Government Actuary's Department

NHS Pension Scheme: Valuation as at 31 March 2012

Report on methodology

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Contents

1 Introduction

1.1 This report is addressed to the Department of Health (DH). It is also being made available to the National Health Service Pension Scheme (NHSPS / Scheme) Governance Group as part of the consultation process relating to the actuarial valuation of the NHSPS which is being carried out as at 31 March 2012. This report should not be reproduced or disseminated to other parties without prior consent. The Government Actuary's Department (GAD) does not accept any liability to third parties, whether or not it has agreed to the disclosure.

1.2 The purpose of this report is to summarise the methodologies adopted for certain aspects of the valuation calculations. It also explains why the approaches taken are necessary and the impact of the approaches taken on the valuation results.

1.3 The data and assumptions to be used for the valuation are the subject of separate reports.

1.4 Throughout this report the totals given for summed data may not be exactly the same as the sum of the components shown due to rounding effects.

1.5 A draft of this report was circulated to the Scheme's member and employer representatives in April 2014. It has been signed alongside the formal valuation report[1]. No substantive changes have been made.

[1] The formal valuation report is available from https://www.gov.uk/government/collections/nhs-pensions and component reports are available from http://www.nhsbsa.nhs.uk/pensions.

2 Grouping of individual active member records

2.1 Individual active members have been grouped together for the purposes of calculating liabilities. This grouping is necessary to accommodate the volume of data within our valuation system. The approach taken to grouping the data has been tested to ensure it does not result in any distortion of the valuation results. The groupings are made for each section (ie 1995 or 2008 sections) and within each valuation group (ie based on the categorisation by benefit provision or occupation, a description of each valuation group is given in Appendix A) and based on the following criteria.

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Age	*Age nearest*
Service	Duration (years) [2] 0-1, 1-2, 2-3, 3+

2.2 The table below shows the total number of individual records and the number of grouped records used for calculation purposes.

Valuation group	***1995 section***		***2008 section***	
	Individual records 000	**Grouped records**	**Individual records 000**	**Grouped records**
1	57	313	29	376
11	240	372	88	387
2	8	66		
12	15	64		
3	31	251	13	377
13	31	250	13	354
5	80	420	37	371
15	274	437	132	377
7	18	348	1	49
17	18	336	1	62
8	9	274	2	126
18	6	265	2	132
9	6	57		
19	108	92		
10	2	232	2	283
20	65	357	23	361
Total	**965**	**4,134**	**342**	**3,255**

[2] The data has been grouped in these service bands to accommodate differing withdrawal decrements according to duration of service. See 'NHSPS Actuarial Valuation as at 31 March 2012: Advice on Assumptions' dated 9 June 2014.

3 Active membership projections

3.1 Direction 11[3] requires the actuary to use the 'projected unit methodology' to calculate the valuation results. The valuation results require the calculation of the cost of benefit accrual over periods after the effective date (31 March 2012). The expected cost of benefits provided to members remaining in the existing scheme differs from the expected cost of providing those members with benefits in the 2015 scheme. Further the expected cost of providing benefits varies for members with differing benefit provisions within the existing scheme (notably for members with differing normal pension ages). This implicitly requires the actuary to project the membership to future dates in order to determine the valuation results.

3.2 The valuation system does not directly allow for the run off of members from the various categories and replacement with new entrants. Because of this it is necessary to separately project the membership within each scheme and benefit category at the effective date to the start and end of the implementation period (1 April 2015 to 31 March 2019) to enable the valuation results to be calculated.

3.3 In projecting the membership to these future dates a number of different overriding assumptions might be made. For example it could be assumed that

- The membership profile will be stable; leavers expected at all ages with replacement from continued recruitment
- The membership will decline; leavers expected at all ages with limited replacement from recruitment
- The membership will increase or otherwise change; leavers expected with replacement at a different rate or with a different profile.

3.4 Since for workforce planning purposes DH assume a relatively stable population will be maintained in the foreseeable future, the first option above seems most appropriate. We have applied this assumption to mean that over the period from the effective date to the end of the implementation period (31 March 2019) the overall profile of the membership in terms of distribution of headcount and pay by age and gender will remain stable. If an alternative assumption were adopted the contribution rates determined as part of the valuation (both the employer contribution and the cost cap) would be likely to differ. In general any assumption which results in an ageing of the workforce will result in higher contribution rates being calculated and vice versa.

