HEALTH NEWS BRIEFING

A FAIRER WAY OF FUNDING THE NHS?

A closer look at Weighted Capitation Funding

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C O N T E N T S

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Introduction

The purpose of this briefing is to examine the system of weighted capitation funding and consider in particular the suggestions that the formula discriminates against health districts whose populations are less healthy and that they stand to lose the most while they have the greatest health needs. There will, therefore, be a close look at the funding formula and the case for the inclusion of adjustments for social deprivation and other factors which may make the capitation formula more responsive to relative health needs. Some of the central questions regarding the formula are:

* what relative weight to give to the proportion of elderly people and the level of social deprivation, and

* whether weighting for mortality rates is sufficient to account for health needs, or whether social deprivation also needs to be considered as it increases health care needs,

* should other factors, such as the level of primary health care provision and the size of homeless populations, be considered in the funding formula?

Under the current situation, some inner city districts with appalling health records as well as deep-seated problems of poverty, unemployment and inadequate housing are, under the capitation formula, significantly "over-funded". Over the next few years, districts will be brought towards their target allocations. The reductions in service provision necessary to meet such targets would have to be swingeing and would occur in areas where better health services are of vital importance.

Background

The White Paper 'Working for Patients' proposed a new system for determining allocation of NHS resources to Regional and District Health Authorities. Funds would be distributed on the basis of resident populations of Regions and Districts rather than on the basis of the services they provide within their boundaries. There would also be weightings to take account of differing age distributions and the relatively higher cost of providing services in the Thames Regions. Such a formula would, it was argued, be simpler and fairer than the existing system, basing health authorities' budgets directly on the populations for which services were to be purchased. Weighted capitation funding can also be seen as an integral part of the "purchaser/ provider split", since District Health Authorities are now commissioning services on behalf of the district population rather than being primarily responsible for the provision and operation of services as they used to be.

Prior to the reforms, since the mid-1970s, allocations to RHAs, had been based on the Resource Allocation Working Party (RAWP) formula which was considerably more complicated than 'weighted capitation' funding although it was also based on population,

demographic structure, and weightings for factors such as mortality and relative costs of providing health services in different parts of the country. However, the Government's view is that there needs to be a straightforward relationship between districts' allocations and the population to be served. The White Paper argued that, hitherto, districts were funded according to where hospitals happened to be located and so historical patterns of service use were perpetuated.

WEIGHTED CAPITATION - THE NATIONAL FORMULA

The distribution of NHS resources takes place at two levels, from the Department of Health to Regions, and from Regions to Districts. Regional Health Authorities are now funded on a weighted capitation formula based on the following elements:

* the projected size of the resident population for the year in question,

* a weighting for the age distribution of the population,

* a weighting for the health needs of the population, using 'Standardised Mortality Ratios' as a proxy measure of morbidity and therefore health care needs.

* a weighting to allow for higher costs in the Thames Regions and to a lesser extent in the Oxford Region.

Population projections

The population statistics used for the current year's allocations are OPCS mid-1989 based population projections for mid-1992. These figures are considered the most accurate available (compared to local authority or FHSA records) although they derive originally from the 1981 census and so could have a considerable margin of error. The 1991 census is expected to provide far more accurate data but this is thought likely to significantly under-record populations in some areas, particularly inner urban areas, as a spin-off of registration for the 'poll tax'. It is precisely these areas that are likely to lose resources as a result of sub-regional allocations to District Health Authorities but this will be considered in more detail later.

Age-cost weighting

The numbers of very young and elderly people need to be taken into account in the formula to reflect the cost of providing services to these groups. The weighting for age-distribution is shown in the table below:

National average expenditure per head by age group

Births	£1,426.12
0 - 4	£202.73
5 - 15	£110.37
16 - 44	£113.47
45 - 64	£252.39
65 - 74	£552.99
75 - 84	£1,014.10
85+	£1,908.24

This 'age-cost curve' has been developed by the Department of Health as an estimate of average national costs per head for each age band. This was modified for the calculation of allocations for the current financial year to include a cost for births and to increase slightly the cost per head in most elderly age bands. The relatively high cost attributed to the more elderly age groups are the source of some of the concerns by those health authorities losing out under the new formula, but this will be discussed in detail later.

