Date: **23 January 2002**

Venue: **Committee Room 1, National Assembly for Wales**

Title: **NHS Resource Allocation Review - Townsend Report**

1. Purpose

1.1 The Committee is asked to consider Professor Townsend's report *Targeting Poor Health: Next Steps* on the NHS Resource Allocation Review and to agree the actions to be taken. The report is attached at Appendix 1 .

2. Background

2.1 The Committee commissioned the Resource Allocation Review in February 2000. The Review is headed by Professor Peter Townsend of the London School of Economics and Bristol University who chairs the National Steering Group convened by the Assembly to oversee the Review. The participative review structure included the Project Review Group and a series of Task Groups. Several workshops were held with the research team to agree a way forward. Professor Townsend encouraged and welcomed contributions and participation from all sources. His report *Targeting Poor Health* was considered by the Committee on 4 July 2001. At the Committee it was agreed to use the report as the basis of consultation together with other supplementary work.

2.2 Between July and September supplementary work was completed on rural and urban issues. A rural adjustment for community nursing services was agreed following recommendations from Task Group C and an "age adjustment" reflecting the weightings of different age groups was also agreed by the Project Review Group. These adjustments, together with comparisons of the proposed new formula at Local Health Group level with population shares, were reflected in tables accompanying the consultation letter from the Minister for Health and Social Services.

2.3 Professor Townsend's Report drew heavily from the independent report from the research team and the executive summaries of the Review's Task Groups. Consultation ended on 30 November. Approximately 700 copies of the Report were distributed to approximately 300 organisations. A total of 47 responses were received.

2.4 Professor Townsend‘s report *Targeting Poor Health: Next Steps* details the issues raised during consultation, the response by the National Steering Group, and the way forward. The report incorporates the comments of the National Steering Group which met on 9 January 2002.

3. Consultation Issues Raised

3.1 Many of the comments picked up concerns and issues raised during the Review process - concerns over the information about the distribution of existing resources according to need, the reliability of statistics on expenditure and costs, the use of the Welsh Health Survey (WHS) for resource allocation purposes, some aspects of the proposed "direct method" formula (particularly the GMS and prescribing elements), and the implementation and phasing of the proposed new method of allocation. There were also a number of issues which required further explanation and clarification. An analysis of the key consultation issues raised is set out in Annex B .

3.2 The use of the Welsh Health Survey for resource allocation purposes has attracted particular attention. Dr Gordon, head of the independent research team, has responded to the key issues raised relating to the Welsh Health Survey and its use for resource allocation purposes - Annex C refers. The Office for National Statistics were also commissioned to evaluate the reliability of estimates from the WHS with a view to advising on their suitability for use in resource allocation. The report from the Office for National Statistics is set out in Annex D . The Office for National Statistics confirmed that the survey methodology was found to be sound and contained no substantial flaws.

3.3 The National Steering Group responses to the issues raised during consultation have been set out in section 2, analysed by chapters in the 4 July Report *Targeting Poor Health* .

4. Way Forward

4.1 The way forward is set out in section 3 of the report. In making the recommendations - which change, add to or confirm the recommendations in the original report itself - the National Steering Group wishes to remind readers of the original framework of the report. The steps that have to be planned and then put in place will apply to each of the three areas of work singled out in the report of the Review:

- the dual strategy (of policy measures to be taken, and monitored, inside and outside the NHS)
- reliable financial information on a year to year basis about actual NHS and non-NHS expenditure per person in deprived and non-deprived groups, as well as by unit of service and disease category; and
- the development of a resource allocation formula according to the direct measured health care needs of the population.

5. Compliance

5.1 The allocation of NHS resources is authorised by the NHS Act 1977, Part IV, Section 97.1 and was

included in the National Assembly for Wales (Transfer of Functions) Order 1999 which transferred the functions to the Assembly. The establishment of a Steering Group and a Working Group is covered by The Government of Wales Act 1998, Part II, Section 40, to facilitate the functions under the NHS Act. These functions have been delegated to the Minister for Health and Social Services. There are no issues of regularity or propriety.

6. Financial Implications

6.1 The Review is primarily concerned with the distribution of the NHS Budget and not with the amounts available - although Professor Townsend highlights the implications of budget pressures for individual items such as capital - as already recognised in *Improving Health in Wales* . However, the amount of growth available to the formula driven items of expenditure will determine the speed at which the moves towards the new target shares can be achieved.

6.2 The Assembly Government will need to draw up an implementation plan and any financial implications will have to be set out at that stage.

7. Action

The Health and Social Services Committee are asked to:

- Endorse the approach set out in the Professor Townsend's report *Targeting Poor Health : Next Steps* .
- Forward the report for consideration by the Minister for Health and Social Services

Contact Point:

Nick Patel, Project Director Resource Allocation Review, ext 3780

Appendix 1

Targeting Poor Health : Next Steps

Consultation Response

Professor Townsend's Report of the Welsh Assembly Government's National Steering Group on the Allocation of NHS Resources

Targeting Poor Health: Next Steps
Consultation Response

Report to the Health and Social Services Committee of the Welsh Assembly Government

Targeting Poor Health : Next Steps
Report on the Consultation Following the July Report

Objectives

1. In its review of the allocation of NHS resources the National Assembly for Wales has cast its net very wide. It has sought new and independent expert advice on a long-standing national problem, but with a determination to secure the broadest possible geographical, professional and political representation during the process of the review. Long-term improvement rather than short-term remission depends on building a consensus, or at least majority agreement, among the component professional groups of health care workers as well as achieving the support or tacit consent of people in actual or potential health need. Outsiders have acknowledged that this is an extraordinarily ambitious aim. There are obvious risks of failure.

2. Following publication of the report of the review in July 2001 the Health and Social Services Committee approved a searching consideration of the report. This process of consultation is now being completed. The principles of transparency, accountability and democracy have been applied as fully and widely as possible in the time available.

3. Inevitably a succession of planned steps will have to be taken in the next years to bring about the structural and administrative changes necessary to halt widening inequalities of health and improve the access of deprived and low-income groups to health care services - universally agreed as the desirable objectives of the review. The consultation has been designed to illuminate and, where necessary, amend or add to the steps envisaged.

4. The steps that have to be planned and put in place will apply to each of the three areas of work singled out in the report and by the National Steering Group of the Review - 1) the dual strategy (of policy measures to be taken, and monitored, inside and outside the NHS); 2) reliable financial information on a year to year basis about actual NHS and non-NHS expenditure per person in deprived and non-deprived

groups, as well as by unit of service and disease category; and 3) the development of a resource allocation formula according to the direct measured health care needs of the population.

5. Respondents were almost unanimous in welcoming the aims of the Report. There was no disagreement with two of the three principal directions of recommended strategy, namely 1) to adopt a dual strategy of policy measures and action - inside and outside the NHS - to halt the growing inequalities of health as well as establish greater equity of access to health care services by deprived and low-income groups; and 2) to construct as a matter of urgency a baseline of financial information about the distribution of resources in relation to health care need and services in the terms of the Audit Commission at "central, middle-tier and local levels".

6. The third, consequential, strategy of directly measuring health need attracted general support in principle but a variety of large and small concerns about detail and timing of implementation. How the existing distribution of resources relates to health care need remained unclear to commentators. Few pursued the possible alternative to the direct method, that is, measuring health need indirectly by using proxy measures. What they did say was usually critical. Some referred to the unreliability and poor quality of existing service utilisation statistics and of the attribution to different social groups of the costs of the different parts of the health service. Others, like the NE Wales NHS Trust, acknowledged the undesirability of using SMRs as an indirect measure of health need.

7. The recommended strategy of adopting the direct method of measuring need for health care attracted many comments. Gwent Health Authority offered the strongest level of support at health authority level welcoming an early move towards the new formula target shares. The remaining four health authorities support the view that further development work is required before implementation or that implementation of the formula had to be introduced by stages for different groups of services. Much of this was concentrated on the coverage, representativeness and reliability of the Welsh Health Survey.

8. Speed of implementation was of concern. Seven out of the eight NHS trusts who responded took the view that further development work is required. Gwent Healthcare NHS Trust offers support for implementation in 2003.

9. Several health authorities and trusts imply a trade-off between "implementation" and "equalisation." Thus, the North Wales Health Authority suggests that a seven years equalisation period "may well be required" but welcomed the aim to apply a formula " built upon a comprehensive, direct assessment of the health needs of the population." The Health Authority continue " the innovative approach proposed has the potential to form the foundation of a direct needs methodology provided it is significantly developed, supported by further research and innovation."

Section 1: Review background, structure and process

Introduction

1.1 As a result of discussions within the Health and Social Services Committee on the distribution of

money to the NHS Wales a major resource allocation review was commissioned in February 2000, with the objective of ensuring more equitable access for the entire population of Wales in accordance with their health needs.

1.2 The Review is an important strand of *Improving Health in Wales*, a plan for the NHS and its partners, which was launched in February 2001. The plan sets the policy agenda for the next five to ten years and outlines the commitment to rebuild, renew, and improve the National Health Services in Wales.

1.3 The Review is headed by Professor Peter Townsend of the London School of Economics and Bristol University who chairs a National Steering Group convened by the Assembly to oversee the Review. Professor Townsend is an international authority on poverty and inequality. His report - *"Targeting Poor Health* "- was considered by the National Assembly's Health and Social Services Committee on 4 July 2001. At the Committee it was agreed to use the report as the basis of consultation together with other supplementary work.

1.4 Views and comments were sought on the proposals contained in the following documents which incorporated the supplementary work undertaken following the 4 July Health and Social Services Committee meeting.

(a) Targeting Poor Health : Professor Townsend's Report of the Welsh Assembly's National Steering Group on the Allocation of NHS Resources (Volume1) Volume 1 drew on the Independent Report of the Research Team (Volume 2) and the Executive Summaries of the Review's Task Groups (Volume 3)

(b) Supplementary tables :-

- Table 1 updated Table 2 (Chapter 5, page 72) in the Townsend Report (Volume 1). This table compared the allocation of £1.356 billion, at health authority level, using the current formula with the new formula proposed by the research team. The new formula proposed by the research team had been supplemented to take into account issues of rurality.

- Tables 2, 3, and 4 detailed the allocations, at Local Health Group level, using the new formula proposed by the research team for Hospital and Community Services, Prescribing, and General Medical Services respectively, compared with population shares.

- Table 5. Provisional Age Adjustment - The provisional effects of an age adjustment were included. These provisional effects are illustrative, and will require further refinement.

1.5 The National Assembly will need to agree the implementation plan and analysis is being undertaken to see how these changes could be absorbed through differential growth within current resource planning assumptions. On implementation the Townsend Report recommends that the transition to new target shares should be achieved through annual differential growth in NHS resources. This will result in a redistribution of resources over a period of time. No area will receive less than their current level of resources (including cost inflation) and those areas which are furthest from their target share will receive

the highest rate of growth.

1.6 The Townsend Report also envisages the need for an on - going formula refinement process which could be achieved by way of a Standing Group. The process will be agreed after consultation.

1.7 Consultation on Professor Townsend's Report "Targeting Poor Health" ended on 30 November 2001. "Targeting Poor Health : Next Steps " details the issues raised during consultation, the response by the National Steering Group, and the way forward.

Review Structure

1.8. The Review was headed by Professor Peter Townsend of the London School of Economics and Bristol University who is an international authority on poverty and inequality and chairs the National Steering Group.

1.9. The research input on area inequalities in health was provided by a team headed by Dr David Gordon of Bristol University. The team produced an independent report looking in detail at issues of poor health and inequalities in health, as well as making recommendations for a new resource allocation mechanism. Their report forms volume 2 of Professor Townsend's Report.

1.10. The service input, prepared on the basis of research information as well as administrative and professional experience, was provided by a series of Task Groups responsible for addressing each of the requirements of the terms of reference. The Task Group review process had been set up to ensure full participation across Wales underpinned by evidence based research work led by expert research team. The reports of the Task Groups form Volume 3 of Professor Townsend's the Report.

1.11. To take forward the Review at the working level a Project Review Group (PRG) was set up to consider the outcomes of the Task Groups and identify issues for consideration by the National Steering Group (NSG).

Review Process

1.12. The research team issued an Emerging Findings Report in early January 2001 which was discussed at a workshop in late January 2001. Positive support for the "direct" resource allocation approach emerged from the workshop but there were also concerns raised over the use of the Welsh Health Survey (WHS) for resource allocation purposes. Given the complexity of the issues involved the Office for National Statistics (ONS) was commissioned to carry out work to evaluate the reliability of estimates from the Welsh Health Survey with a view to advising on their suitability for use in resource allocation. The ONS report is detailed at Annex D. The Emerging Findings Report was considered by the National Assembly's Health and Social Services Committee in February 2001.

1.13. The final research team report was issued in early May 2001. A workshop was held in mid May to discuss the findings of the final research team report. The outcome of the workshop was reported to the

research team and had formed the agenda for a meeting with stakeholders in early June. The consensus of this meeting was that the "direct" resource allocation method be adopted subject to the completion of work on other issues. This was reported to the PRG in mid June and endorsed unanimously by the NSG. The Health and Social Services Committee considered the Report in early July 2001and agreed the consultation package subject to further supplementary work being undertaken on a number of areas including rurality and urban issues.

1.14. Between July and September supplementary work was completed on rural and urban issues. A rural adjustment for community nursing services was agreed following recommendations from Task Group C and an "age adjustment" reflecting the weightings of different age groups was also agreed by the PRG. These adjustments, together with comparisons of the proposed new formula at Local Health Group level with population shares, were reflected in tables accompanying the consultation letter from the Minister for Health and Social Services.

Section 2: Consultation process and response

Consultation Process

2.1 Consultation commenced on 12 October 2001. Following a press conference Professor Townsend and Dr Gordon presented their reports at a specially arranged conference in Cardiff on the 12 October.

2.2 Approximately 700 copies of the Report have been distributed to approximately 300 organisations, individuals, and working groups , including Health Authorities, NHS trusts, Community Health Councils, Local Health Groups, Local Authorities and Welsh representative medical bodies, Assembly Members, Welsh Members of Parliament, prominent UK academics, voluntary action groups, various minority groups and interested members of the public. The Report has also been posted to the internet.

2.3 Consultation ended on 30 November . A total of 47 consultation responses were received - Annex A refers.

Consultation Response

2.4 The key issues raised during consultation on "Targeting Poor Health" are detailed against each chapter of the Report.

2.5 **Chapter 1: Inequalities in health, links between poverty and health, the Welsh legacy of ill health, inequalities within the UK and within Wales**

Summary of Chapter 1

Chapter 1 summarised the problem of poor health and inequalities in health within Wales and the UK. It set the international and UK policy in context and outlined the consensus on the importance of the

underlying socio-economic determinants of health status and action in areas not delegated to the National Assembly including action on income inequalities through the tax and benefit systems.

Issues Raised during Consultation

The issues raised during consultation are set out in Annex B (1). Some represent the considered views of large groups or organisations. They indicate that there is consensus to tackling inequalities in health and that there is support for addressing the wider determinants of health status.

National Steering Group Response

The NSG notes the strong support of the aims set out in chapter1 of the report.

2.6 **Chapter 2: Policies relevant to action: a dual strategy for action within and beyond the health care system**

Summary of Chapter 2

Chapter 2 outlined the dual strategy for action necessary to address poor health in Wales and tackle inequalities in health. Chapter 2 indicates that action is needed to tackle inequities in access to health care services - which is the particular role of the NHS - in Wales as in other regions of the UK, and is also needed to tackle the underlying socio-economic determinants of poor health - which is the role of the Assembly corporately as outlined in the Assembly's Better Wales strategic plan 2000 and of the Assembly's departments working in partnership with local government and other organisations. It is, too, the role in key policy areas of the Westminster Government.

Chapter 2 recommended that:

(a) A dual strategy of measures to be taken within the NHS in Wales, and measures taken outside the NHS, should be developed by the Assembly and that the parts to be played by different components of that strategy should be examined in turn and their contribution monitored and assessed, through a new assessment of future strategic potentialities for equity in health within Wales.

(b) Specific recommendations for training grants for 'equity in public service' and for advocacy are made to underline the key importance of ensuring that provision is made for professionals to contribute their expertise to the broad strategy for addressing inequalities outlined here.

(c) In parallel with the improvements needed in NHS financial information systems recommended in the next chapter, there needs to be agreement on expenditure information about equity of access across the NHS and local authority social services to support the partnership structures proposed in Improving Health in Wales.

Issues Raised during Consultation

The issues raised during consultation are set out in Annex B (2). The need to recognise, and act upon, the need for measures external as well as internal to the NHS was welcomed unanimously. Comments focus on the need for mainstream funding of "equity" and "advocacy" grants, the need for further clarification of the proposals, the strategic fit of these grants with primary care, partnership funding to increase the effectiveness of dual strategies, the need for a narrowing of strategies, and the need for a strategic framework and policy measures - for example, policies on free school meals and nutrition..

National Steering Group Response

The National Steering Group welcomes the supportive comments and considers the funding of "equity" and "advocacy" grants to be critical to their success. While modest in scale and cost they provide illustration of wider organisational and professional action needed to achieve more equal access to health and health care. The Report (page 15 para 2.9) recommends the provision of "equity "and "training "grants either in the general NHS budget or through instruments such as the Health Inequalities Fund. In relation to strategic action The National Steering Group considers that limiting the scope of strategic action may weaken overall outcome. In relation to the request for a strategic framework and policy measures to reduce deprivation among low-income families including , for example, policies on free school meals and nutrition , it is beyond the remit of the National Steering Group to recommend specific health policies but it will pass this request to officials in the Assembly for their consideration, and invite Ministers to draw the recommendations covering action outside the NHS to the attention of all relevant departments and to consider the preparation of statements about the development of cross-departmental action. The NSG also invites Ministers to consider framing and putting forward an "advocacy" policy of what those within the NHS can do to encourage appropriate action to improve health by organisations outside the NHS.

2.7 **Chapter 3: The distribution of NHS resources in Wales: including formula and non formula approaches**

Summary of Chapter 3

Chapter 3 sets out the available evidence on the way the NHS Wales budget is currently, and has been, spent at health authority, NHS Trust and primary care contractor level. It tracks the allocation of resources at the Assembly level and the distribution of expenditure at health authority, NHS Trust and primary care contractor level. It also picks out central features of developments in expenditure and evaluates the financial information currently available, considers what improvements are needed to support the new structures proposed in Improving Health in Wales and to enable the Assembly to monitor the effectiveness of the budget in meeting its objectives for improving health and tackling health inequalities.

Chapter 3 recommended that:

(a) An indispensable step in tackling inequalities in health in Wales is to establish a system whereby trends in access to, and outcome of, health care is put in place jointly by finance, health care and social service administrations, centrally, regionally and at local Trust and LHG levels.

(b) The new approach to the formula proposed in this report will require accurate and up to date expenditure figures by service and disease category.

(c) There needs to be a clear strategy for using financial information effectively to inform the Assembly's future budget decisions.

(d) The Audit Commission engage with the Assembly and the NHS in a detailed analysis of the further work needed, building on the Costing Review . This will assist the Assembly in developing an effective financial information strategy – for which the key requirements are as follows

1. Better central specification of requirements through:

- the issue of a clear guidance on the methodology to be employed in compiling costings –to reflect the outcome of the work of the Costing Working Group (issue imminent)
- agreement on a common approach to the analysis of HA/LHG expenditure information, both planned and actual, so that it meets both local management information requirements and wider national requirements for the analysis of expenditure in relation to area and, possibly, specific population groups.
- more reliable and comprehensive inputting of coding data by trusts on individual patients, including postcode and practice details, to enable expenditure to be analysed at LHG, electoral ward, and practice level. (This data is not currently collected for outpatients and the postcode data will be important for equity to be monitored within LHG areas.)

2. Equivalent data to be collected on activity undertaken within a primary or community care setting – this will be increasingly important as and when activity traditionally undertaken in a secondary care setting is undertaken in a primary or community care setting.

3. An agreed set of financial management information data, rather than just the data required to satisfy statutory financial reporting requirements, to be subject to external audit – as it will be in England.

4. Appropriate linkage to equivalent data collected about social services expenditure.

Issues Raised during Consultation

The issues raised during consultation are set out in Annex B (3) and are generally supportive. They agree on the poor state of expenditure data. The issues raised comment on the need for further explanatory analysis on the financial data included in the Report, the need for reconciliation between annual accounts

and new costing data and the need for a comprehensive financial strategy to be integrated into the All Wales IM&T strategy which is essential to formula refinements prior to implementation. The Audit Commission has also commented that preliminary discussions with the National Assembly have already taken place on a potential programme of work.

National Steering Group Response

The National Steering Group re-enforces paragraphs 3.75, 3.77 and 3.78 of the Report.

Paragraph 3.75 recommends that an indispensable step in tackling inequalities in health in Wales is to establish a system whereby trends in access to, and outcome of, health care is put in place jointly by finance, health care and social service administrations, centrally, regionally and at local Trust and LHG levels. Successful change depends on taking this step - in priority over other record-keeping administrative practices. Annual trend data should also be available in relation to changes in policy the have been introduced and exert an effect from particular dates.

Paragraph 3.77 indicates that our concern to track where money actually goes has raised specific issues to do with poor, scarce or absent information. First there are major concerns about the quality and consistency of the information which is currently collected by the Assembly. Addressing this is crucial for effective stewardship and accountability. It is now also of great practical relevance since the new approach to the formula proposed in this report will require accurate and up to date expenditure figures by service and disease category. Second, there needs to be a clear strategy for using financial information effectively to inform the Assembly's future budget decisions.

Paragraph 3.78 states that we have discussed these issues in depth with the Audit Commission and recommend that they engage with the Assembly and the NHS in a detailed analysis of the further work needed, building on the Costing Review. This will assist the Assembly in developing an effective financial information strategy – for which the key requirements are as follows:

1. Better central specification of requirements through:

- the issue of a clear guidance on the methodology to be employed in compiling costings –to reflect the outcome of the work of the Costing Working Group (now achieved)
- agreement on a common approach to the analysis of HA/LHB expenditure information, both planned and actual, so that it meets both local management information requirements and wider national requirements for the analysis of expenditure in relation to area and, possibly, specific population groups.
- more reliable and comprehensive inputting of coding data by trusts on individual patients, including postcode and practice details, to enable expenditure to be analysed at LHG, electoral ward, and practice level. The National Assembly is currently funding the Information Quality Programme which includes Data Accreditation across NHS Wales. (This data is not currently comprehensively collected for outpatients and the postcode data will be important for equity to be monitored within LHG areas.)

2. Equivalent data to be collected on activity undertaken within a primary or community care setting - this will be increasingly important as and when activity traditionally undertaken in a secondary care setting is undertaken in a primary or community care setting. (A project (I3PC) taking forward data quality issues in primary care and a National Information Development Plan is due for publication in February 2002 which will present a strategy to meet the information needs of NHS Wales in delivering *Improving Health in Wales*)

3. An agreed set of financial management information data, rather than just the data required to satisfy statutory financial reporting requirements, to be subject to external audit - as it will be in England.

