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Factors moderating the relative effectiveness of varenicline and nicotine replacement therapy in clients using smoking cessation services

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Meeting:	NoSPG
Date:	15 th March 2017
Item:	06/17 (ii)

NORTH OF SCOTLAND PLANNING GROUP

North H&SC Regional Delivery Plan Development

NoSPG is asked to:

- Discuss this approach in Appendix 1 and consider if it suits the north
- Suggest any additions or extractions
- Note the work already carried out by the Directors of Public Health

Synopsis of Paper:

During February 2016 the attached work was developed by the South East and Tayside regional planning group to move forward their H&SC Regional Delivery Plan.

Subsequently at the national chief executives meeting (8th March) it was agreed that the 3 Regional Directors of Planning should get together and agree a common format for the Regional Delivery Plans, due in draft form by September 2017. At this meeting it was felt that the work in SEAT (Appendix 1) could provide a template for the sections within each of the plans and also guide thinking on the approach to development.

Directors of Public Health, via the north of Scotland Public Health Network (NoSPHN), have already provided some demographic analysis which is included in the appendices for the Regional Clinical Strategy, and is included here (Appendix 2) for information and consideration as part of the context against which we need to develop our Delivery Plan.

Directors of Finance in the north have started work on financial risks and possible efficiency work from existing data. A start has also been made to match medical specialty narrative from the NCS to existing regional work and in turn matching these factors up with this financial information, which it is anticipated will help inform future priorities. This work forms a separate agenda item.

Jim Cannon
Director Regional Planning

Appendix 1

Outline for Scope & Work plan - East of Scotland Regional Health and Social Care Delivery Plan

Ref	Section	Outline	Proposed Lead	Proposed Planning Support
Section 1 : Context & Vision				
1.1	Context	<p>This section will provide an overview of the current macro and micro context enabling population based planning underpinned by local needs assessment. The section will cover the following:</p> <ul style="list-style-type: none"> • Policy context • Demographics • Public health challenges • Financial and workforce issues • Existing patient and money flows • Current shared pathways • Linkage to IJB strategic plans and needs assessments • Describe whole system approach and need for joined up forward planning • Main issues critical to addressing transformation in health and wellbeing outcomes, improvements to care and quality and the financial challenges in our area • Key objectives: <ul style="list-style-type: none"> ▪ Improving quality and developing new models of care ▪ Improving health and well being ▪ Improving efficiency of services • Use data and knowledge to develop early opportunities for regional redesign • Define future vision: <ul style="list-style-type: none"> ▪ Financial and workforce sustainability, affordable performance and no delayed discharges ▪ Costed model that would allow hospitals to work at 85% occupancy ▪ Define services outside of hospitals – capacity capabilities and costs to provide 		TBC
1.2	Primary, community and Social Care	<p>Describe context in terms of key policy, service planning and provision and clarify scope in terms of:</p> <ul style="list-style-type: none"> • primary care, adult social care, general practice, district nursing, mental health early supported discharge • Define Credible plans for sustainable community services aligned to a reduced capacity in acute and community hospitals • 		TBC

1.3	Better Health/ Prevention	<p>Population health context and Public Health challenge – link with section 1.1 to ensure no duplication). Shift to new prevention agenda and avoidance of unnecessary admission:</p> <ul style="list-style-type: none"> • Policy context • Investment in prevention services to address health inequalities • Describe shift to the future vision for improved health, wellbeing and responsibility • Define key priorities – inequalities, improved health, link to education, housing etc. 		TBC
1.4	<p>Future Vision</p> <p>Mapping of Acute Services (Demand, Capacity, Risk, Sustainability)</p>	<p>More detail at Appendix 3</p> <p>Undertake a regional mapping exercise considering the following:</p> <ol style="list-style-type: none"> 1. Each Board to map out specialties and consider it would see this service being provided going forward – this will be noted by site, locally by Board, opportunity for regional collaboration, potential for shift to a regional service. In addition each service will then be RAG rated in terms of resilience and sustainability – financial, workforce, facilities/equipment etc. 2. Specialty services noted as a Red RAG will form a list of priority services for further consideration in terms of Regional collaboration or service development. DCAQ will be carried out for these areas. 3. Other support services and pathways will be considered alongside these services 4. Consideration will be given to how these services fit with the Diagnostic & Treatment Centres, Major Trauma etc. 5. Figure 1 provides an overview <p>The purpose of this work is to identify productive opportunities within existing patient and financial flows to alleviate the risk associated with performance, workforce and financial pressures.</p> <p>Suggested priorities are as follows:</p> <ol style="list-style-type: none"> 1. Radiology 2. Mental Health 3. Gastroenterology 4. Orthopaedics 5. Ophthalmology 6. Laboratories 7. Cancer 8. Urology 		TBC
1.5	Capital and Finance	<p>Financial Challenge – Funding and efficiency gaps to be considered against opportunities</p> <p>Revenue, Capital and Estates</p> <p>Financial impact of performance, activity, benefits, capacity, workforce etc. to be modeled and evaluated.</p> <p>Consideration of investment requirements to enable</p>		TBC

		change. Ensure work dovetails with other financial plans		
1.6	Communication and Engagement	Engage during formulation of plan with robust communications strategy to the public, staff, patients and partners. Consider and timetable to ensure cohesive and aligned effectively to workplan. Ensure: <ul style="list-style-type: none"> ▪ Genuine and meaningful strategic engagement ▪ Major service change needs to undergo established consultation processes – more challenging and longer timescales need to be built in, consultation from the outset required 		TBC
1.7	Workforce	In line with the national Clinical Strategy, Workforce Strategy, Health & Social Care Delivery Plan and developing regional models for sustainability, workforce requirements will be considered alongside challenges of recruitment and retention with a focus on the opportunities from <ul style="list-style-type: none"> ▪ Collegiate regional models ▪ Regional contracts ▪ New models of care ▪ Skill mix changes etc. 		TBC
1.8	eHealth	Alongside the emerging models consideration should be given to optimising the use of digital options to effectively utilise resource and provide more innovative and cost effective service delivery		TBC
1.9	Estate	As service remodelling is developed the use of estate in a more collaborative way is essential. This should be built in as a critical cost saving and cost avoidance opportunity.		TBC
2.1	Governance	New Regional Health and Social Care Delivery Programme Board to be established: Governance and decision making process need to be formalised – align with accountability and legal duties of NHS Boards and IJB's		
3.1	Planning Resource	It is proposed that the existing SEAT Regional Planning Team will work with each Board who will contribute a significant planning resource to form the collaborative team to support an accelerated program development and delivery plan. The commitment to a change in culture, approach and collaboration is critical to the change agenda that is required to deliver at pace. There is a rich and diverse skill set across SEAT colleagues and working in this new collegiate way will enable accelerated and successful delivery of an ambitious programme of work.		TBC

3.2	Quality and Data	<p>It is essential that the methodology used within this programme is consistent and based on the triple aims approach. It is proposed that learning is taken from the SPSP, Quality Academy (NHS Lothian), IMPACT (NHS Fife) use of Data Analytics and reduction in variation methodology to agree standards and methodology for the programme design, change testing, implementation planning and monitoring.</p> <p>In addition this approach must also remain aligned to standard quality& safety, person centred and financial and performance measures.</p>		TBC
3.3	Timetable	<p>Circulation of Proposal to SEAT – Friday 24th February Consideration of Paper – SEAT Friday 3rd March Establish new proposed groups asap but no later than 1st April 2017 Develop Regional Hospital Plan 1st June 2017 Draft V1 of Regional LDP July 2017 Final version Regional LDP East August 2017 Full timetable to be developed by 1st April 2017 with detailed engagement plan</p>		TBC

The North of Scotland region spans a huge geographical area covering 54,344 square kilometres and accounting for 70% of Scotland's land mass.ⁱ

Table 1: Area (square kilometres) covered by the North of Scotland NHS Boards (Data sourced from NRS)ⁱ

NHS Board	Area (square kilometres)
NHS Grampian	8,736
NHS Highland (<i>Highland + Argyll & Bute</i>)	32,566 (<i>25,657 + 6,909</i>)
NHS Tayside	7,527
NHS Orkney	989
NHS Shetland	1,467
NHS Western Isles	3,060
North of Scotland (total)	54,344
Scotland (total)	77,910

The North of Scotland region includes a large number of inhabited and uninhabited islands. At the time of the 2011 census there were 93 inhabited islands (including those joined to the mainland by causeways or bridges). The total population of these islands was 103,700 which equated to 2% of the population of Scotland. The population of each of the islands ranged from just one person living on each of Danna, Eilean da Mheinn, Inchfad, Inner Holm and Soay to over 21,000 people living on Lewis and Harris.ⁱⁱ

The large geographical area covered by the North of Scotland NHS Boards equates to significant distances and thus travel times between different areas within the region. This is illustrated within the table below:ⁱⁱⁱ

Table 2: Distances and travel times between some of the different regions within the North of Scotland

Area	Area	Distance	Drive time	Flight time
Aberdeen	Edinburgh	127 miles	2 hours 33 minutes	n/a
Inverness	Glasgow	169 miles	3 hours 11 minutes	n/a
Lerwick	Glasgow	317 miles	n/a	1 hour 30 minutes
Stornoway	Inverness	94 miles	n/a	40 minutes
Wick	Campbeltown	297 miles	6 hours 56 minutes	n/a

Having said this, the use of travel times between areas does not provide the complete picture and can considerably underestimate total journey times as illustrated within the following scenarios. Depending upon timings it may not be possible to undertake the return journey on the same day necessitating an overnight stay which thus incurs additional time and expense.

