NeLH Pilot Evaluation Project

FINAL REPORT

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FOR

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Preface

This study was commissioned by the NHS Information Authority and conducted over a three month period, June to August 2001.

The opinions expressed in the document are those of the evaluation team. We have endeavoured to present as fair a picture as possible of the answers to the questions set for the evaluation. Inevitably there are omissions in a study conducted over this timescale, and additional survey work would undoubtedly have helped consolidate or qualify some of the conclusions drawn. We apologise unreservedly to any individual who feels that the opinions expressed are not fully representative of their reflections and experience in using or promoting the NeLH.

List of Tables and Figures

Executive summary

For the evaluation work the Project Team was asked to address several questions. The executive summary is therefore laid out in the following format:

Questions set by the NeLH team
Conclusions by the Project evaluation team

Review of the Strategic Context

To what extent does the NeLH, in its pilot form meet the aims set out in the NHS IM&T strategy document Information for Health, the project mandate? (Sections 1.1-1.3)

The NeLH, in the pilot form, is not quite the same 'virtual library' as that envisaged in IfH. It has evolved to meet changing needs, as laid out in later government policies and initiatives for the health sector such as clinical governance, and in more general implementation of e-government.

The other home countries (Wales, Scotland, N Ireland) may be taking a slightly different direction to the NeLH, but there is little evidence that the ethos of supporting clinical effectiveness is any different.

NeLH's role as 'leader and developer' is accepted, with some minor reservations, by other stakeholders. The value-added element of NeLH is in the inclusive nature of support of professional development of health service staff, for clinical governance in particular.

The rationale for the structure of the NeLH pilot, with virtual branch libraries and professional portals, is evidence-based. Systematic reviews of the evidence for various ways of effecting behaviour change and change in professional practice emphasise the need for provision of some 'interaction and feedback' as 'printed resources' i.e. databases such as MEDLINE, Cochrane are insufficient.

Predict the ability of local NHS libraries to meet similar demands in the absence of the NeLH (Section 1.4)

Access to evidence-based resources

NHS libraries, and Regional Units, have acquired experience in the organisation of consortial purchasing deals, and could add the NeLH evidence-based resources to their lists, as they have in the past. Costs are extremely difficult to estimate and compare as a national deal offers better value for money in terms of access for a larger number of users, whereas in a Regional deal there may be a limit to the number of concurrent users in the licensing deal.

There is a sound case for national provision of core collection evidence-based databases, where there is a subscription cost and they are not available free (as PubMed MEDLINE is at present). Regional Library managers support this policy without reservation. If the National Library of Medicine changed its policy over access to MEDLINE, there is a case for national provision of MEDLINE as it is the most popular database in terms of usage figures.

The consensus of opinion is that regional deals remain important to preserve some element of competition among database providers. Another important benefit is that trials of different database sets can be conducted on a regional basis, allowing Regions to learn from the experience of others.

Usage trends

Database usage figures indicate that:

- The average health professional will search such databases around once every month to two months

- The average conceals a small, but very active minority who use databases far more frequently
- Home based access is valued
- Patterns of home-based versus workplace usage show patterns which vary, according to extent of NHSNet provision, sector (acute/primary care) of user, and other local factors (promotion of registration)

Support
Librarians increasingly view their role as 'educators' and trainers in use of the evidence-based sources and other quality databases. The need is substantial:

- searching is infrequent – skills once acquired are therefore rarely consolidated
- many of the databases are new to health professionals, particularly those working in sectors previously 'under-served' by library services.

A wide variety of focused education and training support is therefore required:

- online tutorials
- resource packs
- workshops – critical appraisal plus searching skills
- information and critical appraisal skills training integrated into post-registration education

In addition, as searching is infrequent, and problems need to be resolved at the point of need, ongoing support for individual queries is required through

- 24 hour help-desks (preferably phone)

Perceived role of NeLH
From the library perspective NeLH should provide:

- easy access to a core collection of evidence-based sources
- national push to support regional and local clinical effectiveness measures
- resources to support Cochrane

Drawbacks concern the boundaries of national provision and local/regional provision. This is always going to be a difficulty but more collaboration and information sharing would be appreciated. Librarians are concerned that much of the work done by them to set up projects and initiatives locally might be seen to be wasted if it is in effect taken over by a national initiative, with little prior warning. Licensing deals are notoriously difficult to juggle (and this is not a problem unique to the NHS as higher education has similar problems).

Alternative scenarios: database provision through HE collaborative deals
This could provide a more cost-effective solution for particular databases, and there could be a variety of deals negotiated. Provision through HE might be more cost-effective to the extent that the NHS is paying HE for education of its staff and out of that money HE is purchasing some electronic information sources. Some of the same sources are purchased again by the NHS and are used by HE students on placement – though it is probably impossible to assess the extent to which this happens.

Licensing issues are being reviewed at present by a team at SBU (Cox 2001) and it is possible that the report will recommend model licences, and a move towards longer term deals (the problem is less the publisher, more the difficulty of secure funding streams on the NHS side). Databases are more straightforward, in some respects, but with the journal subscriptions, publishers are reluctant to unbundle print from electronic subscriptions. At present many of the HE deals are built around the pre-existing print journal subscriptions, which would not be the case for many of the hospital libraries where these do not exist on the same scale as might be the case for a large university library.

The emphasis (as well as the culture) is different, and it is doubtful that there would be benefits in the immediate future in relying on deals negotiated through existing HE frameworks.

Determine the current user base of the pilot NeLH and evaluate why (if) many target customer/areas are not using the NeLH? (Section 1.5)
Demand for databases appears to fluctuate more than demand for VBLs and guidelines. The interpretation of the monthly data suggests (though evidence is limited) that the databases are being used more for educational (formal CPD) purposes. Demand for guidelines would be expected to be more stable – and it is.

Usage may be dependent on Trust and Library practice in construction of the web pages. Some examples of good practice would be useful. The message concerning the rationale of the NeLH does not appear to be getting across to some librarians.

Given the state of flux, the uneven pattern of usage is not surprising. What is noticeable is that more and more people are visiting the site.

A brief assessment of the business and user readiness (Section 1.6)
The IT readiness is there, or nearly there in the perceptions of the health staff, and some staff can and do access resources from home, which partly resolves the difficulties of making time for this during the working day.

The need for support and further training is acknowledged, which should be seen as indication that use of such resources to support clinical governance is seen as important. The information management support structure for clinical governance is viewed as patchy, though there are good models of best practice.

Clinical & Qualitative Benefits

Can the NeLH answer the sorts of questions that clinicians encounter in normal clinical practice? Can the clinician use NeLH to answer the question. Are there further opportunities for NeLH to be amended to best answer the questions? How should NeLH be presented to be efficient and effective in the clinical setting? (Section 2.1)
The literature review indicates that many clinical questions that arise in practice are not pursued. More questions might be pursued if it was professionally desirable to do so, and if there was a likelihood that answers could be found easily.

Procedural information (what should I do) is more readily available now with the publication of clinical guidelines (the work of NICE, for example) and a survey of common information queries shows that practitioners need and value easy access to guidelines, and that a 'rapid answer' service is also valued if they do not have time to deal with the queries themselves.