3.5 In conjunction with overriding assumption above we also allow for the existing membership to 'run off' in accordance with the assumptions recommended for the valuation. To maintain a stable population requires an implicit assumption about the profile of new joiners to the scheme over the projection period. Further information about the profile of new entrants is provided in our advice on the assumptions to be adopted for the valuation. The distribution of the membership at the effective date and at the start and end of the implementation period by headcount and pay is as shown in the charts below.

[3] The Public Service Pensions (Valuations and Employer Cost Cap) Directions 2014.

Chart 1A: 2012 membership profile by headcount

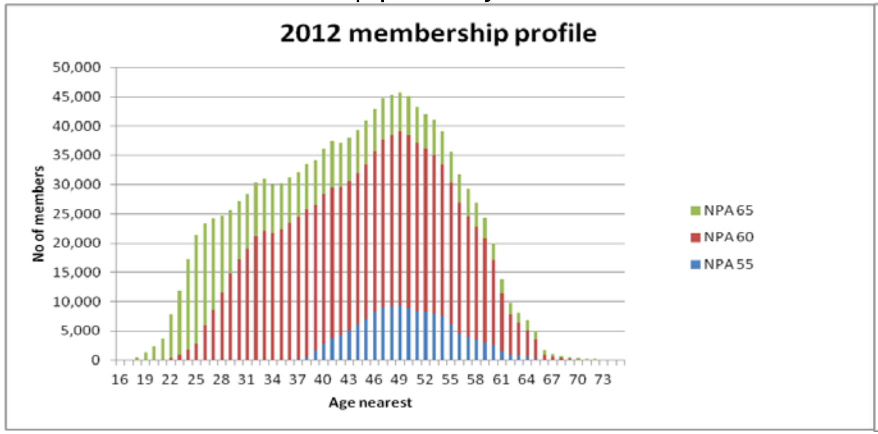


Chart 1B: 2012 membership profile by pay

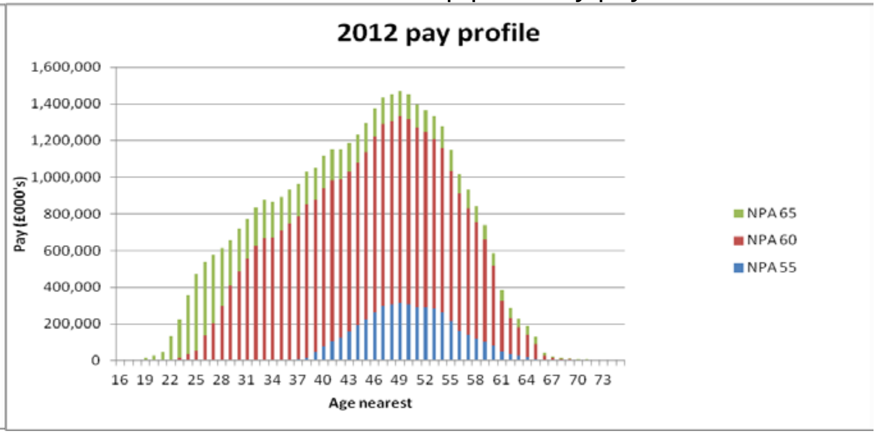


Chart 2A: 2015 membership profile by headcount

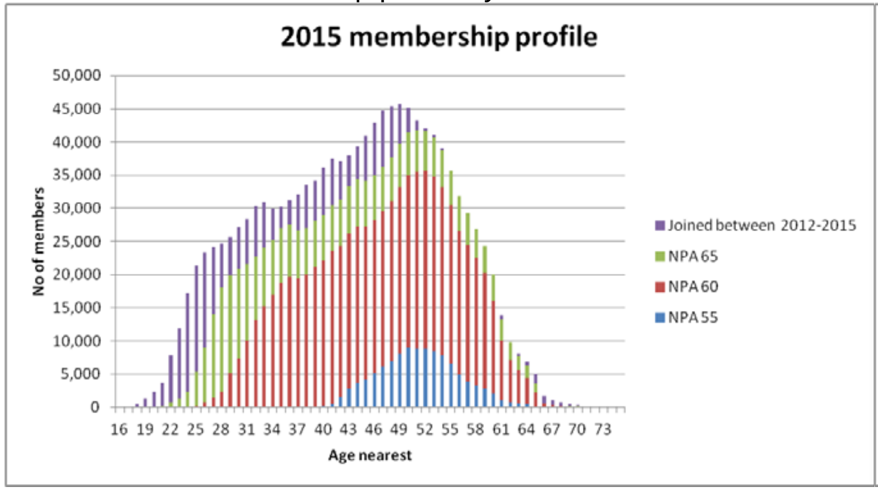


Chart 2B: 2015 membership profile by pay

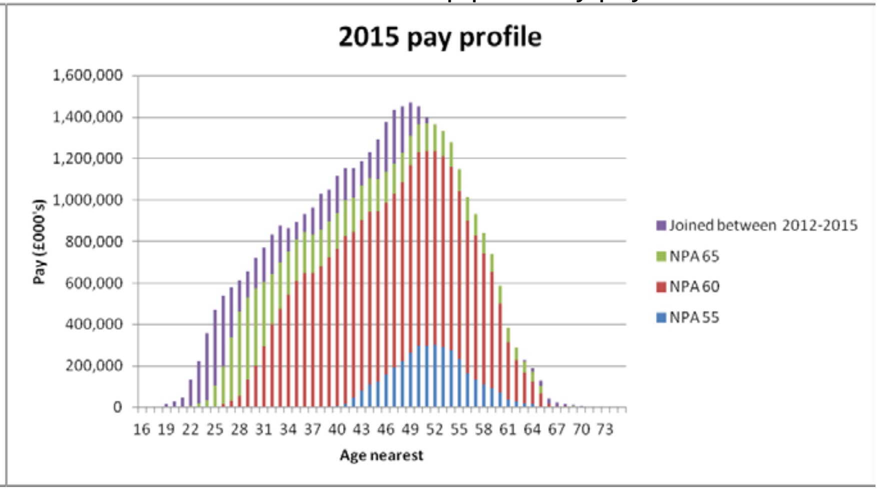


Chart 3A: 2019 membership profile by headcount

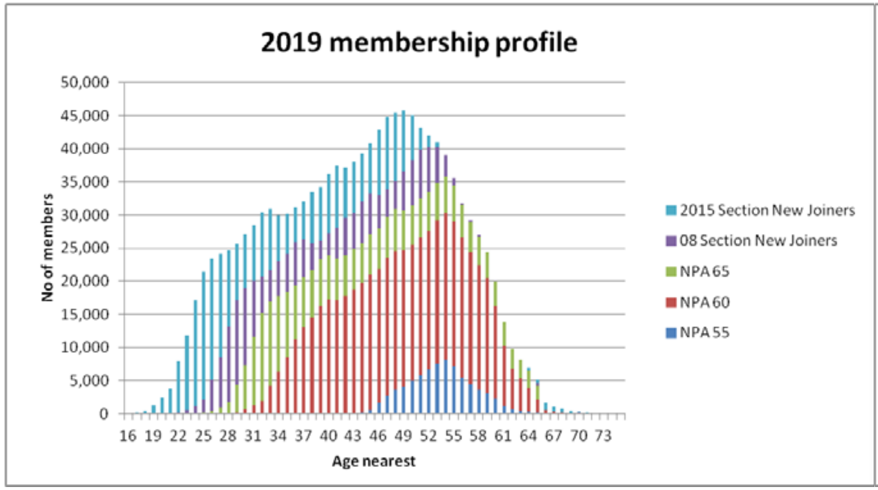
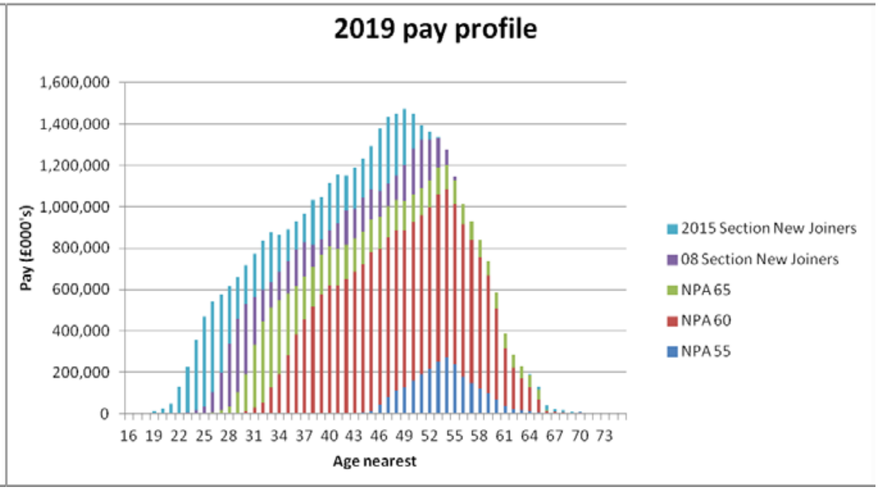


Chart 3B: 2019 membership profile by pay



3.6 The proportions of payroll in each scheme, section (and with differing normal pension age) as at the start and end of the implementation period are shown below together with the proportions at the effective date. The average age of each group of members is also shown.