Patient 1: Rhenigidale, Western Isles to Raigmore Hospital, Inverness

For an individual living in Rhenigidale, it would take 56 minutes by car to travel to Stornoway Airport. At least one hour would then need to be left to allow sufficient time to check in. The flight time from Stornoway Airport to Inverness Airport is 40 minutes. It would then take a further 35 minutes to travel by bus to Raigmore Hospital from the airport.

Therefore, for an individual with an appointment at Raigmore Hospital, a minimum of almost three and a half hours travelling time (one-way) would be required.

Patient 2: Melvich, Sutherland to the Aberdeen Royal Infirmary

For an individual from Melvich, it would take 52 minutes to travel to Wick train station by car. The train from Wick to Aberdeen would take approximately seven hours. It would then take a further 10 minutes to travel by taxi to Aberdeen Royal Infirmary.

The journey for a patient travelling to Aberdeen Royal Infirmary from Melvich would therefore require at least eight hours travelling time in addition to an overnight stay.

3. Population estimates (mid-2015)

3.1 Background to the mid-year population estimates

The decennial census is the source of the most authoritative population estimates. The most recent UK census was undertaken in 2011. In the years between each census, the National Records of Scotland (NRS) produce annual updates which incorporate the population change in the preceding 12 months in order to determine the annual mid-year estimates. The factors contributing to population change, and thus accounted for as part of the calculation of the mid-year estimates, are births, deaths and migration. The most recent published population estimates were for mid-2015.

3.2 Mid-2015 population estimates by NHS Boardⁱ

The mid-2015 population estimate for Scotland across all ages was 5,373,000. There was a fairly even gender split with 48.6% of the population being male (n=2,610,469) and 51.4% female (n=2,762,531).

Across the North of Scotland this equates to a population estimate of 1,395,800 with 687,155 males (49.2%) and 708,645 females (50.8%). Despite covering almost 70% of Scotland's land mass, the North of Scotland region accounts for only 26% of the total Scottish population. The breakdown by North of Scotland NHS Board and by gender is shown below in table 3.

Table 3: Mid-2015 population estimate by NHS Board plus breakdown by gender (Data sourced from NRS¹)

NHS Board	Population estimate	Male		Female	
		Population estimate	Proportion	Population estimate	Proportion
NHS Grampian	587,820	291,775	49.6%	296,045	50.4%
NHS Highland	321,000	157,652	49.1%	163,348	50.9%
<i>Highland</i>	<i>234,110</i>	<i>114,677</i>	<i>49.0%</i>	<i>119,433</i>	<i>51.0%</i>
<i>Argyll and Bute</i>	<i>86,890</i>	<i>42,975</i>	<i>49.5%</i>	<i>43,915</i>	<i>50.5%</i>
NHS Tayside	415,040	201,786	48.6%	213,254	51.4%
NHS Orkney	21,670	10,785	49.8%	10,885	50.2%
NHS Shetland	23,200	11,783	50.8%	11,417	49.2%
NHS Western Isles	27,070	13,374	49.4%	13,696	50.6%
North of Scotland (total)	1,395,800	687,155	49.2%	708,645	50.8%
Scotland (total)	5,373,000	2,610,469	48.6%	2,762,531	51.4%

3.3 Mid-2015 population estimates by age-groupⁱ

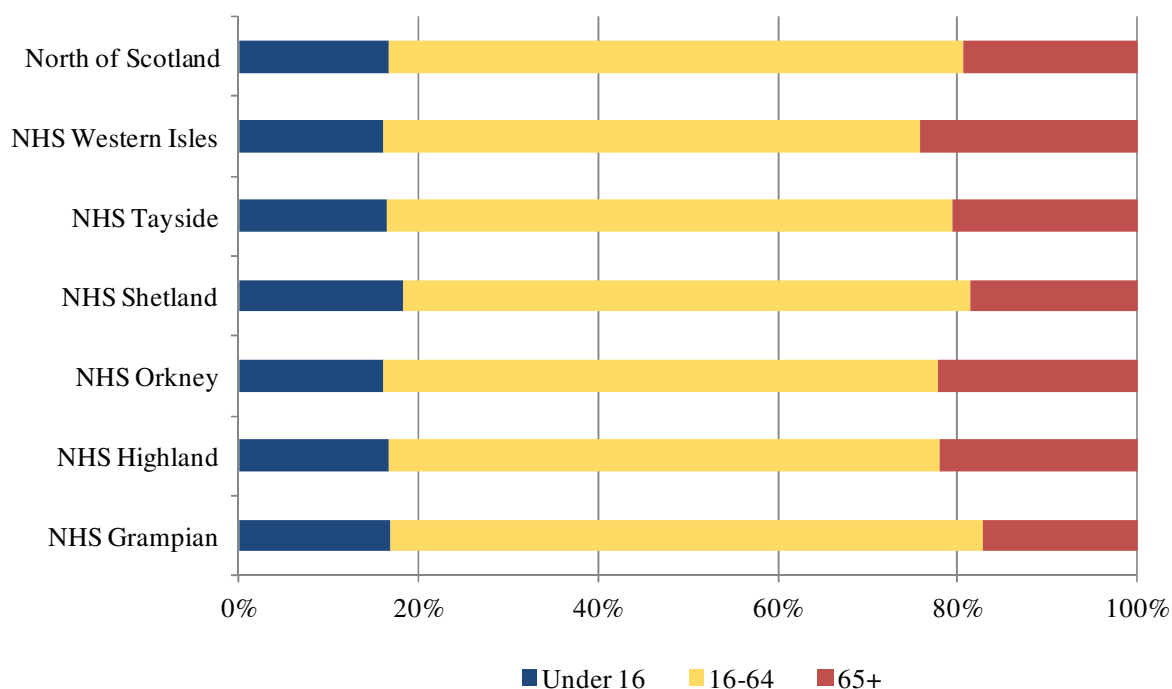
Data produced by NRS are available by single year of age for each NHS Board and administrative area. The information was collated to illustrate the mid-2015 population estimates within the following age-groups: under 16 years, 16-64 years and over 65 years as shown within table 4.

Table 4: Mid-2015 population estimate for specific age-groupings across the North of Scotland Boards (Data sourced from NRSⁱ)

NHS Board	Under 16		16-64		65+		Total population
	Population estimate	%	Population estimate	%	Population estimate	%	
NHS Grampian	99,209	16.9	388,085	66.0	100,526	17.1	587,820
NHS Highland	53,248	16.6	197,351	61.5	70,401	21.9	321,000
<i>Highland</i>	<i>39,956</i>	<i>17.1</i>	<i>145,077</i>	<i>62.0</i>	<i>49,077</i>	<i>21.0</i>	<i>234,110</i>
<i>A&B</i>	<i>13,292</i>	<i>15.3</i>	<i>52,274</i>	<i>60.2</i>	<i>21,324</i>	<i>24.5</i>	<i>86,890</i>
NHS Orkney	3,489	16.1	13,367	61.7	4,814	22.2	21,670
NHS Shetland	4,254	18.3	14,619	63.0	4,327	18.7	23,200
NHS Tayside	68,070	16.4	261,779	63.1	85,191	20.5	415,040
NHS Western Isles	4,348	16.1	16,161	59.7	6,561	24.2	27,070
North of Scotland (total)	232,618	16.7	891,362	63.9	271,820	19.5	1,395,800
Scotland (total)	912,262	17.0	3,477,740	64.7	982,998	18.3	5,373,000

Figure 2 illustrates the proportion of the estimated mid-2015 population within each of the specified age-groups by NHS Board.

Figure 2: Proportion of the estimated mid-2015 population within each of the specified age-groups by NHS Board



For the North of Scotland as a whole, the majority of the population was aged between 16 and 64 years with 63.9% (n=271,820) of the population within this working age-group. 16.7% of the population was aged under 16 years and 19.5% of the population was aged over 65 years.

This trend was seen within all of the North of Scotland NHS Boards albeit to differing degrees. NHS Western Isles had the smallest proportion of their total population aged within the 16-64 age group with 59.7% (n=16,161) within this age-grouping. NHS Grampian had the largest proportion of their total population aged within the 16-64 age-group with 66% (n=388,085) of the population within this age-grouping.

The proportion of the population aged under 16 years ranged from 15.3% for Argyll & Bute to 18.3% for NHS Shetland. Similarly, the proportion of the population aged over 65 years ranged from 17.1% (n=587,820) in NHS Grampian to 24.5% (n=86,890) in Argyll & Bute.

Table 5 shows the proportion of the estimated mid-2015 population within each of the NHS Boards for specific age-groups.