4. Appropriate linkage to equivalent data collected about social services expenditure as proposed in para 69 above.

More detailed information on financial trends is still urgently required in order to provide an assessment of the operation in the existing formula and provide a necessary baseline for monitoring the new formula, and improve financial data in accordance with the Audit Commission recommendations.

The National Steering Group will also ensure that where further explanatory financial analysis is required this will be made available. The National Steering Group agrees that financial information strategy must be fully aligned with an All Wales Information Management and Technology strategy but will require integration to be achieved within 2002/03.

2.8 **Chapter 4 : Limits of analysis and action**

Summary of Chapter 4

No formula for the allocation of NHS resources of an effective kind has yet been applied in Wales. Chapter 4 traces the limits of analysis and action. The report notes that Task Group A found that "work carried out so far in Wales [on available information about how funds are distributed] is incomplete and inconsistent and that …no Health Authority is confident that variances between estimated expenditure at LHG level and target shares based on the current Welsh formula provides a basis for shifting resources between LHGs." Until detailed financial information could be mapped at central, health authority and LHG levels for the previous three years or for the present year "there will continue to be significant uncertainty about how the existing distribution of expenditure compares with either the existing formula or a new formula distribution." Recommended was the need for urgent steps to be taken to produce good information about the trends in costs of each component of healthcare services from year to year in relation to specific changes in policy and thereby get into a position of being able to assess the effectiveness of particular expenditure on the NHS. Before devoting efforts towards a sophisticated distribution formula it was necessary to clarify in some detail how existing resources were being allocated. There were two limitations in proceeding with a new formula:

- limitations of principle: the resource allocation formula is about allocating cash resources and can

therefore be used only as a measure of financial equity - it does not address other dimensions of equity including access to quality services and equity of treatment between different groups in society
- limitations of information: there is very limited financial information available about how NHS resources are currently spent at local level in Wales.

Chapter 4 recommends that priority needs to be given to:

(a) Collecting information which will allow systematic and consistent analysis of the total quantum of NHS resources being spent on Local Health Group populations (and subsets of those populations) ie taking forward the Resource Mapping approach to monitor the impact of new commissioning structures on financial equity

(b) Improving as a matter of urgency the quality of the information on which Resource Mapping depends through the implementation of the new financial information strategy recommended in Chapters 3 and 7.

Issues Raised during Consultation

The issues raised during consultation are set out in Annex B (4). They need to be brought together with those on Chapters 3 and 7. None of the responses conveyed satisfaction with the information on the existing distribution of resources. There were a number of comments on the lack or inconsistency of financial information for the purposes of allocating resources according to need , both at health authority and local or Trust levels. Some NHS trusts referred specifically to "poor" information in Wales on costs and expenditure and also on the utilisation of services. The Audit Commission reports "an almost universal finding is the lack of meaningful information with which to plan and manage services. Typically, data is missing or of a poor enough quality to question its usefulness". This is an area requiring urgent attention (our emphasis).

National Steering Group Response

We take seriously the concerns that have been expressed by a number of organisations consulted about the report of the review, and accept the Audit Commission's view that "meaningful information" about financial distribution the NHS budget "requires urgent attention." The Commission has said it welcomes in particular two messages in the report, namely

1) "How expenditure in relation to the objective of reducing inequitable access to health care can be tracked consistently at central , middle tier, and local levels;

2) "How statistical information for the purposes of improved public information, and the monitoring of progress year on year towards greater equity, might be standardised."

The Audit Commission explains that problems with financial and clinical information "have contributed to the inability to trace money through the system and to demonstrate that additional funds have had a

measurable impact in terms of improving the quality of services and outcomes for patients."

The National Steering Group believes that a new allocation formula is of equal importance to the "urgent "need to put in place a baseline of information about financial distribution and expenditure upon which all can build. This means giving priority to information for the present financial year - but also for 2000-01 using the new costing methodology issued in October following a major review (referred to in Chapter 3 of the report). As a corollary, The NSG, underlines the importance of the baseline review of current expenditure to LHB (LHG) level which is being undertaken for 2000-01 (to be completed by July 2002) under the auspices of the Financial Information Strategy Group on which the Audit Commission and National Audit Office are represented. In view of its recent experience and advice the Audit Commission should additionally be invited to embark on the longer-term work identified in its submission. Drawing on sources of advice established during the Review process to date the planned steps for the development and implementation of both the urgent and longer-term programmes of work should be reported to the Health and Social Services Committee

The proposed "direct" resource allocation formula allocates resources based on the direct measurement of health at Local Health Group level. The question of needs index validation is covered in detail in chapter 5 - the use of the Welsh Health Survey for resource allocation. As the Report indicates (para 4.9 page 63) resource mapping determines what share of the total resources allocated to health authorities is being spent on each local health group population within its share. This is needed as a benchmark for comparing existing expenditure shares with the share indicated by the existing or proposed population formula. Transparency will be crucial to the acceptance of an All Wales resource mapping system **.**

2.9. **Chapter 5 : A new model of allocating resources by area to health care services**

Summary of Chapter 5

Chapter 5 explains the way in which a direct measurement of health need, using the Welsh Health Survey, can be developed successfully as a means of measuring area inequalities of health and to form the basis of resource allocation. Chapter 5 also outlines the disadvantages of an indirect measure of health need resource allocation approach and illustrates the impact of the new proposed formula compared with the current Welsh formula and the 1998 RAWG formula.

Chapter 5 recommends that:

(a) The National Assembly for Wales adopts the direct model of measuring need for health care services.

(b) Steps are taken to confirm but also improve the value of the WHS.

(c) Links between resource management, measurement of local health care needs, and expenditure on those needs at LHG and Trust level be established organisationally by 2002-2003 and monitored annually.

(d) The direct method of measuring area needs for health care should be introduced in 2003-2004

(e) The transition to new target shares should be achieved through redistributing the annual growth in NHS resources. Thus no area will receive less than their current level of resources and those areas which are furthest from their target share will receive the highest rate of growth.

(f) The change should be achieved as rapidly as is possible consistent with a minimum level of growth for all which the Assembly considers necessary to ensure a planned transition to the new shares. We consider the change could be effected in three years - but at most five years.

(g) The scope for continued interim action through the Health Inequalities Fund should be considered by the Committee as an alternative route for achieving the aim of targeting resources on those in greatest need.

Issues Raised during Consultation

The key issues raised during consultation are set out at Annex B (5.1- 5.8)

Issues raised during consultation relating to the use of the Welsh Health Survey for resource allocation purposes

Issues raised during consultation relating to the use of the Welsh Health Survey for resource allocation purposes are set out in Annex B (5.1) A number of common themes of concern were apparent:

- Concerns over the sample size of the survey
- Concerns over self- reporting
- Concerns over under- reporting and response rates
- Concerns over the ability to measure the health needs of the elderly
- Concerns whether the health indicators are a broad enough measure of relative health need

Doubts have been expressed about the use of the Welsh Health Survey for resource allocation purposes without confirmation of the value of some elements of the Survey, and its further improvement.

National Steering Group Response

Dr Gordon's report is at Annex (C). The use of the Welsh Health Survey (WHS) to provide key data for direct resource allocation is unique in the UK . Many of the concerns highlighted were discussed at workshops and in Task Group, Project Review Group and National Steering Group meetings. Given the uniqueness of the approach and complexity of some of the issues involved the Office for National Statistics (ONS) were commissioned to evaluate the reliability of estimates from the Welsh Health Survey with a view to advising on their suitability for use in resource allocation. The report from the ONS is at Annex D.

The ONS has concluded that in general the survey methodology was found to be sound and there were no substantial flaws. The ONS undertook work to validate WHS estimates against Welsh Public Health Dataset (PHCD). Comparisons of estimates for individual unitary authorities for seven types of illnesses were made. The ONS reported that significant positive correlations were found with at least one comparative administrative data source for five of these. This provided evidence of reliability in the survey estimates for relative prevalence. There was, however, no correlation with administrative sources for mental illnesses leading to concern that the WHS estimates for mental illness may not be directly related to the need for treatment. Mental illness represents approximately 18% of the hospital and community service share.

The ONS also undertook work to validate estimates against NOP non- response survey, General Practice Research Database (GPRD) and Census Long Term Limiting Disease. The ONS reported that the non-response surveys were biased upwards but that the correlation between the age- standardised 1991 Census rates for individual authorities and age standardised estimates from the WHS is high (0.96). The results indicate that the survey may over- estimate absolute prevalence as a whole but is reliable in terms of estimating relative prevalence across unitary authorities. The ONS conclude that as it is the latter that determines resource allocation in the proposed formula upward bias does not invalidate the survey for use in the proposed formula.

The ONS also assessed the potential impact of sampling errors on the WHS survey and indicated that it was not possible to be confident in correctly ranking all authorities in terms of prevalence for any individual illness using the WHS but that there was little evidence that alternative sources of information would provide more accurate rankings (our emphasis) . The ONS estimate that the maximum difference between "true" allocations for any authority and one of the five simulated allocations was less than 0.5% of total resources allocated but that three authorities gained or lost more than 5% of their "true" allocation. (see Table 4 ONS report) .

The National Steering Group considers the findings of the ONS provide reasonable assurance on the use of the survey for resource allocation purposes. Further work undertaken by the Health Statistics and Analysis Unit, National Assembly, indicates that the resource allocation change derived from the WHS is in the same direction at health authority level, ie the same authorities are "gainers" or "losers", as the changes that would arise from using distributions based on the Resource Allocation Working Group's 1998 recommendations or a simple distribution based on 1991 Census Limiting Long-Term Illness. Additionally, an initial calculation of an age adjustment, which however needs further development to include the effects of increased length of stay, has been incorporated into the formula. The age adjustment

has been applied to 65% of expenditure corresponding to hospital in-patient services.

The National Steering Group is aware that, as with all approaches that introduce a new method of allocation, there will be a number of areas which will require improvement and refinement and the issues raised in the consultation responses provide a strong focus. The National Steering Group is also aware that the results of a WHS for resource allocation can be improved if a new WHS can be undertaken which incorporates questions to address some of the concerns raised during consultation. It is proposed that work on enhancing the WHS is completed in 2002 /03 for incorporation into a new WHS to be undertaken in 2003.

Issues raised during consultation relating to the proposed formula for hospital and community services

The issues raised during consultation relating to the proposed formula for hospital and community services are set out in Annex B (5.2). Key issues raised were:

- The expenditure block groupings
- Costing issues
- Application of the formula at LHG level
- Data updating

Key concerns on expenditure block groupings relate to health need indicators for arthritis, diabetes, back pain, varicose veins and dental records where patients have less than 20 teeth. Concerns on costing issues focus on current developments in costing systems and the analysing of costs by HRG to support future commissioning needs which represent a mismatch with the formula which analyses costs by DRG. Other costing concerns relate to the Trust Returns (TFR2) and the failure of these returns to account for expenditure in England, particularly specialised services. Other formula concerns focus on disparities between current funding and those proposed by the new formula at LHG level, the way in which population changes are included in the formula and the need for the formula to reflect socio- economic factors. The problem is to distinguish the preparation of accounts of monies expended for Treasury purposes and the preparation of accounts for purposes of managing and planning expenditures for social distribution.

National Steering Group Response

Many of the issues raised have been highlighted in the Report for further development work (para 5.11 and 5.14 page 68 and page 69). The Report makes specific reference to the connections between WHS health condition indicators and the expenditure blocks and the need to modify aspects of the methodology. The Report also recognises the concerns over the accuracy and reliability of existing budgetary returns. (our emphasis). Further development work has been highlighted to establish whether the use of average costs for each condition needs to be refined to allow for the additional costs of treating older people.

The National Steering Group also recognises that costing systems are currently being developed and that the move towards HRG analysis from DGR analysis will have a shares distribution impact. The National

Steering Group is aware that review and refinement of the costing system will be both time consuming and complex. The National Steering Group proposes first, that a costing review timetable and action plan is agreed and second, that a corresponding timetable for the completion of a revised budgetary account at central and local levels of the distribution of 2000 - 01 health expenditures and also for the present financial year.

Issues raised during consultation relating to the rural needs adjustment

The issues raised during consultation relating to the rural needs adjustment are set out in Annex B (5.3). Comments focus on why the rural cost adjustment has only been applied to 7.5% of expenditure (the % of the travel element of community health services of total hospital and community services), the need for supporting evidence for the adjustment, the need not to dismiss the Scottish model for hospital service and GMS and an explanation why ambulance services have been removed.

National Steering Group Response

Welsh data have been used in replicating the Scottish model for rurality. The outcome of that work was reported to Task Group C who agreed with the findings that there was sufficient evidence to support an adjustment for community nursing services but that there was not currently evidence to support a rural cost adjustment for hospital services. Further work on GMS has been undertaken and is detailed in Annex E. The feasibility of using Welsh data to replicate the Scottish GMS rural adjustment has been addressed. There have been representations that the Scottish model would be inappropriate for Wales and that a special model for Wales would have to be introduced and separately assessed. Further work on this area will need to be progressed and a firm timetable and action plan agreed

The new formula did not include ambulance services and for the purposes of comparison, tables comparing formula shares excluded ambulance services -Table 1 note (iii) refers. The treatment of ambulance services will be agreed when the new structures arising from the NHS Plan become clearer. In the meantime it is proposed that the existing rural cost adjustment for ambulance services will be maintained.

Issues raised during consultation relating to urban issues

The issues raised during consultation relating to urban issues are set out in Annex B (5.4). Comments focus on the need to complete further work on urban issues and cover areas such as asylum seekers, ethnic minority groups, prisoners, children with complex and high cost medical conditions, student populations, HIV, mental health problems and those with generic disorders, market forces for GMS, responsibilities for emergency planning and outbreak control. There is also need to monitor ethnic minority utilisation.

National Steering Group Response

Task Group A has completed further work on urban issues following the 4 July Health and Social Services Committee and this is reflected in volume 3 of the Report (Task Group Executive Summaries). The results

of the review of urban issues indicate that there is currently no evidence to support an urban issues cost adjustment. The scope of the work undertaken covered almost all the issues raised in consultation.

A key constraint in the review of urban issues has been the lack of available data which has precluded further investigative work being undertaken on a number of issues such as AIDS/HIV, ethnic minorities, drugs and alcohol abuse. Work should be undertaken to look at a cost distribution for HIV/AIDS and ethnic minorities based on the resource allocation formula in England, which incorporates cost premiums reflecting additional costs of providing these services. The NSG recommends that every effort should be made to relate such work to the use of the WHS as a standard guide to resource allocation, and therefore to isolate what case is made out in these specialist inquiries for "additional" and not just total costs.

Issues raised during consultation relating to GMS

The issues raised during consultation relating to GMS are set out in Annex B (5.5). Consultation comments focused on clarification whether non -cash limited services over time would become cash limited, the need for further clarity on the proposals for GMS given that the work being undertaken in England needs is to be considered before deciding on a way forward, and the need to take account of nurse activity e.g smears, vaccinations, and health promotion activities and rurality which impacts on branch surgeries and on-call arrangements. There were doubts whether the proposed GMS formula could be part of the early introduction of the direct method of allocation.

National Steering Group Response

As indicated by the research team, the GMS formula was a "notional" or indicative amount and served to illustrate the share of resources if GMS was to be solely formula based.

The National Steering Group has recognised for some time that deriving a formula distribution for GMS would be difficult given the demand led nature of the expenditure. It was for this reason that the National Steering Group took the decision to review the work undertaken in England to ensure that the method finally adopted in Wales was able to benefit not only from the work being undertaken by the research team on Bristol but also research undertaken to derive a formula for GMS in England. A review of the English GMS formula has been undertaken by Dr Martyn Senior – his report is at Annex E.

The National Steering Group proposes that a GMS formula approach based on the direct measurement of health need be progressed but subject to the further data refinements as set out in Dr Senior’s report – incorporation of children and pregnant women into the GMS formula, recording of consultations and home visits, unavoidable costs of rurality, a market forces factor for GP’s, temporary residents consultation rate. The level of work to address these issues will be considerable and it may be necessary to take account of the new GP contract.

Issues raised during consultation relating to Prescribing

The issues raised during consultation relating to Prescribing are set out in Annex B (5.6). There are

particular concerns over the use of the General Practice Morbidity Database (GPMD) as a key data source. This concern is supported also by Health Solution Wales (the organisation which maintains the database) which has indicated that the prescribing data from the GPMD is not of a high enough quality for resource allocation purposes. There is also a need to take into account the large variations in prescribing practice.

National Steering Group Response

The National Steering Group agrees that some doubts about the reliability of the GPMD need to be met. It would be possible to check the use of the of the GPMD in Wales using alternative data sources like the General Practice Research Database (GPRD) used previously by the ONS. This could be done quickly, especially with the help of the ONS. It is proposed that the direct measurement of prescription expenditure using GPMD be implemented only if its provisional use is confirmed by further enquiries in the next 6 months. It is also proposed that an action plan and timetable is put in place to begin to bring the data quality up to an acceptable level with the distributive effect of existing practices.

Issues raised during consultation relating to formula implementation

The issues raised during consultation relating to formula implementation are set out in Annex B (5.7). There is concern over the proposed implementation timetable, particularly in relation to the allocation change coinciding with organisational change and statutory financial change. Concern was also expressed at the equalisation period and the concept of differential growth. It is suggested that growth must be calculated after allowing for NHS pay awards and core inflationary costs plus the cost of sustaining core services. There is also a need to take into account cross - border flows, to develop a strategy for information to support the directional change, the impact of disaggregation of existing Health Authority LTAs and other expenditures to LHGs which has the potential to enhance any imbalance with the proposed funding flows , and the impact on Trust and Health Authority recovery plans. The detailed response of the Finance and Assets Task Group which comments on structural change issues and pace of change issues is also noted.

National Steering Group Response

The implementation plan will be finally agreed by the National Assembly and the concerns raised in consultation about the implementation timescales / equalisation and growth will be considered at that stage.

Issues raised during consultation relating to the Inequality Fund

The key issues raised during consultation relating to the Inequality Fund are set out in Annex B (5.8). Comments focus on the need to agree a measure for the Inequalities Fund, that there is a need for a recurrent fund to target interventions which allow the Acheson Report recommendations to be addressed, that the inequalities fund should continue to be linked to other resources that tackle the determinants of health and the size of any inequalities fund.

National Steering Group Response

The implementation plan will be finally agreed by the National Assembly and the comments raised in consultation about the inequalities fund will be considered at that stage.

General (Chapter 5) *National Steering Group Response*

The responses during the consultation process have been refreshingly full and rewarding, and show the level of commitment in Wales to transparency and to the sophisticated work that will be necessary to achieve equity in health.

The NSG notes strong support for proceeding with the direct method in the allocation of NHS resources in Wales. Important concerns have been raised about issues to do with health need and with the extent and quality of financial information. The NSG notes that the research team believes it has used "the most valid and reliable health and financial information currently available" in the proposed new formulae for GMS, prescribing and TFR2 resource allocations. This belief is sustained in the reports below by the team as a whole, under the direction of Dr Gordon, and by Dr Martyn Senior. The proposed new formulae are designed to be open and transparent. It is argued that they can easily be updated if and when better data about health need and about expenditure or costs become available. In the absence of a transparent existing formula the data used in the proposed new health resource allocation formulae seem to be of sufficient quality to allow rapid implementation. This is not to deny that there is time in the ensuing months to strengthen the plans for the WHS, for prescribing data in the GPMD and for costing data from the TFR2 returns

On the basis of the ONS evidence the NSG accepts that it is unlikely that further improvements in the health needs data quality, though of course desirable, would result in significant changes to the resource allocations. The statistical modelling carried out by ONS (see Annex D) has demonstrated that "the maximum expected absolute difference between the proposed allocations and the ‘true’ allocations at LHG area level range from just 0.06% to 0.31%, *ie* less than half of one percent of the total Wales NHS allocation "(see Table 4 in Appendix D).

The NSG also accepts that although not yet ideal the proposed formulae for GMS, prescribing and TFR2 health resource allocations are much more scientifically valid and reliable than the current allocations in Wales. The implementation of the new formulae result in a much fairer allocation of health resources according to need for health care and the ‘poorest’ areas in Wales will receive significant additional resources which should help them to meet their much higher relative levels of health need. If this step is not taken and the old health resource allocations are retained, then the ‘poorest’ areas will not receive the additional monies they need to meet the health needs of their populations. This would contradict the expressed aims of the review when set up and would almost certainly result in a continued widening of the health gap between the ‘richest’ and ‘poorest’ areas in Wales.

2.10 **Chapter 6: A review of existing methods of allocating resources using indirect models**

Summary of Chapter 6

Chapter 6 sets out how the current population formula methodology operates, how the process in Wales compares with alternative approaches in the other countries of the UK and what is its impact on the current distribution of resources to health authorities in Wales.

> Chapter 6 recommends that the work to develop the indirect approach be put on hold for two years until the early promise of the direct model can be fully confirmed

Issues raised during Consultation

The key issues raised during consultation are set out in Annex B (6). The comments focus on the need to develop an indirect needs based approach. In general correspondents were aware of the unreliability of the statistics of the utilisation of services in Wales as well as of the limitations of SMRs (under 75) as surrogate indicators of health.

National Steering Group Response

There is a need to enhance aspects of the direct resource allocation formula and to enhance the Welsh Health Survey . However, especially since there is an absence of data about the workings of the existing formula the proposed formula provides a more than adequate basis as a first step in distributing resources. During its implementation it will be possible to check some aspects of its applicability as well as introduce certain refinements.

2.11 **Chapter 7: Conclusions and Recommendations**

Summary of Chapter 7

This chapter summarised the conclusions and recommendations of the previous chapters. Chapter 7 also emphasis that the role of a resource allocation formula in reducing inequalities of health and health care is certainly smaller than the contribution that can be made to equity of access and outcome :

- by carefully investigating carefully investigating and revising, where necessary, the sums going to particular service uses and
- tracking expenditure to the poorest and least healthy in rich and poor areas alike; and
- adopting the "dual strategy" to develop appropriate action outside the health services **.**

Chapter 7 concludes that these three measures would have a substantial impact on the growing inequalities of health, and the likely growing inequalities of health care and recommends to the Committee that having set in train a more equitable and transparent process of resource allocation, these three measures should now be priorities for the NHS and the Assembly corporately.

Section 3 : Way Forward

3.1 The National Steering Group is grateful for the considered comments on the report of July 2001 on the Review of the Allocation of NHS Resources that have been received. A large number of organisations and individuals have made representations which the NSG has found instructive. These have been summarised above, with notes of the reactions of the NSG, and described in greater detail in annexes below.

