	99	241	133	264	1283
Fife	13	82	283	867	188	477	247	539	2696
Forth Valley	11	68	226	686	144	371	181	390	2076
Grampian	21	123	444	1278	260	637	362	751	3877
Greater Glasgow & Clyde	49	297	869	2723	501	1384	680	1689	8192
Highland	11	60	269	805	186	449	240	497	2518
Lanarkshire	21	130	427	1340	262	709	328	736	3953
Lothian	35	217	588	1809	343	894	491	1092	5470
Orkney	<5	<5	18	51	12	30	15	31	162
Shetland	<5	<5	19	51	12	27	15	31	161
Tayside	14	88	310	956	217	544	317	673	3120
Western Isles	<5	5	23	64	16	40	22	50	220
2015	16-44		45-64		65-74		75+		TOTAL*
Males	Females	Males	Females	Males	Females	Males	Females		
<b>SCOTLAND</b>	<b>196</b>	<b>1164</b>	<b>4056</b>	<b>12682</b>	<b>2902</b>	<b>7257</b>	<b>3958</b>	<b>8113</b>	<b>40328</b>
Ayrshire & Arran	12	73	288	932	234	593	318	629	3079
Borders	<5	22	99	303	82	198	109	200	1017
Dumfries & Galloway	<5	26	123	387	114	268	161	292	1375
Fife	13	79	288	895	223	556	294	588	2934
Forth Valley	11	65	231	723	168	417	218	435	2270
Grampian	21	120	456	1322	317	753	431	817	4237
Greater Glasgow & Clyde	48	282	879	2842	551	1440	745	1740	8527
Highland	11	58	269	823	218	519	290	561	2749
Lanarkshire	21	123	441	1404	294	765	392	829	4268
Lothian	36	218	616	1907	401	1026	567	1174	5945
Orkney	<5	<5	19	54	15	34	19	36	180
Shetland	<5	<5	19	53	15	31	19	34	176
Tayside	14	86	306	970	250	613	371	725	3336
Western Isles	<5	<5	23	66	19	44	25	54	235
2020	16-44		45-64		65-74		75+		TOTAL*
Males	Females	Males	Females	Males	Females	Males	Females		
<b>SCOTLAND</b>	<b>194</b>	<b>1138</b>	<b>4021</b>	<b>12757</b>	<b>3116</b>	<b>7753</b>	<b>4620</b>	<b>8905</b>	<b>42505</b>
Ayrshire & Arran	12	69	278	914	244	614	375	703	3209
Borders	<5	22	98	310	88	209	131	230	1091
Dumfries & Galloway	<5	25	117	377	117	273	191	332	1436
Fife	13	77	286	898	234	589	355	664	3117
Forth Valley	11	65	233	742	177	443	259	492	2422
Grampian	21	117	456	1335	358	840	508	910	4546
Greater Glasgow & Clyde	47	272	860	2826	595	1536	823	1796	8754
Highland	11	57	263	817	232	561	358	641	2940
Lanarkshire	20	119	436	1410	316	815	459	928	4503
Lothian	36	219	637	1986	438	1112	655	1278	6361
Orkney	<5	<5	18	55	16	35	23	43	195
Shetland	<5	<5	18	53	17	34	24	41	191
Tayside	14	85	299	967	263	646	431	790	3496
Western Isles	<5	<5	22	66	20	46	28	59	246

**Please note:** caution is required when interpreting projected data, particularly where the number of cases is small. Where the number of projected cases is less than 5, this is indicated as <5.

Calculated by applying Arthritis Research UK prevalence rates (Appendix 2) to General Register Office for Scotland mid-2009 Population Estimates

<http://www.arthritisresearch.org> Accessed 21/01/11

Symmons D, Turner G, Webb R, Asten P, Barrett E, Lunt M et al. The prevalence of rheumatoid arthritis in the United Kingdom: new estimates for a new century. *Rheumatology* 2002; 41(7): 793-800

\* Totals stated may vary slightly from the numbers given within the table due to rounding error

#### Appendix 4: Incidence rates for RA (produced by Arthritis Research UK)

This appendix provides details of the incidence rates for RA produced by Arthritis Research UK, using data from the Norfolk Arthritis Register (NOAR).

##### How many new cases of rheumatoid arthritis are there in the UK per year?

Age	Males/100,000	UK estimate	Females/100,000	UK estimate
15–24	3.0	120	15.5	610
25–34	5.6	220	29.0	1,150
35–44	12.1	560	50.6	2,370
45–54	31.3	1,210	91.9	3,640
55–64	42.1	1,480	88.1	3,210
65–74	66.6	1,590	94.4	2,500
75+	57.0	1,020	29.8	850

Source: Wiles N, Symmons DPM, Harrison B, Barrett E, Barrett JH, Scott DGI et al. Estimating the incidence of rheumatoid arthritis – Trying to hit a moving target? *Arthritis Rheum* 1999; 42(7):1339–46.