Weighting for health needs

The formula also includes an adjustment for varying health needs. The Standardised Mortality Ratio for all causes of death for people under 75 years of age is used as the indicator to measure this. Ideally, health needs should be measured through the levels of illness and disability (morbidity) among the population but as there are few reliable statistics collected for this, measures of death rates (mortality) are used instead. Standardised Mortality Ratios represent the relative chances of mortality compared to the average of the national population and so under-75 SMRs are a measure of the chances of death under that age. This is intended to be a proxy measure of morbidity and, therefore, health need. However, it is often assumed that variations in the levels of SMRs between, for example, affluent and deprived areas, over-estimate the differences in health need. That is to say, the mortality:need relationship is not thought to be 1:1. Therefore, differentials between SMRs need to reduced to lessen their effect on the funding formula. This is done by using the square root of the SMR.

'Thames factors'

Regional allocations are adjusted by 3% above average national costs per head in the North Thames Regions and 1% in South Thames Regions. This adjustment is over and above an allowance for higher pay costs in Thames and Oxford Regions - known as the London Weighting and Market Forces Weighting.

ALLOCATIONS TO DISTRICTS

The Government view is that Districts should be funded on broadly the same weighted capitation formula as Regions with "a presumption towards clarity, simplicity and stability in the allocation mechanism". However, RHAs have the discretion to refine the 'sub-regional' formula to allow for local circumstances such as social deprivation, the location of old long-stay mental illness facilities or high levels of homelessness. The issue of greatest concern with respect to District allocations is that RHAs have not made sufficient adjustments to the national formula to account for local variations, and areas of social deprivation in particular.

Age profile weighting

Many commentators and some Health Authorities themselves have argued that DHAs that are set to lose the most are, in many cases those which have acute problems of social deprivation and relatively very poor health status and these factors lead to high levels of health care needs. There has been considerable concern that the weighting towards elderly populations has a disproportionate influence and skews funding towards districts with relatively large elderly populations. The age-cost weights have a marked effect on funding allocations because of the large differentials between the age-cost groups.

Because mortality rates are consistently higher for poorer occupational classes among both men and women, areas that have higher proportions of the population in manual occupational classes have "younger" age profiles **because they are less healthy**, ie, more people die at a younger age. Under the national capitation formula such areas are discriminated against because of the importance of the proportion of elderly people in the population to the formula. Obviously, the size of the very elderly population is a significant factor in terms of level and intensity of demand on the health service but it is the balance of this with factors of deprivation that appears iniquitous.

Formula discriminates?

It has been argued by West Birmingham District Health Authority, that the national formula automatically works against poor districts because affluent populations tend to survive longer than deprived populations and are therefore more elderly, experience lower levels of ill health, and tend to include elderly people who have moved into the area and who are themselves well.

Independent consultants working on behalf of the three Manchester DHAs have also put forward that the importance of social deprivation has not been taken into account and that the net effect is to favour relatively healthy and affluent areas.

The fundamental issue is that the adjustment for age profile is based on empirical research and measurement of costs but the adjustment for morbidity (the SMR) is set at an arbitrary level but common sense tells us that it does not seem to account for

need nor is it able to counterbalance the weight given to age profile.

A number of Regional Health Authorities including the West Midlands, Mersey, Northern, South West Thames and North West have developed their own age-cost curve for their sub-regional formula which in some cases give less weight to elderly populations. West Midlands and North Western RHAs have decided to stick to the national weightings, partly because their own regional estimates of age-cost groups were not vastly different from those of the DoH.

Top 10 Losers

The table below shows the 'top ten' losers under capitation. There are a number of common features among some of the Districts that stand to lose most heavily from weighted capitation. There is a general pattern of redistribution of resources away from inner city areas toward outer urban and rural areas. Several of the 'top ten' losers could be described as socially deprived with poor health status and high health care needs among their populations. The Jarman index is an index of social deprivation combining 10 socio-economic variables. Higher scores indicate greater deprivation.

Top Ten 'losers' shown with indicators of health needs and social deprivation

District	Distance from target allocation (%)	SMR for IHD (rank in brackets)	Jarman (UPA8) index (rank in brackets)
West Birmingham	24.0	120 (31)	44 (4)
West Lambeth	22.9	86 (152)	39 (6)
West Lancashire	17.0	123 (22)	-7 (113)
South Warwickshire	16.3	95 (102)	-17 (170)
North Manchester	15.3	131 (7)	35 (10)
Harrogate	14.6	105 (74)	-12 (151)
Newcastle	14.3	110 (55)	18 (25)
Wandsworth	13.7	93 (112)	30 (13)
Central Manchester	12.8	107 (63)	50 (2)
Trafford	11.7	105 (74)	-7 (114)

Notes.