The greatest proportion of the estimated mid-2015 population fell within the 0-15 year age-group for all of the NHS Boards with proportions ranging from 16.1% for both NHS Orkney and NHS Western Isles and 18.3% for NHS Shetland.

Unsurprisingly, the smallest proportion of the population fell within the 85+ year age-group with proportions ranging from 2.1% for both NHS Grampian and NHS Shetland and 3.1% for NHS Western Isles.

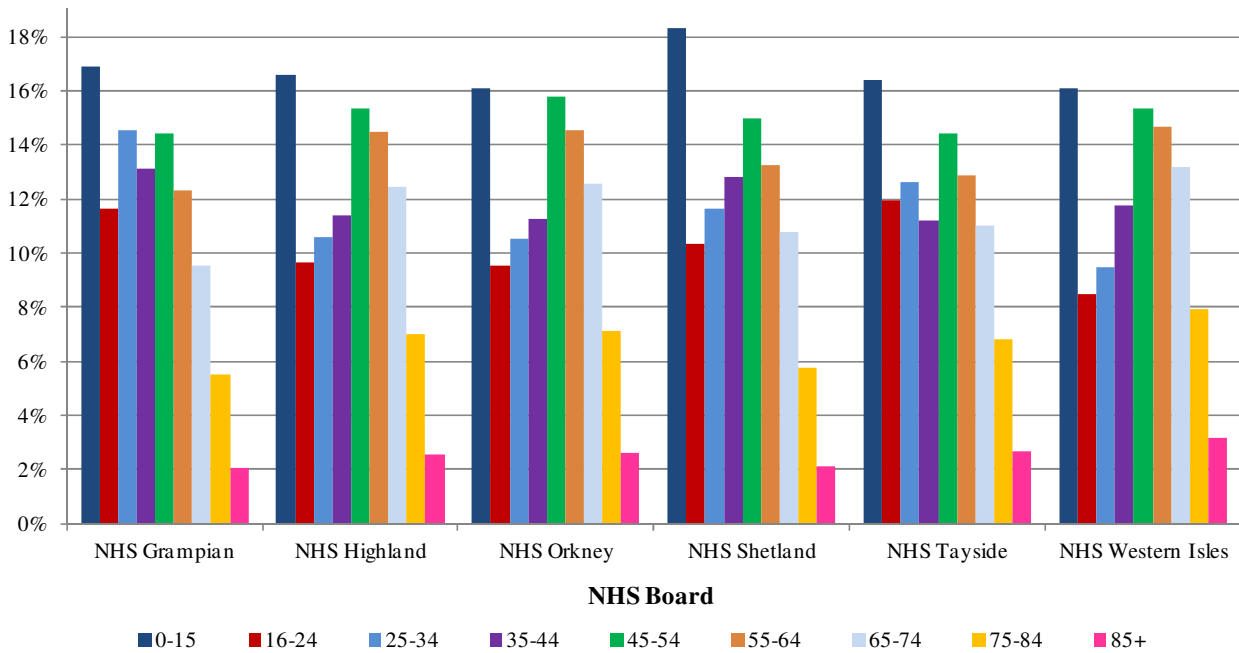
Table 5: Proportion (%) of the estimated mid-2015 population within specific age-groups by NHS Board (Data sourced from NRS¹)

NHS Board	Proportion (%) by age-group								
	0-15	16-24	25-34	35-44	45-54	55-64	65-74	75-84	85+
NHS Grampian	16.9	11.6	14.5	13.1	14.4	12.3	9.5	5.5	2.1
NHS Highland	16.6	9.7	10.6	11.4	15.4	14.5	12.4	7.0	2.5
<i>Highland</i>	<i>17.1</i>	<i>9.5</i>	<i>11.1</i>	<i>11.7</i>	<i>15.4</i>	<i>14.3</i>	<i>11.9</i>	<i>6.6</i>	<i>2.4</i>
<i>Argyll and Bute</i>	<i>15.3</i>	<i>10.0</i>	<i>9.3</i>	<i>10.6</i>	<i>15.4</i>	<i>14.9</i>	<i>13.8</i>	<i>7.9</i>	<i>2.8</i>
NHS Orkney	16.1	9.5	10.5	11.3	15.8	14.6	12.5	7.1	2.6
NHS Shetland	18.3	10.3	11.7	12.8	15.0	13.2	10.8	5.8	2.1
NHS Tayside	16.4	12.0	12.6	11.2	14.4	12.9	11.0	6.8	2.7

NHS Western Isles	16.1	8.5	9.5	11.8	15.3	14.7	13.2	7.9	3.1
North of Scotland (total)	16.7	11.2	12.8	12.1	14.7	13.1	10.8	6.3	2.4
Scotland (total)	17.0	11.4	13.2	12.5	14.9	12.7	10.1	6.0	2.2

Figure 3 illustrates the trends graphically. NHS Tayside, NHS Shetland and NHS Grampian tend to have a greater proportion of their populations within the younger age groups (aged less than 35 years) whereas NHS Western Isles, NHS Orkney and NHS Highland tend to have a greater proportion of their populations within the 65+ year age group.

Figure 3: Proportion of the estimated mid-2015 population within each of the specified age-groups by NHS Board



3.4 Deprivation

One of the tools for assessing deprivation in Scotland is the Scottish Index of Multiple Deprivation (SIMD). The SIMD links routinely collected data from multiple domains, such as health, income and employment, within small areas referred to as datazones. The datazones are then ranked from the most deprived (ranked 1) to the least deprived (ranked 6,505).

One of the criticisms of the SIMD is that it may not accurately identify deprivation in rural areas given that datazones within more rural areas cover far larger areas than those within urban areas leading to a greater mix of deprived and less deprived individuals. Furthermore, rural deprivation tends to be more spatially dispersed than in urban areas. Having said this, the SIMD still provides a useful indication of deprivation in rural areas although further work is being undertaken to review how it can better support the identification of issues within rural areas.^{iv}

Figure 4 illustrates the distribution of the 15% most deprived datazones in Scotland. As shown, all of the four local authorities with none of their population living in the 15% most deprived datazones are within North of Scotland NHS Boards, namely Eilean Siar, Moray, Orkney Islands and Shetland Islands.

Figure 4: Distribution of the 15% most deprived datazones in Scotland by Local Authority, 2016 (sourced from ScotPHO^v)

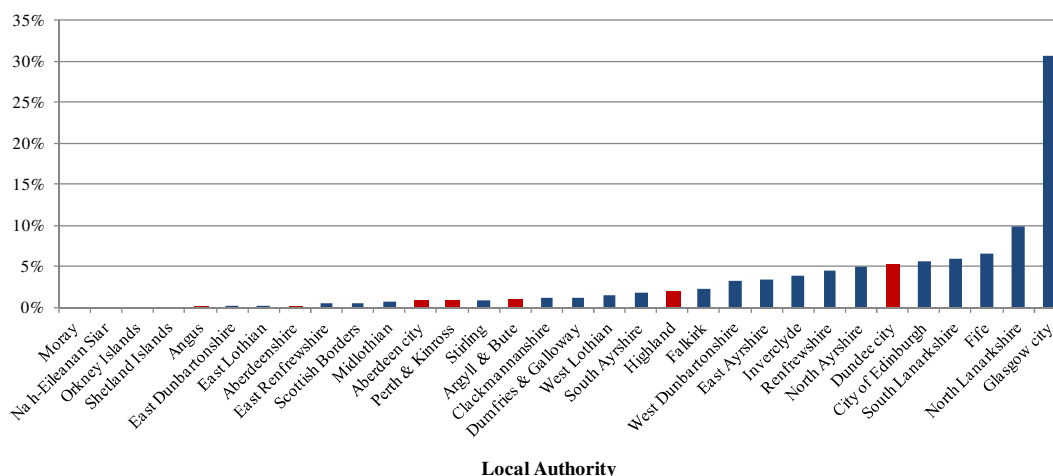
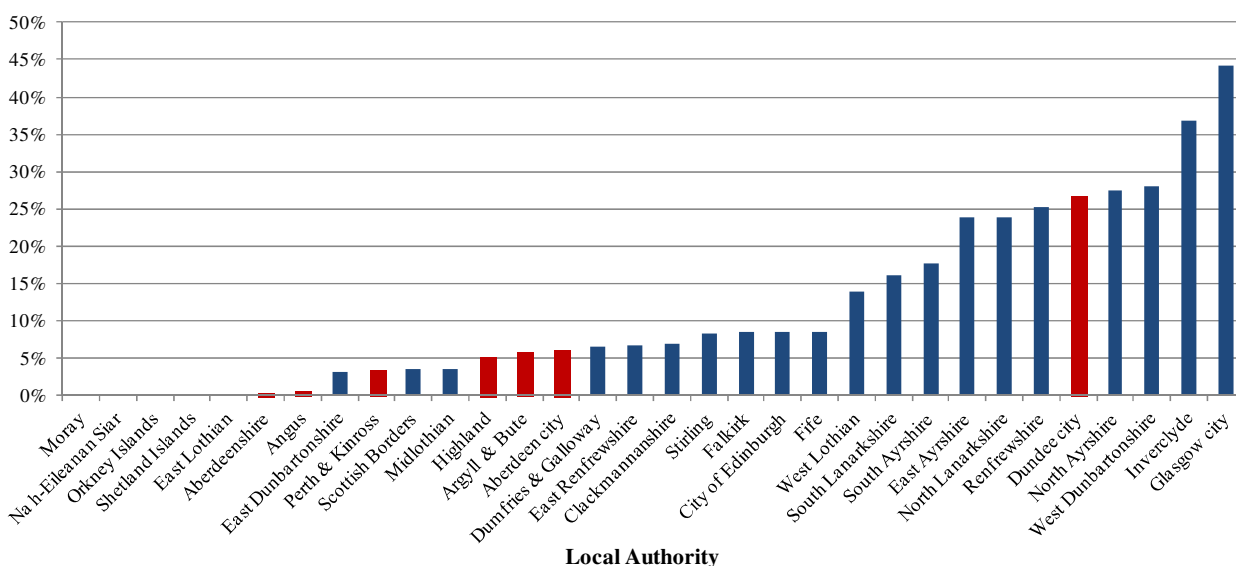