<http://www.arthritisresearchuk.org/arthritis-information/data-and-statistics/rheumatoid-arthritis.aspx> Accessed 07/02/12

## Appendix 5: Outpatient and A&E Summary by NHS Board of Treatment. Rheumatology: Return/New Ratio

NHS Board of Treatment	Financial Year Ending 31st March									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 <sup>P</sup>
<b>NHS Scotland</b>	<b>4.5</b>	<b>4.6</b>	<b>4.6</b>	<b>4.6</b>	<b>4.5</b>	<b>4.1</b>	<b>4.1</b>	<b>3.8</b>	<b>3.8</b>	<b>3.8</b>
Ayrshire & Arran	3.2	7.4	3.8	3.3	x	x	x	x	x	x
Borders	0.0	0.0	3.3	0.0	3.2	2.8	3.4	2.7	2.9	3.2
Dumfries & Galloway	3.8	4.2	4.6	4.3	4.8	4.9	4.9	4.8	4.3	3.9
Fife	4.4	4.7	4.8	4.3	4.5	3.3	3.8	2.9	3.5	3.5
Forth Valley	3.4	3.6	3.8	2.8	2.9	2.3	2.0	3.0	3.4	3.6
Golden Jubilee National Hospital	x	x	x	x	..	..	x	x	x	x
Grampian	3.6	3.4	3.7	3.7	3.7	3.6	3.5	3.5	3.0	3.0
Greater Glasgow & Clyde	6.0	6.4	6.3	6.8	6.1	5.2	5.6	4.7	4.8	4.8
Highland	5.6	5.2	5.0	4.7	4.7	4.1	3.9	4.2	3.4	3.9
Lanarkshire	5.1	4.9	4.4	4.7	4.3	4.9	5.3	5.3	5.3	5.3
Lothian	2.5	2.4	2.9	2.9	3.0	2.7	2.2	2.0	2.0	2.3
Orkney Islands	2.2	1.6	1.8	1.5	3.5	2.0	1.9	2.0	1.5	3.3
Shetland Islands	1.5	2.7	2.4	3.4	5.1	5.3	4.3	4.2	4.0	3.7
Tayside	4.8	4.6	4.4	4.0	4.2	3.5	3.5	3.9	3.5	3.0
Western Isles	x	x	x	x	x	x	x	x	x	x

Source: ISD(S)1, SMR00. As at December 2010. Accessed 21/2/12.

x = not applicable      .. = not available      p = provisional

ISD(S)1 Data issues: Outpatient data for the Golden Jubilee National Hospital for the year ending 31st March 2005 is not currently available due to system problems. There are long standing unresolved data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley.

**Appendix 6: Outpatient and A&E Summary by NHS Board of Treatment. Rheumatology: % DNAs (for New Appointments)**

NHS Board of Treatment	Financial Year Ending 31st March									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010 <sup>P</sup>
<b>NHS Scotland</b>	<b>9.2</b>	<b>9.4</b>	<b>9.9</b>	<b>9.8</b>	<b>9.3</b>	<b>8.3</b>	<b>7.9</b>	<b>9.3</b>	<b>9.5</b>	<b>8.7</b>
Ayrshire & Arran	5.6	25.0	15.9	7.1	x	x	x	x	x	x
Borders	3.2	4.3	4.7	4.9	3.3	4.7	4.1	2.5	3.1	4.2
Dumfries & Galloway	4.3	3.8	2.5	3.2	2.6	5.4	5.1	3.6	4.3	5.1
Fife	9.9	11.0	8.8	8.0	9.1	8.4	9.7	10.9	8.7	8.5
Forth Valley	8.4	10.4	9.4	8.3	7.0	6.8	5.8	4.3	6.2	5.4
Golden Jubilee National Hospital	x	x	x	x	..	..	x	x	x	x
Grampian	5.5	4.9	5.4	4.9	4.6	3.4	3.1	4.5	6.1	6.2
Greater Glasgow & Clyde	13.0	12.8	13.9	15.1	13.8	12.4	10.9	12.1	11.5	10.4
Highland	5.4	6.0	8.0	7.1	7.2	7.0	8.1	9.1	8.6	5.7
Lanarkshire	11.2	13.2	13.7	11.1	10.7	8.1	7.5	9.5	10.8	9.8
Lothian	5.3	5.8	6.0	8.0	7.1	4.9	6.6	8.9	11.5	9.9
Orkney Islands	6.9	5.6	2.4	1.9	10.0	3.6	3.9	0.0	3.3	2.0
Shetland Islands	3.7	2.8	5.7	3.3	5.9	4.7	7.0	5.6	6.9	5.7
Tayside	8.3	7.2	6.4	5.9	6.4	7.2	6.5	8.5	6.2	6.3
Western Isles	x	x	x	x	x	x	x	x	x	x