	31 March 2012		*31 March 2015*		*1 April 2015*		*31 March 2019*	
	Proportion of payroll	**Average age***	**Proportion of payroll**	**Average age***	**Proportion of payroll**	**Average age***	**Proportion of payroll**	**Average age***
1995 section: NPA 60	69%	45.1	59%	46.6	24%	55.1	10%	58.8
1995 section: NPA 55	12%	50.1	9%	51.5	9%	52.1	5%	55.1
2008 section: NPA 65	19%	37.7	31%	37.9	2%	59.0	1%	62.9
2015 scheme:	Nil		Nil		65%	38.8	84%	41.8
• **SPA 67**					• 38%	• 44.3	• 46%	• 48.6
• **SPA 68**					• 27%	• 31.1	• 38%	• 33.6

* weighted by pay

3.7 The above illustrates that 65% of the membership at 1 April 2015 will move into the 2015 scheme on that date. The other 35% will continue in the existing scheme, with some remaining to retirement (if fully protected) and some moving to the 2015 scheme at a later date. By 31 March 2019 only 16% of the membership are expected to remain in the existing scheme. The age profile of those remaining in the existing scheme is considerably higher than that of the assumed population of the 2015 scheme as a result of the age criteria applied for protection. The average age of both populations can be seen to increase between 2015 and 2019. Once existing scheme members have fully 'run off' the implicit assumption is that the age profile in the 2015 scheme will increase to equal that of the existing scheme membership at 31 March 2012.

3.8 Contribution receipts since the effective date indicate there have been some changes in the membership profile by pay since that date. This is believed to be predominantly due to the increases in member contribution rates, tax changes and auto-enrolment. The net effect of the changes indicates the average member contribution yield over the period between the effective date and the implementation date (1 April 2015) may be some 0.1% to 0.2% of pay lower than anticipated. The approach taken to projecting the membership ignores these effects. This is because:

> without further data it is not possible to estimate the impact of the profile shift on the cost of accruing benefits

> contribution receipts since the effective date cover a relatively short period and may not be indicative of a longer term trend.

4 Accrual cost methodology

4.1 When determining the costs of accrual as required by Directions 27(1)(d) and 53(1) the cost for members in each group at each relevant date (as identified from the membership projections) has been determined for each age and that rate has been applied to the total pensionable pay at each age to determine the average for the membership as a whole at each date. The cost over each relevant period has been taken as the average of the cost at the start and end of each period. The calculation allows for mortality improvements assuming the calculation date is the midpoint of each period.

4.2 Direction 11 requires use of the projected unit methodology to determine the valuation results. Directions 14, 16 and 17 specify some modifications to the financial assumptions in the short term. An implication of the short term modifications is that the projected unit methodology is expected to result in an increasing standard contribution rate over successive periods. For example the cost of accrual under the existing scheme over the period 2012 - 2015 is lower than that over the period 2015 - 2019 (ignoring any redistribution of members between sections and into the 2015 scheme). This effect is not immaterial for final salary benefits but has no effect on the cost cap calculation since short term assumptions are explicitly disregarded for this purpose in Direction 53.

4.3 Non-accruing benefits such as lump sums payable on death in service have been recognised only when a benefit payment is expected.

4.4 Members accruing or expecting to accrue benefits at double rate (Mental Health Officers after completion of 20 years' service) are treated as though the overall expected benefit accrues uniformly over all service.

5 Approximations and miscellaneous items

Guaranteed Minimum Pensions (GMPs)

5.1 Individual GMP data could not be supplied. The approach taken for estimating the adjustment to be applied to the liability in respect of GMPs[4] was as follows.

> Active members: GMPs were estimated at a member level based on service data and current pay

> Current pensioners: A global adjustment was applied to the aggregate pensioner liability based on historic scheme data (applicable to the periods GMPs were earned over)

> Deferreds: A similar proportionate adjustment was applied to the aggregate deferred liability as was applied for current pensioners.