3.2 Commentators have naturally tended to concentrate their attention selectively on particular issues of concern to them rather than all the issues covered by the report. In making the recommendations that follow (and which change, add to or confirm the recommendations in the original report itself), the NSG wishes to remind readers of the original framework of the report. The steps that have to be planned and then put in place will apply to each of the three areas of work singled out in the report of the Review - 1) the dual strategy (of policy measures to be taken, and monitored, inside and outside the NHS); 2) reliable financial information on a year to year basis about actual NHS and non-NHS expenditure per person in deprived and non-deprived groups, as well as by unit of service and disease category; and 3) the development of a resource allocation formula according to the direct measured health care needs of the population.

3.3 Many of the comments picked up concerns and issues raised and discussed with NHS participants in during the Review proces. In particular, these included concerns over the information about the distribution of existing resources according to need, the reliability of statistics on expenditure and costs, the use of the Welsh Health Survey for resource allocation purposes, some aspects of the proposed "direct method" formula (particularly the GMS and prescribing elements). Implementation and phasing of the proposed new method of allocation were also raised. There were, additionally, a number of issues which required further explanation and clarification.

3.4 These concerns have been discussed with the Office of National Statistics (ONS) and the review team. The reports detailed at Annex C (Research Team response to consultation) and Annex D (ONS report) therefore comprise new information for many correspondents and may help to answer some of their concerns. The NSG recognises that action to remedy the state of financial information about distribution of NHS resources has become urgent. The Group also recognises that further work on the Welsh Health Survey is required if it is to be used at LHG level and that much further work on the GMS and Prescribing elements of the formula is required .

Further steps recommended

3.5 Given the above the National Steering Group proposes the following:

1) The Dual Strategy.

The need for measures external as well as internal to the NHS has been welcomed. The NSG recommends:

a) that the "dual" strategy is confirmed in principle but needs to be developed in greater detail as a matter of priority by the National Assembly for Wales;

b) that the proposals for "equity" and "advocacy" grants should be confirmed in principle but clarified, that they should be considered for mainstream funding and that the strategic fit of these grants with primary care and partnership funding and as illustrative models of other measures affecting primary and secondary treatment should be investigated - to enhance the effectiveness of the dual strategy approach;

c) that strategic framework and policy measures to reduce deprivation among low-income families, including, for example, policies on free school meals and nutrition, should be drawn up urgently - with the participation of all relevant departments within the Assembly

d) that special consideration be given to the need for new and improved statistics about equity of access to high quality health care for all including individuals in households experiencing deprivation.

2) Improving Information about the Distribution of NHS Expenditure.

The NSG accepts the Audit Commission's view that "meaningful information" about financial distribution of the NHS budget "requires urgent attention." As the Commission has said, the problems of financial and clinical information "have contributed to the inability to trace money through the system and to demonstrate that additional funds have had a measurable impact in terms of improving the quality of services and outcomes for patients." Two messages of the NSG's report were particularly welcomed, namely

- How expenditure in relation to the objective of reducing inequitable access to health care can be tracked consistently at central and local levels;
- How statistical information for the purposes of improved public information, and the monitoring of progress year on year towards greater equity, might be standardised.

a) The National Steering Group believes that a new allocation formula is of equal importance to the "urgent "need - as expressed by the Audit Commission - to put in place a baseline of information about financial distribution and expenditure upon which all can build. Priority might be given to information for the present financial year - but also for 2000-01 using the new costing methodology issued in October following a major review (referred to in Chapter 3 of the report). This would be a welcome start in putting a new financial strategy into place. **The NSG recommends accordingly.**

b) The NSG also underlines the importance of the baseline review of current expenditure to LHB level which is being undertaken for 2000-01(to be completed by July 2002) under the auspices of the Financial Information Strategy Group on which the Audit Commission and National Audit Office are represented.

c) In view of its recent experience and advice the Audit Commission should additionally be invited to embark on the longer-term work identified in its submission.

d) Drawing on sources of advice established during the Review process to date the planned steps for the development and implementation of both the urgent and longer-term programmes of work should be reported to the Health and Social Services Committee .

These four recommendations set out above are new. They build on the conclusion drawn in the report that to tackle inequalities in health in Wales an information system about trends in access to, and outcome of, health care must be put in place jointly by finance, health care and social service administrations, centrally, regionally and at local Trust and LHG levels.

In building an effective financial information strategy the Assembly will necessarily need to set up a complex programme that is parallel to, or interdependent with, existing methods of financial administration and accountability. During the consultation process, and the review process itself, various illustrations of what needs to be included have been given . For example,

- the issue of clear guidance on the methodology to be employed in compiling costings –to reflect the outcome of the work of the Costing Working Group (now achieved)
- agreement on a common approach to the analysis of HA/LHG expenditure information, both planned and actual, so that it meets both local management information requirements and wider national requirements for the analysis of expenditure in relation to area and, possibly, specific population groups;
- more reliable and comprehensive inputting of coding data by trusts on individual patients, including postcode and practice details, to enable expenditure to be analysed at LHG, electoral ward, and practice level. The National Assembly is currently funding the Information Quality Programme which includes Data Accreditation across NHS Wales. (These data are not currently comprehensively collected for outpatients and the postcode data will be important for equity to be monitored within LHG areas.)
- Equivalent data to be collected on activity undertaken within a primary or community care setting – this will be increasingly important as and when activity traditionally undertaken in a secondary care setting is undertaken in a primary or community care setting. (A project (I3PC) taking forward data quality issues in primary care anda National Information Development Plan is due for publication in February 2002 which will present a strategy to meet the information needs of NHS Wales in delivering *" Improving Health in Wales* ")
- An agreed set of financial management information data, rather than just the data required to satisfy statutory financial reporting requirements, to be subject to external audit – as it will be in England; and
- Appropriate linkage to equivalent data collected about social services expenditure.

3) A New "Direct" Formula

The National Steering Group welcomes the elaborate comments that have been made on the report’s recommendation for the introduction of a formula of allocation whereby the need for health care is assessed by direct rather than indirect methods. It finds necessary the reminder that it is impossible to

trace how the existing formula of allocation works in any detail at local level. Commentators have been unable to compare the merits and demerits of the existing formula with the proposed formula at local level. Nonetheless the NSG wish to put on record their gratitude for suggestions from many with considerable experience and expertise about the ways in which the proposed formula could be assessed or improved. The comments are not criticisms of a new formula so much as suggestions for possible improvement that deserve close attention and investigation for early resolution. The NSG has recommended implementation of the formula in 2003-4. This means that there are 10 months for refinement and improvement of the proposed course of action.

After studying the comments the NSG recommends that:

a) the National Assembly for Wales adopts the direct model of measuring need for health care services;

b) steps are taken immediately to confirm but also improve the value of the WHS. The NSG notes that monies have been allocated for a repeat survey.

c) links between resource allocation t, measurement of local health care needs, and expenditure on those needs at LHG and Trust level be established organisationally during the early months of 2002 and monitored annually;

d) appreciating that there remain 10 months for development the direct method of measuring area needs for health care should be introduced in 2003-2004;

e) the transition to new target shares should be achieved through annual differential growth in NHS resources. This will result in a redistribution of resources over a period of time. Thus no area will receive less than its current level of resources (including cost inflation) and an allowance for funding of agreed priorities and development e.g. standard driven initiatives such as improvement in treatment of CHD and Cancer. Those areas which are furthest from their target share will receive the highest rate of growth. The estimates of the research team, supported by ONS, is that these areas include those with disproportionately high numbers of deprived and low-income groups;

f) the change should be achieved as rapidly as is possible consistent with an acceptable level of growth for all - which the Assembly considers necessary to ensure a planned transition to the new shares. Implementation of the formula after further development work in the next 10 months will produce target shares (based on the latest financial information) close to the relative percentage shares anticipated in the Consultation Letter. The NSG expects the formula to be then refined year by year. This means that the Welsh Assembly Government will necessarily determine the pace of implementation. Although the NSG has recommended implementation in three years – and at most 5 years – the Minister will of course take a decision in the first year about the pace of redistribution during that year, and will need to take a similar decision in the succeeding years. Whether full implementation can be achieved after three years, or has to be extended, will of course depend on both modifications of the formula as well as the rate of growth of NHS resources in the interim;

g) the scope for continued interim action through the Health Inequalities Fund should be considered by the Committee as an alternative route for achieving the aim of targeting resources on those in greatest need;

h) consequentially that the work to develop an indirect approach be put on hold for two years until the early promise of the direct model can be fully confirmed. This is not to say that the NSG object to research designed to improve existing statistics of the utilisation of health care services, or research designed to compare indirect with direct methods of measuring need;

i) in preparing for the implementation of the direct model further work should be undertaken as soon as possible on the following in particular:

- GMS - undertake further formula refinement on GMS to address issues such as incorporation of children and pregnant women into the GMS formula, recording of consultations and home visits, unavoidable costs of rurality, a market forces factor for GP's, temporary residents consultation rate. The level of work to address these issues will be considerable. Any formula must take into account the implementation of the new GP contract.
- Prescribing - agree an action plan and timetable to bring the GPMD data quality up to an acceptable level and /or to investigate alternative sources of data.
- WHS - a review of the use of the Welsh Health Survey for resource allocation should be completed in 2002 /03 before a new survey is carried out.
- The NSG underlines the need for the allocations for mental health services, including forensic psychiatry (which is likely to require a different approach such as top-slicing), to be discussed with the Mental Health Strategy Implementation Team.
- Urban issues - develop allocations for HIV/AIDS and allowances for costs particular to ethnic minorities based on the formula in England, which incorporates cost premiums reflecting additional costs of providing these services.
- Rural Issues - ongoing work to investigate the evidence for additional costs, including work on GMS rurality.
- Costing - A costing review timetable and action plan to be agreed
- Financial strategy - Integration of the financial information strategy with the All Wales Information Management and Technology Strategy to be achieved within 2002/03
- Assess the implications of funding of rare and expensive interventions and drugs which cannot be adequately identified by formula based allocations.

j) The NSG also propose that a Standing Group be set up to oversee the development of the allocation formula and ensure that progress on the outstanding work is made.

Annex A

Consultation Responses

Consultation responses were received from the following organisations and individuals :

Health Authorities

Dyfed Powys Health Authority
Iechyd Morgannwg Health Authority
Gwent Health Authority
Bro Taf Health Authority
North Wales Health Authority

NHS Trusts

North West Wales NHS Trust
Pembrokeshire and Derwen NHS Trust
North East Wales NHS Trust
Cardiff and Vale NHS Trust
Conwy and Denbighshire NHS Trust
Ceredigion and Mid Wales NHS Trust
Gwent Health Care NHS Trust
North Glamorgan Health NHS Trust

Community Health Council

Carmarthen Community Health Council
Meirionnydd Community Health Council
Montgomery Community Health Council
Gogledd Gwynedd Community Health Council
Clwyd Community Health Council
Vale of Glamorgan Community Health Council

Local Health Groups

Monmouthshire Local Health Group
Newport Local Health Group
Ynys Mon Local Health Group

Professional / Representative Bodies

Commission for Racial Equality
The Welsh NHS Confederation
Community Pharmacy Wales
Royal College of Nursing
Audit Commission
Institute of Rural Health
Welsh Food Alliance

Unison
Association of Welsh Community Health Councils

Others

Vale Council for Voluntary Services
David Blane, Imperial College , London
BroTaf Health Authority , Directorate of Public Health and Policy
Specialised Commissioner SHSCW
Huw Lewis, Assembly Member
Celtic Dimensions
Ian Lucas MP
Health Solutions Wales
Newport County Borough Council
University of Wales College of Medicine
Resource Allocation Review - Task Group E
Vale Adults & Children's Services Network
Lynne Neagle, Assembly Member
John Dicker
NHS Plan - Finance & Assets Task
University of Wales Swansea - School of Health Science

Annex B

Analysis of Consultation Responses

An analysis of the key issues raised during consultation has been undertaken.

- Annex B (1) Chapter 1: Inequalities in health, links between poverty and health, the Welsh legacy of ill health, inequalities within the UK and within Wales

- Annex B (2) Chapter 2 : Policies relevant to action: a dual strategy for action within and beyond the health care system

- Annex B (3) Chapter 3: The distribution of NHS resources in Wales: including formula and non formula approaches

- Annex B (4) Chapter 4 : Limits of analysis and action

- Annex B (5) Chapter 5 : A new model of allocating resources by area to health care services
    - Annex B (5.1) Welsh Health Survey issues
    - Annex B (5.2) Formula issues
    - Annex B (5.3) Rural issues
    - Annex B (5.4) Urban issues
    - Annex B (5.5) GMS issues
    - Annex B (5.6) Prescribing issues
    - Annex B (5.7) Implementation issues
    - Annex B (5.8) Inequalities Fund
- Annex B (6) Chapter 6: A review of existing methods of allocating resources using indirect models

Annex B (1)

Consultation Responses

Annex B (1) Chapter 1: Inequalities in health, links between poverty and health, the Welsh legacy of ill health, inequalities within the UK and within Wales

A number of respondents including North Glamorgan NHS Trust,Montgomery Community Health Council, Pembrokeshire and Derwen NHS Trust, Iechyd Morgannwg Health authority, Royal College of Nursing Wales and Gwent Healthcare NHS Trust welcome the aims of the report and support the focus on the need to address the wider determinants of health status.

No respondents argued against the aims of the report .

Annex B (2)

Consultation Responses

Chapter 2: Policies relevant to action: a dual strategy for action within and beyond the health care system

The following specific comments were received.

1. Carmarthen Community Health Council recommended that, in relation to a "dual strategy", the National Assembly focuses on poor housing and environmental factors, unhealthy behaviour, low incomes, in the belief that tackling these issues in a dynamic manner will go a long way to addressing health inequalities.

2. Iechyd Morgannwg Health Authority requested further clarification on the proposals in respect for

advocacy grants and equity rants is required. Firstly in terms of strategic fit with primary care and the potential for this to be an additional workload for GP‘s when it could be more effective and appropriately managed in other parts of the community. Secondly, because resourcing this activity would be at the expense of deploying resources in other areas.

3. Vale of Glamorgan Community Health Council strongly supports the need to be committed to adopting the "dual strategy " but also comment on the need for resources to be available to enable partners to contribute most effectively.

4. Clwyd Community Health Council commented that there is a clear need to identify why there is a problem with poor housing and that an inventory of housing is required to identify the age and condition of property etc.

5. Vale Adults’ and Children’s Services Network commented that advocacy is a very specialised role and there are many voluntary organisations who provide such as service and asks whether it would not be preferable to fund voluntary organisations to deliver this service. They also express concern about health professionals being expected to give advice / information about benefits.

6. Unison expresses concern at the proposal to establish "equity" training grants and "advocacy" grants to encourage health professionals and others to work together on the health inequality and poor health agenda, since this gives the impression that these issues are in some way marginal to the mainstream work of the NHS when in fact they must be placed at the very centre of its business. The key issue is not "pump priming" but "mainstreaming."

7. Professor Michael A Crawford Head of the Institute of Brain Chemistry and Human Nutrition, University of North London comments that the report of Task Group B (showing how promoting health and reducing inequalities fits with the strategies of different agencies in Wales) is clinical in nature and lacks insight onto major causes of disease and disability. He comments further that although it is evident that socio - economic, genetic and other factors play their part there is hard evidence to indicate that food and nutrition is a major primary cause of heart disease. The Welsh Food Alliance proposes that a strategic framework and policy for free school meals is required which can be implemented by local authorities, that a recurrent Health inequalities Fund be exclusively directed towards properly funding a free / heavily subsidised nutritious school meal.

Annex B (3)

Consultation Responses

Chapter 3: The distribution of NHS resources in Wales: including formula and non formula approaches

A range of generally supportive comments on the need for urgent action on financial information and the importance of resource mapping were received.

1. The Audit Commission commented " An almost universal finding is the lack of meaningful information with which to plan and manage services . Typically, data is missing or of a poor enough quality to question its usefulness. This is an area that requires urgent attention. Problems with financial and clinical information have contributed to the inability to trace money through the system and to demonstrate that additional funds have had a measurable impact in terms of improving the quality of services and outcomes for patients. We believe that mechanisms need to be put in place to provide assurance that the sizeable amounts of additional monies that are now being invested in the NHS result in tangible improvements to patient services. "

The Audit Commission has indicated that it has held preliminary discussions with the National Assembly on a potential programme of work. Key areas of work being proposed are :

- Tracking new funds which will seek to provide an independent and transparent assessment of the impact of new funding.
- Reviews of data quality which will form part of a broader programme to drive up the data quality in the NHS.
- Abolition of health authorities which will involve supporting organisations through structural change.

The Audit Commission is also continuing to develop a series of initiatives in response to the NHS Plan in England and include work on local commentaries on NHS Performance and NHS Plan Implementation Review which will have relevance in Wales.

2. Iechyd Morganng Health Authority supports the recommendation on developing a comprehensive financial information strategy. The key elements which are around the need to identify health care activity to individual GP practice level and to develop and standardise costing of services, require time and financial support. The requirements must be integrated into the All Wales IM&T strategy and the timescales for delivery need to be considered in the light of the fact that without progress in this area, the detailed refinement required prior to implementation of the new proposed formula cannot be undertaken

3. The Vale of Glamorgan Community Health Council strongly supports the recommendations in respect of improving the quality and consistency of information on expenditure, access and outcomes in health care and inequalities and tracking expenditure to the poorest and least healthy in rich and poor areas. Concerns were expressed that the resources required in equipment and staffing to achieve this are, within Trusts, expected to be achieved within their overall budgets and would want the Assembly to consider a separate budget which is supplementary to existing budgets in secondary and primary care.

4. Conwy and Denbighshire NHS Trust comment that costing systems within NHS Wales are poor and under-developed and using average specialty costs within disease groups could present significant problems. The same point is also made by North West Wales NHS Trust, Dyfed Powys Health Authority, Specialised Health Services Commission for Wales , Iechyd Morgannwg Health Authority, and Cardiff and Vale NHS Trust, Bro Taf Health Authority, on costing issues. The hospital and community services

formula resource distributions are determined by reference to average specialty cost costs within disease groups. Current developments in costing systems in wales are seeking to further analyse costs by HRG to support future commissioning needs. This represents a fundamental mis-match between the formula basis and the charging basis within North Wales. These must be aligned as part of a clear financial strategy **.**

5. North Glamorgan NHS Trust commented that the resource mapping methodology needs to ensure that alternative sources of data are used to validate the index and outcome since the needs index, on which the LHG shares derive, takes as its starting point the Welsh Health Survey linked in with specialty / DRG spending information from summarised Trust Financial Returns.

6. The Vale of Glamorgan Community Health Council also comment that the overall increase in local authority expenditure is 1% per annum (average) and for servicse to the elderly 2% per annum average. A substantial component of health expenditure relates to elderly people and they have serious doubts about local authorities ability to play a full part in strengthening community services and promoting health without additional funding.

7. Clwyd Community Health Council commented that :

- the increase in community expenditure in North Wales Health Authority over the period 1998/99 to 1999/2000 is almost 35% and that a similar increase occurred also for Bro Taf Health Authority but not for the other three health authorities but that there does not appear to have been any change to the formula for identifying expenditure in this area during the period.

- there does not appear to be any reason for the change in the expenditure figures for North Wales Health Authority between 1998/99 and 1999/2000.

- There is a clear need to ensure that a reconciliation is audited between the annual accounts and new costing formula.

Annex B (4)

Consultation Response

Chapter 4 : Limits of analysis and action

1. Clwyd Community Health Council commented that in relation resource mapping there is a need to ensure that LHG’s / LHB’s are adequately funded and a transparent formula used for resourcing

2. North Glamorgan NHS Trust commented that the resource mapping methodology needs to ensure that alternative sources of data are used to validate the index and outcome since the needs index, on which the LHG shares derive, takes as its starting point the Welsh Health Survey linked in with specialty / DRG spending information from summarised Trust Financial Returns.

Annex B (5.1)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses relating to the use of the Welsh Health Survey for resource allocation purposes

In relation to responses relating to the use of the Welsh Health Survey for resource allocation purposes a number of common themes were apparent :

- Concerns over the sample size of the survey
- Concerns over self- reporting
- Concerns over under- reporting and response rates
- Concerns over the ability to measure the health needs of the elderly
- Concerns whether the health indicators are a broad enough measure of relative health need

Concerns over the sample size of the survey

Bro Taf Health Authority, Bro Taf Health Authority Directorate of Public Health Policy, Ian Lucas MP, North East Wales NHS Trust and North West NHS Trust raised comments on the sample size. For example :

1. The sample size for each unitary authority was small. The survey represented little over 1% of the adult population of Wales.

2. Reassurance is sought that the sample on which the statistics are based is large enough

3. Support the funding of a new WHS, possibly over a larger sample size to be the basis of any new formula

Concerns over self reporting and Perceived Need

Concerns over self reporting and perceived need were raised by Lynne Neagle AM, The Welsh NHS Confederation , North Wales Health Authority, Iechyd Morgannwg Health Authority, Bro Taf Health Authority Directorate of Public Health and Policy, and Bro Taf Health Authority. For example :

1. The WHS as a self reporting survey will not prove to be a robust and adequate measurement of health need

2. Self reported health status data can contain an intrinsic risk of unreliability. The dangers are the varying ability within the population to complete the questionnaire, an individual’s perception of illness whilst a factor for demand is a less robust basis for measurement in relation to secondary and specialists services

where actual demand is filtered through clinical assessment.

3. The inherent risk of self reported health status would not appear to have been appropriately recognised. Such risks include the varying ability within the population to complete the questionnaire, particularly those in vulnerable groups such as the elderly, those with a poor standard of literacy, the mentally ill, ethnic minorities etc. The survey must be robust in relation to these groups if it is to represent health need in a comprehensive manner. Additionally, the survey should be free from any potential bias caused by, for example, differentials in the proportion of respondents claiming non means tested ill health related benefits where responses may be influenced by prevailing social security incentive structures and the lack of employment opportunities

4. Self reporting relies on the individual's perception of illness which whilst being a major factor for demand in primary care is less robust in relation to secondary and specialist services where actual demand is filtered through clinical assessment.

5. Perceived health need may be a reasonable measure of need for general medical services which represent only 2% of finances allocated by formula. The measure is inappropriate for secondary care, which consumes the larger part of the NHS budget

Concerns over under- reporting and response rates

Huw Lewis AM, Lynne Neagle AM, Bro Taf Health Authority and Bro Taf Health Authority Directorate of Public Health and Policy, Iechyd Morgannwg Health Authority and Dyfed Powys Health Authority comment on under- reporting and response rates. For example :

1. There is a clear concern that under- reporting from key sections of the community and particular areas of Wales will lead to a distorted picture on the level of need.

2. Serious mental illness is likely to be under- reported. Reporting of back pain and rheumatism are subjective and unlikely to relate to treatment costs. Similarly with varicose veins surgery no longer offered except in sever cases. Having less than 20 teeth is a fairly good marker for general poor health in children but it is of less value in older people. Ethnic minorities may also have difficulty in assessing health need.