Source: ISD(S)1, SMR00. As at December 2010. Accessed 21/2/12.

x = not applicable      .. = not available      p = provisional      DNA = Did Not Attend

ISD(S)1 Data issues: Outpatient data for the Golden Jubilee National Hospital for the year ending 31st March 2005 is not currently available due to system problems. There are long standing unresolved data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley.

## Appendix 7: SMR00 Data (Outpatient and A&E Summary) for Rheumatology - collated by NHS Board of Treatment

<b>NHS SCOTLAND</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	14,463	14,721	14,988	15,237	14,896	16,583	17,361	18,930	20,410	20,834
Total Attendances	79,989	82,104	84,588	85,779	82,417	84,776	88,686	91,678	97,041	99,223
Return/New Ratio	4.5	4.6	4.6	4.6	4.5	4.1	4.1	3.8	3.8	3.8
% DNAs (for New Appointments)	9.2	9.4	9.9	9.8	9.3	8.3	7.9	9.3	9.5	8.7

<b>Ayrshire &amp; Arran</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	37	19	37	26	0	0	0	0	0	0
Total Attendances	156	159	176	113	0	0	0	0	0	0
Return/New Ratio	3.2	7.4	3.8	3.3	x	x	x	x	x	x
% DNAs (for New Appointments)	5.6	25.0	15.9	7.1	x	0	x	x	x	x

<b>Borders</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	0	0	19	0	269	300	283	313	294	198
Total Attendances	0	0	81	0	1,117	1,140	1,240	1,172	1,145	823
Return/New Ratio	0.0	0.0	3.3	0.0	3.2	2.8	3.4	2.7	2.9	3.2
% DNAs (for New Appointments)	3.2	4.3	4.7	4.9	3.3	4.7	4.1	2.5	3.1	4.2

<b>Dumfries &amp; Galloway</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	512	454	434	541	526	552	659	691	695	749
Total Attendances	2,475	2,352	2,412	2,888	3,049	3,234	3,903	4,032	3,706	3,668
Return/New Ratio	3.8	4.2	4.6	4.3	4.8	4.9	4.9	4.8	4.3	3.9
% DNAs (for New Appointments)	4.3	3.8	2.5	3.2	2.6	5.4	5.1	3.6	4.3	5.1

<b>Fife</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	713	786	865	1,311	985	1,076	954	1,264	1,199	1,322
Total Attendances	3,827	4,504	4,977	7,001	5,405	4,613	4,573	4,874	5,341	5,906
Return/New Ratio	4.4	4.7	4.8	4.3	4.5	3.3	3.8	2.9	3.5	3.5
% DNAs (for New Appointments)	9.9	11.0	8.8	8.0	9.1	8.4	9.7	10.9	8.7	8.5

<b>Forth Valley</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	576	503	485	654	530	604	775	684	767	709
Total Attendances	2,515	2,335	2,345	2,502	2,083	2,020	2,356	2,768	3,379	3,258
Return/New Ratio	3.4	3.6	3.8	2.8	2.9	2.3	2.0	3.0	3.4	3.6
% DNAs (for New Appointments)	8.4	10.4	9.4	8.3	7.0	6.8	5.8	4.3	6.2	5.4

<b>Golden Jubilee National Hospital</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	x	x	x	x	..	0	0	0	0	0
Total Attendances	x	x	x	x	..	0	0	0	0	0
Return/New Ratio	x	x	x	x	..	x	x	x	x	x
% DNAs (for New Appointments)	x	x	x	x	..	0	x	x	x	x

<b>Grampian</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	1,874	1,958	1,907	1,945	1,935	2,039	2,028	2,041	2,318	2,384
Total Attendances	8,671	8,690	8,919	9,097	9,129	9,389	9,138	9,097	9,234	9,519
Return/New Ratio	3.6	3.4	3.7	3.7	3.7	3.6	3.5	3.5	3.0	3.0
% DNAs (for New Appointments)	5.5	4.9	5.4	4.9	4.6	3.4	3.1	4.5	6.1	6.2