Figure 5 illustrates the proportion of datazones within each Local Authority that are within the 15% most health deprived in Scotland. Over a quarter (27%) of datazones in Dundee city are within the 15% most deprived datazones in relation to health whereas Orkney, Shetland, Na h-Eileanan Siar and Moray have none of their datazones in the 15% most health deprived.

Figure 5: Proportion of datazones within each Local Authority that are within the 15% most health deprived in Scotland, 2016 (data sourced from ScotPHO^v)



4. Population projections

4.1 Population projections^{vi}

NRS has also calculated population projections up to 2037. These give an indication of future trends in population by age and sex. For Scotland as a whole, the projected population in 2037 is 5,780,371 which is a 9% increase from baseline population figures for 2012.

Across the North of Scotland, the projected population in 2037 is 1,540,239. The gender split between males and females within the North of Scotland population is expected to stay fairly static.

Table 6: Population projections for the North of Scotland region by gender (Data sourced from NRS^{vi})

	2012			2027			2037		
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
North of Scotland (all ages)	1,377,280	675,492 (49.0%)	701,788 (51.0%)	1,482,259	731,547 (49.4%)	750,712 (50.6%)	1,540,239	762,068 (49.5%)	778,171 (50.5%)

The population projections for each of the NHS Boards within the North of Scotland are shown for specified age-groups within the following tables and figures. For the majority of the NHS Boards in the North of Scotland the population is projected to increase by 2037. Having said this, two NHS Boards are projected to decrease in population size by 2037 (NHS Highland and NHS Western Isles).

Table 7: Population projections for NHS Grampian by age-group (Data sourced from NRS⁶)

	2012	2027	2037
All Ages	573,420	639,183	679,490
0-15	97,323	112,211	116,425
16-29	110,565	103,488	114,509
30-49	159,448	176,472	178,861
50-64	112,043	116,626	115,920
65-74	51,467	65,731	71,765
75+	42,574	64,655	82,010

Figure 6: Population pyramids for the NHS Grampian population (2012 and 2027)

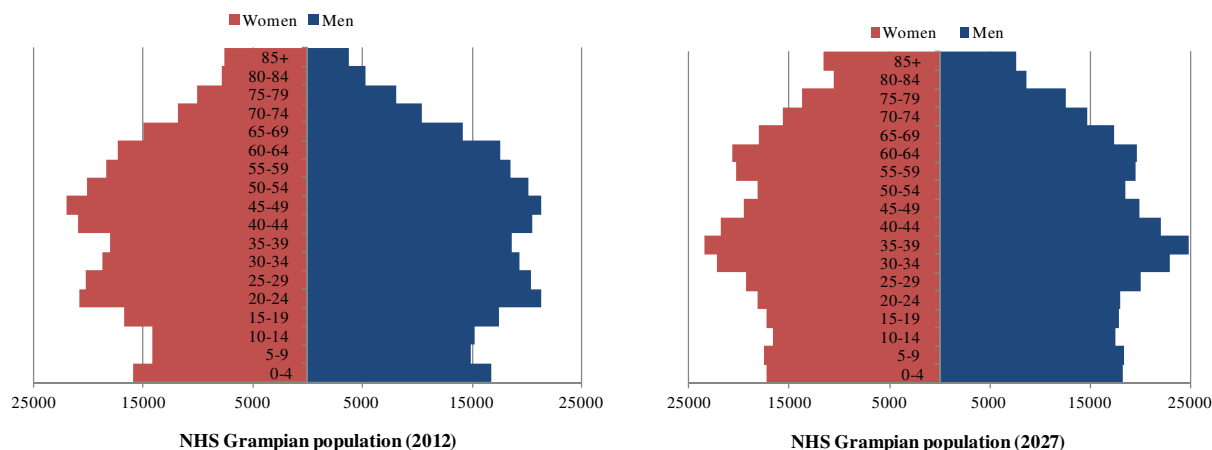


Table 8: Population projections for NHS Highland by age-group (Data sourced from NRS⁶)

	2012	2027	2037
All Ages	319,810	322,761	318,676
0-15	54,950	51,636	49,423
16-29	47,138	41,415	39,668
30-49	81,798	73,246	70,473
50-64	70,721	66,773	57,425
65-74	36,640	43,562	45,102
75+	28,563	46,129	56,585

Figure 7: Population pyramids for the NHS Highland population (2012 and 2027)

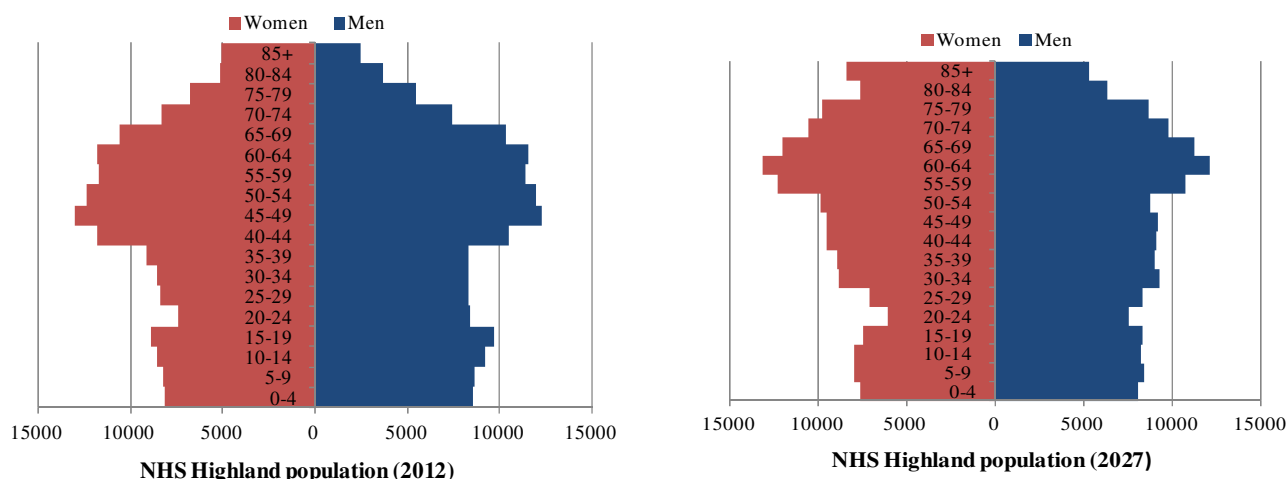


Table 9: Population projections for NHS Orkney by age-group (Data sourced from NRS⁶)

	2012	2027	2037
All Ages	21,530	22,496	22,724
0-15	3,572	3,652	3,463
16-29	3,306	2,505	2,687
30-49	5,504	5,563	5,328
50-64	4,698	4,594	4,137
65-74	2,601	2,903	3,119
75+	1,849	3,279	3,990

Figure 8: Population pyramids for the NHS Orkney population (2012 and 2027)