Does the Pilot NeLH (plus any improvements in local library service as a direct result of introducing the NeLH) produce improvements in knowledge and contribute to improving the quality of health care, i.e. is there evidence of transferring any improvements in knowledge directly into actually improving practice? (Section 2.2)
Surveys of database usage indicate that the large databases such as MEDLINE are still more popular than the evidence-based databases such as Cochrane Library and Clinical Evidence. However, given the comparative subject coverage, and the recency of the introduction of Clinical Evidence, it is already a surprisingly popular database, and usage of core evidence-based databases on NeLH is likely to increase.

The impact on clinical practice of information obtained from searches on Web-based resources, including resources available via NeLH suggests that greater availability of the evidence makes clinicians more inclined to enquire, and that continuing professional development is far less of a chore than it has been. Health professionals feel that the information obtained has given them greater confidence in making clinical decisions that are evidence-based.

Health professionals appreciate easy access to the evidence and summaries of the evidence. It is also important to be reassured of the status of the evidence: if evidence does not exist on NeLH, that should mean it does not exist.

With regard to Virtual Branch Libraries, assess their credibility, usefulness, role in information dissemination and ability to marshal knowledge in their area (Section 2.3)
Virtual branch libraries can help in knowledge management by supporting the process of making tacit knowledge explicit. Users of VBLs – and users could be patients as much as professionals – need to know the quality and 'fitness for purpose' of what they are viewing.

If VBLs are to work effectively to support clinical knowledge management, then their use within an EPR environment needs to be considered. That requires work on terminology, indexing and headings.

Those responsible for VBLs could provide a 'value-added' approach to information provision by extracting and manipulating evidence into a user friendly format, with appropriate comment – in a similar manner to Bandolier but serving specialist rather than generalist needs (as Bandolier does).

To be effective – and used – VBL content must be kept up-to-date and do everything appropriate to encourage involvement of the VBL stakeholders. Approaches may differ (as stakeholders differ) among VBLs.

Will providing the NeLH support local NHS organisations in managing Clinical Governance and improve opportunities for lifelong learning facilitating the delivery of the objectives of the NHS Plan and NSF Information Strategies? (Section 2.4)
Surveys indicate a greater need for health professionals to demonstrate accountability in their practice to patients, clients and their families. Clinical governance is driving many of the individual initiatives.

Those involved in care pathway development need the variety of resources provided by NeLH. A development team needs – where possible – a source of reference so that information sharing is easy and seen to be equitable. The NeLH care pathways site provides a valuable one-stop shop for sharing of knowledge and expertise, and there is considerable value in making care pathways more visible on a site used by managers as well as clinicians. Top level organisational support is essential in the management of change required for development of care pathways and use of National Service Frameworks.

Cost benefit study

Quantify the value that the Pilot NeLH offers in improvements to library services that would have been financially prohibitive for individual NHS organisations (Section 3.1)
The value of a centralised system for national purchasing of user licences for core evidence-based databases (e.g. Cochrane Library) is apparent with higher demands for services. National purchasing is cost-effective both in terms of user licences, and staff time for administration of contracts. National deals have the advantage of making provision more equitable across England.

Does the Pilot NeLH offer value for money to the NHS libraries provision? Are there financial savings accruing to NHS library services? Are these savings such that distributed NHS library services are better able to meet specific local needs by being able to focus better on local requirements? (Section 3.2)
Estimates of the training gap vary but they all indicate that a large proportion of NHS staff need ongoing support in use of databases and services such as NeLH.

Distributed library services are focusing increasingly on education and training. Without that support many of the NeLH services will remain under-used and under-valued. Library staff time is probably better spent in user support than in duplication of effort among Regions on setting up mini-NeLH services.

Does the investment in the supply of content through the NeLH and NeLH itself offer best value to the NHS? This issue should be examined with reference to Pilot NeLH use but with a view to the potential future use within a fully developed NeLH with particular reference to enhanced searching functionality. (Section 3.3)
Cost savings in terms of staff time are potentially large – a very conservative scenario estimates the annual saving as 3 million pounds, a more realistic scenario estimates the saving in staff time as 12 million pounds.

Does the NHS save money through any improvements in clinical practice? If so quantify the savings made to date and the savings that potentially can be realised through the delivery of the full NeLH as currently envisaged (Section 3.4)
The usage of the pilot NeLH is still at too early a stage to find case studies where the use of NeLH provided support through an entire 'case history' of behaviour change.

Using NeLH resources to assess whether they could successfully provide answers to a range of clinical problems showed that users could obtain a range of evidence to answer their queries. That range of evidence included material that might be given or discussed with patients directly, status of guideline development on the topic, indications of cost savings and scale of the problem for the NHS, plus further background research.

Many clinical problems are delineated and investigated as part of formal continuing professional development. The NeLH needs to work with the educators and those responsible for promoting and accrediting professional education to ensure that presentation of information and know-how on NeLH actually encourages any necessary change in practice and fits professional development needs if possible.

Bandolier has collected together resources under the title 'Managing to make a difference'. This type of initiative is to be welcomed. More information on the potential cost savings, on the NeLH site, might encourage more health professionals to make the effort to make practice more cost-effective.

Specific areas of supporting evidence

Perceptions of staff about the adequacy of library cover for their discipline or profession (Section 4.1)
Developments in NeLH such as professional portals could meet professional needs in several disciplines. Care needs to be taken not to duplicate existing and successful developments (such as MIDIRS). There are professional groups with considerable unmet needs, including large groups such as trained nursing staff and managers.

Access of staff to the services of the librarian, particularly in primary care, learning disability and mental health services (Section 4.2)
The legacy of under-provision needs drastic action if information services are to meet the clinical governance and lifelong learning agenda.

NeLH can provide, through the VBL services, and other resources on NeLH, a 'climbing net' for the areas such as mental health, primary care and learning disabilities to attain a more equitable status for information service provision. The needs of all staff in such areas need to be considered carefully and educational needs may be significant.

Access to a librarian or knowledge services in the evening or weekends (Section 4.3)
Considerable demand for library services occur at times when the vast majority of

libraries are only accessible to selected staff on a key or pass card basis.

Many staff require 24/7 online support for help with searching for information. Knowledge databases are not easy to use effectively and infrequent use means that skills acquired during training become rusty.

Access to the Cochrane Library and Clinical Evidence before we took out National contracts (Section 4.4))
In the past two years access to the Cochrane Library has changed from a CD-ROM based service, available only in the Hospital Library, to networked provision. Most Regions seem to have subscribed to Clinical Evidence on a networked basis only through the national contract. (See also Section 1.4)

Access to key journals by people working with rare diseases or in small specialities (Section 4.5)
Access to key journals in local libraries is difficult enough for nursing staff, and for specialties such as speech therapy or occupational therapy the situation is as bad, if not worse.

Telephone surveys with a range of healthcare professionals would help establish penetration of key documents such as;
- ***British National Formulary***
- ***Effective Healthcare Bulletins***
- ***HEA Reports (Section 4.6)***

Evidence was limited but indications are that BNF and key reference books are appreciated in electronic format, often to check that staff are reading the most up-to-date information available.

For assimilation of the evidence, staff like short one-page summaries of the evidence, tailored to local needs – paper formats are still preferred by many for convenient personal access to this type of material.