3. Health service utilisation does not depend entirely on disease or severity of disease but is mediated by socio - economic circumstances

4. The surveys of 1995 and 1996 both had a response rate of around 60% and this may present a biased picture . A follow up of non responders reported that 9% had been too ill or disabled to respond. It is asserted by the research team that under representation of black and ethnic minorities those with low level of literacy , the sick , the elderly, young single and those disabled is " not so problematic when comparing areas ". This is not supported by the evidence.

5. The 1998 WHS survey used suggests higher response amongst deprived areas. There is a need to

demonstrate that the amount of reallocation of resources is reasonable given the needs across all areas and that the particular answer on one year is repeatable. Further work is required to validate the results of one years survey.

6. Independently review the effectiveness and validity of using WHS as a proxy for actual health need as the WHS is self completed and is therefore a measure of perceived need rather than actual need

Concerns over the ability to measure the health needs of the elderly

1. North Wales Health Authority's view is that the WHS is not sophisticated enough to measure the general health needs of an increasingly elderly population . There is much research evidence that the use of health services by the elderly in society is significantly greater than other elements of the population. Without such demand being reflected in the survey results areas such as North Wales will be unfairly disadvantaged.

2. North East Wales NHS Trust comments that the formula does not appear to give an appropriate weighting to the higher cost of treating the elderly nor are the specific conditions of the elderly included in the health measures

3. North West Wales NHS Trust commented that there is evidence quoted in the report that the 1991 census probably under estimated the prevalence of limiting long term illness particularly amongst the elderly. There was a poorer response to the WHS survey by the elderly, and therefore the formula might well under estimate the prevalence of need among the elderly - which could disadvantage areas with a higher proportion of +75 population

4. Conway and Denbighshire NHS Trust also comment that there is a need to adddress the health needs of the elderly

Concerns whether the health indicators are a broad enough measure of relative health need

North East Wales NHS Trust , Welsh NHS Confederation, Bro Taf Health Authority, North Wales Health Authority, Iechyd Morgannwg Health Authority, the Welsh NHS Confederation comment on the health indicators. For example:

1. There are concerns as to whether the limited number of health indicators covered by the WHS give a broad enough measure of relative health need to form the basis of resource allocation. Within each condition area e.g. heart disease, the range of questions asked give a simplistic analysis of the spectrum of health need .

2. The subjective definition of ill health, as defined by the WHS, does not appear to us to be an adequate or accurate direct measure of health care need. The excellent work in Scotland on the Scottish 'Fair Shares' formula would seem highly relevant to Wales, and we recommend that work on this is not abandoned.

3. The assumption is all respondents have an average severity of health condition

Other comments and issues raised

1. Specialised Health Services Commission for Wales comment that the validity of the WHS as a morbidity indicator is unproven in comparison with the obvious first choice of using the census morbidity indicator. The inadequate reliability of sampled data is a further problem with the WHS because of the volatile allocations which will result. Some of the other sources of data used to derive morbidity indicators also suffer from similar concerns. A radical change should not be made two years before the new expanded census morbidity data will require us to reconsider.

2. Both North West Wales NHS Trust and North East Wales NHS Trust comment that the similarity of results for LLTI in the 1998 WHS and the 1991 census does not prove the robustness of the data since the results are more a function of size of the authority

3. Bro Taf Health Authority, Directorate of Public Health and Policy, comments that the use of Cronbach's Co-efficient Alpha and KR-20 are not appropriate in the context in which they have been used.

4. Specialised Health Services Commission for Wales comment that no consideration has been given to averaging the two WHS surveys. Specialised Health Services Commission for Wales also comment that the instability of the WHS measures is indicated by comparison between 1995 and 1998 WHS SF 36 measure (correlation 0.86). Not good enough for resource allocation.

5. Dyfed Powys Health Authority comment that the effectiveness and validity of using the WHS as a proxy for actual health need as the WHS is self completed and is therefore a measure of perceived need rather than actual need. This would appear to be valid as a proxy for actual need for GP and A & E services but less so for hospital and community health services. GP and A & E services act as filters of perceived need with only a proportion actually requiring to utilise hospital and / or community health services.

Annex B (5.2)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses Relating to the Elements of the Hospital and Community Services Formula

Comments and issues relating to the Elements of the Hospital and Community Services formula can be grouped as follows:

- Expenditure blocks

- Costing issues
- Application at LHG level
- Formula Updating

Expenditure blocks

North Wales Health Authority, Iechyd Morgannwg Health Authority **,** North West Wales NHS Trust, and North East Wales NHS Trust commented on expenditure blocks. For example, :

1. A more detailed review of the expenditure blocks in the hospital inpatient formula and the appropriateness of the indicators is required. The incidence of health disease/cancer are reasonable measures to identify need for inpatient facilities but that it is not clear what is included in the following expenditure block.

Indicator	Expenditure Block
Arthritis	£20m
Diabetes	£ 7m
Back Pain	£ 7m
Varicose Veins	£ 3m
<20 teeth	£ 5m

but these do not appear to be good indicators of the need for a general in-patient service formula.

2. The full logic behind the outpatient, district nurse & chiropody formula is difficult to support. For example, as 42% of those with heart disease reported they had attended outpatients (although it is not clear if it is for that condition) this is used to determine need across Wales. As across Wales 23% of those with less than 20 teeth also saw a chiropodist, therefore of the 185 people from Ynys Môn with less than 20 teeth, 42.5 were estimated to "need" chiropody – with no regard to the prevalence of foot problems.

3. The use of the formula to allocate community nursing costs is not supported. A high percentage of the District Nursing caseload relates to the elderly. Social/economic needs are also a factor. A weighted population capitation formula with a social/economic need measure would be more appropriate for these costs **.**

4. The formula for accidents/A&E services does not reflect the current funding arrangements. A&E services are "outside the market" and the Health Authority is responsible to fund services to meet the needs of all accidents in the catchment area, (rather than the need for A&E services for its population, wherever the accident occurs). This formula will not provide the funding for an A&E department in a

tourist area. North West Wales have 7% of A&E attendance but would only get 6% of funding (using Ynys Môn and Gwynedd Local Health Groups as proxy).

5. The use of A&E in the previous three months to the survey also does not capture the seasonal impact.

6. The splitting of the allocation into 8 categories before allocation would appear to be driven by data availability rather than robust analysis of the key components of the healthcare system e.g. the identification of the chiropody as an expenditure category

Costing issues

North West Wales NHS Trust, Dyfed Powys Health Authority, Specialised Health Services Commission for Wales , Iechyd Morgannwg Health Authority, and Cardiff and Vale NHS Trust, Bro Taf Health Authority, commented on costing issues. For example:

1. The hospital and community services formula resource distributions are determined by reference to average specialty cost costs within disease groups. Current developments in costing systems in wales are seeking to further analyse costs by HRG to support future commissioning needs. This represents a fundamental mis-match between the formula basis and the charging basis within North Wales. These must be aligned as part of a clear financial strategy **.**

2. The Welsh Trust returns do not account for substantial expenditure in England , particularly for specialised services. As a result the allocation between programme headings may be biased – the share on mental health does not include forensic expenditure in England. A reconciliation of health authority expenditure is required against trust expenditure to identify any further anomolies.

3. There is a need to go beyond Welsh Trust TFR2 returns in order to incorporate the considerable expenditure on services in England.

4. The draft formula is calculated on the 1998/99 Trust speciality costing return (TFR2), with cost analysed by DRG. There have been various all Wales professional groups looking at improving the finance costing data, and more up to date returns will reflect in initial outcomes of this work. From 2000/01 costing is provided by HRG (not DRG). Given the significant investment in health in the last 2 years, it is important that more up to date data is used – although the full effect of the 2001/02 investment will not be evident until the 2002/03 returns (likely to be available in September 2003).

5. It is vital to appropriately cost services. This will involve identifying costs as a minimum to the HRG levels. It is felt amongst clinicians that even this will not properly attribute the full costs to growing flows of tertiary referrals as part of the growing clinical network. This has to be overcome, but in the meantime as with all Trusts, significantly increased resources are required to establish appropriate costing systems which has the full involvement of clinicians. These resources do not exist as was evident

Application at LHG Level

1. Iechyd Morgannwg Health Authority and The Welsh NHS Confederation comment that the application of the WHS at an LHG level presents risks in relation to stability of the formula over time. Iechyd Morgannwg Health Authority comments further that evidence will be required regarding stability or alternatively dampening measures will have to be introduced to moderate data changes. It should be recognised that a shift of less than 1% in the all Wales position in certain indicators could be dramatically magnified at local level due to the small population bases of LHG's.

2. The proposed new formulae is intended to operate at LHG level and the likely disparity between current funding and those proposed by the new formulae is likely to be relatively greater at LHG level than HA level.

Formula Updating

Pembrokeshire and Derwen NHS Trust , Conwy and Denbighshire NHS Trust,
And Specialised Health Services Commission for Wales have commented. For example,

1. The cost components need to be updated more regularly than in the past but it is unclear what the update cycle will be or whether there is the capability to manage it and that there needs to be a clear description of how annual population changes will be included in the formula calculation

2. Clarity is required in the formula calculations

3. Population aspects of the formula require updating to take into account the 2001 census data.

4. Changes in the formula variables will need a smoothing mechanism to ensure that yearly chance fluctuations are moderated

Other issues

1. Specialised Health Services Commission for Wales commented that formula does not include any socio - economic factors. There is a presumption that they do not influence access to health care or health conditions

2. Bro Taf Health Authority comment on the HCFHS tables and the difficulty they have in responding since the tables are incomplete and could be subject to change , the control total is incorrect and the tables should have included a comparison with the current formula at Local Health Group level.

3. Cardiff and Vale NHS Trust comments that the formula focuses on the health needs of the population. There is however, a supply cost factor which is referred to in the English formula. This is evident in the Trust where the land values are significantly higher which in turn feeds into the costs that will be unfairly borne by the Cardiff and Vale Local Health Boards. In addition there is evidence that the costs of

recruiting and retaining staff are higher in the city environment with the significant greater job opportunities offered to people living in and around the capital. For example cost of temporary nursing staff (in Cardiff) is approximately £13m for 2001/02 which is significantly higher than elsewhere in Wales.

Annex B (5.3)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses Relating to the Rural Needs Adjustment

Dyfed Powys Health Authority, North West Wales NHS Trust, Montgomery Community Health Council, Pembroke and Derwen NHS Trust, Carmarthen Community Health Council, North Wales Health Authority, Lynne Neagle commented on rurality. For example:

1. An explanation is required on why rurality costs have only been applied to 7.5% of expenditure which corresponds to the travel element of community health services. There are rural costs evident in other services and impacts on costs on a far wider scale in secondary care

2. Is there supporting evidence, such as the differences in the number of visits per whole time equivalent between rural and urban areas, to support Task Group Cs proposals

3. An explanation and rationale is required to explain why rural cost adjustments have been applied only to travel intensive elements of community health services.

4. The level and composition of the rurality factor be urgently considered, so as to avoid worsening the access to services for Dyfed Powys residents. Any adjustment for additional costs must be evidence based. Adjustments could be made for excess costs in rural areas that are not valid or based on clear research and evidence. If they are not evidence based and additional costs clearly proven then the new formula will not be able to have the confidence of the service or the patients

5. The Scottish model should not be dismissed when Wales is more rural with smaller urban conurbations than Scotland

6. An explanation for and rationale why the dismissal of the Scottish evidence in relations to rural cost premiums for both hospital services and GMS services. It is accepted that the level of premium may be different but there will surely be a level to be established.

7. An explanation for and rationale behind the removal of the ambulance service weighting is required

8. In rural areas there are a higher percentage of self employed people which would be considered low paid but because they are self employed they are not reflected in social deprivation figures. A rural

deprivation should be explored

9. No explanation is given on why the figures in Table 1 page 72 of the Townsend Report are different to those appearing in table 1 of the consultation letter

10. It should be a clear principle that any adjustments that are made for additional costs be evidenced and research based.

Annex B (5.4)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses Relating to Urban Issues

Bro Taf Health Authority, Cardiff and Vale NHS Trust and BroTaf Health Authority Directorate of Public Health and Policy commented on urban issues.

1. There is a need to complete and publish work on urban issues

2. Urban issues work to cover the areas such as asylum seekers, ethnic minority groups , prisoners, children with complex and high cost medical conditions, student populations , HIV, mental health problems and those with generic disorders, market forces for GMS , responsibilities for emergency planning and outbreak control.

3. There is a need to monitor ethnic minority utilisation

4. There is substantial evidence which has yet to be evaluated and included within the formula. This work needs to be carried out as soon as possible and certainly before the formula is implemented. There are clear examples of urban life and in particular the high demands placed on health in the capital city by the significant number of homeless, ethnic minorities and travellers.

Annex B (5.5)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses Relating to the GMS formula

North Glamorgan NHS Trust, Dyfed Powys Health Authority, Iechyd Morgannwg Health Authority **,** Gwent Health Authority and Bro Taf Health Authority commented on GMS. For example:

1. Clarification is sought on whether the intention is that non -cash limited services over time would become cash limited. Implementing such an approach would not be possible without reforming the

remuneration structure for GP's . What are the implications and risks associated with applying the GMS allocation formula to both cash limited and non cash limited resources.

2. There needs to be clarity about what is proposed for implementation in 2003 given that the work being undertaken in England needs to be considered before deciding on a way forward.

3. The removal of the current cash limit on primary care infrastructure costs would remove financial control at local and national level.

4. No account has been taken of nurse activity e.g smears , vaccinations, and health promotion activities and rurality which impacts on branch surgeries and on-call arrangements

5. Clarification is required on the impact of cash limiting demand led services particularly how this is linked with the GMS Red Book Statements of Fees and Allowances

Annex B (5.6)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses relating to the Prescribing Formula

1. Task Group E forwarded the following detailed response :

Principle

There is a strong agreement from the Group that the principle of using a needs based formula to allocate resources is sound and is therefore the legitimate aim of the current exercise. The discussion therefore is whether the method proposed by the research team is appropriate.

There is a more interesting discussion about how medicines reduce the health divide. The prescription of many symptomatic remedies (a substantial part of the expenditure on medicines) increases in line with deprivation and it is possible that some medicines maintain or reinforce the divide. Access to medicines is rarely if ever cited as a major determinant of better health and it is questionable whether redistributing prescribing resources will have the desired effect.

Project Brief

It is the Group's view that many of the current distortions in the use of resources are between therapeutic areas. For example, ulcer healing drugs have become the largest area of expenditure over recent years. Their usage outstrips identifiable pathology. On the other hand, expenditure on some areas of cardiovascular medicine is lower than would be needed to prevent or treat disease. However, the researchers have interpreted the project brief as having to maintain the current level of relative expenditure

in each programme area and therefore each British National Formulary therapeutic group. That restriction appears to have reduced the validity of the exercise.

Determination of Need

The issue of whether the Welsh Health Survey is a robust measure of health need underpins the whole of the resource allocation exercise and was referred to in the groups earlier correspondence (letter from Eifion Williams, 26 June 2001). It is not the role of our group nor this letter to develop the issues involved other than those which are particular to prescribing. They are:-

- exclusion of the young and old. WHS excluded children. However, young children and especially infants receive disproportionately large numbers of prescriptions. It cannot be assumed that their patterns of need can be extrapolated from adult data. Therefore, if WHS is to be used to measure prescribing needs, a separate exercise to capture children's data must be commissioned.

  Similarly, the elderly receive disproportionately high rates of prescribed medicines. This is especially true of patients in nursing homes who are likely to be too infirm to complete surveys. Has this part of the population been adequately reflected in WHS or is additional work needed?

- recognition of rare/resource intensive needs. A small number of patients have a requirement for expensive therapy. A part of the available resource will need to be ring fenced to reflect this group.

Costing the Prescribing appropriate to need

The proposed model uses the GP Morbidity Database to determine the appropriate prescribing cost for a given need. However there is no evidence to suggest that this is a robust method. In fact, attempts at correlating actual prescribing data of GPMD practices with prescribing entered into GPMD suggest that it is extremely unreliable. For many practices, the two sets of data appear to be unrelated. Therefore, it is not possible to use GPMD for this purpose.

Discussions on the 20 November focussed on what alternative could be used. To the Group's knowledge, there is no currently available alternative. Instead, there would be logic in evolving a benchmarking model as suggested by the Task and Finish Group on Prescribing whose report has already been approved by the Health and Social Services Committee.

Implementation

The report's authors suggest that prescribing should not be cash limited. The Group did not support this view. In fact, there may be good reason to suggest that such an approach will cause money to move towards prescribing as opposed to areas where there are cash limits. That would be a distortion of resource usage.

The Group's discussion highlighted the need to carefully work through how any changes in funding between areas would be implemented at LHG and practice level. If they mean moving money between areas, that would require detailed work in "loser" areas to ensure that there was no negative effect on health. If they imply putting substantially more money into prescribing overall, that may be a difficult policy issue given that Wales already spends some 20% more per capita than England on prescribing.

Finally, there was recognition in the Group that an approach on prescribing must be developed. Members expressed a willingness to be involved in and support this work.

2. Celtic Dimensions forwarded the following detailed response :

Background

Prescribing is a very important element of NHS resources and has value far greater than its cost. The primary care drugs bill is 13% of all NHS and 49% of Primary Care. It is also growing at nearly twice the rate of other NHS expenditure. Prescribers have many conflicting pressures

- Different views of clinical practice
- Local guidelines and protocols
- Need to satisfy NSF and NICE guidelines
- Each prescriber has a their own range of drugs they favour and this could be any 500 for 5000 so there is not common practice

There are also few outcome data available and many of these are surrogate anyway

- Lowering cholesterol is biochemical and does not necessarily mean it has extended life
- Antibiotics eradicate infection which might have self-resolved anyway
- Chronic pain relief continues used in periods of remission as the patient has no way of knowing if they are in pain unless they stop taking the medicine
- There are many examples, these are just a selection

Allocation Methods

There seem to be three basic ways of looking at the allocation

1. Historical where previous patterns are used as the basis for projecting future use
2. Population based on a crude or age/sex related weighting
3. New Formula which looks at the likely needs of a given population taking into account disease patterns, socio-economic and health status of the area factors

There is such large variations in prescribing practice that unless account is taken of some sort of outcome measure it will mean that there may be inappropriate changes in prescribing practice in order to

accommodate the allocated budget.

Examples

Some examples are shown to illustrate these differences: -

Mental Health

There are two main models of treatment.

Social Model based on therapy, counselling, in-patient stays and community care

Medical Model relying on prescription medicines to treat and counter habits of addiction

Both are valid and are generally used in combination. The Social model will be drug light but community/ secondary heavy. The Medical Model will be drug heavy but light on community/secondary. They may give roughly similar results but, depending on the route taken, this will make a large difference to the prescribing spend. The Social Model eats resources whilst the Medical Model is much less costly to the NHS

Which model is used is the decision of the prescriber backed up by practice, LHG and NHS Trust Protocols. Depending on how the locality operates, differences will occur in their prescribing costs.

Cholesterol Reduction

The lowering of cholesterol is generally accepted as being beneficial and helps to prevent secondary cardio-vascular problems. This lowering can also be partly achieved by lifestyle modification (diet, smoking, exercise, tea/coffee and generally reviewing life)

The practices with the time resources and belief to devote to lifestyle issues will certainly have lower prescribing costs but may have far more latestage CV problems.

Infections

Older, cheaper antibiotics are less effective through resistance brought about by use and are more likely to have patients with allergic reactions. It will involve more visits, more emergencies and more prescriptions but will be cheap on the prescribing bill. The secondary costs will be far greater

Newer antibiotics are more expensive but generally much more effective and reduced allergies. They are more likely to work first time and may cost more but the whole episode would be cheaper and the outcome better

Recommendations

Given these variations brought about by different views on prescribing we would recommend the following

1. Continue to use historical trends
2. Develop models of uniformity and conformity around prescribing practices
3. Share best practices to obtain this convergence of practice
4. Develop outcomes and surrogate outcomes to apply to the prescribing data
5. Use a combination of historical and outcome to develop a fairer allocation system
6. Link prescribing to other relevant parts of the service so that an increase in one generates a decrease in others
7. Horizon scans for patent expiry and the consequent price drop, as this will radically change prescribing costs. Effective, expensive brands suddenly become effective, cheap generics
8. Retain a National Assembly for Wales contingency reserve to modulate across LHGs while the systems are being set up
9. Get very up to date data to monitor this system constantly and allow LHGs to modify their prescribing following self-audit (Data provision is currently a black hole)

Other responses on prescribing were received from Iechyd Morgannwg Health Authority, Ynys Mon Local Health Group, Gwent Health Authority, Bro Taf Health Authority, North Wales Health Authority . For example:

1. The use of BNF chapters to group and cost drugs has not been demonstrated as an appropriate approach in allocating costs. The cost variations between e.g. distalgesics, anti-depressants and Parkinson drugs are likely to be significant
2. The use of prescribing data from eight practices linked to the GPMD to calculate the link between expressed need and cost is not robust as the evidence is that the prescribing data within the database is incomplete.
3. The assumption that these practices are exemplar is questionable.
4. The GPMD does not include prescribing data for children which is a significant omission in the model.
5. The report states that for both prescribing and GMS that there is little direct cost data available . Direct cost data is available at GP practice level.
6. Removal of a cash limit would reduce financial control locally and nationally and would create difficulties around providing incentives for clinically effective and cost effective prescribing
7. The GPMD was from self selecting GPs and potentially those with the most enthusiastic approach to information and patient management. They are potentially not representative.
8. The drugs budget was allocated on the basis of only 8 databases. There is concerns that the allocation of weights for arthritis in the calculation for coronary heart disease drugs.
9. In considering the proposals for the prescribing allocation due regard must be given to the separation of the drugs dispensing allocation and the prescribing budgets.
10. Strategically the best way of achieving cost effective prescribing is to set realistic budgets , provide practitioners with good evidence, advice and incentivise change. Using the proposed formula would

produce dramatic redistributions that realistic budgets could not be set. Accordingly the ownership of the budgets and the incentive scheme by GPs could collapse.

Annex B (5.7)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses relating to Implementation Issues

North West Wales NHS Trust, North Glamorgan NHS Trust, Dyfed Powys Health Authority, Carmarthen Community Health Council, Meirionydd Community Health Council, Pembrokeshire and Derwen NHS Trust , Iechyd Morganwwg Health Authority. Ian Lucas MP, The Welsh NHS Confederation, North East Wales NHS Trust , Gwent Health Authority, Conwy and Denbighshire NHS Trust , Bro Taf Health Authority, Cardiff and Vale NHS Trust , Ceredigion and Mid Wales NHS Trust, North Wales Health Authority, Royal College of Nursing Wales, Unison, and the Finance and Assets Task Group commented on implementation issues. For example :

1. It is crucially important to determine how growth is defined. Growth can be presented as the cash uplift above GDP. The true inflationary pressures in the NHS are generally recognised as being well above general inflation. This with unavoidable cost pressures gives an estimated real growth figure of approximately 1% or less, compared to a 7% cash uplift . Unless the redistribution is adjusted via the real growth Local Health Groups that "lose" under the formula will nee to cut services. If real growth is used the three year timescale is unrealistic.