This 'top ten' is drawn from a telephone survey of Regional Health Authorities in early August. Figures were obtained from ten RHAs. The distances from target are subject to change as the RHAs review their allocations. It should also be noted that the figures relate to each District's distance from its target share of its Region's allocation. The actual loss or gain experienced by each District is also affected by changes in the allocations to the RHAs by the Department of Health.

The over-riding impression is that factors of social deprivation are being given far too little weight if many of the largest losers have some of the highest Jarman "underprivileged area scores" for the country. Clearly, there is a disproportionate number of the top ten losers high up the ranking of social deprivation although there are also notable exceptions such as South Warwickshire and Harrogate.

The table also shows the SMRs for each district for ischaemic heart disease. This is useful to examine because medical intervention for heart disease makes intensive demands on health services. The ranking of SMRs shows that some of the districts furthest above their capitation target have a particularly high mortality rate for heart disease. Most of the 'top ten' have SMRs for heart disease which are worse than average (ie more than 100).

Weighting for social deprivation

Regional Health Authorities have the discretion to include a weighting for social deprivation which would take more account than the national formula of poverty and related health care needs. The formulae that RHAs currently use are shown in the Appendix. About half of the NHS Regions have included, or plan to include, a weighting for social deprivation. Others have given greater weight to the SMR statistic by using the full SMR rather than the square root. It is worth noting that RHAs like the North Western RHA and West Midlands RHA with Districts high up the 'top ten' have not applied a weighting for social deprivation. Were this included it may reduce the apparent discrimination against socially deprived areas.

Use SMRs alone?

The Resource Allocation Working Party (RAWP) only used SMRs as the weighting for health need on the grounds that they:

* are available at all levels of the NHS,
* can be compiled by place of residence,
* are accurate and reliable,
* are independent of the supply of health services.

However, there is a strong case that SMRs do not fully reflect extremes of social deprivation and that other socio-economic indicators need to be included in the formula to account for this. The RAWP review did in fact recommend to the NHS Management Executive in 1988 that a social deprivation weighting such as the Jarman Index be used in conjunction with SMRs, thus recognising that there are aspects of poverty that have a significant effect on the need for health care. This development was, however, overtaken by the NHS Review.

Social deprivation and health needs

The main arguments for acknowledging levels of deprivation are that:

* social deprivation leads to a higher level of need for health care than mortality rates would lead one to expect, ie, in

socially deprived areas, the relationship between mortality and morbidity is different to that in non-deprived areas, eg, there are higher levels of chronic illness and disability which mortality rates do not account for and,

* poverty and related social problems place extra demands on the NHS for any given level of clinical morbidity which SMRs cannot take account of, ie, the intensity of use of the NHS, and the cost of providing health care, are higher in poorer populations. For example, hospitals are often obliged to compensate for poor housing conditions of patients through longer inpatient stays or less strict admission thresholds.

The first point is illustrated by the example of the Manchester Metropolitan area, which according to the DoE Urban Deprivation ranking is in the "worst 50" for each of the indicators for socio-economic deprivation although the rank in each of the seven variables is higher than the rank for the SMR. This suggests that the SMR does not sufficiently reflect Manchester's relative deprivation.

There is also a good deal of evidence that factors of social deprivation are important in their own right in terms of health needs and influence on the use of health services:

* Hospital admission rates have been shown to have a close relationship with unemployment. A large OPCS study showed that approximately 65% of variation in hospital admission rates is explained by unemployment rates alone (OPCS, Occupational Mortality, decennial supplement, 1979-80, 1982-83, London, HMSO, 1983),

* Admission rates are directly associated with the proportion of the population with no car and indirectly associated with the proportion of the population over 65 years (Professor Jarman, personal communication to West Birmingham DHA on research in South Western Region),

* Bed usage is directly associated with SMR and the proportion of overcrowded households and indirectly associated with the proportion of the population over 65 years (source as above),

* GP consultation rates are influenced most heavily by the proportion of the population living in council housing, the proportion with no car and the proportion of ethnic minority households ("Deprivation and the GP workload", Professor Balarajan et al, BMJ, 1992, Vol. 304, pp 529-534).

The indirect associations with the proportion of over 65s are interesting since the age-cost weights have such a commanding influence on district allocations.

Indices of deprivation

Since social deprivation has such an impact on health needs we should consider what index of deprivation should be used in funding formulae. The RAWP recommended the use of the Jarman

index together with SMRs and this is, for example, the approach taken by North West Thames RHA. The Jarman index combines ten social and economic indicators and was developed specifically to indicate the workload of GPs and the demand for primary care and for this reason it is argued that it is unsuitable in relation to hospital care.