A Gap Analysis, i.e. identify areas where the NeLH is failing to meet users' needs (& its intended purpose) and why? (Section 4.7)
The problems are largely those of adjustment and co-ordination. Initial expectations may not have been fulfilled at the time anticipated, and adjustments are required to training and support schemes operated by the library services.

The local/national interface should be a source of 'creative tension' and discussion of new services and support mechanisms. That will require careful construction of two-way communication channels between the centre and the periphery.

If these problems can be overcome the existing difficulties of promotion and lack of awareness should disappear. Duplication of existing services should be avoided. The NeLH should lead and develop.

1 Review of strategic context

1.1 Mapping pilot NeLH against Information for Health (IfH) strategy

The question set was:

To what extent does the NeLH, in its pilot form meet the aims set out in the NHS IM&T strategy document Information for Health, the project mandate?

The approach used was to extract the main objectives from the strategy document (IfH), check against updated policy indications in the revised strategy to support *The NHS Plan* to assess how later government policies had required a tighter definition of some of the aims of IfH (Section 1.1.1 to 1.1.4). Different approaches taken by the various home countries are noted in Section 1.1.5. The structure of the IFH site was compared against the rationale for its structure in the IfH document. Evidence which has been published before, and since then, helps to qualify the reasons for the structuring of resources in NeLH (Section 1.2), along with general developments in 'computer supported collaborative working' (Section 1.2.6). There are services which share similar objectives to that of NeLH and these are considered in Section 1.2.7, to compare to what extent they meet the objectives of IfH, although they are not in any sense competitors as one is based in Australia and financed accordingly, and the other is a guide to resources, rather than offering access directly. The assumption in IfH was that Internet use would be the norm in information seeking: evidence for this assumption is presented in Section 1.2.8.

The summary conclusions to this part of the strategic review are set out in Section 1.3.

1.1.1 The Information for Health vision for NeLH

The remit of the National Electronic Library for Health was part of the national infrastructure to support local action. Specifically the NeLH was intended to:

- provide clinicians with access to appropriate knowledge databases to provide real time support to care of individual patients (para.3.54, IfH)
- provide clinicians with access to evidence based reference material in the workplace (para.3.55, IfH)
- support local guidance and protocols accessed on a hospital intranet (para.3.56, IfH)
- provide a range of other information to support best use of the national evidence base (para.3.58, IfH)

Material placed on the NeLH should be accredited, i.e. quality resources, with the sources to include the work of the National Institute of Clinical Evidence, for example. (para.3.59-3.64, IfH). The NeLH as envisioned by *Information for Health* comprised four 'floors':

- 1st floor: Guidelines (NICE, CHI)
- 2nd floor: Knowledge (MEDLINE, Cochrane)
- 3rd floor: Knowledge Management Skills (CASP)
- 4th floor: Leaflets, audiovisual material, Centre for Health Information Quality material

1.1.2 Scope of public access to NeLH (Information for Health)

Public access to the NeLH was intended to provide a common entry point to a variety of information on healthy lifestyles, information about conditions and treatments, including the effectiveness of different treatments, annual reports of Directors of Public Health, and health service performance. New media such as digital television should be explored. Appropriate local information about services and support groups would complement the information provided by the parts of NeLH to which the public might be allowed access. Local NHS bodies were to develop local partnerships for provision locally of information to complement the national provision through NeLH (para.5.19-5.25, IfH)

1.1.3 Building the Information Core and NeLH

Building the Information Core (BIC), published in January 2001, updated *Information for Health,* as required for implementation of *The NHS Plan,* and the e-government strategic framework to provide the personalisation of services, both from the perspective of the service provider and the service recipient.
Information services comprise:

- NHS Direct Online
- NHS Direct Information Points (touchscreen kiosks)
- nhs.uk (organisational directory)
- NeLH (pilot core service launched November 2000, to include:
    - evidence-based sources (Cochrane, Clinical Evidence, Bandolier)
    - links to other quality resources (BNF, NHS Direct Online)
    - research evidence behind news stories
    - Virtual Branch Libraries (to support specialist clinical areas)
- NHS Digital (para.4.3 BIC)

1.1.4 Changes in emphasis and definition of the scope of NeLH

Between the publication of *Information for Health* and *Building the Information Core* there have been changes in emphasis and definition of services for patients and the public, compared with those available to NHS staff. Public access to NeLH was to be made possible through the Internet, with NHS staff having access through NHSnet. Policy changes since 1998 include:

- services for professional groups, e.g.
    - the development of virtual branch libraries for particular specialty areas or professional communities, in the recognition, for example that royal colleges might become 'cybersocieties' (Muir Gray & de Lusignan 1999), delivering services to members electronically
- partnering the patient 'floor' with NHS Direct, so that NHS Direct Online complements the telephone service
- focus on evidence-based sources, such as the Cochrane Database of Systematic Reviews.

The NeLH does not, at present, offer databases such as MEDLINE or CINAHL. These databases will be available to health professionals through their local library services, and most Regions are now involved in networking agreements with database providers. MEDLINE is unusual in this respect as it is already available free (in various formats) over the Internet.

1.1.5 Relationship with other home countries' information strategies

1.1.5.1 Scotland – Learning Together
Scotland has approached the development of resources to support the knowledge base for healthcare largely under the aegis of the education, training and lifelong learning strategy *Learning Together* (Scottish Executive Health Department). Improved access would require development of a national information framework to give all staff access to comprehensive and improved library and information services (para.3.21). A joint circular (NHS HDL (2000) 01) from the Health Department, Human Resources Directorate, CRAG (Clinical Research and Audit Group) and the Chief Scientist Office, emphasises the need to link activities to develop access to a sound knowledge base. A project group was established (August 2000) to take forward the improvement of learning resources. Previous work included that of a Scottish Library and Information Council working group (chair Dr Graham Buckley) established in 1996 to review library and information provision for the NHS in Scotland. Recommendations from the working group (cited in NHS HDL (2000) 01) included the need to link provision of LIS with functions such as Clinical Effectiveness, IM&T, R&D, Education and Training and Human Resources.

1.1.5.2 Scotland – access to evidence-based resources via SHOW (Scottish Health on the Web)
The Scottish Executive Health Department has negotiated the supply of version 4 of

Clinical Evidence (BMJ) to every GP practice, long stay, community and acute hospital ward in Scotland (News 5 March 2001, SHOW website). Access is by NHSNet. The Cochrane Library has also been made available by a national agreement, and available through the SHOW website for NHS staff, and also by the Internet (using Athens authentication) (News 8 April 2001, SHOW website). Scotland also aims to improve the relationship between the NHS in Scotland and Higher Education for information service provision.

More locally within Scotland, there are initiatives such as the NHS Glasgow e-Library (http://www.nhsglasgowelib.org.uk) which provides access to all NHS Glasgow staff to 11 databases, 50 electronic textbooks (available via OVID) and 320 full-text e-journals (via an arrangement with EBSC Online for 218 electronic titles).