2. The timescales for implementing any new formula needs to be realistic if services are not to be destabilised

3. Achievement towards a new formula present a major challenge . The allied changes in the structure of NHS Wales up to 2003 make this task even more demanding with considerable organisational development.

4. It is a fairly high risk strategy to begin the implementation of the new formula from 2003/04. A "bedding in" period should be allowed for the new structure of the NHS in Wales prior to the start of the implementation of the new formula.

5. The new formula should be implemented over a reasonable time span so as not to lead to a deterioration in service provision

6. It is essential that the statement that no area will receive less resource than at present refers to resources in real terms and confirmation on this point is sought

7. If at all possible the implementation of the new formula should be facilitated by the provision of new

and additional resources from the National Assembly (i.e over and above the current 7% planning provision)

8. It will be essential for each area of Wales to still have an element of real growth each year and to ensure that not all real growth is differentially allocated.

9. Before implementing the formula it will be necessary to establish what the existing resource spend at LHG level is. This is problematic for Hospital and Community services due to the absence of accurate costing methods and the absence of information to relate hospital and community activity to individual GP practices.

10. The proposed introduction date of 2003 coincides with the introduction of new organisational structures and a new financial framework with the introduction of resource limits to the NHS , under Resource Accounting and Budgeting. This adds further complexity to the financial picture and a greater degree of uncertainty and financial risk.

11. The equalisation period will be heavily dependent upon the degree to which there is to be any re-distribution of baseline funding or core inflation. At present this is not proposed but rather a concept of differential growth is being explored. It should be recognised that the cost of sustaining core NHS services accounts for the vast majority of the NHS cash uplift each year. Growth must be calculated after allowing for NHS pay awards and core inflationary costs plus the cost of sustaining core services. The latter element could account for 2% of revenue increase annually above NHS inflation. Comparisons of headline cash uplifts with GDP uplifts are not appropriate for determining growth in NHS funds.

12. The pace of change needs to be fully orchestrated . Utilisation of the GDP deflator does not measure the inflation experience in the NHS. Potentially greater use should be made of the inequalities funding to assist the pace of change.

13. There is concern about the applicability of the approach to LHB’s both in the degree of sensitivity within the formula and the ability to produce an accurate position statement of present utilisation.

14. No account has been taken of cross -border issues. Some LHG’s import a substantial number of English residents onto their registered GP populations. England is operating on a registered rather than resident population and difficulties would be encountered if we were not able to follow suit.

15. Strategic decisions need to be made about whether we take the programme basis of the formula through to budgeting and commissioning. If the allocation formula structure, as the start point for determining resource distribution across programmes and then for distributing the increases, is utilised the way in which planning and commissioning systems are designed and the way in which report activities are read will need to be changed.

16. A strategy for information to support the directional change needs to be developed.

17. The next Welsh Health Survey needs to be commissioned shortly to improve information and to ensure that changes are measured. Any deviations from the original survey will need to be carefully managed.

18. There is a need to take into account the financial risks associated with organisational change and an unstable formula before developing a final implementation plan.

19. There is a need to develop a clear pace of change policy for implementation which recognises true cost increases and pressures of sustainability in the NHS when determining growth funding available for re - distribution.

20. The implementation plan will need to reflect the impact of the dissaggregation of exisiting Health Authority LTAs and other expenditures to LHGs which has the potential to enhance any imbalance with the proposed funding flows. In addition, following implementation of the Costing Review in Wales, the impact of the revised fair shares for Local Health Groups LTAs will also need to be reflected. This will consider the price and volume variances for actual service usage in each LHG compared to the notional price and volume targets included within the formula.

21. Implementation of such a radical change in formula distribution will take a significant period of time from the date when the formula is considered robust enough to be utilised. An equalisation period of 7 years may be required. The potential volatility of the formula in its early stages indicates the need for a conservative policy in relation to equalisation. It may only be possible to allocate differential growth to those furthest from target with all others receiving standard uplifts until the stability of any formula is proven.

22. The recovery plans of Trusts and Health Authorities will need to be considered in implementation. Within recovery plans there may be assumptions on the use of growth to contribute to the recovery plan. If growth funding for the implementation phase is to be targeted towards equalisation, this would impact on existing recovery plans and could lead to an increased number of recovery plans. In addition by committing growth towards equalisation (given the scale of equalisation) no growth would be available for the services to meet NSFs / NICE guidelines, development and service charges.

23. Cardiff and Vale NHS Trust in partnership with Bro Taf Health Authority have identified a strategic change agenda which dwarfs the future resource capacity of both the Trust and Bro Taf Health Authority. These strategic challenges will have significant capital and revenue implications. It will not be possible to secure these from Local Health Boards and will require direct intervention and funding by the Assembly. It is recommended that a programmes approach be adopted based on strategies or NSF’s that reinfiorce the strategic lead to be adopted by the Assembly.

24. Finance & Assets Task & Finish Group comments on implementation issues.

It is recognised that until the HSSC has agreed final recommendations regarding resource allocation in the NHS, the implementation issues cannot be fully scoped. However, preliminary discussion at the Finance

and Assets Task & Finish Group has identified relevant issues that will need consideration once the recommendations are finalised. Comments are offered in the following three broad categories:

1. Developmental Issues
2. Structural Change Issues
3. Pace of Change Issues

Developmental Issues

Developing an Approach to Assess the Effect of Action to Reduce Health Inequalities

The subject of Professor Townsend's report is the need for action to reduce health inequalities in Wales. The link between poverty and ill health is argued strongly and is supported with clear evidence of how poor health outcomes and access to services are influenced by socio-economic and environmental factors. The report recommends a 'dual strategy' for action and a number of the recommendations refer to actions required outside the health service. Consideration needs to be given to the basis for measuring and assessing progress in the 'dual strategy' and for ensuring that action to target health inequalities is focused at communities below LHB level.

Developing and Funding a Financial Information Strategy

The recommendation on developing a comprehensive financial information strategy is significant. The key elements, which are around the need to identify health care activity to individual GP practice level and to develop and standardise costing of services, require time and financial support. The resource implications of this recommendation need to be understood if adopted. The requirements must be integrated into the All-Wales IM&T strategy and the timescales for delivery need to be considered in light of the fact that without progress in this area, the detailed refinement required prior to implementation of a number of the recommendations in 'Targeting Poor Health' will prove challenging.

Developing and Validating the Resource Allocation Proposals

There are a number of very detailed and specific concerns that were discussed during the review period and reflected in the consultation responses to the proposed methodology. The need for further detailed work to develop and refine the formula prior to implementation is acknowledged in the report. It is important that the issues around all three elements of the funding formula are considered. There is a need to clearly describe and scope the further developmental work required Hospital and Community Services, General Medical Services and Prescribing and also the work on the Welsh Health Survey and the GP Morbidity Database. It is assumed that the new Standing Advisory Committee on Resource Allocation will be tasked to do this. This is necessary to ensure that:

1. The concerns regarding the detail of the methodology can be addressed
2. The re-distributive impact of the formula at LHB level can be clarified
3. An informed judgement on timescale for implementation can be made

4. Developments in resource allocation can be reviewed on an on-going basis

Structural Change Issues

Clarifying the Impact of Structural Changes on the Allocation Process

The structural changes in the NHS have now been finalised. However, some details require further clarification to confirm how the resource allocation methodology will be applied in practice e.g. the commissioning of secondary, tertiary and ambulance services. The report recommends that the formula should be applied consistently at the different levels of administrative authority. The methodology for being able to apply the above to, for example, Trust catchments and specialist services needs further clarification. The Gordon Formula allocates only £1.4 bn of a total NHS budget of £3.2 bn. Further work is required to establish how the formula could be applied to meet the requirements above.

Unified Funding Stream

Further discussion is required in order to establish whether there is an intention to allocate a single unified funding stream to the LHBs or whether it is intended to continue to separately identify three or more separate funding streams. Confirmation is required on whether dispensing or prescribing allocations will be made at LHB level. These issues will impact on 'pace of change' considerations in the sense that equalisation and pace of change issues will either be through a single funding stream against a single target or three or more funding streams and targets with potentially different timescales for moving to equity. Clearly a unified funding stream is more easily handled in this respect though consideration would need to be given to the financial regulations or framework to accompany such a change .

Impact of Organisational Change on Implementation Risks

The proposed introduction date of April 2003 coincides with the introduction of new organisational structures and a new financial framework with the introduction of resource limits to the NHS, under Resource Accounting and Budgeting. This adds further complexity to the financial picture and a greater degree of uncertainty and financial risk.

Notional Targets or Cash Limited Budgets

Within the report there is a statement that Wales should await the approach being adopted in England before deciding on the way forward for non-cash limited GMS. There needs to be clarity about what is proposed for implementation from 2003.

The formula combines cash limited and non-cash limited GMS expenditure to distribute a notional allocation at LHG level. Implementing such an approach would not be possible without reforming the remuneration structure for GPs. For both GMS and prescribing, the proposals suggest that the formula should be used to calculate notional allocation at LHG level only. Both of these budgets have traditionally been managed at practice and LHG level. The impact of removing a cash limit needs to be considered.

This discussion also needs to be linked to the issues around whether or not there is a unified funding stream.

Registered or Resident Population

The basis on which LHBs will be funded is not yet clear i.e. registered or resident population. Compatibility with English Primary Care Organisations should be considered. The report's proposals are not clear as to whether the recommendation is for the use of census based population data or GP registered populations. This needs to be clarified along with the approach to updating the formula for population changes.

Pace of Change Issues

Need to Establish Robust Current Resource Baselines at LHB Level

The fundamental issue in assessing the timescale for implementation of the proposals is the scale of the changes from current resource distribution. This work has not been completed due to the absence of reliable information at GP practice level for Hospital and Community Services. The need to develop more consistent costing methodologies also impacts on the reliability of the baselines into the future. This is a considerable task but is essential to identify the true distance from target of each LHB. Practice level information is available for both Prescribing and GMS therefore robust baselines are already in existence. This could allow the consideration of introduction of the changes for GMS and prescribing in the first instance with HCHS at a later timescale.

Need to Calculate a Tolerance Around the Target Share / Distance from Target at LHB Level

The application of the Welsh Health Survey at an LHB level presents risks in relation to the stability of the formula over time. Statistical analysis has shown that the survey is relatively stable at HA level, but more volatile at an LHG level. This volatility cannot be reflected in resource distribution at small population levels as the consequences for service planning and delivery could be highly damaging. The error rate in the formula at LHB level has been assessed as 4%. That suggests that a tolerance of + or – 4% should be set around the target share for each LHB. This is a significant range and further work is required to validate the approach and confirm an appropriate tolerance. This also impacts on the re-distributive elements of the formula as in practice it would mean that any distance from target of 4% or less would be assumed to be 'on target' and not treated differentially for resource allocation purposes.

Need to Consider Risk Management Arrangements in Year 1

Consideration should be given to introducing a mechanism for handling the financial and service risks especially in Year 1 of the implementation. Requiring a 'steady state' in financial flows could be beneficial in addressing the instability and reducing the risks to services. This could be combined with a formal review of budgets fro the start of Year 2.

Balance between Targeting Funds at Reducing Health Inequalities and Other Priorities for Health Resources

There is a need to consider the balance between the allocation of resources specifically to reduce inequalities and to ensure access to NHS services where there is a health need irrespective of the socio-economic background. Reductions in waiting times for access must still be seen as, and resourced as, a priority regardless of geographic / socio-economic differences. The implications of distributing resources according to expressed need have elsewhere led to a targeting of resources away from the most deprived areas. Further work is required to validate the results of one year's WHS. There are also some significant political issues regarding a policy of not meeting demand for services amongst the relatively "better-off" populations, e.g. orthopaedics waiting times.

Resource Requirements of all Recommendations will Impact on Pace of Change

The proposals to introduce an equity grant, an advocacy grant and a separate inequalities fund will reduce the level of resource available to move towards target shares and therefore lengthen the transition period. The funding of a comprehensive financial information strategy will also impact as above, though the need for some development is a pre-requisite for the development of the formula to allow the implementation.

Pace of Change Must be Subject to Further Consideration

The report proposes that resources should be allocated on the basis of the new formula from April 2003 and that the transition to the new target shares should be completed over a maximum of five and preferably three years. The equalisation period will be heavily dependent upon the degree to which there is to be any re-distribution of baseline funding or core inflation. At present this is not proposed, but rather the concept of differential growth is being explored. It should be recognised that the cost of sustaining core NHS services accounts for the vast majority of the NHS cash uplift each year. Growth must be calculated after allowing for NHS pay awards and core inflationary costs plus the cost of sustaining core services. This latter element could account for 2% of revenue increase annually above NHS inflation. Comparisons of headline cash uplifts with GDP uplifts are not appropriate for determining growth in NHS funds.

The Standing Advisory Group recommended needs to be constituted as a matter of urgency to confirm and oversee the outstanding developmental work. In addition, modelling work should commence to assess the feasibility of the proposed pace of change timescale of three and a maximum of five years. This should be based on *:*

1. A range of maximum distances from target.
2. An estimate of all issues that require resourcing universally across all areas of the NHS, e.g. inflation, pay, clinical governance, NICE guidance.
3. The resource requirements of Townsend's other recommendations, e.g. equity grant, advocacy grant, inequalities fund and Financial Information Strategy.
4. Assumptions on the cost and pace of implementation of the NHS Plan for Wales.

5. Future resource availability assumptions.
6. Clarity on the detail of the NHS structure

In practice it is likely that the pace of change policy will need to be a decision reserved for the Health and Social Services Committee on an annual basis pending a review of resources available and priorities for funding for the next year. This could be within the context of a broad timescale of a stated number of years provided that the annual assessment of resources and priorities was accepted as reasonable .

Conclusions

It is clear that there is a significant level of detailed developmental work that needs to be completed prior to implementation. The key issue is how and when that work will be taken forward and whether an implementation date of April 2003 is realistic or advisable under the circumstances. A further key issue is that the concerns that do exist are addressed and that the formula has credibility, as without it implementation will not be possible.

It is clear, that the existing methodology for allocating resources in Wales is not equitable. It is also true that most of the pace of change issues raised will apply to any new formula that is introduced. It is also important to note that no formula for allocating resources will be perfect. There is a need to undertake the necessary detailed work to develop a robust methodology and for the Advisory Committee on Resource Allocation to review at a later date whether sufficient progress has been made to allow implementation in whole or in part from April 2003.

Annex B (5.8)

Chapter 5: A new model of allocating resources by area to health care services

Consultation Responses on the Health Inequalities / Health Inequalities Fund

Bro Taf Health Authority , Unison , and Gwent Health Authority have commented. For example :

1. An inequalities fund outside of the formula can be used to address concentrations of deprived or specific priorities. Communities First is focusing on the 100 most deprived communities in Wales based on the Oxford Index of Deprivation and local knowledge. It would seem appropriate that the same measures continue to be used for the inequalities fund.

2. A recurrent Inequalities Fund needs to target interventions which allow the Acheson Report recommendations that " a pace of change" policy, which allows deprived areas to make the fastest progress to be addressed.

3. The Inequalities fund should continue to be linked to other resources that tackle the determinants of health i.e. Communities First

4. The question needs to be asked about the size of any Inequalities Fund. Research will be required to determine the appropriate level of resources that should be allocated to the health inequalities fund to begin to " make a difference "

5. What is the role and scale of the Inequalities Fund? Will it be on the basis of some kind of challenge between competing areas and organisations?

6. The inequalities Fund should continue until the objective of the equal health is achieved. It is important that the fund can be used flexibly, according to the needs of the local population and that it can be targeted towards prevention and care.

Annex B (6)

Chapter 6: A review of existing methods of allocating resources using indirect models

Consultation responses on using the indirect models

Bro Taf Health Authority and Gwent Health Authority have commented **.**

1. There is a need to develop an indirect needs approach to facilitate a full evaluation of both approaches

2. An interim indirect needs approach be implemented to minimise risk pending completion of the resource allocation review and implementation of the proposed structural changes

3. There is concern that only one formula approach is being pursued and the collection of data for a sophisticated indirect resource allocation methodology is not being completed. There is no "fall back position" if for any reason the direct approach cannot be implemented.

Annex C

Appendix: Independent Research Team's Response to the Consultation Concerns

Introduction

This Appendix provides a synthesis of the main technical issues raised by the 46 detailed responses returned to the research team. These responses have been summarised below as a series of questions and answers.

The research team was delighted that all but one of the responses supported the use of the direct method for measuring health need for NHS resource allocation in Wales. The team believes that the use of direct indicators of health need (rather than indirect measures, such as mortality or hospital usage) is an innovative and significant scientific advance in the field of health resource allocation which, if

implemented, will provide Wales with the fairest and most scientifically accurate method of health resource allocation in the UK.

The research team used a wide range of the most valid and reliable health statistics currently available (including data from the 1998 Welsh Health Survey) to measure health need in Wales. The resource allocation formula proposed by the research team is open and transparent and allows for alternative measures of health need to be easily incorporated or substituted into the formula as and when they become available.

Despite the encouraging support for the direct method of measuring health need, about half of the consultation responses raised concerns about issues of data quality particularly with regard to the use of 1998 Welsh Health Survey (WHS), NHS financial information (*eg* TRF2 returns, *etc*), General Practice Morbidity Database (GMPD), small area population estimates, Hospital Episode Statistics (HES), Cancer Registry statistics, Notifiable Disease Statistics and so on. Most of the questions and answers below are about these statistical and 'technical' issues.

Q *Is the sample size of the 1998 Welsh Health Survey large enough for resource allocation* ?

A The 1998 WHS sent questionnaires to over 50,000 adults and received responses from almost 30,000 people (National Assembly for Wales, 1999). A response rate of approximately 60% was achieved across Wales with around 1,000 or more responses per Local Health Group/ Unitary Authority District area. The 1998 WHS was one of the largest surveys ever undertaken in the UK both in terms of the number of respondents and the proportion of the population covered.

The 1998 WHS received valid responses from approximately 1% of the Welsh adult population. No other social survey in Britain has had responses from such a high proportion of the population. The only other recent studies with a comparable sampling fraction are the Longitudinal Study (LS) and the Sample of Anonymised Records (SAR), which are both drawn from the national Census rather than being surveys like the WHS. By comparison, decisions on monetary policy are made and interest rates set based on changes in the inflation rate (measured by the RPI). The weights for the RPI are based on the results of the annual Family Expenditure Survey which receives responses from about 7,000 households in the UK (the FES has an approximate 60% response rate like the WHS). There are 24 million households in the UK so the FES samples only about 0.0003% of all UK households and major economic decisions which affect the whole population are based upon the results of this survey. The WHS sample of almost 30,000 adults (1% of the Welsh adult population) is very large and reliable by comparison.

Q *The WHS measures self-reported health. Is self-reported health a good measure of the 'true' level of health need* ?

A The 'true' level of health need is a philosophical concept that cannot be measured directly. What can be measured directly are the opinions of doctors or patients about health. The question, therefore, is: whose opinion is the most valid for health resource allocation - doctors' or the populations'?

Firstly, there is a huge scientific literature which shows that self-reported health measures are very good predictors of health need and health outcomes. Over 1,500 articles on self-rated health have been published in the *British Medical Journal* alone in the past five years. It is impossible to summarise all this literature here, however, two recent examples on the utility of self-rated health measures should suffice. Heistaro *et al* (2001) concluded, from a study of over 21,000 people in Finland, that " *poor self rated health is a strong predictor of mortality, and the association is only partially explained by medical history, cardiovascular disease risk factors, and education* ". Similarly, Burström and Fredlund (2001) recently concluded, from a large study of over 170,000 adults in Sweden, that " *poor self rated health is a strong predictor of subsequent mortality in all subgroups studied, and that self rated health therefore may be a useful outcome measure* ".

Secondly, there is no way to prevent individuals from going to see their doctor when they think they are ill and it is people's perception of their own health status rather than the 'true' level of disease that results in their seeking and receiving health care. Therefore, a population's perceived level of health need, which results in health care expenditure, is, in general, a better measure for resource allocation purposes than epidemiological measures of the level of disease prevalent in a population.

Thirdly, the philosophical basis for the research team's approach to NHS resource allocation is the social model of health. This is the belief that health should be defined more broadly than the narrow medical 'disease' model, which defines health need solely in terms of pathological abnormalities which are indicated by signs and symptoms and with success being measured solely in terms of symptom response and survival rates. A broader 'social' model of health is required for resource allocation which acknowledges that people's feelings of pain and discomfort and their perceptions of change in usual functioning are important and that they may legitimately require health services even when there is no disease currently detectable by medical science (Bowling, 1997). The need for a broader concept of health was acknowledged in the constitution of the World Health Organisation (WHO) which has adopted a broad social definition of health as *"a complete state of physical, mental and social well-being and not just the absence of disease and infirmity* " (WHO, 1974).

By definition, a social health model-based resource allocation must take account of the views of the population about their health needs. It must move beyond the idea that doctors are the sole legitimate arbiters of health need. Disease model-based resource allocations - which only make use of 'hard' epidemiological data on disease prevalence - are both politically and scientifically naive.

They are politically naive because, in the 21 st Century, it is impossible to convince politicians that 'doctors know best' and that patients' views should be ignored. The medical disease model can be viewed as paternalistic at best and patronising at worst.

Finally, it must be stressed that, although doctors' and patients' opinions on health may sometimes differ at the individual level, at a population level there is often much closer agreement *eg* population-based estimates of health need are often higher than medical/epidemiological estimates but they show very similar distributions between areas. Since health resource allocation is based upon the relative distribution of health need between areas and not on the absolute level of health need within an area, a self-reported

measure of health need can result in the correct resource allocation at area level even where it overestimates the 'true' level of health need (see *Targeting Poor Health* Volume 2 and Office for National Statistics (ONS) report in Appendix D for more discussion on this point).

Q *Are self reported measures of health adequate for secondary and tertiary care resource allocation?*

A Self-reported morbidity is a proxy measure of 'true' health need, especially at a secondary level, but it is still an appropriate measure at area level. For example, if 10% of all cases reporting arthritis can benefit from a surgical intervention then, as long as this ratio 1:10 is constant across a geographical area, the measure of perceived need will be an accurate proxy for resource allocation within that budget. This is not true if allocating money across DRGs where the ratio is likely to differ.

Q *Does under-reporting of health needs by some sections of society distort the resource allocation results* ?