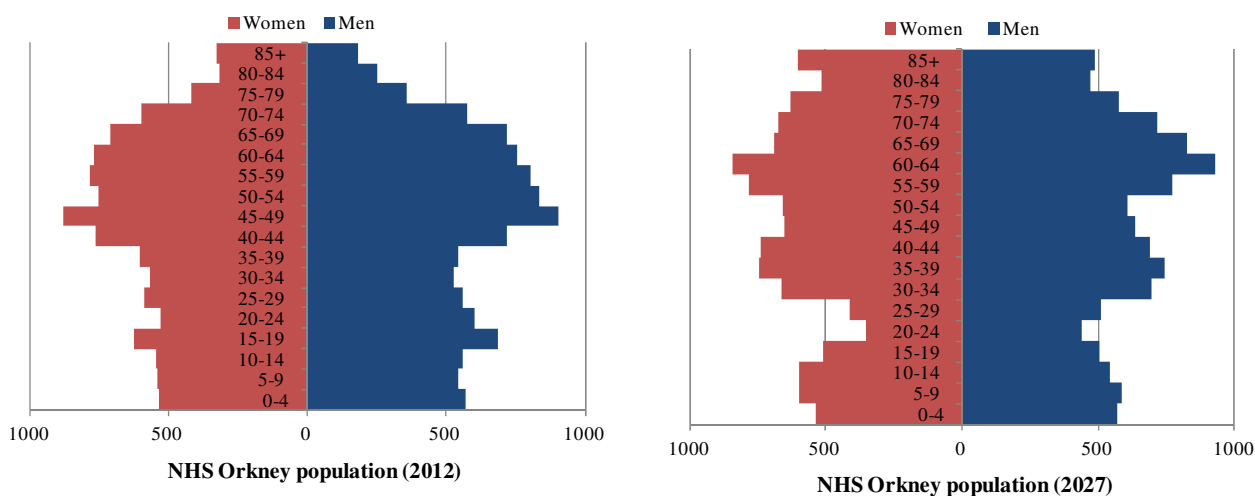


Table 10: Population projections for NHS Shetland by group (Data sourced from NRS⁶)

	2012	2027	2037
All Ages	23,210	24,671	25,147
0-15	4,404	4,329	4,281
16-29	3,691	3,141	3,053
30-49	6,333	6,008	5,832
50-64	4,800	5,212	4,758
65-74	2,302	2,999	3,346
75+	1,680	2,982	3,877

age-

Figure 9: Population pyramids for the NHS Shetland population (2012 and 2027)

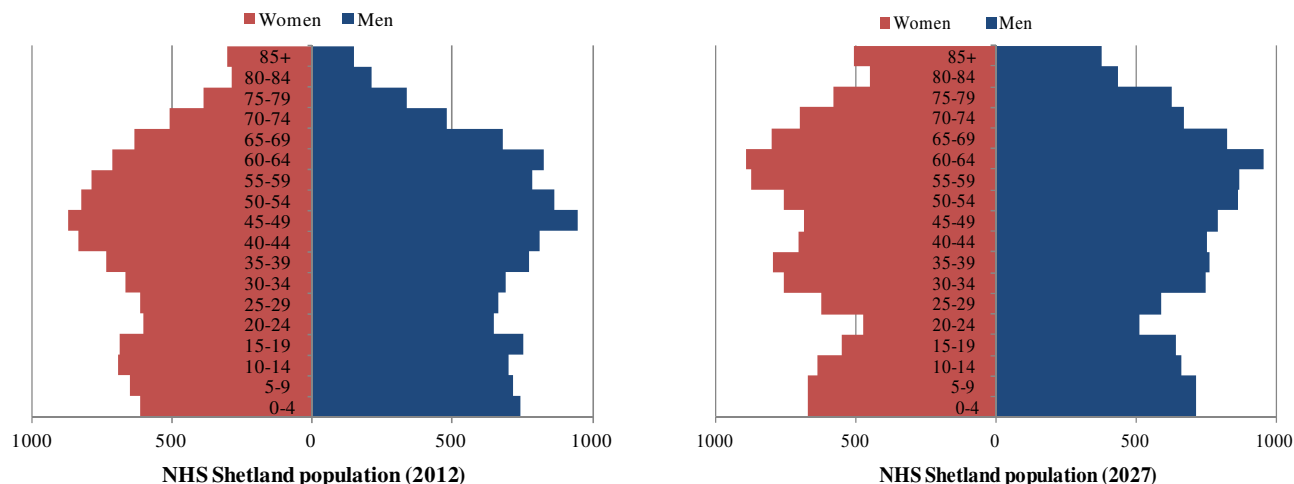


Table 11: Population projections for NHS Tayside by age-group (Data sourced from NRS⁶)

	2012	2027	2037
All Ages	411,750	447,137	469,606
0-15	68,676	75,848	79,478
16-29	76,842	74,181	78,126
30-49	103,850	112,381	118,278
50-64	82,032	80,142	74,211
65-74	42,570	50,545	53,546
75+	37,780	54,040	65,967

Figure 10: Population pyramids for the NHS Tayside population (2012 and 2027)

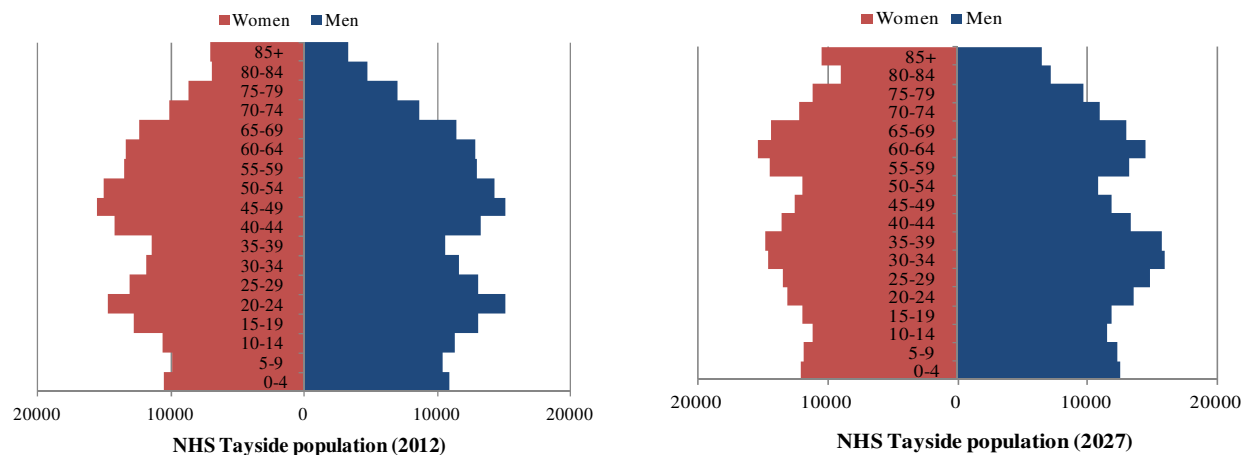
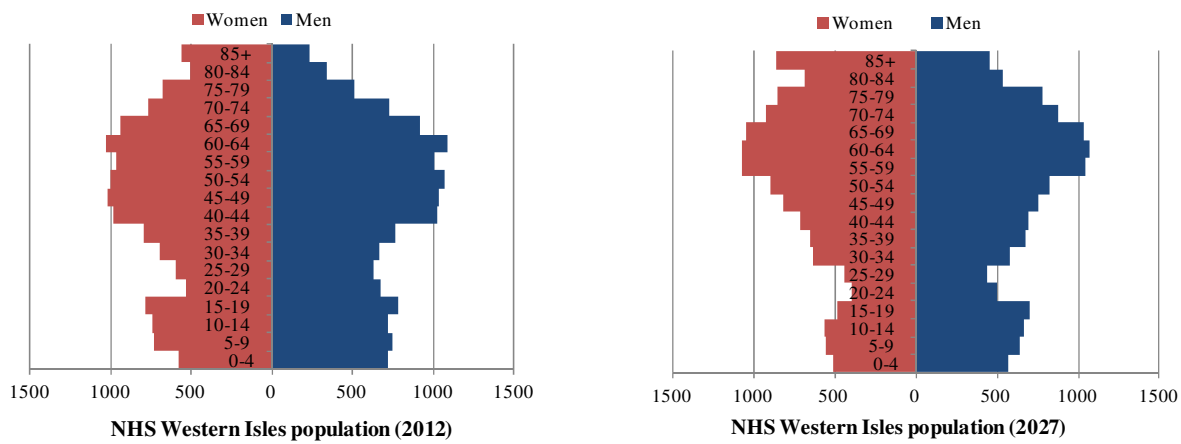


Table 12: Population projections for NHS Western Isles group (Data sourced from NRS⁶)

	2012	2027	2037
All Ages	27,560	26,011	24,596
0-15	4,574	3,756	3,311
16-29	3,667	2,714	2,293
30-49	6,986	5,520	4,807
50-64	6,157	5,974	5,049
65-74	3,344	3,884	4,101
75+	2,832	4,163	5,035

by age-

Figure 11: Population pyramids for the NHS Western Isles population (2012 and 2027)