1.1.5.3 Wales – HOWIS service

NHS Cymru Wales has organised networked access to MEDLINE and evidence-based resources for NHS staff (including those working in primary care) for over four years. The HOWIS service (http://www.wales.nhs.uk/resources.cfm) advertises (under staff resources) access to MEDLINE, CINAHL, PsycINFO and Embase (Ovid Web gateway) and ASSIA, HMIS and BNI+ (Silver Platter gateway). Within the Links section it is possible to access the websites for National Institute for Clinical Excellence (NICE), DoH (England), Commission for Health Improvement, National electronic Library for Health and the Electronic Library for Social Care. More recently, a number of pharmaceutical knowledge bases (WeBNF) and Micromedex have been added. The service is primarily available as an intranet service for NHS Wales staff in the workplace, although some resources are made available via the HOWIS Internet site (for the public), with password protected access to some resources available for health professionals to use at home.

The main difference between HOWIS and the arrangements for knowledge database provision in the English Regions is that HOWIS provides access to evidence-based databases and the primary databases such as MEDLINE and CINAHL, effectively acting as Regional database provider, plus a bit of NeLH and a little bit of NHS Direct Online. HOWIS also has a responsibility for provision of management statistics.

Evaluation of the HOWIS service is in its early stages.

1.1.5.4 Wales –access to supporting Evidence-based resources

The routes to some well-respected evidence-based initiatives in Wales are not (at present) easily found from the HOWIS Internet site, largely for historical reasons. Examples include the TRIP database and Health Evidence Bulletins Wales. Multidisciplinary working has been a key element of previous evidence-based information skills training initiatives in Wales (e.g. in the NICE project) and therefore initiatives such as the Virtual Branch Libraries and Professional Portals may not fit well with the policy emphasis in Wales.

1.1.6 National and home country initiatives: competition or collaboration?

There are various stakeholders in the public (and professional body) sector who need to know how responsibilities will be shared or divided:

- Higher Education institutions (where licensing agreements are currently negotiated on a UK-wide basis, and that is the expectation of UK HEIs)
- Professional bodies which are organised on a UK-wide basis (e.g. Royal College of Nursing)
- Home country database providers (HOWIS, SHOW) which are developing a more integrated approach – easier as they have advantages of working within cohesive 'Regional' community, combined with the policy making powers accorded to their devolved status.

Inevitably there is a feeling of confusion about the intentions of NeLH, particularly when there is overlap of responsibility and remit. For example, NMAP (Nursing and Midwifery and Allied Professionals Gateway) is a gateway of evaluated Websites, funded by higher

education (by JISC) on a UK-wide basis. This can be accessed by following Internet resource links on the Nurse Professional Portal part of the NeLH (and it is freely available to all on the Web). Both NMAP, and the earlier OMNI, gateways are designed to help health professionals find quality Websites, just as NeLH is intended to provide quality evidence. There seems to be the possibility of duplication of effort, but the remits of the JISC subject gateways and the NeLH differ in quite significant ways. First, the audience of the JISC subject gateways are academic staff and students, and the intention was to provide this user group with high quality Internet resources to complement the resources available to them in printed form or in the form of other electronic information resources. Evaluations have indicated (JUSTEIS Cycle One and Two reports) that few students are aware of these gateways, and fewer use them on a regular basis. (The default searching mode for students, and staff, is to use one or more Internet search engines). In many ways, the JUSTEIS findings for the use of JISC subject gateways emphasise the problems of making information seeking for the evidence a natural professional routine. NeLH aims to complement professional practice and patterns of communication, whereas the JISC subject gateways are a catalogue of evaluated Internet sites. The JISC experience is that information users need to be persuaded of the benefits of the evidence.

Higher education institutions and professional bodies have interests and responsibilities for the education and training in use of electronic information resources. NeLH provides access to some tutorials but responsibility for education and training has been delegated to Regional Library Units (Table 1). Much of the training has to be provided face-to-face either in one-to-one support or in classes. Web-based tutorials are not sufficient, particularly given the lack of basic IT and Internet skills among NHS staff.

HE-based services (Resource Discovery Network, RDN) provide coverage (wide scope) but little focus on personal professional needs of health staff. The RDN is a free Internet service dedicated to providing effective access to high quality Internet resources for the learning, teaching and research community – primarily in further and higher education throughout the UK. The RDN consists of subject hubs, each with their own character but which permit cross-hub searching. The RDN provides access and also some value-added services such as interactive web tutorials, and alerting services. The RDN services only cover web sites – database searching requires a separate set of procedures, although this may change in the future.

Professional bodies (of which there are many in the health sector) provide services, and liaise with service providers to provide services which are professionally relevant, but which are often only available to their members.

National services in Wales and Scotland provide a one-stop shop to many database services, including some of those available. They combine some elements of a type of Regional Library Unit provision with some elements of NeLH, but would need to liaise with NeLH over activities and services such as Virtual Branch Libraries. Their value is in inclusivity (although this has yet to be tested out fully) and ‘national’ badging.

Regional Library Unit based services provide the databases NeLH does not provide, but for which there is considerable expressed demand. They also trial other databases which may suitable local needs, or unmet needs. The main responsibility (in terms of staff time costs) is increasingly in support and training at the local level.

NeLH provides evidence-based database services to NHS staff in England, plus a comprehensive set of supporting resources, which are professionally relevant – but in a one-stop shop. The main value-added element, in comparison, to the services and support provided by other stakeholders is in the national UK-wide overview and in the wide scope of the professional support and liaison, which might be possible.

Table 1: Stakeholder provision and support for Web-based health information services

Stakeholder	Web-based information service roles, responsibilities	Special responsibilities and dependencies	Value-added service elements
Higher and Further Education through JISC, RDN Centre	Resource Discovery Network (BIOME, with NMAP, OMNI)	User community – learning, teaching, research Dependent on consortial contributions	Cross-hub searching, Alerting services Freely available
Professional bodies (RCN, BMA, RSM, Royal Colleges)	Very varied – spectrum covers educational support to direct database service provision, often on a membership basis only	Related to the mission of the professional organisation, usually the emphasis is on CPD May or may not work with other consortia	Varied – but members often respect 'badged' services as 'professionally relevant'.
National (home country) services: HOWIS, SHOW	Database service provision which is inclusive of MEDLINE(and similar) plus some evidence-based databases Education and training	Home country – responsibilities depend on devolution arrangements May or may not work with NeLH licensing deals	Inclusive nature of service provision and administration Work with local libraries and other initiatives for education and training
Regional Library Unit services (England)	Database service provision (excluding those provided by NeLH) Education and training	Responsible for provision of the mainstream and popular databases such as MEDLINE, CINAHL, plus trials of other less popular databases Education and training an increasing responsibility Dependent on changes at Regional/Special Health Authority level and Workforce Development Confederation activities	Local support Local provision and pilot trials Work with local libraries and other HE-based initiatives for education and training
NHSIA /NeLH	NeLH – developing new services but primarily evidence-based information support, guidance which is matched to professional practice needs	Licensing for evidence-based databases Virtual library support and professional portals Working with HE to provide access to evidence-based resources	One-stop evidence shop National UK overview?

1.1.7 Differentiation of roles and responsibilities

The approach here involved interviews with Regional Library Unit heads, Home country representatives and those with some responsibilities for Higher Education provision of electronic information services in the health sector (Appendix 3). It seems that awareness

of overlap of service provision is apparent, and that duplication of effort is possible, although resource constraints on public sector activities make this less likely. From the user perspective the duplication might be slightly confusing but it is quite easy for any web site to hide dependency on another – a hypertext link is sufficient. For example, NeLH already uses the Resource Discovery Network (RDN), which is a co-operative network, based on the existing JISC-funded subject gateways.