A Postal surveys like the WHS are also known to suffer from a number of systematic biases. In particular, they generally have lower response rates amongst:

- the very elderly
- the very sick
- the poorest and most deprived
- ethnic minority respondents (particularly where English is a second language)
- the functionally illiterate
- people with certain disabilities (*eg* learning, seeing, hearing)
- young single people (particularly young men)

These biases mean that the results from postal surveys need to be treated with caution if they are to be used to compare illness rates between socio-economic and demographic *groups* . However, these systematic biases are not so problematic when comparing *areas* , since the postal survey bias is between groups and not between areas, *eg* poorer people are equally unlikely to respond to the questionnaire in both Anglesey and Cardiff (see Appendix 1 of *Targeting Poor Health* Volume 2, Gordon *et al* , 2001). This means that, although the *absolute* rates of ill health recorded in the WHS at UA level may well be incorrect, the *relative* rates of ill health between areas are much more reliably measured. The resource allocation formula is designed to allocate money to each area on the basis of its relative health need, not its absolute health need, therefore the limitations of the WHS for measuring absolute health need are not problematic for resource allocation.

The proposed research allocation formula makes use of administrative statistics of health need (such as the Cancer Registry data). There are similar concerns that these administrative statistics may also contain systematic biases (despite the fact that the Cancer Registry has been operating for 30 years). For example, Dickinson *et al* (2001) performed a pathological review of 720 Cancer Registry cases in Cumbria and found an approximate error rate of 10%. While this may be problematic for epidemiological studies, it is not so problematic for research allocation purposes since patients whose cancer is incorrectly diagnosed

will still receive treatment and have health resources spent upon them. However good doctors are and however carefully they make diagnoses, some mistakes will always be made and patients will occasionally receive the wrong treatment. A good resource allocation formula must include funds to cover these expenditures.

The research discussed in Appendix 1 of *Targeting Poor Health* Volume 2 demonstrates that there are no detectable systematic biases in the WHS data between UA areas which would prevent the use of these data for resource allocation purposes. These results have been independently confirmed by the ONS (see Appendix D of this report).

Q *Have the additional health needs of the elderly been adequately accounted for in the new formula?*

A Older people often take longer to recover from illness than younger people so there are additional health costs associated with treating the elderly. These additional costs have been included in the new health resource allocation formula and additional work in this area has been proposed.

Response rates in the WHS from people over 75 were slightly lower than those from middle-aged people. However, the response rates for the over 75s were higher than those for the youngest adults (18 to 30). The research team found that these response biases were adequately corrected in the WHS by the post-stratification population weighting used in that survey (see Appendix 1 of *Targeting Poor Health* Volume 2). These results have been independently confirmed by the ONS (see Appendix D of this report).

Q *Are the number of health indicators used in the formula broad enough to adequately measure the health needs of the Welsh population?*

A The current NHS resource allocation formula in Wales uses the death rates of people under 75 from all causes as its sole indicator of health need. It is self evident that it is more valid to allocate health resources for pregnancy services or cancer services on the basis of the number of pregnant women and the number of people with cancer than it is to allocate them on the basis of the distribution of the number of dead people. There are a number of reasons for this, including:

1. The NHS mainly provides services for people who are alive, not dead. In particular, it provides the bulk of its services for the ‘sick’ rather than the ‘healthy’.
2. The NHS provides a considerable number of services for people with health conditions that only very rarely result in death, *eg* tooth decay, back pain, food poisoning, arthritis, *etc* .
3. The geographical distribution of health need and death are not the same.
4. A large number of people in Wales require NHS services in any given year but only a relatively small number will die under the age of 75 (approximately 15,000 people per year).

The research team has proposed using a wide range of indicators of health need in the new resource allocation formula drawn from the Vital Statistics, Hospital Episode Statistics, Cancer Registry, Welsh Health Survey, GP Morbidity Database, Notifiable Disease Statistics, *etc* . However, a small number of consultation responses were concerned that even this range of health condition indicators would be

adequate to measure the health needs of the Welsh population at LHG level.

There are thousands of health conditions listed in the International Classification of Diseases (ICD-10) and even more listed by the International Classification of Impairments, Disabilities and Handicaps (ICIDH-2). Since people can suffer from several different diseases of differing levels of severity, then the possible combinations of type, number and severity of health conditions that the Welsh population could suffer from is far greater than the number of atoms in the Universe. Fortunately, only a minority of people in Wales suffer from any disease and most people who are ill in Wales only suffer from a small range of the potential health conditions (*eg* many people in Wales have lower back pain but very few have leprosy).

It is possible to use a statistical technique of 'classical test theory' to measure the correlation between the main health need indicators used in the resource allocation formula and the almost infinite set of health conditions the Welsh population could potentially have. This correlation is above 0.96 (see Appendix 1 in *Targeting Poor Health* Volume 2) which demonstrates that the health conditions used in the formula are broad enough to measure the health needs of the population.

Q *Would it be better to use just a reliable single indicator of health need, such as Limiting Long Term Illness from the 1991 Census, rather than the broad range of indicators proposed by the research team?*

A There is a very high correlation between the distribution of Limiting Long Term Illness (LLTI) at LHG level in the 1991 Census and the 1998 WHS. This correlation is 0.94 or 0.96 depending on how LLTI is measured (raw data or age-adjusted – see Appendix D of this report and Appendix 1 of *Targeting Poor Health* Volume 2). This means that, if LLTI data was used from either the 1998 WHS or the 1991 Census, then an almost identical health resource allocation at small area level would result. However, this allocation would not be as valid as the formula proposed by the research team since not all LLTIs are equally serious or involve equal amounts of money to treat. For example, it costs, on average, more to treat a person with cancer than a person with arthritis. By using a range of health condition indicators, it is possible to include these treatment cost differences within the health resource allocation formula.

In addition, the NHS does not just provide services for people with LLTIs. It also provides services for 'healthy' people such as pregnant women, immunizations for children, *etc* .

Q *A formula based on people's perception of health and other available health statistics is unlikely to identify the need for rare, expensive or specialist interventions and drugs.*

A No formula-based allocation can adequately identify the need for rare and expensive interventions and drugs at LHG level. Predicting which area will have the next case of Green Monkey Disease is impossible. These kind of very expensive drugs treatments will always need to be funded from central contingency funds not relatively small local budgets.

Q *The GPMD was not intended for use in resource allocation and the data may not be adequate for prescribing allocations.*

A All GP morbidity databases collect and have been used to provide evidence on prescribing behaviour. If the concerns about the data quality of the GPMD can be substantiated, then these results can be checked using alternative data sources in Wales such as the General Practice Research Database (GPRD). The ONS have already used this source to provide valid and reliable data on health in Wales (see Appendix D).

Conclusion

There is strong support in the consultation responses for proceeding with the direct method for NHS resource allocation in Wales. However, a number of concerns have been raised about issues of health need and financial information quality. The most valid and reliable health and financial information currently available has been used by the research team in the proposed new formulae for GMS, prescribing and TRF2 resource allocations. The proposed new formulae are designed to be open and transparent and can easily be updated if and when better health need and financial data become available. However, the data used in the proposed new health resource allocation formulae are of sufficient quality to allow their rapid implementation. It is unlikely that improvements in the health needs data quality would result in significant changes to the resource allocations. Statistical modelling by the ONS (see Appendix D) has indicated that the maximum expected absolute difference between the proposed allocations and the 'true' allocations at LHG area level range from just 0.06% to 0.31%, *ie* less than half of one percent of the total Wales NHS allocation (see Table 4 in Appendix D).

The proposed formulae for GMS, prescribing and TRF2 health resource allocations are much more scientifically valid and reliable than the current allocations in Wales. If the new formulae are implemented, they will result in a much fairer allocation of health resources and the 'poorest' areas in Wales will receive significant additional resources which should help them to meet their much higher relative levels of health need. If the new formulae are not implemented and the old health resource allocations are retained, then the 'poorest' areas will not receive the additional monies they need to meet the health needs of their populations. This would almost certainly result in a continued widening of the health gap between the 'richest' and 'poorest' areas in Wales.

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Annex D

Evaluation of the Welsh Health Survey for use in resource allocation
Office of National Statistics: Combined report for Stages 1,2 and 3

Summary

Introduction

This report describes work carried out by the Office for National Statistics to evaluate the reliability of estimates from the Welsh Health Survey (WHS) with a view to advising on their suitability for use in resource allocation.

Survey methodology

In general the survey methodology was found to be sound and there were no substantial flaws.

Validation against Welsh Public Health Common Dataset (PHCD)

Comparisons of estimates for individual unitary authorities for seven types of illness were made. Significant positive correlations were found with at least one comparative administrative data source for five of these. This provides evidence of reliability in the survey estimates for relative prevalence. There was no correlation with administrative sources for mental illness estimates, leading to concern that the survey estimates for mental illness may not be directly related to the need for treatment.

Validation against NOP non-response survey, General Practice Research Database (GPRD) and Census Long Term Limiting Illness

The non-response survey results and comparisons with Welsh GPRD estimates provide evidence that the survey estimates may be biased upwards. Comparisons with 1991 Census long term limiting illness also support this. However the correlation between age standardised 1991 Census rates for individual

authorities and age standardised estimates from the WHS is high (0.96). These results indicate that the survey over-estimates absolute prevalence for each unitary authority and for Wales as a whole, but is reliable in terms of estimating relative prevalence across unitary authorities. As it is the latter that determines resource allocation in the proposed formula the upwards bias does not invalidate the survey for use in the proposed formula.

Sampling error

Sampling error is the error that arises because the estimates are calculated from a sample of individuals rather than the whole population. The potential impact of sampling errors on WHS estimates were estimated and the results indicated that it is not possible to be confident of correctly ranking all authorities in terms of prevalence for any individual illness using the WHS. However there is little evidence that alternative sources of information would provide more accurate rankings for individual illnesses.

In order to assess the impact of sampling error on resource allocation, five possible alternative sets of WHS estimates were simulated. These were estimates that could have been obtained by selecting samples from a population with "true" prevalence and variance equal to that estimated from the WHS. The maximum difference between the "true" allocation for any authority and one of the five simulated allocations was less than half a percent of total resources allocated. However three authorities gained or lost more than 5% of their "true" allocation in the simulation exercise.

Introduction

The National Assembly for Wales commissioned the Office for National Statistics to evaluate the reliability of estimates from the Welsh Health Survey (WHS) with a view to advising on their suitability for use in resource allocation. The project was carried out in four stages. These stages were:

1. Assess the general survey methodology.
2. Calculate appropriate estimates of variance and confidence intervals.
3. Compare the WHS estimates with alternative sources of information relating to health.
4. Compare the WHS 1998 estimates with those from the 1995 Welsh Health Survey

Reports from the first three stages have been completed and this report combines and summarises these. The fourth stage report is not yet finalised.

Potential sources and structure of the report

All sample survey results are subject to error. The aim of the evaluation was to assess potential sources of error in the survey estimates and to determine whether these are of sufficient magnitude to preclude the use of WHS estimates for resource allocation purposes. Errors can be divided into two main categories: sampling and non-sampling error. Sampling error is the error that arises because the estimates are calculated from a sample of individuals rather than the whole population. Non-sampling error consists of all other sources of error in the survey results.

Non-sampling error arises from many different sources e.g. differences in response rates between different groups of individuals (non-response error), data processing errors and mistakes made by respondents (respondent error). Non-sampling error can lead to a tendency to over or under estimate the population total or proportion. This tendency for an estimate to be too large or too small is called bias. Stage 1 of the evaluation assessed the overall survey methodology to examine whether substantial non-sampling errors were likely to arise as a result of flaws in the survey methodology used. Stage 3 of the evaluation compared WHS results with external information sources to assess whether there is evidence of substantial bias and the potential impact of any identified bias on resource allocation. The results from Stages 1 and 3 are reported in Section 4 of this report and in Appendices I and II.

The potential effect of sampling error on survey results is usually measured by the standard error of survey estimates. This measures how close the total or proportion estimated from the survey is likely to be to the true value on average. The smaller is the estimated standard error the more confident we can be that the survey estimate is close to the true value. Standard errors can be estimated from the survey results and used to calculate confidence intervals for survey totals or proportions. These are ranges around the estimated value within which the true value would be likely to lie (assuming there were no non-sampling errors). Stage 2 of the evaluation aimed to assess sampling error by calculating appropriate standard errors and confidence intervals. The results are reported in Section 4 of this report and in Appendices IV and V. Appendix III describes the methodology used to estimate the confidence intervals.

Section 5 of the report briefly considers alternative sources of information on health and whether, in the light of the results from Stages 1, 2 and 3 it appears that any of these might provide suitable alternatives or supplements to the WHS results for use in a resource allocation formula.

Assessment of non-sampling error

Survey methodology

Stage 1 of the project assessed the overall survey methodology to examine whether substantial non-sampling errors were likely to arise as a result of flaws in the survey methods used. In general the methodology was found to be sound. The weighting method used was appropriate for correcting for bias caused by varying unit response rates across age groups, gender and unitary authority. No additional adjustment was made for item non-response i.e. individuals who answered the questionnaire but didn’t answer a particular question. However this was taken into account in the estimates provided in Stage 2 of this project and reported in Section 4 and Appendix IV.

In general the survey report provided adequate information about the methodology used to reduce respondent and processing error. The survey returns were edited to identify and remove inconsistent or implausible responses. The percentage of cases that failed edit rules was reported to be less than 0.1% for almost all edit checks. This indicates a low rate of respondent error. Ten percent of cases were verified after data entry and prior to editing. However no information is given about the outcome of this 10% verification i.e. what percentage of verified cases were found to have keying errors. Therefore it is not

possible to assess the potential magnitude of processing errors. It is recommended that this information be provided in future Welsh Health Surveys.

Welsh Health Survey 1998, Results of the Second Welsh Health Survey, Government Statistical Service 1999

The Welsh Health Survey used electoral roles as the sampling frame. This has the advantage of including named individuals. However it is likely to be less complete and up to date than the most commonly used alternative: the Post Office, Postcode Address File (PAF). This is a potential source of bias but will only be a major problem if individuals who move frequently have different health needs to those who remain in the area for longer. The use of the electoral role also means that reliable estimates from the survey will not be available for individuals aged under 18. However the proposed resource allocation formula uses alternative sources of information for services to those under 18.

Validation against alternative sources of information

Although the WHS methodology was generally found to be sound there is still potential for non-sampling errors. Variations in response rates by age, gender and unitary authority should be largely corrected for by the weighting or stratification methods used in the estimates. However there are other potential variations in response rates e.g. by social class that may have lead to bias in the WHS estimates. In addition despite a sound methodology some respondent and processing errors are almost certain to remain in the survey data. Therefore comparisons with external information sources were carried out in order to assess whether there is evidence of substantial bias and the potential impact of any identified bias on resource allocation.

Comparisons with the Welsh public health common dataset (PHCD)

The public health common dataset (PHCD) contains statistics on health by unitary authority from a range of administrative sources e.g. hospital episode statistics, death and cancer registrations. For most types of illness there is no statistic within the PHCD that is directly comparable with the survey estimates in terms of the question asked, age profile of the respondents and reporting time scale. However there are several instances where some correlation might be expected between the unitary authority rates from the PHCD and those from the WHS. Administrative data sources are also subject to error and this coupled with the differences in definitions for the two sources mean that strong correlations would not be expected. However negative correlation or complete absence of correlation for all illnesses would be evidence for unreliability in the survey.

Estimated rates of illness from seven Welsh Health Survey questions were used in the comparisons:

Q28 Have you ever been treated for any of these heart diseases?

Q29 Have you ever been treated for cancer?

Q30 Do you have any of these chest troubles or breathing difficulties now?

[2] Wales NHS Resource Allocation Review, Independent Report of the Research Team by David Gordon, Elizabeth Lloyd, Martyn Senior, Jan Rigby, Mary Shaw and Yoav Ben Shlomo

Q31 Do you have any mental or nervous illness now that you have had for 3 months or more

Q32 Do you have any of these conditions now?
Arthritis
Back Pain
Stroke

Q33 Do you have diabetes?

The estimated rates from the survey were compared with crude rates from the PHCD for hospital episodes and discharges and cancer and death registrations for related illnesses. The calculated Pearson correlation co-efficients are given in Appendix I. A signficant positive correlation coefficient is evidence of a positive association between the two measures being compared. There was significant positive correlation between the estimates for the survey and at least one PHCD statistic for all questions except Q31 (mental illness) and Q33 (diabetes). This does not necessarily indicate that the health survey estimates for mental illness and diabetes are unreliable as these conditions will not usually be the direct cause of a hospital episode or of death. However the use of the estimate for mental illness in resource allocation will be inappropriate if a high proportion of treatment costs for mental illness are attributable to hospital stays and there is no relationship between general mental health and mental illness requiring hospital treatment.

Comparisons with the Welsh Health Survey non-response survey

The National Assembly for Wales commissioned NOP to carry out a sample survey of non-respondents to the Welsh Health Survey. Face to face interviews were carried out with 601 individuals who had not responded to the postal survey.

The results from the non-response survey indicated that there might be a higher response rate for people who were ill than for people with no illness particularly for heart disease. The results from the Welsh Health Survey and those from the non-response survey for a selection of illnesses are shown in Table 1. Unfortunately it is not possible to carry out statistical tests to assess whether the differences are significant because the individual responses from the non-response survey are no longer available and the reported results were weighted by unitary authority.

Table 1: Percentage rates of illness from the WHS compared to the non-response survey

Illness	Age 18-24	Age 35-54	Age 55+

	WHS	Non-response	WHS	Non-response	WHS	Non-response
Heart Disease	2.8	0	12.4	3	40.4	16
Cancer	1.0	1	3.9	3	9.3	6
Mental Illness	9.6	5	15.0	10	14.4	14
Diabetes	0.6	0	2.0	2	7.4	3
Arthritis	3.6	6	18.7	11	46	43
Back Pain	18.5	21	32.0	34	36.4	42

Notes: WHS : % of respondents to WHS who stated that they had the illness weighted by unitary authority (Total respondents: 29874). Non-response: % of respondents to Non-response Survey who stated that they had the illness weighted by unitary authority (Total respondents: 552).

[3] Welsh Health '98 Non Response Survey, Tabulations prepared for the Welsh Office by NOP Social & Political, November 1998.

Comparisons with General Practice Research Database (GPRD)

In order to examine the potential upward bias in estimates more fully, comparisons were made with information from the GPRD. The following questions from the WHS were used in the comparisons:

Q28 Have you ever been treated for any of these heart diseases?
Yes: high blood pressure (or hypertension)

Q30 Do you have any of these chest troubles or breathing difficulties now?
Yes: Asthma

Q31 Do you have any mental or nervous illness now that you have had for 3 months or more
Yes: Depression
Yes: Anxiety
Yes: Schizophrenia

Q32 Do you have any of these conditions now?
Yes: Stroke

Q33 Do you have diabetes?
Yes and it's treated by injection

The results are shown in Appendix II. For hypertension and stroke the WHS estimates are higher than those from the GRPD but this is to be expected due to the different time scales being considered. The GRPD relates to treatment or incidence in the last four years whereas Q28 asks if treatment has ever been received and Q32 could be interpreted as meaning "have you ever had a stroke?". The GPRD prevalence rates for insulin treated diabetes and for schizophrenia are within the confidence intervals for the WHS estimates. For asthma, depression and anxiety there is some evidence that the WHS estimates are too high for those under 65.

Comparisons with Long Term Limiting Illness from 1991 Census

The 1991 Census contains information on the prevalence of long term limiting illness for the population. As this is the only reliable source of information relating to illness for the whole population it may be useful to compare the rates recorded in the Census with those recorded in the WHS. Some changes in prevalence between 1991 and 1998 would be expected due to population movements, ageing, births and deaths and also to changes in health. However strong correlation between age standardised rates would be expected. Table 2 shows rates of long term limiting illness from the WHS and the 1991 Census age standardised to the 1998 population estimates for Wales. As can be seen the estimates from the WHS are substantially higher. However the correlation between the unitary authority estimates from the WHS and those from the Census is high at 0.96.

[4] Key Health Statistics from General Practice 1998, Series MB6 no 2 published by National Statistics

Some comparisons were made in the report of the Bristol University research team. As noted in that report the WHS question is worded to specifically include disability as well as illness whereas the Census question did not mention disability. In addition there is some evidence that Census estimates slightly underestimate true prevalence by around 2 percentage points. However these factors could not account for such large differences between the WHS and the Census. These results provide further evidence that individuals who are ill are more likely to respond to the WHS leading to an upwards bias in estimated prevalence rates.

Table 2: Rates of long term limiting illness for persons aged 30 or over, age standardised to 1998 mid-year population estimates for Wales

	Welsh Health Survey*	1991 Census	Difference (WHS-Census)
Isle of Anglesey	37%	22%	16

Gwynedd	35%	21%	14
Conwy	38%	22%	16
Denbighshire	38%	24%	14
Flintshire	37%	22%	14
Wrexham	36%	25%	12
Powys	34%	20%	14
Ceredigion	35%	20%	15
Pembrokeshire	37%	21%	15
Carmarthenshire	41%	27%	15
Swansea	41%	27%	15
Neath Port Talbot	45%	32%	13
Bridgend	42%	29%	13
Vale of Glamorgan	35%	22%	13
Cardiff	38%	23%	14
Rhondda, Cynon, Taff	45%	34%	11
Merthyr Tydfil	51%	35%	16
Caerphilly	48%	33%	15
Blaenau Gwent	48%	33%	15
Torfaen	44%	29%	15
Monmouthshire	35%	20%	15
Newport	41%	25%	16

* Respondents who answered "Yes" to Q27: Do you have any long-term illness, health problem, or handicap which limits your daily

activities or the work you can do, as a percentage of those who answered question 27.

Effects on resource allocation if some illnesses are over estimated

The amount of resources received by each authority under the proposed formula is dependent on the estimated ratio of people with a particular illness in the authority to the total number with the illness in Wales. Because of this an upwards bias in the estimates does not have any affect on resource allocation providing it is constant across all authorities and illnesses. An upwards bias for some illnesses but not for others will have some effect on estimates. However these are likely to be relatively small because the amount of total resources allocated for any particular illness is limited to actual past expenditure on that illness in Wales. The effect on resource allocation if the WHS estimates for heart disease, mental illness and stroke were over estimated by 20% are shown in Table 3. The ranking of authorities in terms of resource allocation under the formula were unchanged.