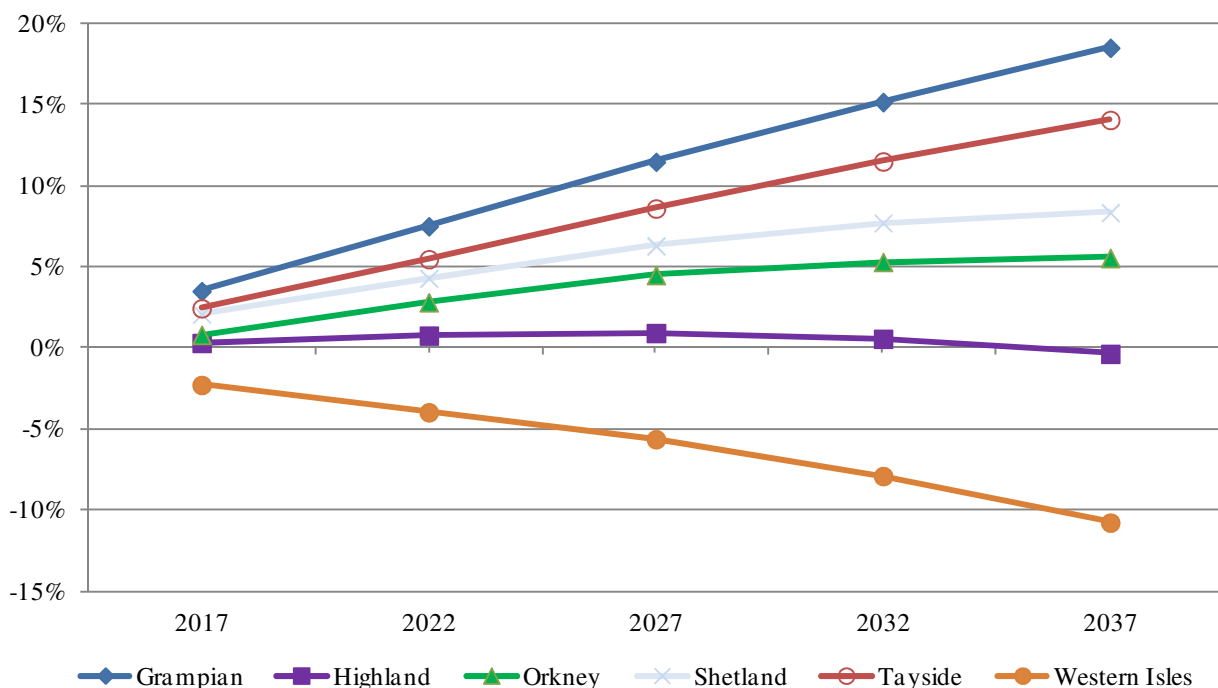
4.2 Projected percentage population change (2012 based projections)⁶

The percentage population change for each of the NHS Boards for the next two decades is shown in table 13 and figure 12.

Table 13: Percentage population change (all ages) across the North of Scotland NHS Boards (Data sourced from NRS⁶)

Area	2017	2022	2027	2032	2037
NHS Grampian	3.5	7.5	11.5	15.2	18.5
NHS Highland	0.3	0.8	0.9	0.6	-0.4
<i>Highland</i>	<i>1.4</i>	<i>2.8</i>	<i>3.9</i>	<i>4.5</i>	<i>4.5</i>
<i>Argyll & Bute</i>	<i>-2.5</i>	<i>-4.8</i>	<i>-7.2</i>	<i>-10.1</i>	<i>-13.5</i>
NHS Orkney	0.8	2.8	4.5	5.3	5.5
NHS Shetland	2.1	4.3	6.3	7.7	8.3
NHS Tayside	2.4	5.5	8.6	11.5	14.1
NHS Western Isles	-2.3	-4.0	-5.6	-7.9	-10.8

Figure 12: Percentage population change (all ages) across the North of Scotland NHS Boards, 2017-2037⁶



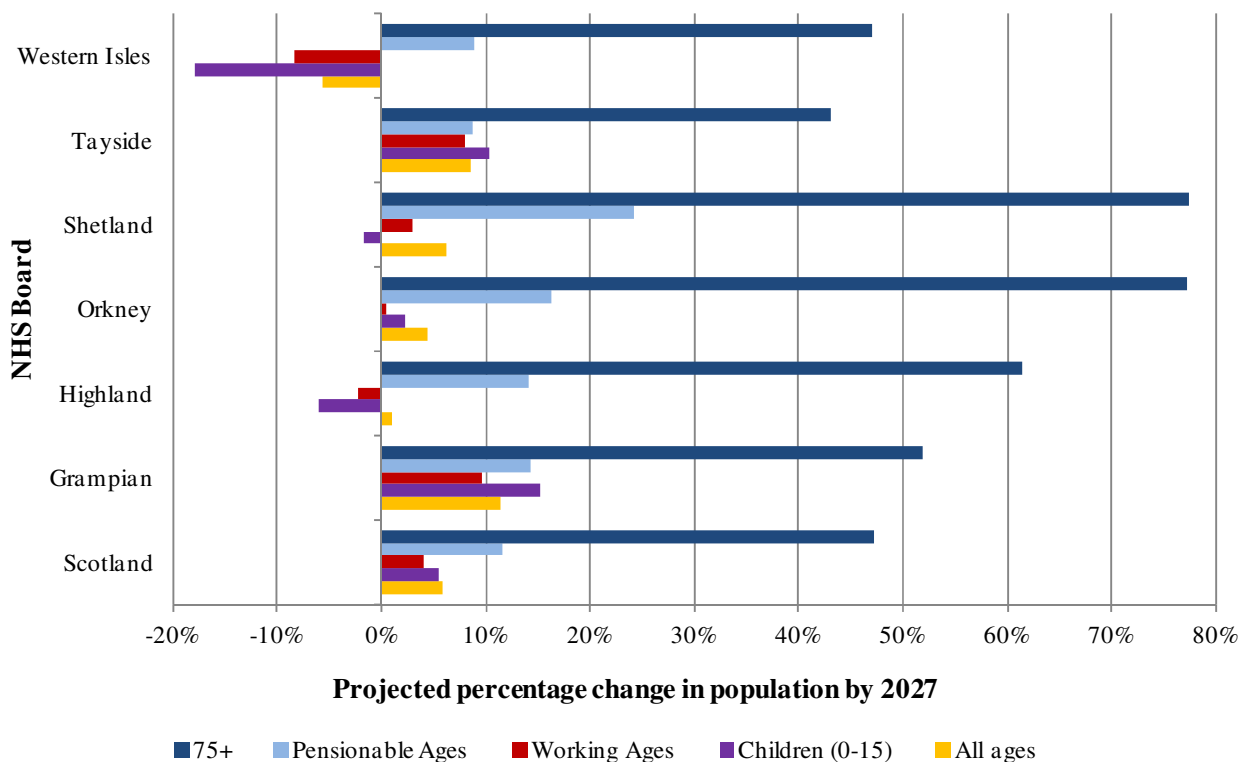
As illustrated within table 13 and figure 12, the majority of the North of Scotland NHS Boards are projected to increase in population size over the next two decades. The percentage increase varies by NHS Board from a 5.5% projected increase for NHS Orkney to a projected 18.5% increase across NHS Grampian. As mentioned earlier, two boards within the North of Scotland, NHS Highland and NHS Western Isles, are projected to decrease in population size with percentage reductions of 0.4% and 10.8% respectively. Furthermore, there is quite a stark contrast within the two council areas encompassed by NHS Highland with the population of Highland Council area projected to increase by 4.5% whereas the population of Argyll & Bute Council area is projected to decrease by 13.5%.

In addition to the data pertaining to all age-groups, datasets have been produced for specific age-groups. Table 14 illustrates the population projections by NHS Board for children aged 0-15 years, those of working ages, those of pensionable ages and those aged more than 75 years. The trends are illustrated graphically in subsequent figures.

Table 14: Projected percentage change in population by NHS Board for specific age-groups (Data sourced from NRS⁶)

Area	Children (0-15)			Working Ages			Pensionable Ages			75+		
	2017	2027	2037	2017	2027	2037	2017	2027	2037	2017	2027	2037
NHS Grampian	4	15	20	4	10	15	2	14	29	10	52	93
NHS Highland	-4	-6	-10	1	-2	-7	3	14	25	14	61	98
NHS Orkney	-3	2	-3	1	0	-1	3	16	29	24	77	116
NHS Shetland	-3	-2	-3	2	3	0	6	24	44	19	78	131
NHS Tayside	-0	10	16	4	8	11	-0	9	20	9	43	75
NHS Western Isles	-7	-18	-28	-2	-8	-19	1	9	20	11	47	78