Roles in health information service provision and support can, at present, be differentiated as:
Higher Education services (RDN) - **diffuse** information
Professional bodies – **champion** information service and support
Home countries (SHOW, HOWIS) – **encapsulate** information services and support
Regional Units – **complement and educate**, in tandem with NeLH, and HE.
NeLH – **leads and develops (?)**

It hardly needs emphasis that to lead and develop services successfully NeLH needs to work closely with the other stakeholders. Given the number of bodies and competing interests involved this is somewhat of a poisoned chalice, but interviews indicated that Regions and other home countries did welcome the concept of a UK-wide national lead. What irritated them most was the delay between promotion of possible new services and their appearance. A close second in terms of irritation was the sudden appearance of services such as '*Clinical Evidence'*. Unfortunately, as is recognised, the outcome of database licensing discussions with publishers cannot be forecast in advance, but the project timetable for in-house service development might be made more apparent.

1.2 NeLH pilot services compared to Information for Health intentions

The present structure is compared first against the rationale as expressed in IfH, the apparent assumptions made, and the available evidence now on the likely effectiveness of NeLH in supporting change in professional practice and quality of care.

1.2.1 Present structure of the NeLH pilot site

The pilot NeLH site has the following sections:

- **Knowhow** (NICE guidance and guidelines, National Service Frameworks, NeLH guidelines database
- **Knowledge** (Clinical Evidence, Cochrane Library, DARE, Effective Healthcare Bulletins etc.)
- **Resources** (Virtual Branch Libraries, Professional Portals, Reference Section)
- **What's New** (events, changes to site)
- **Media section** (linking media stories to the evidence)
- **Document of the week** (new book section)
- **Links to related sites** (NHS Direct Online, nhs.uk, Department of Health, Electronic Library for Social Care).

1.2.2 Rationale for NeLH

The rationale for establishing the NeLH was that:

- amount of healthcare information available is now vast, and NHS professionals cannot retain in their heads all they need to know (para.3.52, 3.53)
- use of the Internet to access information increasingly the 'norm' (para.3.51)
- more and more health professionals and the public accessing the Internet for health information (para.3.52)
- NHS expected to make more use of NHSNet for posting reference material (para. 3.55).

The underlying assumptions are that:

- greater availability of information will mean that more health professionals will access the information (para.3.52, no evidence provided about type of health professionals who might use the Internet)

- evidence-based reference material will be required to support decision making at the 'bedside' or 'desk-top' (para.3.56, no details provided about the likelihood of such instances of consultations or decisions requiring use of evidence-based reference material)

1.2.3 Use of NeLH to support clinical effectiveness

NeLH is viewed in *Building the Information Core* as

> 'an authoritative source of current healthcare knowledge to improve clinical practice and enable the most appropriate treatment to be provided based on accredited clinical evidence. NeLH will complement existing library and information services and offer an increasing range of e-resources and skills to support their use' (para 3.28, BIC).

NeLH has some interactive elements but the pilot NeLH largely provides an authoritative source of healthcare knowledge. The emphasis in government policy papers such as the White Paper *The new NHS* (Department of Health (England) 1997) and later guidance *A first class service* (Department of Health 1998) is on improvement of the quality of care through coherent quality management, encompassing promulgation of clear standards of service, and monitoring of those standards through a variety of mechanisms, but notably the Commission for Health Improvement. Those delivering the service require a structure of professional self-regulation (codes of professional conduct), clinical governance (Department of Health 1998). Another important element of the quality framework at operational level is the establishment of a lifelong learning culture. This should ensure that appropriate action is taken to ensure that staff acquire appropriate skills and knowledge to enhance the quality of care, as well as identifying poor performance and taking steps to remedy poor quality care.

1.2.4 Evidence for supporting a learning organisation and changing practice

Particular initiatives and assumptions driving the NeLH are supported in part by available evidence from systematic reviews, and other research studies.

1.2.5 Evidence supporting the resources and services in the pilot NeLH

There are three key resource areas in the pilot NeLH (Knowhow, Knowledge and Resources), supported by news and 'what's new' areas to provide a means of encouraging users to check into the site frequently.

1.2.5.1 Knowhow (NICE guidelines, National Service Frameworks, clinical guidelines database)

Current Situation: Large increase in number of guidelines being produced (Hibble et al. 1998). Large number of relevant guidelines, particularly for general practice: problem of a) locating such information, b) keeping it up to date. One problem of clinical guidelines is that while they promote 'best practice', resource constraints may mean that blind adherence to guidelines may not be cost-effective (Haycox et al. 1999). Guidelines need to be rigorously developed and evidence-based or at the very least appraised carefully (Feder et al. 1999), but need to be flexible enough to accommodate individual patient needs (Woolf et al. 1999). Implementation strategies may need to take account of local factors: there is little evidence yet of the impact of guidelines on patient outcomes and costs, but some studies indicate that such factors are important in determining changes in patient outcomes and costs overall (Jankowski 2001).

NeLH support: Providing a guidelines database to make access to guidelines easier, and more reliable in that up-to-date, valid and appraised guidelines available.

1.2.5.2 Knowledge (Cochrane, Clinical Evidence, British National Formulary)

Current situation: Increase in the number of 'evidence-based' sources and evidence-based websites. Large increase in demand for access to knowledge databases (e.g. 1994 figures for the number of MEDLINE searches done for and

by medical staff on library CD-ROM were only 1-10 a week for a medium size (100-199 acute medical staff) hospital (Urquhart and Hepworth 1995, p.259). Extrapolating that figure, using the same source for other types of hospital and making an estimate for nursing staff use of CD-ROM (Appendix 1) the apparent demand for MEDLINE was 1170 searches a month (Cochrane not available at the time). This can be compared with figures from one Region which has estimated the need for 60 concurrent users for MEDLINE in licensing arrangements and figures from another which show the high number of logins to MEDLINE, e.g. October 2000: Number of logins to MEDLINE: 52,063 (50 times greater than apparent demand on the basis of the 1994 extrapolation.

Support of clinical governance: Provision of the evidence in the form of printed materials alone is ineffective as a continuing medical education strategy to change professional practice, but may be effective combined with other strategies (Davis et al. 1995, Barton 2001). Doctors do look for information on therapy and treatment far more frequently than they do for information on diagnosis (Urquhart and Hepworth). Reminders (paper) are effective, particularly for general management of a problem, or preventive care and in primary care settings (Wyatt 2001). Summaries of evidence are popular (McColl et al. 1998, Yeoman et al. 2001). Such considerations of high relevance to practice, high validity and least effort to extract useful information have guided the design of *Clinical Evidence* (Godlee et al. 1999).

NeLH support: The Knowledge section is accompanied by other sections on the NeLH to encourage evidence-based practice to provide greater impact than would be obtained by provision of evidence-based sources alone.