Table 3: Effects of over-estimation for selected illness

	Actual estimates from WHS	"True" resource allocation if heart disease, mental illness and stroke overestimated by 20%	Difference between WHS results and simulated "true" result	Difference as percentage of "true" allocation
Isle of Anglesey	£29,542,454	£29,522,842	£19,612	0.07%
Gwynedd	£51,833,991	£51,823,754	£10,237	0.02%
Conwy	£54,780,361	£54,772,453	£7,908	0.01%
Denbighshire	£40,626,953	£40,623,337	£3,616	0.01%
Flintshire	£61,282,841	£61,283,637	-£796	0.00%
Wrexham	£54,703,174	£54,718,117	-£14,942	-0.03%
Powys	£52,557,501	£52,542,624	£14,877	0.03%
Ceredigion	£30,075,936	£30,072,333	£3,603	0.01%
Pembrokeshire	£51,114,325	£51,095,534	£18,791	0.04%
Carmarthenshire	£84,642,402	£84,612,733	£29,669	0.04%

Swansea	£107,119,168	£107,155,067	-£35,899	-0.03%
Neath Port Talbot	£71,380,755	£71,402,192	-£21,437	-0.03%
Bridgend	£60,637,817	£60,632,617	£5,200	0.01%
Vale of Glamorgan	£48,860,650	£48,860,169	£482	0.00%
Cardiff	£135,475,343	£135,471,195	£4,148	0.00%
Rhondda, Cynon, Taff	£121,336,340	£121,346,442	-£10,102	-0.01%
Merthyr Tydfil	£31,394,743	£31,401,131	-£6,388	-0.02%
Caerphilly	£86,497,335	£86,513,328	-£15,993	-0.02%
Blaenau Gwent	£39,554,102	£39,555,767	-£1,665	0.00%
Torfaen	£47,509,902	£47,494,946	£14,956	0.03%
Monmouthshire	£32,483,953	£32,487,658	-£3,706	-0.01%
Newport	£62,557,954	£62,580,127	-£22,173	-0.04%

If the extent to which ill people are more likely to respond to the survey is the same across unitary authorities resource allocation is largely unaffected. There is evidence from the correlations with administrative data sources and with the 1991 Census estimates that this is the case. There is some evidence from comparisons with the GPRD that the difference in response rates for people who were ill was greater for younger people i.e. those under 65. This could potentially lead to authorities with a younger population profile receiving too high a proportion of resources. However this evidence is relatively slight being based on only three illness comparisons.

Assessment of sampling error

Confidence intervals for survey estimates

At the time of writing the Stage 2 report the exact way in which the survey results might be incorporated into resource allocation formulae were not determined. However background papers provided by the National Assembly for Wales indicated that estimates of total individuals with each illness would be incorporated into the formula. In order to use estimates in this way they should ideally be sufficiently accurate to enable authorities to be ranked in terms of prevalence.

Confidence intervals had not been calculated in the Welsh Health Survey report. The aim of Stage 2 of the

assessment was therefore to determine appropriate formulae to estimate confiedence intervals and thus determine whether the samples were large enough to be able to confidently rank authorities in terms of prevalence.

The example calculations in the final report of the research team headed by David Gordon at University of Bristol used weighted sample totals rather than estimated population totals. However in practice inserting estimated population totals instead of weighted sample totals gives the same resource allocation result. The calculation of confidence intervals for population totals is therefore relevant and the conclusion that it should ideally be possible to at least rank authorities still holds.

The derivation of the formulae for estimated totals and variance are given in Appendix III. The resulting confidence intervals for the main categories of illness are given in Appendix IV. The results for each subtype of illness were also calculated. However the incidence for most of these illness subtypes is too small to obtain reliable estimates from a sample survey and this was apparent from the confidence intervals. This was anticipated by the independent research team at Bristol University and the proposed formula does not rely on estimates for illness subtypes.

Estimates for the main categories of illness are insufficiently precise to confidently rank authorities. This means that if the direct survey estimates are used in the formula one authority could obtain higher resource allocation than another simply as a result of chance. However the estimates are sufficiently precise to indicate that some authorities have significantly greater needs than others. Therefore, whether it would be appropriate to use survey results for resource allocation purposes depends on how accurate the estimates from the survey are compared to alternative sources of information.

Sensitivity of resource allocation to sampling error

As stated in paragraph 4.1 the potential extent of sampling error was too large for it to be possible to confidently correctly rank authorities in terms of prevalence using the survey results. However the calculation of confidence intervals does not by itself provide sufficient information to assess the impact of this sampling error on final resource allocation. This is because the formula incorporates information from other sources and combines the estimates for each illness. Some additional work was therefore carried to simulate the potential effects of sampling error on resource allocation.

Methodology

In order to investigate the potential effects of sampling error on resource allocation a simulation exercise was carried out. The actual estimates from the WHS are treated as the "true" population values for the purposes of the study. Five alternative sets of estimates were simulated by selecting random numbers from a Normal~0,1 distribution, multiplying these by the standard errors estimated from the survey and then adding to the original estimates. These simulated estimates were in effect estimates that could have been obtained by selecting samples from a population with "true" prevalence and variance equal to that estimated from the WHS.

[5] Wales NHS Resource Allocation Review, Independent Report of the Research Team by David Gordon, Elizabeth Lloyd, Martyn Senior, Jan Rigby, Mary Shaw and Yoav Ben Shlomo

In addition to the estimates for total numbers with a particular illness the formula incorporates information on average numbers of visits to health services per person with each type of illness. No attempt was made to incorporate simulations of sampling errors in these estimates as standard errors had not previously been calculated for these estimates and there was insufficient time to calculate them at this stage. The estimates used in the formula are for Wales as a whole and are therefore constant across unitary authorities. Sampling errors in these estimates will have some effect on relative allocation between authorities because they affect the weight given to different illnesses for some funding categories e.g. GP and nursing services. However they are unlikely to have large effects on total resource allocation.

The methodology treats sampling errors for each estimate as independent from each other and therefore does not take account of possible correlations between illnesses. There is some evidence of correlation between illnesses from the survey and this could lead to sampling errors having a greater effect on resource allocation than indicated by the simulations reported here. It would be possible to investigate these effects by creating a simulated Welsh population but this was not feasible within the time available for this stage of the project.

Results

The full results from the simulation exercise are given in Appendix V. Table 4 provides a summary. No authority gained or lost more than half a percentage point of it's share of total resource allocation. However three authorities gained or lost more than 5% of their "true" allocation for one of the simulated sets of estimates.

Table 4: Simulated effects on resource allocation of sampling error

	Maximum absolute difference from "true" values			
Unitary authority	Diff. in total resources	Diff. as a % of "true" resources for authority	Diff. as a % of total resources for Wales	Diff. In ranking for total resources
Isle of Anglesey	£827,231	2.80%	0.06%	1
Gwynedd	£1,507,313	2.91%	0.11%	1
Conwy	£1,321,382	2.41%	0.10%	1
Denbighshire	£1,410,968	3.47%	0.10%	0
Flintshire	£1,425,082	2.33%	0.11%	1
Wrexham	£2,954,907	5.40%	0.22%	3

Powys	£1,291,384	2.46%	0.10%	1
Ceredigion	£1,618,718	5.38%	0.12%	1
Pembrokeshire	£2,441,956	4.78%	0.18%	3
Carmarthenshire	£2,302,793	2.72%	0.17%	1
Swansea	£2,256,997	2.11%	0.17%	0
Neath Port Talbot	£1,504,163	2.11%	0.11%	0
Bridgend	£2,580,793	4.26%	0.19%	1
Vale of Glamorgan	£1,986,866	4.07%	0.15%	1
Cardiff	£4,263,979	3.15%	0.31%	0
Rhondda, Cynon, Taff	£2,756,608	2.27%	0.20%	0
Merthyr Tydfil	£828,921	2.64%	0.06%	1
Caerphilly	£3,678,846	4.25%	0.27%	1
Blaenau Gwent	£2,635,580	6.66%	0.19%	0
Torfaen	£2,120,385	4.46%	0.16%	1
Monmouthshire	£1,884,854	5.80%	0.14%	0
Newport	£1,219,042	1.95%	0.09%	2

Alternative sources of information

Whether it would be appropriate to use survey results for resource allocation purposes depends largely on how accurate the estimates from the survey are compared to alternative sources of information. There are two main alternative sources of information:

- administrative data on service use and vital registrations
- long term limiting illness from the 1991 Census

In general direct estimates from administrative information on service use are not reliable for resource allocation because of differences in administrative methods and because service use is in part dependent on the availability of services. Indirect estimates from service use based on modeling techniques may be suitable for use in resource allocation. These estimates would have two main sources of error: error in the administrative data sources and errors in the modeling process. In addition the information might not provide the level of breakdown in terms of types of illness that is required by the survey. It is not within the scope of this evaluation exercise to assess whether estimates obtained in this way would be more or less accurate than those obtained from the WHS. In practice it would be unlikely that the level of error in the administrative data could be reliably estimated. Information from vital registrations on mortality by cause of death are more likely to be reliable at the unitary authority level and therefore suitable for use in resource allocation but may not be directly related to the need for services in life.

The most comprehensive information on general health in terms of population coverage comes from the 1991 Census estimates of numbers suffering from long term limiting illness. There are two main problems with using this data source: it relates to the situation 10 years ago and it does not provide estimates for numbers suffering from different illnesses. Age standardisation can to a large extent compensate for the former problem providing migration between authorities is not large. The latter problem is more intractable, however, as the resource allocation formula relies on estimates of prevalence for individual illnesses in order to take account of the relative cost of treating different types of illness.

There do not appear to be any alternative sources of information on prevalence for individual illnesses that have significant advantages over the WHS estimates. However the WHS estimates themselves are not ideal because of the level of sampling error. It may therefore be preferable to make use of the some of more reliable alternative sources of information e.g. mortality and Census long term limiting illness to improve the WHS estimates.

Conclusions

There is some evidence of an upwards bias in the WHS estimates. However resource allocation under the proposed formula depends on the estimates of relative prevalence across authorities and there is evidence that this is reliable despite the upwards bias in estimated totals and rates. It is therefore concluded that the extent of non-sampling errors do not preclude the use of WHS estimates for resource allocation purposes. However the estimates for mental illness may not be appropriate for use in resource allocation because there is little evidence of a relationship between these estimates and the need for treatment.

Sampling errors in the WHS estimates are too large to allow authorities to be confidently ranked in terms of prevalence for any illness. However there is little evidence that the use of alternative sources of information would provide a fairer allocation. The results of the simulation exercise show that sampling errors are likely to affect the relative ranking of authorities in terms of resource allocation and some authorities are likely to gain or lose more than 5% of the allocation they should receive. However sampling error is unlikely to affect the share of total resources received by any authority by more than 1 percentage point. It is also possible that correlation between illnesses could lead to sampling error having a slightly larger impact on resource alloction than indicated by the simulation exercise.

It is for the National Assembly for Wales to decide whether the anticipated level of misallocation is acceptable. If it is considered unacceptable it is recommended that the method of estimation used be improved by incorporating auxiliary information e.g. Census long term limiting illness into the estimation method. Consideration should be given to the use of model based small area estimation techniques to improve the estimates and reduce sampling error. However it is recognised that this would be problematical if the formula were to be applied at more than one geographic level.

Sanchia Bailey

Office for National Statistics
24 September 2001

Annex E

RESOURCE ALLOCATION FORMULAS FOR GENERAL MEDICAL SERVICES IN BRITAIN:

IMPROVED PROPOSALS & LESSONS FOR WALES

by

Martyn L. Senior (Cardiff University)

(10 th December 2001)

[Note: Figures 1 to 4 and the Appendix can be found at the end of the report]

Summary of Issues

This report identifies the following issues and recommendations for improving the Welsh GMS proposals of Gordon et. al. (2001). It is suggested that issue 2 (omission of children and pregnant women) is of highest priority and attempts are made to address it in this report. Issues 3 (varying consultation times), 5 (rurality), 6 (compensating GPs for practising in deprived areas) and 7 (temporary residents) are next in importance. Issues 6 and 7 are likely to be easier to deal with than issues 3 and 5. Issue 4 (an indirect approach to additional needs) is deemed to be the lowest priority.

1. Choosing between Welsh, Scottish and English Formulas. Arguably a direct approach to resource allocation, based on self-perceived ill health, is most justifiable for primary care. The main problem with the Welsh proposals is the lack of health condition data for children in the Welsh Health Survey. Welsh, Scottish and English formulas all use national GP consultation rates as the resource "cost" element; there is no monetary costing of consultations. The use of consultation data from the Welsh GP Morbidity Database (GPMD) compares favourably with the use of sample practice data in Scotland. All formulas, whether indirect (as in Scotland and England) or direct, can incorporate similar, if not identical, adjustments for temporary residents and the unavoidable extra costs of GMS, neither of which are currently in the Welsh proposals. The Scottish approach to the costs of rural service provision and the English proposals on a market forces factor (MFF) for GP pay could be added to the Welsh formula, provided they are validated by Welsh evidence.

2. Omission of use of GMS by children and pregnant women . Suggestions for dealing with these omissions are made and investigated. Average annual births are used as a measure of number of pregnant women, and an indirect (age-gender) approach is applied to estimate child consultations. The implications of these additions for GMS resource allocations to Local Health Groups (LHGs) are presented

(Appendix). One outstanding issue is a measure of additional (deprivation-related) need by children. Questions on child health are a very high priority for future Welsh Health surveys.

3. Duration of consultations and home visits. The English practice of incorporating duration and home visit weights (both age-related) in the GMS formulas is not currently possible in Wales, as the GPMD does not record such information. Similarly, in Scotland, data on consultation duration are deemed inadequate. The only way of addressing this issue at present appears to be the use of the English source data. Recording such information is a high priority when considering improvements to the GPMD.

4. Additional/Deprivation-related GMS need. With the exception of children, the Welsh GMS proposals, as they are based on direct health condition figures, should **not** need any adjustments to reflect deprivation or any other factor influencing need.

There seems, therefore, little point in developing an alternative, indirect approach to GMS. However, if such an approach is deemed necessary, the English additional needs formula could be readily *exemplified* at 1991 Census ward level. It would be significantly more time-consuming to *calibrate* either the English or Scottish formulas using Welsh evidence on consultation rates. However, the use of data for the 33 practices in the GPMD could be investigated.

5. Unavoidable costs of rurality . The data required to develop and estimate a Welsh equivalent of the Scottish remoteness/rurality formula is set out in Table 2. The analytical and data demands are considerable, especially as postcoded patient records and practice payments are required. Compromises may well be necessary.

6. A Market Forces Factor (MFF) for GPs . The English proposals for a GMS Non-Cash-Limited formula involve a MFF designed to give GPs an incentive to work in under-doctored, deprived areas. The analysis that informs this MFF should be undertaken for Wales, at least at LHG (if not ward) level. Other possible influences (e.g. lack of Welsh-speaking GPs) on under-doctoring should be examined. It should be noted that the English proposal is for one year only. Research on GPs' valuations of living in non-deprived areas is likely to be commissioned, so on-going developments of the English GMS formulas should be monitored and evaluated.

7. Temporary residents. Scottish work suggests a national annual consultation rate of 1.5 by temporary residents (page 7). This can be checked for Wales using equivalent data on temporary resident consultations from the GPMD. The Scottish formula obtains data on temporary residents by health board from GP claims, so the same data source could be used in Wales.

Components of General Medical Services (GMS) Formulas in Britain

The indirect approaches to GMS resource allocation in England and Scotland contain the following five components:

1. Population by age and gender categories.

2. Consultation weights reflecting differential utilisation of GMS by *age-gender* groups.
3. Additional patient needs (e.g. deprivation-related) over and above those due to age and gender.
4. Unavoidable extra costs of GMS provision, particularly those due to:

- providing services to sparse rural and/or remote populations (as in Scotland)
- market forces factors (MFF); that is, unavoidable geographical variations in staff, land, building and other costs (as in England).

1. Temporary residents.

The formula proposed for Wales (Gordon et. al., 2001) deals with the first three components above in a direct way as follows:

1 & 3. Adults in ill-health condition categories, which will reflect both age/gender-related need and additional needs due to deprivation, life style and other influences.

2. Consultation weights reflecting differential utilisation of GMS by patients in *ill-health condition categories* . The use of consultation data from 33 practices (with about 300,000 patients) in the GPMD compares favourably with the 40 practices, covering about 222,000 patients, used in Scotland (GMS Working Group, 2000).

4 & 5. David Gordon's (DG) proposal acknowledges that adjustments for unavoidable extra costs and temporary residents are not currently developed, but there is no reason, in principle, why English and Scottish practice/proposals on these aspects cannot be added to the Welsh formula.

More specific details of these components of the various formulas can be found in Figures 1 to 4. Figure 1 refers (*in italics)* to some modifications and additions to the proposals for Wales which might be considered; these are discussed below. Figure 2 summarises England's existing GMS Cash-Limited (GMSCL) formula (NHS Executive, 1999), while Figure 3 portrays the proposed English formula for GMS Non-Cash-Limited (GMSNCL) (ACRA, 2001a-d). Figure 4 summarises the Arbuthnott final proposals for Scotland (SEHD, 2000; GMS Working Group, 2000).

Improvements to the Welsh proposals and further lessons for Wales

i Separate or combined formulas for GMSCL and GMSNCL?

England (and Wales) have existing formulas for GMS Cash-Limited, whereas the Arbuthnott proposals for Scotland and the Gordon et. al. (2001) proposals for Wales involve a single formula for all GMS resources. It is not totally logical to have two separate formulas as premises and practice staff costs (but not GP income) are split between CL and NCL allocations. The intention in England is initially to keep GMSCL as part of the unified budget (that is, combined with HCHS and Prescribing), and continue to operate GMSNCL without a cash limit. However, the Secretary of State for Health will be able to consider Health Authorities' GMSNCL expenditures when setting their unified allocations. (ACRA, 2001a). This

issue is, however, one of implementation, not content, of the GMS formula(s).

ii Replacing total consultation rates by adult consultation rates

There is a minor inconsistency in the Gordon et. al. (2001) proposals for Wales. The numbers of adults in WHS health condition categories are multiplied by total (i.e. adult plus child) national consultation rates by the same health categories from the GPMD. As separate national adult consultation rates from the GPMD have been made available, they can simply replace the total rates in the calculations. This produces only a very slight redistribution of GMS resources between LHGs (see Appendix, second numerical column).

iii Omission of pregnant women from the Welsh GMS proposals

The current proposals for Wales omit consultations by pregnant women. This problem can be tackled by using average annual births (1994-1998) by LHG as a measure of numbers of pregnant women. Estimates of pregnancy consultations by LHG are obtained by multiplying these births by national adult consultation rates for pregnancy. The GPMD data reveal that about 7.22% of adult consultations are for pregnancy. Hence, when these estimated pregnancy consultations are added to the estimated consultations for the 15 WHS health conditions, either the pregnancy consultations must be scaled down to represent 7.22% of total (i.e. pregnancy plus 15 WHS condition) consultations or the estimated WHS consultations must be scaled up. (Note: remember that estimates using WHS figures are for a 1% sample of the Welsh population, while 100% of births are recorded). To maintain comparability with the estimates presented in Gordon et. al. (2001) the pregnancy consultations are scaled down here.

The resulting distribution of GMS resources to LHGs (and their resource shares) when these pregnancy consultations are included is presented in the Appendix (third and fourth numerical columns).

iv Omission of children from the Welsh GMS proposals

The Scottish and English formulas incorporate all age groups, whereas the proposals for Wales cover only adults as the population data comes largely from the Welsh Health Survey. In the Appendix (fourth and fifth numerical columns **)** each LHG's share of GMS resources based on adult calculations is compared with its percentage share of the Welsh child population aged 0 to 15 years in 1998. If the GMS share is less (greater) than the child percentage, this suggests the LHG is under (over) resourced because of the omission of child consultations.

A partial solution to this problem is to use an indirect approach to estimate child consultations for the 0-4 and 5-15 age groups by gender (as in the currently used Welsh formula). The population numbers in these groups are multiplied by Welsh age-gender consultation rates (Table 1) derived from General Household Surveys (GHS). The GPMD indicates that child consultations are approximately 17.1% of total consultations in Wales. Thus the estimated child consultations are scaled down to represent this percentage of total (i.e. child plus adult) consultations. The implications for the distribution of GMS resources of adding in these child consultations are indicated in the Appendix (sixth numerical column).

Table 1: Child consultation rates from the GHS 1993-1998

	age 0-4	**age 5-15**
males	8.15	2.12
females	5.61	3.96

This is only a partial solution for at least two reasons. First, the GHS consultation rates do not allow for those aged 16 and 17 years to be included in the child population. Secondly, a disadvantage of the indirect, compared with the direct, approach is that it requires an additional needs adjustment. Notice in the Appendix that the inclusion of child consultations has taken some resources away from certain more deprived LHGs (Merthyr Tydfil, Blaenau Gwent, Neath Port Talbot) and given more to some affluent LHGs (Monmouthshire for example). This suggests that the direct approach for adult consultations is appropriately reflecting additional needs in the more deprived LHGs, but that the indirect adjustment for child consultations is not (yet) picking up child deprivation/additional needs. One possible way to correct for this would be to use Census data on children in disadvantaged circumstances (e.g. lone parent households) as an additional element. This latter suggestion has not been tried in this report.

v Incorporating duration of consultations and home visits

Whereas the proposals for Wales use just the national average *number* of consultations per patient per year, the English formula also accounts for duration of consultations and home visits (see Figure 2), both of which are age-related. The Scottish formula also incorporates home visits (Figure 4), but duration data were not of sufficient quality to recommend a duration adjustment (GMS Working Group, 2000). The Scottish work quotes estimates that the average time spent on a home visit is three times that for a surgery consultation (Netten and Dennett, 1997).

Consultation data for Wales from the GPMD does *not* currently record duration of consultations, and the identification of home visits is very haphazard as it depends on whether or not the GP identifies the location. *This means that neither direct nor indirect approaches to calculating needs for GMS in Wales can use Welsh evidence to account for home visits or varying duration of consultations* . It is recommended that future improvements to the GPMD include recording consultation duration and home visits, the latter split into night and daytime visits.

However, consideration might be given to using the English evidence. The English GMSCL formula (NHS Executive, 1999) "makes use of estimates of average consultation times by International Classification of Diseases (ICD) chapter and a weighting for home visits". These are "derived from the *General Medical Practitioners Workload Survey 1992/3: Joint Evidence to the Doctors and Dentists Review Body from the Health Departments of Great Britain and the General Medical Services Committee".* This raises the possibility that average consultation times by ICD chapter could be matched to the health condition categories of the WHS. This should then allow a duration time adjustment to the

Gordon et. al. (2001) estimates for Wales.

It is not clear from the information available whether a weight for home visits could be derived from the data source used in England. The Scottish formula (GMS Working Group, 2000) uses age-related home consultation rates from the GHS for *Britain* , as the Scottish sample is deemed too small (although only one year's data is considered). Such *age-related* home visit rates cannot readily be matched with the WHS health condition categories used by Gordon et. al. (2001).

vi Additional needs (over and above those attributable to age and gender)

The indirect formulas used in England and Scotland have to adjust age/gender-related needs to take account of deprivation, morbidity and other influences on GP consultations. *The great advantage of the direct approach is that WHS health condition information should reflect* ***all*** *influences (age, gender, deprivation, life circumstances, life style or whatever) on need* . A possible exception to this is the omission of children as explained above.

If the National Assembly wished to develop an indirect approach to GMS, then analyses of additional need would be necessary, so that the use of SMRs (which are not evidence-based) in the current GMSCL formula could be replaced.

The latest research undertaken for the development of the English GMSNCL formula (ACRA, 2001b) suggests that there are two significant drivers of additional need, namely: *under-75 standardised long-term illness* and the *Jarman deprivation (strictly speaking workload) index* (see Figure 3). The latter is currently used to inform deprivation payments to GPs. In Scotland the Arbuthnott index is used (see Figure 4), and specific attention is devoted to night visits which are significantly associated with this index.