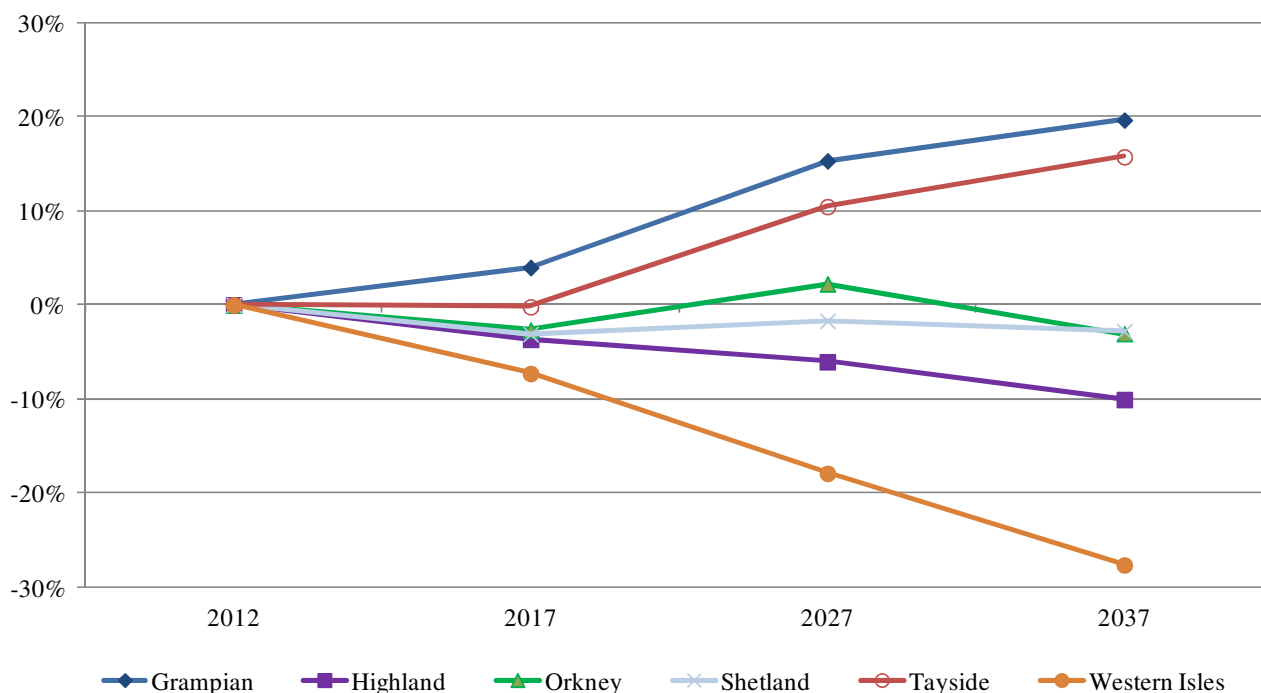
Figure 13: Projected percentage change in population by 2027 by NHS Board (Data sourced from NRS⁶)



4.2.1. Child population (0-15 years)

By 2037 the projected population of those aged 0-15 years is expected to decrease in the majority of the North of Scotland NHS Boards. This population group is only expected to increase in two NHS Boards, NHS Grampian and NHS Tayside with projected population changes of 20% and 16% respectively.

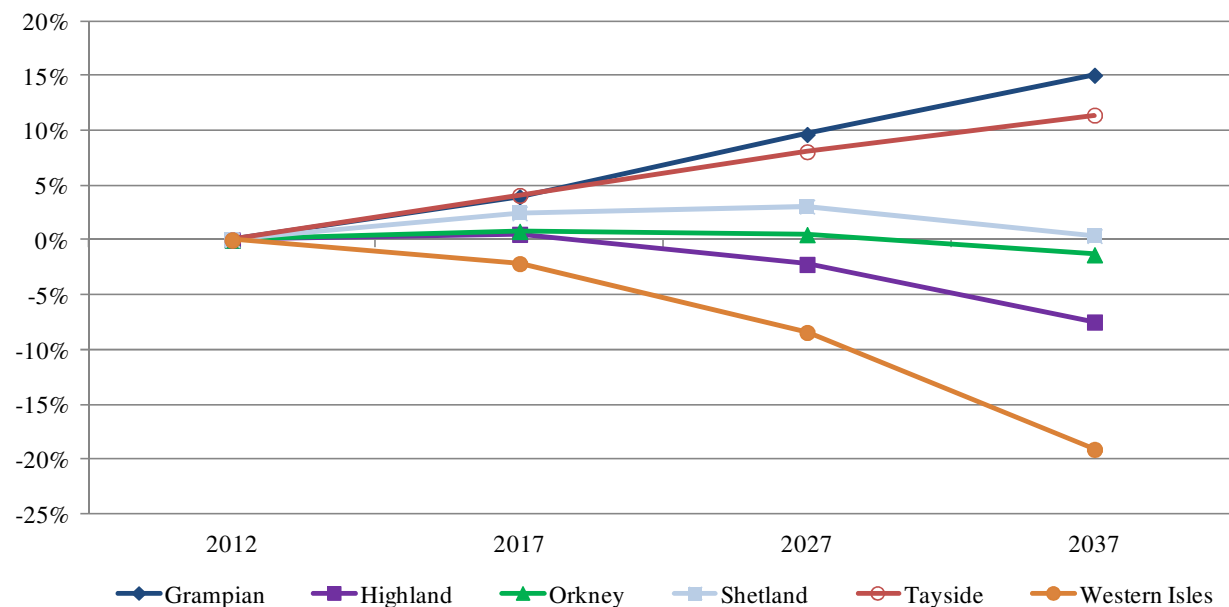
Figure 14: Projected percentage population change between 2012 and 2037 for those aged 0-15 years by NHS Board⁶



4.2.2. Working age population

By 2037, the projected population of those of a working age is expected to decrease in the majority of the North of Scotland NHS Boards. As per the trends seen within the child population, both NHS Grampian and NHS Tayside are the two North of Scotland NHS Boards which are expected to have an increase in this population group with projected percentage changes of 15% and 11% respectively.

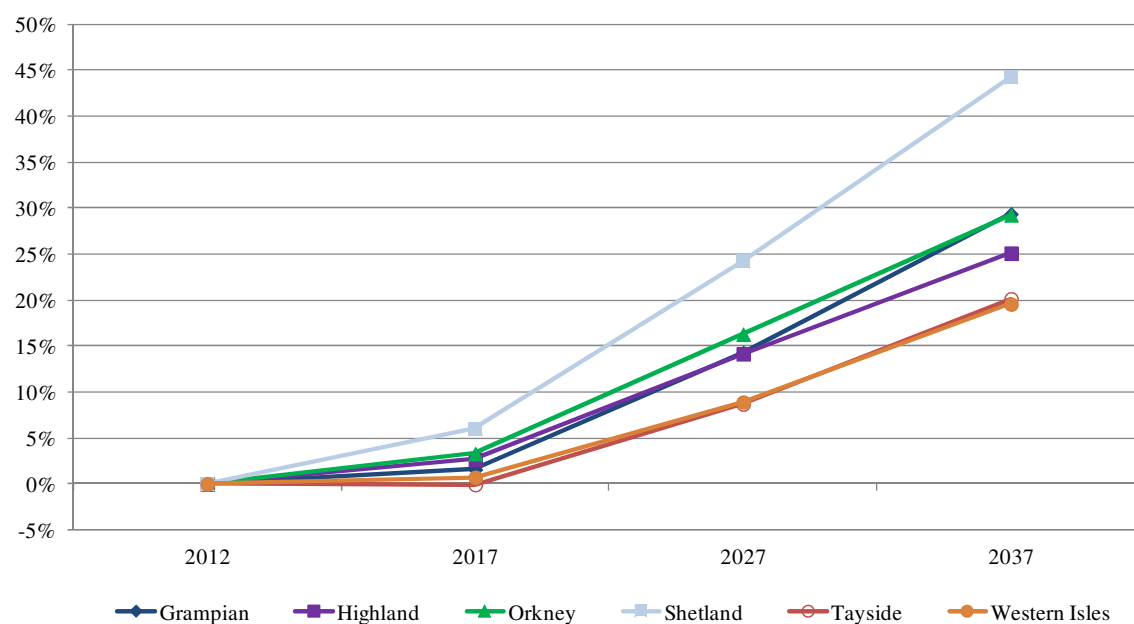
Figure 15: Projected percentage population change between 2012 and 2037 for the working age population by NHS Board⁶



4.2.3. Pensionable age

The State Pension Age (SPA) is changeable; between 2012 and 2018 the SPA will change from 65 years for men and 61 years for women, to 65 years for both sexes. There will then be a further change between 2019 and 2020 where the SPA will increase from 65 years to 66 years for both men and women. The SPA will then increase again to 67 years for both men and women between 2034 and 2036.

Figure 16: Projected percentage population change by 2037 for those of a pensionable age by NHS Board⁶