Other indicators that have been developed are the Townsend and Carstairs index which combines four socio-economic indicators and is argued to be the best available indicator of material deprivation and the Balarajan index which uses a wide range of variables including social class. The effective differences between these indices are small so it would not make a great deal of difference which indicator were used. The current consensus seems to be that the Townsend/Carstairs index would be the most appropriate for the capitation formula so either this could be used or the original RAWP recommendation to use the Jarman index could be followed.

Substitution of secondary care for primary health care

As well as social deprivation, it is important to consider the effectiveness of primary care services in each district because where these services are poor, as is often said to be the case in inner cities, hospital and community health services must substitute for them. A recent paper from the North Western RHA, however, concludes that using a social deprivation weighting as well as square root SMR all health districts would still be within 2.5% of their present distance from target, ie, it has only had a moderate impact on the final position of each district, although this must depend to some extent on the level of weighting attached to the social deprivation index.

The NWRHA paper also suggests that taking account of the level of primary health care expenditure in each district has a more significant impact on DHA's distance from target. NWRHA now include an adjustment in the sub-regional formula for Family Health Services Authorities spending which has significantly helped the major losing DHAs in the NW Region. For example, North Manchester is now 15.3 per cent above its weighted capitation target whereas it was 28.6 per cent above before the adjustment for FHSA spending. Central Manchester is now 12.8 per cent above target and was 21.6 per cent above.

Other indicators could be used to measure the effectiveness of primary health care services:

* No. of GPs per 100,000 persons
* No. of GPs on minor surgery list
* No. of GPs on obstetric list
* % of GPs reaching immunisation & vaccination targets or cervical screening targets.

Health promotion

It is also worth considering other indicators that express the difficulty of delivering health services in a particular

district. To measure the problems of health promotion, North West Thames RHA have taken as an indicator the proportion of children who have had their immunisations and vaccinations. Alternative measures for each DHA include:

* % of women having smears in the last five years,
* % of heavy smokers,
* % of heavy drinkers.

Homelessness

The size of the homeless population clearly has an impact on demand for health services but this does not seem to have been recognised by all RHAs. Few RHAs outside the Thames Regions seem to have taken into account measures of homeless populations, despite the fact that it is a considerable problem in many other towns and cities. In 1991, nearly two-thirds of households accepted as homeless were outside London and the South-East. If realistic estimates of homeless populations were made by all RHAs, this would almost certainly increase resources to some of the inner-city health authorities which are set to lose significantly under capitation funding.

NHS continuing care of elderly people

It is questionable whether health authorities should be weighted so heavily for elderly populations at a time when it is clear that the NHS is shedding its responsibility for continuing care for elderly people. If the age-cost weights are based on an assumption that all health authorities are providing a comprehensive alternative to private provision for continuing care then this is clearly inaccurate and will be increasingly so. ACHCEW is concerned that if DHAs are being funded on this basis then they should provide such a service. The DoH should carefully monitor the situation and make clear to health authorities their responsibilities.

Private medical insurance

A truer reflection of the demands on health services would logically need to take account of the level of private health care provision and private medical insurance although this would have considerable implications for the NHS. It would in effect mean that the NHS was no longer funded to be a comprehensive service and that private health care was relied upon to supplement NHS services. However, South West Thames RHA has been considering including this factor in its sub-regional formula and if it were to be introduced across the board it would almost certainly benefit socially deprived districts, despite the political ramifications.

CONCLUSIONS AND RECOMMENDATIONS

* The national weighted capitation formula, when applied at sub-regional level, discriminates against the most socially deprived districts and in favour of relatively affluent districts. This is evident in the fact that several of the ten highest losing districts rank highly on the Jarman scale of deprivation and on mortality from heart disease.

* There is insufficient weight given to factors of social deprivation which have a significant effect on health needs. It is important to note that most of the highest losing districts are in Regions that did not include an additional weighting for social deprivation as well as SMRs. In the light of this, all RHAs should be expected to include a significant weighting for social deprivation.

* The RAWP recommendation for RHAs to weight allocations using the Jarman index, or alternatively, the Townsend index, in addition to SMRs should be implemented by all RHAs. Capitation targets should be recalculated on this basis before 1993/94 allocations are made and allocations should be adjusted accordingly.

* The level of primary health care expenditure and possibly other indicators of the levels of provision should be taken account of in the capitation formula, as has recently been acknowledged by the North Western RHA. This is an especially important issue in some of the inner urban areas which are 'losers' under the present formulae and where it is recognised that secondary health care substitutes significantly for primary health care services.