<b>Greater Glasgow &amp; Clyde</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	4,864	4,874	4,994	4,352	4,562	5,646	5,535	6,538	6,814	6,845
Total Attendances	34,081	35,868	36,576	33,896	32,525	35,090	36,377	37,471	39,257	39,687
Return/New Ratio	6.0	6.4	6.3	6.8	6.1	5.2	5.6	4.7	4.8	4.8
% DNAs (for New Appointments)	13.0	12.8	13.9	15.1	13.8	12.4	10.9	12.1	11.5	10.4

<b>Highland</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	262	269	281	311	318	358	547	662	797	759
Total Attendances	1,720	1,668	1,693	1,788	1,823	1,826	2,684	3,418	3,475	3,708
Return/New Ratio	5.6	5.2	5.0	4.7	4.7	4.1	3.9	4.2	3.4	3.9
% DNAs (for New Appointments)	5.4	6.0	8.0	7.1	7.2	7.0	8.1	9.1	8.6	5.7

<b>Lanarkshire</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	1,655	1,508	1,711	1,689	1,822	1,728	1,728	1,728	1,728	1,728
Total Attendances	10,031	8,970	9,214	9,660	9,666	10,245	10,840	10,840	10,840	10,840
Return/New Ratio	5.1	4.9	4.4	4.7	4.3	4.9	5.3	5.3	5.3	5.3
% DNAs (for New Appointments)	11.2	13.2	13.7	11.1	10.7	8.1	7.5	9.5	10.8	9.8

<b>Lothian</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	2,738	3,056	2,814	2,751	2,465	2,798	3,178	3,518	3,684	3,792
Total Attendances	9,589	10,519	10,856	10,794	9,840	10,397	10,051	10,660	11,225	12,328
Return/New Ratio	2.5	2.4	2.9	2.9	3.0	2.7	2.2	2.0	2.0	2.3
% DNAs (for New Appointments)	5.3	5.8	6.0	8.0	7.1	4.9	6.6	8.9	11.5	9.9

<b>Orkney Islands</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	27	34	41	53	27	53	49	31	58	50
Total Attendances	86	87	113	134	121	158	141	93	146	214
Return/New Ratio	2.2	1.6	1.8	1.5	3.5	2.0	1.9	2.0	1.5	3.3
% DNAs (for New Appointments)	6.9	5.6	2.4	1.9	10.0	3.6	3.9	0.0	3.3	2.0

<b>Shetland Islands</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	54	72	151	150	109	93	132	184	241	191
Total Attendances	133	268	516	654	662	587	696	957	1,205	902
Return/New Ratio	1.5	2.7	2.4	3.4	5.1	5.3	4.3	4.2	4.0	3.7
% DNAs (for New Appointments)	3.7	2.8	5.7	3.3	5.9	4.7	7.0	5.6	6.9	5.7

<b>Tayside</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	1,151	1,188	1,249	1,454	1,348	1,336	1,493	1,276	1,815	2,107
Total Attendances	6,705	6,684	6,710	7,252	6,997	6,077	6,687	6,296	8,088	8,370
Return/New Ratio	4.8	4.6	4.4	4.0	4.2	3.5	3.5	3.9	3.5	3.0
% DNAs (for New Appointments)	8.3	7.2	6.4	5.9	6.4	7.2	6.5	8.5	6.2	6.3

<b>Western Isles</b>	<b>Financial Year Ending 31st March</b>									
<b>Indicator</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2010<sup>P</sup></b>
New Patients	0	0	0	0	0	0	0	0	0	0
Total Attendances	0	0	0	0	0	0	0	0	0	0
Return/New Ratio	x	x	x	x	x	x	x	x	x	x
% DNAs (for New Appointments)	x	x	x	x	x	0	x	x	x	x

Source: ISD(S)1, SMR00. As at December 2010. Accessed 21/2/12.

x = not applicable      .. = not available      p = provisional      DNA = Did Not Attend

ISD(S)1 Data issues: Outpatient data for the Golden Jubilee National Hospital for the year ending 31st March 2005 is not currently available due to system problems. There are long standing unresolved data issues for NHS Lanarkshire, NHS Tayside and NHS Forth Valley.

Information on DNAs (Did Not Attends) is recorded separately from the other figures shown in the table and comparisons between information from the different data sources should be made with caution.

DNA rates are based on actual submissions of SMR00 records; no estimation is made to account for shortfalls in data submission.



ScotPHN r e p o r t

For further information contact:

ScotPHN  
c/o NHS Health Scotland  
Elphinstone House  
65 West Regent Street  
Glasgow  
G2 2AF

Email: [nhs.healthscotland-scotphn@nhs.net](mailto:nhs.healthscotland-scotphn@nhs.net)

Web: [www.scotphn.net](http://www.scotphn.net)