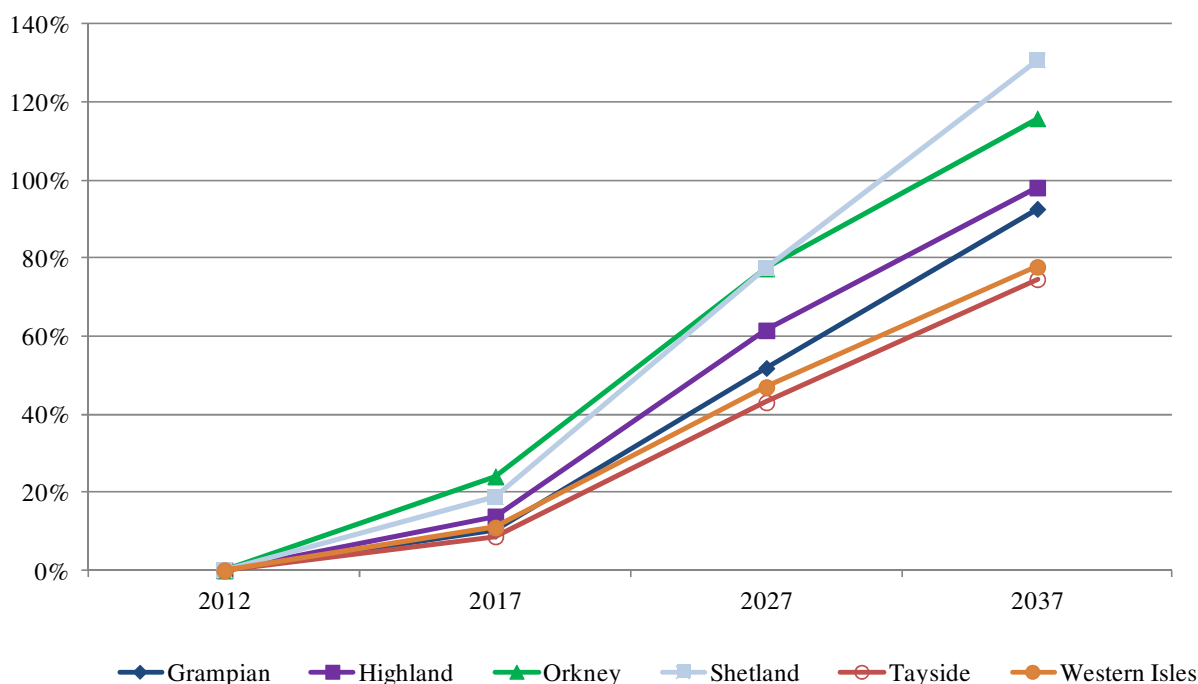


As illustrated within figure 16, the projected population of those of a pensionable age is expected to increase in all of the North of Scotland NHS Boards. The projected percentage population increase varies from 20% for both NHS Tayside and NHS Western Isles to 44% for NHS Shetland.

4.2.4. Population aged over 75 years

Over the next two decades the population aged over 75 years is projected to increase dramatically for each of the North of Scotland NHS Boards. The projected percentage population increase varies from 75% for NHS Tayside to 131% for NHS Shetland.

Figure 17: Projected percentage population change by 2037 for those aged over 75 years by North of Scotland NHS Board⁶



5. Proportion of households headed by someone over 60^{vii}

Across Scotland, there are projected increases in the numbers of households headed by people in almost all age groups although, due to the ageing population, the greatest increases are for households headed by someone aged 65 or over. As shown within table 15, the increase is particularly marked for those aged 75 years and over. All NHS Boards are expected to experience a projected increase in the percentage of households headed by someone over 75 years by 2037. For data pertaining to 2012, the percentage of households headed by someone aged over 75 varied from 12% for NHS Shetland to 16% for NHS Western Isles. However for 2037, the projected percentage of households headed by someone aged 75 years and over varies from 19.3% for NHS Grampian to 29% for NHS Western Isles.

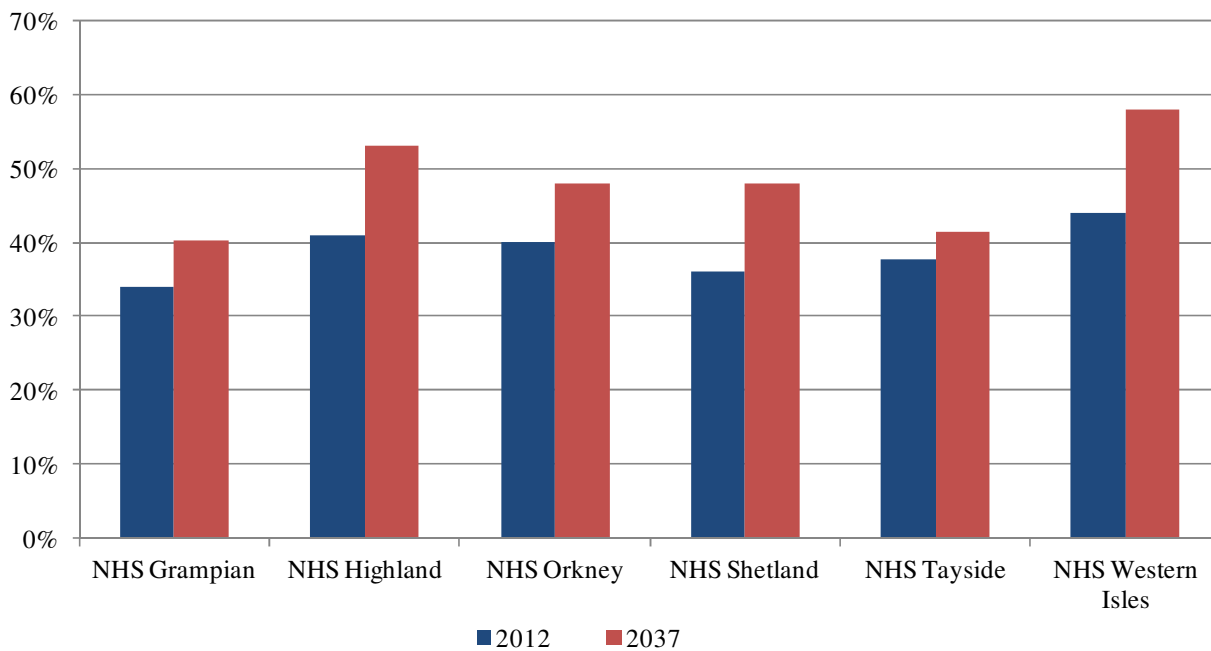
Table 15: Projected percentage of households by NHS Board and by age group, 2012 and 2037 (Data sourced from NRS⁷)

Area	2012		2037	
	60-74	75+	60-74	75+
NHS Grampian	21.7	12.3	21	19.3
NHS Highland	26.5	14.5	25.5	27.5
NHS Orkney	26	14	22	26
NHS Shetland	24	12	26	22
NHS Tayside	23.3	14.3	20.3	21
NHS Western Isles	28	16	29	29

Figure 18 illustrates the increase in the percentage of households headed by someone aged over 60 years by 2037. As shown, two NHS Boards, NHS Highland and NHS Western Isles, are

expected to have more than 50% of their households headed by someone aged over 60 years by 2037.

Figure 18: Projected percentage of households aged over 60 years by NHS Board, 2012 and 2037 ⁷



6. Data limitations

There are some limitations of the findings detailed in this report. Firstly, projected percentage changes in population size are highly dependent upon the denominator and this must be considered when comparing NHS Boards with such variable population sizes.

Furthermore, population projections are trend-based and so assumptions for future levels of deaths, births and migration are based on observed levels for the previous five years. As such, it is not possible to assess the impact of any future policy initiatives or social and economic changes. Lastly, as with any projection, the further they are taken into the future the less reliable the projection.

References:

¹ National Records of Scotland. *Mid-2015 population estimates Scotland and corrected population estimates for mid-2012, mid-2013 and mid-2014*. 2016. Available from: <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/mid-2015-and-corrected-mid-2012-to-mid-2014/list-of-tables> (Accessed 4th September 2016)

¹ National Records of Scotland. *Scotland's Census 2011: Inhabited islands report*. Edinburgh: National Records of Scotland; 2015.

¹ *Distance Calculator and Driving Directions UK*. 2015. Available from: http://distancecalculator.globefeed.com/UK_Distance_Calculator.asp (Accessed 4th September 2016)

¹ Scottish Government. *Income, employment and access deprived rural datazones*. 2011. Available from: <http://www.gov.scot/Topics/Statistics/SIMD/deprivedruralpaper> (Accessed 24th October 2016)

¹ Scottish Public Health Observatory. *Deprivation: data*. 2016. Available from: <http://www.scotpho.org.uk/life-circumstances/deprivation/data> (Accessed 24th October 2016)

¹ National Records of Scotland. *Sub-National Population Projections*. 2016. Available from: <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections> (Accessed 4th September 2016)

Appendix 3

¹ National Records of Scotland. *Household Projections for Scotland, 2012-based*. 2016. Available from: <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-projections/household-projections-for-scotland-2012-based> (Accessed 6th September 2016)

ⁱ National Records of Scotland. *Mid-2015 population estimates Scotland and corrected population estimates for mid-2012, mid-2013 and mid-2014*. 2016. Available from: <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/mid-2015-and-corrected-mid-2012-to-mid-2014/list-of-tables> (Accessed 4th September 2016)

ⁱⁱ National Records of Scotland. *Scotland's Census 2011: Inhabited islands report*. Edinburgh: National Records of Scotland; 2015.

ⁱⁱⁱ *Distance Calculator and Driving Directions UK*. 2015. Available from: http://distancecalculator.globefeed.com/UK_Distance_Calculator.asp (Accessed 4th September 2016)

^{iv} Scottish Government. *Income, employment and access deprived rural datazones*. 2011. Available from: <http://www.gov.scot/Topics/Statistics/SIMD/deprivedruralpaper> (Accessed 24th October 2016)

^v Scottish Public Health Observatory. *Deprivation: data*. 2016. Available from: <http://www.scotpho.org.uk/life-circumstances/deprivation/data> (Accessed 24th October 2016)

^{vi} National Records of Scotland. *Sub-National Population Projections*. 2016. Available from: <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections> (Accessed 4th September 2016)

^{vii} National Records of Scotland. *Household Projections for Scotland, 2012-based*. 2016. Available from: <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-projections/household-projections-for-scotland-2012-based> (Accessed 6th September 2016)