1.2.5.3 Resources (Virtual Branch Libraries, etc.)

Current situation Health professionals appreciate collegial support, and many reviews of information seeking by health professionals (e.g. Davies et al. 1997, Smith 1996) note that health professionals frequently turn to colleagues (from their own profession) for information and advice. A systematic review of interventions to promote the implementation of research findings indicated that multi-faceted interventions were consistently effective (Bero et al.1998). Systematic reviews of the effectiveness of various specific personal approaches to changing professional practice show that:

- Audit and feedback can be effective, in particular for test ordering and prescribing (Thomson O'Brien et al. 2000a)
- Audit and feedback strategies are unlikely to be enhanced by the addition of complementary strategies (Thomson O'Brien et al. 2000b)
- Educational outreach visits (involving several components), are effective, particularly when combined with social marketing (Thomson O'Brien et al. 2000c)
- Local opinion leaders have a mixed effect, as it is unclear just what opinion leaders do (Thomson O'Brien et al. 2000d)
- Interactive workshops are more effective than didactic sessions (O'Brien et al. 2001)

NeLH support: This section is intended to complement and support existing patterns of professional communication, as well as the provision of the resources themselves in the Knowledge section.

1.2.6 Computer-supported collaborative working and Peer to Peer computing

Recent computing developments such as peer-to-peer computing which allow collaboration between users, interaction between software applications, efficient use of network resources (in different ways, depending on the peer-to-peer technology used) give some idea of the future virtual environment, given security and financial constraints could be resolved. Reviews of the use of computer supported collaborative working

(CSCW) (Levy 1998) show that the structure of the organisation has to fit the CSCW model first. If the workplace is not hierarchical and team working is the norm, then CSCW will work. In more hierarchical organisational cultures, CSCW software and services cannot overturn the norm without some concomitant organisational changes.

The NeLH has to work within existing NHS professional and organisational structures, acting to support change - but it cannot be the change agent on its own. Proposals for sharing work related to finding and appraising the evidence (e.g. Dawes 2000, 2001) fit the CSCW model well - and the NeLH can be the arena for such developments to be tried and tested to promote changes in practice.

1.2.7 Comparison mapping of NeLH with related evidence-based services

Several services have been set up to provide advice and guidance to resources which support evidence-based practice. The two services considered here are ScHARR's 'Netting the evidence' and the Australian CIAP programme. Both are multidisciplinary in their emphasis, as is NeLH. Evaluations of other services such as Doctors.Net (e.g. Kaur and Gillam 2001) are excluded as their target group is not multidisciplinary.

1.2.7.1 'Netting the evidence

The most comprehensive directory is that of ScHARR 'Netting the evidence'. Taking this as the authoritative listing of sources which might be included, the databases which NeLH covers and excludes are compared (Table 2)

Table 2: NeLH coverage

ScHARR 'netting the evidence' category	NeLH inclusion/exclusion
Databases	Includes Clinical Evidence, Cochrane Library, PEDro, HTA assessment Excludes: Best Evidence, and Evidence-based Medicine Reviews (latter an OVID product which includes Best Evidence)
Organisations Around 16 locally based organisations/task groups listed (as well as several international groups, and Cochrane groups	NeLH structuring access to these through the Resources links – either *Professional* or *Virtual Branch Libraries*
Journals	Includes the major electronic journals in the field (Bandolier, Effective Healthcare Bulletins) Excludes other national journals and local/regional publications
Searching advice	Includes TRIP, SUMsearch, reference to the ScHARR site 'netting the evidence' Excludes specialised sites

1.2.7.2 Clinical Information Access Program, Australia

A state initiative in Australia, the Clinical Information Access Program, in New South Wales, has a mission which resembles that of NeLH 'supporting evidence-based practice at the point of care'.

There are links to guidelines, prescribing information (MIMS) and evidence-based sources (Cochrane). The main differences are:

- CIAP site includes password-enabled access to databases (MEDLINE, CINAHL etc, e-books and journals, whereas access to such resources is the responsibility of regional agreements in the UK.
- CIAP includes more tutorials (from the database managing agent, HCN)

The CIAP model offers the advantages of a one-stop shop to all the databases licensed for use, plus tutorial help and a clinical liaison support structure. This works well on a statewide level, for the public hospitals which have bought into the scheme. The

disadvantages are concerned with the fact that this is set up more as an exclusive, rather than an inclusive arrangement. Evaluation is planned (CIAP Evaluation research link on CIAP website) but few results are available yet.

The NeLH is bound more to the tenets of IfH – a national strategy for local implementation. Some initiatives and resource provision is left to the Regions, and Regions have responded to the challenge of networked database provision, with associated training support by organising regional agreements with database providers.

1.2.8 Use of the Internet as the norm in information seeking

One element (para 3.51, IfH) of the rationale for NeLH claimed that information seeking would increasingly be based around the Internet, and that health professionals would expect to find information on the Internet or via an intranet, rather than in printed form.

Surveys for this evaluation confirm this and also indicate that search engines are seen as the all-powerful tool. The S Devon survey (Appendix Three), for example, showed that most users claimed to have used search engines, more than double those who remembered specific use of a clinical database (Table 3). What was also noticeable from the survey was the sizeable minority of respondents who could not remember which sources they had used. This could be attributed to relative infrequent searching or the fact that it is easy to get lost in hyperspace. The mechanism of searching is immaterial: what matters to the users is that they obtain an answer.

Table 3: Use of specific Internet resources (S Devon survey)

Internet resource used	Frequency (n=95)
Search engine	58
Clinical databases (e.g. CINAHL, BNI, Embase, Psychinfo)	25
Other Internet resource (organisational web sites)	12
Cochrane	11
PubMed	11
Clinical Evidence	7

From an organisational viewpoint it is important to support learning but also that searching becomes effective as soon as possible and that users quickly find the evidence when it is vital to do so. There are several routes to achieve this end, including routes which actually integrate the evidence into routine practice by:

- incorporation of the evidence within prescribing or similar routines and protocols, so that users are steered to use guidelines (guided choice)
- development of integrated care pathways.

Use of search engines is universally popular and apparently easy – usually something turns up. Use of databases such as Cochrane is not always so intuitive and requires training and support to achieve effective use. Certainly developments such as 'intelligent search engines' and so-called unified search environments will help in the future but in the near future training and support is essential. Doctors in particular may stick to MEDLINE, and may be reluctant to use another source. Most networked database usage surveys (Section 1.4.5.2) indicate that MEDLINE is the most popular database by far, and one Library Manager was aware of the problem of

> *'making medical staff aware that there is life beyond MEDLINE...We try to promote Clinical Evidence to junior medical staff – this is something you can get to quickly and easily , in that sense it's very good'.*

Responses to the online questionnaire survey of NeLH users show that most people would have done other Internet searches rather than going to libraries (of the 126 people who were accessing for the second time or more, 81 (64%) said that they would have used an alternative Internet search if the NeLH had not been available, whereas only 20(16%) said they would have gone to a library).

1.3 Summary conclusions

To what extent does the NeLH, in its pilot form meet the aims set out in the NHS IM&T strategy document Information for Health, the project mandate?

The NeLH, in the pilot form, is not quite the same 'virtual library' as that envisaged in IfH. It has evolved to meet changing needs, as laid out in later government policies and initiatives for the health sector such as clinical governance, and in more general implementation of e-government.

The other home countries (Wales, Scotland, N Ireland) may be taking a slightly different direction to the NeLH, but there is little evidence that the ethos of supporting clinical effectiveness is any different.