To *exemplify* the English formula in Wales would be straightforward at 1991 census ward level, as limiting long-term illness for 1991 and Welsh Jarman scores are readily available. (Note: there will be problems constructing Jarman scores from 2001 Census data; ACRA, 2001e). Predicted GP consultations could then be aggregated to LHGs. Creating the Scottish Arbuthnott index for Welsh zones is inadvisable, as a special run of Census data will have to be commissioned from ONS. The main problem with such exemplification is that English (or Scottish) evidence is being uncritically applied to the Welsh context. This raises the issue of calibrating such formulas using Welsh evidence on GP consultations.

To *calibrate* such formulas for Wales would be significantly more problematic and time-consuming, as data on GP consultations in Wales would be required. The only obvious option would be to investigate use of data for the 33 practices in the GPMD, which covers about 300,000 patients, but this is a small number of practices for multiple regression analysis.

vii Unavoidable costs of rurality

Only the Scottish GMS formula (Figure 4) addresses the rurality issue, and the implications of applying it

to Wales have already been exemplified (Senior and Rigby, 2001). Again this is a highly contentious procedure as Scottish evidence is being transferred to Wales when it may be inappropriate so to do.

To improve on this situation, a GMS rurality formula needs to be developed using Welsh evidence. To calibrate the Welsh equivalent of this Scottish formula, the data specified in Table 2 will be required for each Welsh GP practice. These data demands are considerable, especially as the postcodes of all patients and GP payment information are required. The total payment per patient is the response/dependent variable in a multiple regression analysis. The statistical significance and influence on payments of rurality indicators is sought over and above the influence of other factors (demography, list inflation, HA/LHG and deprivation) which are controlled for in the regression. As the Arbuthnott index is likely to prove time-consuming and expensive to create for Welsh areas, it is recommended that alternative deprivation measures are tried.

viii A Market Forces Factor (MFF) for GPs

The current English GMSCL formula has staff, land and buildings MFFs to reflect geographic variations in labour costs and property prices (see Figure 2). Recent work for ACRA (2001a;c;d) has considered the extension of these MFF adjustments to the proposed GMSNCL formula (see Figure 3). The proposal is to use, at least initially, the staff and premises MFFs from the GMSCL formula, but the staff MFF will **not** be applied to the remuneration of GPs, as the factors influencing where GPs prefer to work differ significantly from other practice staff.

The argument advanced (ACRA, 2001d) is that area deprivation figures prominently in GPs' location decisions, over and above the influence of deprivation on GPs' workloads for which Deprivation Payments seek to compensate. Evidence suggests that GPs prefer to work (and live) in the more affluent areas. This may be particularly so if they own, or are buying, their practice premises, as they do not want to risk declining or stagnant property prices. The staff MFF currently used in the GMSCL reflects higher wages/salaries in London and South-East England. While this may give an appropriate incentive for GPs to practice in deprived areas of Inner London, it will give perverse incentives for them to seek to locate in affluent areas of Outer London and the South-East. Indeed, few areas that have a high staff MFF in the GMSCL formula are under-doctored. Moreover, this staff MFF will provide no incentive for GPs to practice in deprived areas in the rest of England, some of which are under-doctored.

Table 2: Practice data required to calibrate a Welsh rurality formula

Practice data required	**Possible source of data**
Total payments per patient (excluding: improvement and training grants; other payments for trainees and for temporary residents)	Exeter database

The LHG and Health Authority (HA) in which the practice is located	National Assembly database
A measure of list inflation	Administrative Register (Health Solutions Wales) and National Assembly databases?
Numbers of patients by gender and age groups (Scottish analysis uses 0-4, 5-14, 15-24, 25-44, 45-64, 65-74, 75-84, 85 and over)	Exeter and Administrative Register (Health Solutions Wales) databases?
Rurality indicator 1: hectares per patient	National Assembly database? Area (ward) data needs attributing to practices via patient postcodes.
Rurality indicator 2: % rural practice patients	National Assembly database (already used by Senior and Rigby, 2001)
Rurality indicator 3: % of patients in settlements of less than 500 population	National Assembly's work on defining settlement clusters? Area data needs attributing to practices via patient postcodes.
Deprivation measure(s). Could be Welsh Index of Multiple Deprivation, Welsh Jarman score or Townsend's material deprivation index. (Scottish Arbuthnott index likely to be time-consuming and expensive to create)	Requires linkage of ward(?) deprivation score with each patient via latter's postcode
Postcodes for all patients by practice in Wales	Administrative Register (Health Solutions Wales)

The proposed solution to this problem is a MFF for GPs that is deprivation-related. (Note: This solution is an interim one only, as it will initially be applied only for one year, 2002/3). This has been based on the following regression formula relating GP numbers to the English Index of Multiple Deprivation at health authority level (ACRA, 2001d).

*GPs per weighted 100,000 population = 4.36 * (Index of Multiple Deprivation)* $^{-0.132}$

The negative weight of –0.132 indicates that there are less GPs per patient in deprived areas. This formula is used to provide predictions of the expected number of GPs per Health Authority. To attach monetary weights to these values, a tentative estimate of 7.5% of salary is used to measure how much value GPs place on the disamenity of locating in a deprived area. To obtain the MFF adjustment, health authorities (HAs) are ranked from the least to most deprived. The 10 th percentile and 90 th percentile health authorities are given, respectively, interim values of 1 and 1.075, the latter reflecting a 7.5% of salary adjustment. Then all other health authorities are given proportionate values based on their level of deprivation; this produces values in the approximate range 0.98 (for the least derived authority) to 1.12 (for the most derived authority). These values are then scaled up to give a minimum value of 1, indicating no adjustment of GMS resources for the least deprived HA, to a value of 1.14, representing a 14% adjustment for the most deprived HA.

The implication of this English research for the Welsh GMS formula is the need to establish if under-doctored areas in Wales exist and (if so) are the most deprived areas, and whether there are any other reasons (e.g. too few Welsh-speaking GPs) which could explain undoctoring. It should not be too difficult statistically to relate GPs per person (preferably weighted by needs for GMS) to the Welsh Index of Multiple Deprivation (IMD) (National Assembly for Wales, 2000). The main problem will be relating GP practices to the electoral divisions for which the Welsh IMD is measured. It should be even easier to calibrate this formula at LHG level.

ix Temporary residents

The Scottish GMS formula incorporates temporary residents, who are also included in prescribing formulas in England and Scotland. Limited evidence from two practices in Scotland suggests an average annual consultation rate of 1.5 per temporary resident.

This can be checked for Wales using equivalent data on temporary resident consultations from the GPMD. The Scottish formula obtains data on temporary residents by health board from GP claims, so the same data source could be used in Wales.

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Figure 1: Proposed Welsh GMS formula *(and possible modifications and additions)*

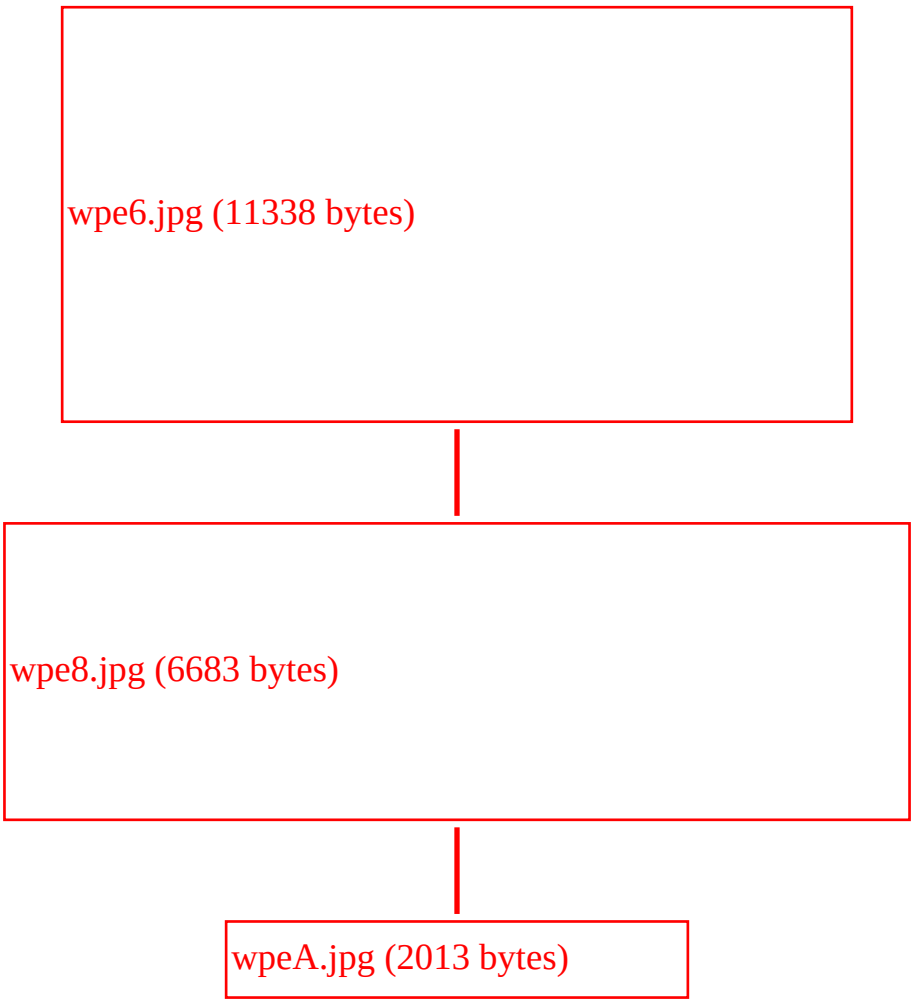
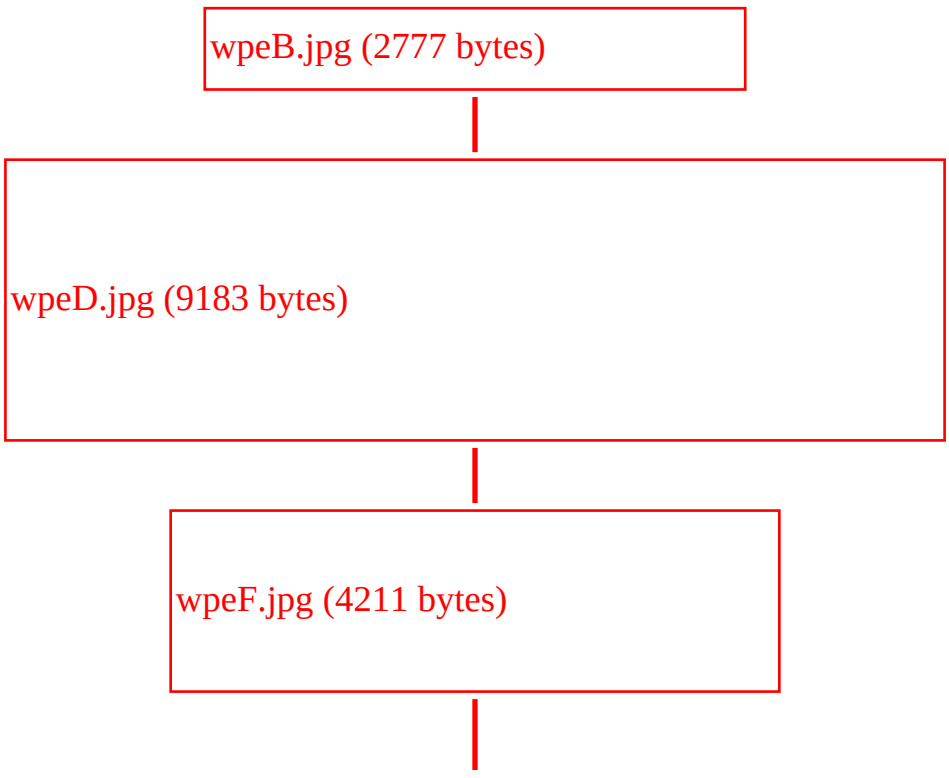


Figure 2: English GMS Cash-Limited formula



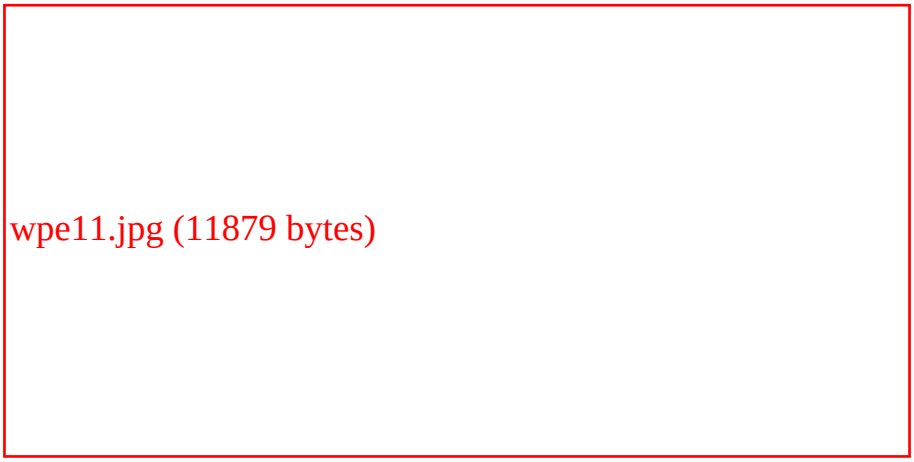


Figure 3: Proposed English GMS Non-Cash-Limited formula

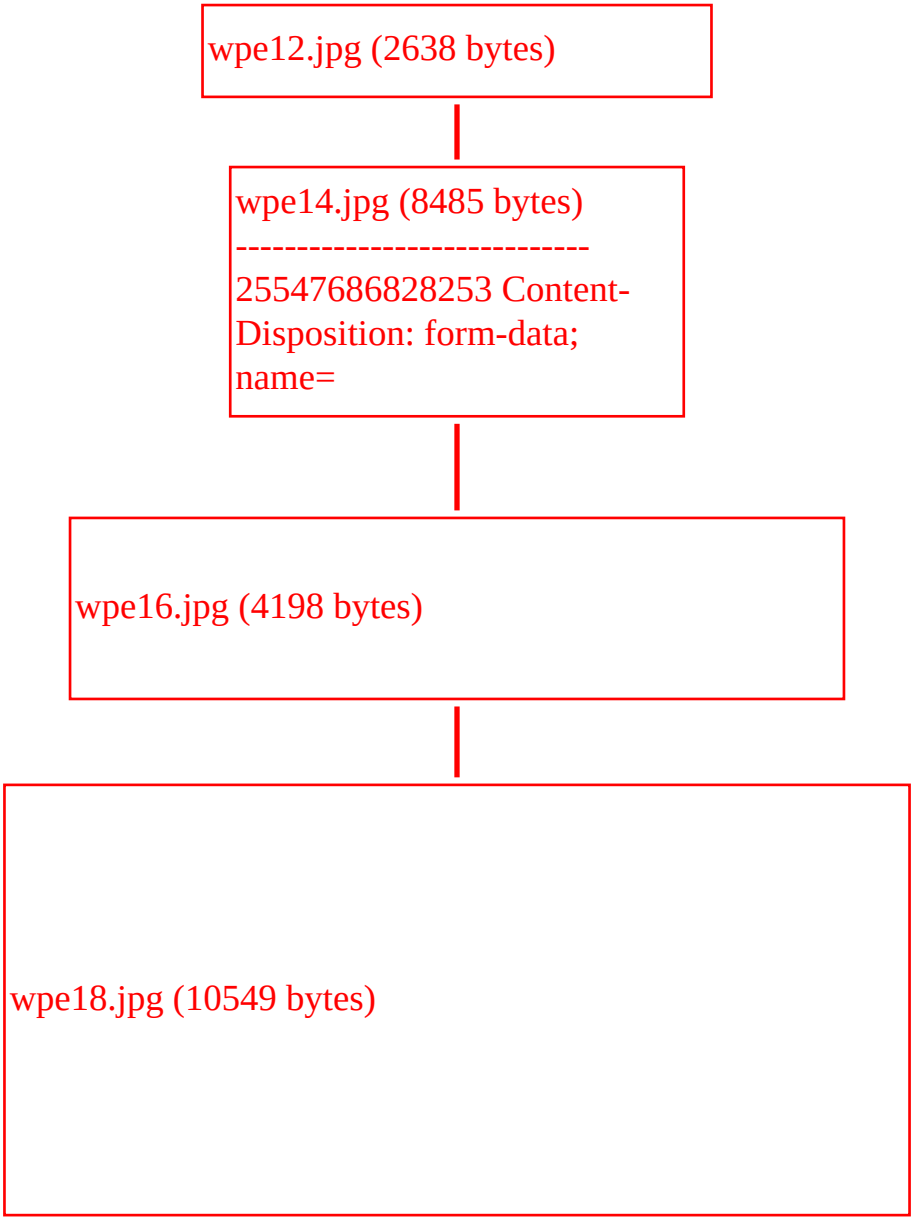
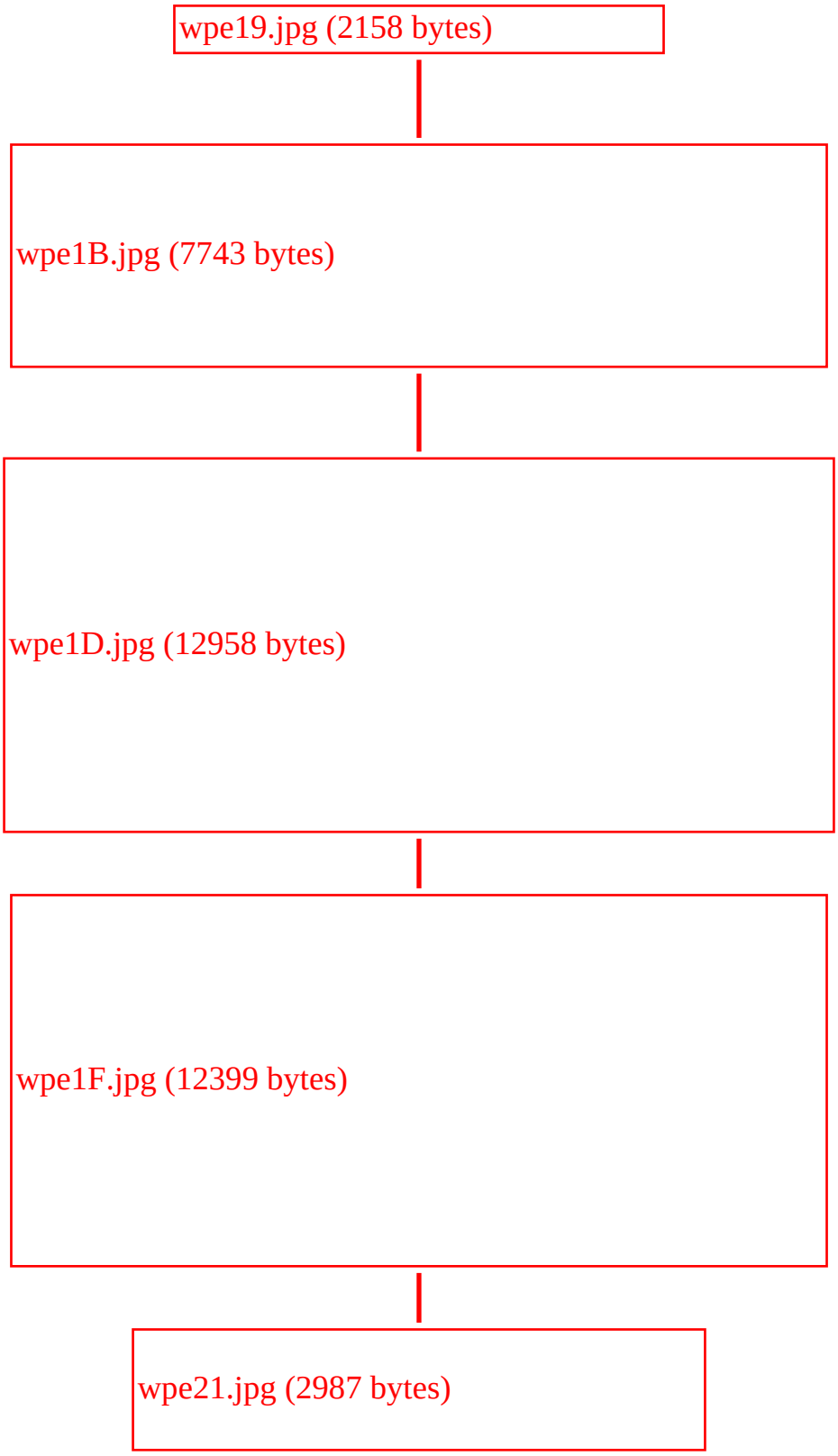


Figure 4: Scottish GMS formula proposed in Arbuthnott Final Report (SEHD, 2000; GMS Working Group, 2000)



APPENDIX: ESTIMATES OF GMS RESOURCES TO BE ALLOCATED TO LHGs

LHG/UA Name	Original Adult Estimates (15 WHS health conditions)	Adult Estimates using adult (instead of total) consultation rates	Adult Estimates (Pregnancy +15 WHS health conditions)	% of GMS resources (adult estimates)	Children aged 0-15 (% of total for Wales, 1998)	Estimates (Children 0-15 + Pregnancy +15 WHS health conditions)	LHG/UA Name
Isle of Anglesey	3936208	3934363	3953506	2.11	2.24	3992870	Isle of Anglesey
Gwynedd	6789420	6787290	6823275	3.65	3.82	6882838	Gwynedd
Conwy	7414572	7418856	7347611	3.93	3.41	7179861	Conwy
Denbighshire	5575410	5577545	5573678	2.98	2.99	5585903	Denbighshire
Flintshire	8424861	8428207	8511899	4.55	4.98	8655702	Flintshire
Wrexham	7798858	7801854	7819082	4.18	4.23	7830548	Wrexham
Powys	7138658	7140102	7142979	3.82	4.01	7199418	Powys
Ceredigion	4123668	4122462	4081334	2.18	2.06	4031926	Ceredigion
Pembrokeshire	7009582	7012905	7011862	3.75	3.86	7034415	Pembrokeshire
Carmarthenshire	11511956	11516075	11397635	6.10	5.28	11135563	Carmarthenshire
Swansea	14749173	14748039	14680558	7.85	7.41	14528761	Swansea
Neath Port Talbot	10284422	10280753	10140544	5.42	4.66	9887822	Neath Port Talbot
Bridgend	8532037	8529122	8540973	4.57	4.50	8533823	Bridgend
Vale of Glamorgan	6695806	6697982	6782344	3.63	4.34	7006090	Vale of Glamorgan
Cardiff	18113943	18106086	18393903	9.84	11.59	18977147	Cardiff
Rhondda, Cynon, Taff	16909468	16910481	16823179	9.00			