5.2 The global adjustments applied for pensioners and deferreds reduce the past service liability. The reduction is equivalent to a contribution rate of 0.4% over the 15 year period from the implementation date. Should further data become available at subsequent valuations which demonstrates this adjustment is materially under or overstated the difference will feed into the adjustment to the employer contribution rate then determined in relation to any imbalance between the past service liabilities and the notional assets. This estimation has no impact on the calculation of the cost cap.

Earnings cap

5.3 For members joining pensionable service on or after 1 June 1989 pensionable pay is restricted to a monetary cap for any reckonable service between 1 June 1989 and 31 March 2008. The cap was £129,600 for the 2011/12 scheme year and increases each year in line with the Retail Prices Index.

5.4 Due to the way in which individual active member data is grouped for valuation purposes it is not possible to directly restrict pay in the valuation system. A global adjustment was derived by:

> identifying those members who joined between 1 June 1989 and 31 March 2008 whose pensionable pay exceeded £100,000 in 2011/12 (about 6,300 members);

> comparing the value of benefits based on projected pensionable pay (allowing for both general and promotional increases) with the value of benefits based on the projected amount of the earnings cap, if lower, and calculating the difference.

[4] Indexation on GMPs is paid outside of the scheme; in full for GMPs earned before 6 April 1988 and in excess of 3% pa for GMPs earned after then

5.5 The difference is equivalent to a contribution reduction of 0.1% over the 15 year period from the implementation date. As for the GMP adjustment this estimation only affects the employer contribution rate. It has no impact on the cost cap.

Public Service Transfer Club (PSTC)

5.6 Allowance has been made for the potential additional liabilities arising from inward transfers on PSTC terms. The volumes of transfers have historically been small and if they continue at these levels the financial impact is expected to be equivalent to a contribution cost of 0.1%.

Choice

5.7 No allowance has been made for any potential costs or savings arising from the Choice exercises agreed in the Proposed Final Agreement. These exercises give:

a) members of the 1995 section who will not continue in the existing scheme after 31 March 2015 a further opportunity to transfer into the 2008 section with year for year service credit.
b) members of the 2008 section who will continue in the existing scheme after 31 March 2015 the opportunity to transfer to the 2015 scheme on 1 April 2015.

No allowance has been made for costs or savings due to the low take up of the Choice exercise undertaken when the 2008 section was introduced in April 2008.

Expenses

5.8 No allowance has been made for expenses. Expenses are outside the valuation framework.

Final pensionable pay

5.9 All liabilities have been based on pensionable pay at the effective date as provided by NHSBSA. No explicit allowance has been made for the impact of prior years' earnings resulting in higher final pensionable pay for particular members since this effect is not expected to impact a material number of members.

Dependants' pensions

5.10 No allowance has been taken for short term dependant pensions or children's pensions (other than those already in payment), on ground of immateriality.

Early retirement factors

5.11 When modelling retirement before Normal Pension Age where an actuarial reduction would be applied early retirement factors have been set equal to current factors (applied for the appropriate period before the normal pension age). Actual factors for the 2015 scheme have yet to be set but they are unlikely to be significantly different to those used for the valuation.

Re-entry of members

5.12 Re-entry of members to pensionable service has been modelled by the use of a 'net' withdrawal assumption for active members. This explicitly allows for a proportion of those leaving active service to return. No explicit allowance has been made in the valuation for a proportion of those deferred at the effective date to subsequently rejoin. However the analysis undertaken for active members, and the resultant 'net' withdrawal rates include those rejoining from deferred status and hence the valuation of active members implicitly includes some provision for deferred members to return.

Additional voluntary contributions

5.13 Additional voluntary contributions paid to on a money purchase basis are paid in accordance with Regulations which are separate to the pension scheme regulations and have not been considered for the valuation. Additional voluntary contributions paid in accordance with the pension scheme regulations to secure added service or pension are taken into account as liabilities of the scheme.

Appendix A: Description of Valuation Groups

Description		Valuation Group
Administrative and managerial staff not in GP practices	Men	1
	Women	11
MHOs (including those not yet doubling service)	Men	2
	Women	12
Manual staff (not MHOs)	Men	3
	Women	13
Clinical staff not in any other group	Men	5
	Women	15
Medical Practitioners	Men	7
	Women	17
Dental Practitioners	Men	8
	Women	18
Nurses, physiotherapists, midwives and health visitors with special class status.	Men	9
	Women	19
GP practice staff (except Practitioners and those with special class status who are included in the appropriate groups above).	Men	10
	Women	20