NeLH's role as 'leader and developer' is accepted, with some minor reservations, by other stakeholders. The value-added element of NeLH is in the inclusive nature of support of professional development of health service staff, for clinical governance in particular.

The rationale for the structure of the NeLH pilot, with virtual branch libraries and professional portals, is evidence-based. Systematic reviews of the evidence for various ways of effecting behaviour change and change in professional practice emphasise the need for provision of some 'interaction and feedback' as 'printed resources' i.e. databases such as MEDLINE, Cochrane are insufficient.

1.4 Regional organisation of database provision

The requirement for evaluation was to:

Predict the ability of local NHS libraries to meet similar demands in the absence of the NeLH.

This requires examination of the way NHS libraries might organise access to the evidence-based resources through purchasing arrangements, and how pilot projects are being evaluated for their cost-effectiveness (Section 1.4.1-1.4.5). Support mechanisms such as training, liaison with professional support and education often form part of the database networking projects, and some evaluations have been done (Section 1.4.6).

Over the past three years Regions have started to organise regional networking arrangements with database providers (Section 1.4.2). Any contracts that were in existence for Cochrane have now been abandoned as this is now available by a national agreement through NeLH. At more local level, Trust websites usually have a library page which has local news, and items of local interest, plus links to the regional databases and NeLH. Some areas within Regions are forming subgroups to organise additional databases for their own users (excluding others in the Region). Changes have been, and continue to be very rapid.

The findings are summarised in Section 1.4.7.

1.4.1 Strategic review of Regional Library Units purchasing intentions: methods

Telephone (3) and personal interviews (4) were arranged in late June/July 2001 with Regional Librarians or the member of the RLU staff with responsibility for the licensing and system support (Appendix Three). Questions concerned:

- current status of regional deals for database purchase
- previous arrangements and future developments
- factors considered when doing the costing
- management information, and performance evaluation of arrangements
- equity of access
- training
- other co-operative arrangements
- perceived role of the NeLH

- future plans

1.4.2 Advantages of regional purchase deals

Advantages concern greater equity of access among NHS staff in a Region, and (principally) the cost-effectiveness of the arrangements. One major difficulty in estimating the cost-effectiveness is that database services have, virtually for the first time, reached the primary and community health service sector. Previously there were a few areas where there was communication between the regional library-led services, based in acute hospitals, and primary/community health care but overall the provision was patchy and largely led, or demanded, by a few individuals.

1.4.2.1 Cost savings estimates

Several regions have done estimates of the cost savings of the regional deal arrangement.

One has estimated costs of the regional deal compared to the costs of each individual trust making their own arrangements to achieve the same level of provision. In reality they might not have bought some of the databases now available to them, or the number of licences, but the comparison gives some indication of the greater equity of access now provided. Others have compared costs now (with Regional deal) to previous costs and licences, or a situation more comparable with the status quo.

Some typical comparisons are:

a) Savings obtained by regional deal :	43% of the cost of individual arrangements, for with each Trust having one user licence for each of eight databases, c.£150,000 saved.
b) Savings obtained	c£80,000 (had individual libraries purchased the same resources, no details of licences given)
c) Savings obtained	Cost of the regional deal = 13/80 of the cost of the individual trust route.

The cost savings have been calculated in different ways, which makes comparisons difficult. In some cases the Regional Library Unit has been unable to get firm details on 'before and after' costs, as these have to be extracted from another Directorate. However, all show a cost saving on previous arrangements for the regional purchasing deal recently negotiated, and costs of administration are reduced overall. Through a deal, licences can be redistributed on a more equitable basis, to reflect needs across the Region, and this can result in a saving in the number of licences purchased in total. However, some libraries prefer to adopt a 'belt and braces' approach and purchase a CD-ROM subscription as well, for some databases. The current cost savings seem to vary considerably, depending on previous arrangements and deals with suppliers, but the regional deal can offer considerable cost savings, in the region of £100,000 per annum. Most Regions value some flexibility, to provide some regional or local flavour, and groups within the Regions may choose to provide additional databases for their users, for example. This gives room for manoeuvre in experimenting, and trialling new services. That is something that libraries – as a group, whether on a 'district', or region or Confederation level would not wish to lose, despite the problems of duplication of effort.

> *'but if you go for a national solution do they lose the end user and the local awareness and the regional awareness, there's that...it's a big machine that isn't actually providing what people need...But then there is this duplication across the country...all these people trying to tackle things like electronic Lancet and BMJ journal sets...if the NeLH acquired things of that sort then the local initiatives would probably disappear altogether'*

1.4.2.2 Equity of access

Regional deals ensure:

- unmet needs are satisfied - groups of staff previously not well served with database services do obtain a service that is comparable with staff based in NHS Hospital

Trusts
- fairer distribution of resources – some staff worked in Trusts or Units with historically poor levels of library resourcing compared to others
- pooling of resources (Deanery, Consortia/Confederations etc) means that health professionals' needs are met fairly, across a Region
- a variety of access points for staff - with authentication users can access the service at home through the Internet as well as through NHSNet at work
- flexibility in making arrangements for electronic journal collections

1.4.3 Disadvantages of regional purchase deals

There are few disadvantages at present, although the negotiations can still be quite time-consuming and dealing with suppliers on a longer time scale than a year might be of mutual benefit.

Remaining problems are longstanding:
- Access to resources for HE students and NHS staff who may be HE students (Some staff dual role all the time, some only when doing formal CPD, NHS staff cannot access resources licensed for HE use only).
- Access to resources for HE students on placement in NHS sites.

Regional approaches to this problem vary. In some cases the HE sector (or part of it) comes within the regional collection deal, in some cases HE buys into a electronic journal element of the deal, or one database. Complications arise when regional reorganisation has taken place (as in the London and SE England area), and there are layers of service level agreements to be negotiated as well as monitoring compliance with licence restrictions. In Higher Education itself there are a variety of deals for universities which are negotiated nationally through the Joint Information Systems Committee (CHEST deals, NESLI site licence) and universities choose whether or not to buy into these deals. They may also join in regional purchasing consortial deals. The system is acknowledged as difficult (JUSTEIS report Section 7), to the extent that large universities will employ a copyright and licensing officer who is tasked to deal with such issues.

No Regional Library Unit could provide information on what might happen as a result of future planned reorganisation of the Regions.

1.4.4 Evidence-based resource provision

Prior to the availability of Cochrane through the NeLH, the Cochrane Library database was part of any regional database deal. In some Regions there is some duplication as the Cochrane Library is already packaged in with Evidence Based Medicine Reviews (and available through a regional portal). In others the timing of the renewal of the licensing arrangement meant that they had to pay for the Cochrane Library (but receive it via NeLH a couple of months later). Access to Cochrane, and the NeLH is frequently provided from a link from the library webpage or regional portal.

Perceived advantages of a national agreement for Cochrane Library and other evidence-based resources:
- Authoritative, with focus on quality
- National agreement complements regional arrangements - would be dangerous to have a monopoly supplier for all databases
- Useful to have a 'core content'
- Potential cost savings in administrative costs for a national deal for 'core content' (though publishers will wish to ensure their revenue streams safe)
- VBLs are a good idea in principle in providing access to specialised knowledge

Reservations concern:
- Danger of scope becoming too wide (and unwieldy)
- Need to encourage common standards of quality (currency, content) for resources

such as the VBLs
- Dissociation from initiatives at regional and local level for database provision, portals and training
- Provision of guideline collections – comments that NeLH provision had not yet superseded effective local provision of access to guidelines. There is also the problem of the interface between locally developed and 'owned' guidelines and national guidelines – what should health professionals see first on the screen and how should and could they be led to look elsewhere?