* The use of other indicators that represent the difficulty of delivering health promotion services should also be encouraged.

* All RHAs should take steps to include up-to-date estimates of the numbers of homeless people in each district and to revise population estimates accordingly.

* The capitation formula is based on the assumption that DHAs are providing comprehensive health services for elderly people. Health authorities should therefore provide a level of NHS continuing care for elderly people that reflects this element of their funding.

Appendix (NAHAT Survey)

PROGRESS WITH THE INTRODUCTION OF WEIGHTED CAPITATION FUNDING
Summary of a telephone survey (9/1/92): Regional allocations to districts

REGION	What formula was used to allocate funds to districts in 1991/92?	What formula will be used to allocate funds to districts in 1992/93	By what year will districts have reached their target capitations?
Northern	Developed and used own population based formula. Includes weighting for **SMRs, ELDERLY, DEPRIVATION**	Same formula as 1991/2	1995/6 - All districts except one
Yorkshire	Applied national formula except **SMRs** used in full (rather than square root)	Same formula as 1991/2	1995/6 or 7 One district likely to be over target by 1995/6
Trent	Applied national formula	Same formula as 1991/2	Aiming for 1995/6 - will depend on the impact of the 1991 census.
E Anglian	Applied national formula but excluded any **SMR** weighting	Same formula as 1991/2	By 1993/4 all districts will be within 1.5% of targets
SE Thames	Applied national formula, except **SMRs** used in full (rather than square root)	Formula not yet decided. Regional conference to be held in January to determine final version. Could include weighting for **SOCIAL DEPRIVATION**	'Equalisation' (i.e. $\pm$ 2% of target) expected by 1995/6. Levelling up and levelling down to be used to reach targets

SW Thames	Population-based formula. No **SMR** weighting; composite **SOCIAL DEPRIVATION** weighting used instead. Own **AGE** weighting (based on utilisation not cost) used instead of national age weighting	Same formula as 1991/2 Improvements/changes in national formula could be adopted	Decision on target date to be made early February
NE Thames	Own population-based formula including ***SOCIAL DEPRIVATION*** weighting.	National formula. **SOCIAL DEPRIVATION** weighting instead of SMRs.	Target date: 1995/6
NW Thames	Developed own formula including **SOCIAL DEPRIVATION** weighting, but allocated funds according to current spending/service provision	National formula plus average of 3 methods of weighting for health need: ***JARMAN UPA(8)s; LOCAL MORBIDITY SURVEY; < 75yr SMR (sq root)***	Best estimate: 1996/7
Wessex	National formula	Same formula as 1991/2	1994/5 or 1995/6
Oxford	National formula	Same formula as 1991/2	1995/6
S Western	National formula	National formula plus **SOCIAL DEPRIVATION** weighting	By 1994/5 districts will be within 2 or 3% of targets
W Midlands	National formula, but with full **SMR**, not square root	Same formula as 1991/2	Estimate: 1995/6 or 1996/7 (with the exception of two districts)

N Western	National formula, but developed and used own **AGE GROUP COST** weights. Also substituted full (i.e. not square root) age-specific **SMRs**	Same formula as 1991/2 Reverted to revised DH **AGE GROUP COST** weight	Decision deferred until the spring
Mersey	Population-based formula with **AGE,SEX,DEPRIVATION AND SMR** weights. Formula gives <u>less</u> weight to elderly populations than national formula	Same formula as 1991/2	Estimate 1995/6 or 1996/7
Wales	Developed and use own formula. Includes: **SPARSITY, AGE, SEX AND SMR** weights. This year's allocation based solely on existing pattern of services, however.	Same as for 1991/2 i.e. formula not used. However, districts' allocations to be inflation proofed, and any district more than 2% below formula target to receive additional growth money.	Movement to targets to begin in 1994/5. Targets to be reached by 1998/99

Notes:
This table is a snap-shot of the current state of weighted-capitation implementation at a sub-regional level. As such, it cannot do justice to the complexity of each region's actual allocation process. However, it does provide an overview of weighted capitation - in particular highlighting differences in region's approaches.

This year (1991/92) has been unusual as actual allocations to districts have been dominated by the need to maintain 'steady state'. Therefore, whilst regions devised target allocations from population-based formulae (weighted in a variety of ways) their districts generally made only small movements towards these targets this year. Allocations were based largely on historical patterns of service delivery/utilisation, taking into account planned/predicted changes in referral patterns.

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