1.4.5 Evaluations of database projects

Data have been analysed from four reports (SW/Trent/N Thames/N&Y/S Thames): three in-house regional reports, plus the VIVOS project report (Yeoman et al. 2001), which included figures supplied by one Region, as well as evaluation of several sites. Approaches to evaluation varied, making some comparisons difficult. Historical data are very difficult to find as the innovative localities simply 'got on with it' – their IT department was often not able to provide usage data in the format required.

Answers to the following questions were considered for each report:
- Is database usage increasing?
- Which databases are used most?
- Which features/databases are valued most?
- Where and when do users access the service?
- Who uses the service?

1.4.5.1 Is database usage increasing?

All show a general rise in usage, e.g. from just over 3,000 sessions (August 2000) to nearly 12,000 sessions (May 2001), or just under 60,000 logins (September 2000) to just under 130,000 logins (March 2001).
Falls in usage over a period are associated with temporary technical problems of access or problems in obtaining updated versions of a database, which led to users migrating to a version available elsewhere on the Internet (37% drop in logins for the May 2001 figure from the March 2001 figure for one Region).

It is difficult to assess whether or not a ceiling figure has been reached, as there are no accompanying details to show the changes in coverage of NHSNet (which might affect work-based access figures). The other variable - home-based access via the Internet cannot easily be assessed either. One Region shows a levelling off of usage, but this may simply reflect a plateau in the number of computers available in the workplace. Another set of figures for registrations in one region show a steady increase in the number of registrations for the following groups: consultants, junior doctors and trust staff. The increase in registrations for PAMs and nursing staff are more dramatic: figures for Apr 9/Mar 00 (PAMs) are more than twice those for Apr 98/Mar 99, and the figure of total registrations for Apr 00/Mar 01 is around 50% up on the previous year's total. For nurses, the total number registered in Apr 99/Mar 00 was 3 to 4 times the previous year's total, and the Apr 00/Mar 01 figure is nearly 50% up on the Apr 99/Mar 00 figure. Not surprisingly, the database usage figures show a steady increase in usage over the three years. Registrations have increased from around 3,500 to around 9,000 over the three years, a 150% increase, approximately. The number of sessions has increased over the same period by 180%, and the number of references by 31%, the number of documents by 340%. Clearly the nature of the database usage (or the way the statistics are measured) may be changing, but there is nevertheless an increase in usage, and in this particular Region the number of registered users is still a fraction (around one eighth) of the total number of NHS staff in the Region. The most likely reasons for the relatively low take-up in primary care in many studies is the lack of familiarity with such services. The health professionals in those sectors have done without for so long that it will take some time to see appreciable growth in the usage figures.

1.4.5.2 Which databases are used most?

MEDLINE is the most popular database in 4 regions (SWICE, Exeter, N&Y, N Thames) and probably on a par with nursing database searches in another region (W Mids but anecdotal only).

After that there is some divergence, reflecting the portfolio make-up, and probably the promotional efforts made. Nursing databases could be the most popular – given the size of the nursing staff population, but much may depend on how far promotional efforts have reached. There have been areas of unmet need, particularly amongst the mental health professionals, as MEDLINE with its American bias does not reflect their needs. The second most popular grouping includes:

- CINAHL
- Cochrane Library
- EMBASE
- PsychInfo

Some portfolios do not include full EMBASE, or PsychInfo, for example.
Where full-text journal collections are available these often appear in this grouping. Strictly speaking these are not 'text databases' but from the user perspective these niceties do not matter. Examples of journal collections which appear in this second tier are:

- Core Biomedical Collection (OVID)
- Nursing Collection (OVID)

Figures for one earlier evaluation (1999/2000) show lower figures for the Cochrane Library (50% of CINAHL, or 'nursing collections' usage, around 15% of MEDLINE usage). The later evaluations show a much higher ranking for the Cochrane Library. A pilot study (6 month trial) of a 'collection' in one Region indicates some of the problems of generalising from such trials as the financial constraints (some key journals could not be purchased), slow take-up of registration (therefore usage actually limited). What it did indicate was that overall usage of the journals could at least double once 24-hour access was possible, with home-based as well as work-place usage. Regions may make their own arrangements for linking to journals, rather than buy into a collection. This may be cheaper in upfront subscription costs but requires staff time costs for setting up the linking.

The third tier of databases typically includes more specialist databases or relatively new sources such as Best Evidence:

- Best Evidence
- AMED
- Mental health collection
- HMIC (Management)
- ASSIA for Health
- BNIPlus (in some evaluations this is in the second group)
- EMBASE Psychiatry

By way of comparison, surveys of the use of electronic information resources by HE students suggest that search engines are the most popular resource. For clinical science students, databases such as MEDLINE are used, along with JISC negotiated services such as Web of Science (JUSTEIS Cycle 2 report, in preparation)

1.4.5.3 Which features/databases are valued most?

Generally, the perceived usefulness of the sources follows the same pattern of usage as that of the actual usage of databases.
Valued features are:

- immediacy – and consequent saving of time
- availability of full text material (for those who had full text collections)
- home-based access (where this was offered)

1.4.5.4 Where and when do users access the service?

One evaluation reported most use during office hours but there is evidence of later evening use. The pattern fits the access pattern for that Region – if the majority of access is by NHSNet, then the office hour peak would be expected. In usage data from another study there is more evening and weekend usage.

1.4.5.5 Who uses the service?

Figures given are hard to relate to potential usage, but the following seem to be common patterns:

- inclusivity – all staff groups use the service
- variation in usage across Trusts and between primary and acute care.

One evaluation showed search session by user category for two sectors within the Region (Table 4). Sector 2 represents a group which came into the networking later than Sector 1. There are many factors which may affect the differences observed. Greater familiarity, more time for promotion campaigns to have an effect, location of computers, type of hospital Trusts, greater number of research registrars - all these could affect the greater number of search sessions per user. On this basis it seems that on average a health professional will log in less than once a month for a search.

Table 4: Search patterns for health professionals

User category	Average number of search sessions per user (Feb-Oct 99): Sector One	Average number of search sessions per user (Jun - Dec 99) Sector Two
Consultants	8	4
Junior doctors	10	5
Nurses/midwives	7	5
PAMs	4	6

Other research (VIVOS) indicates that the 'average' may in fact conceal that fact that usage is very skewed, with a small number of very active users, and a long tail of infrequent users. A mean annual usage of 100 sessions was recorded in this survey, but this is the effect of several very active users using the service several times a day. These active users are likely to be the research community. Other data obtained in the survey suggested that the mode was once every two months. Usage data from another data suggests that the presence of an active research, medical school community can skew the usage pattern. In this case the large merged acute trust in the city accounted for 25,000 search sessions, while other district general hospital trusts contributed at most 5,000 search sessions each, over the same time period.

1.4.6 Support and training for database provision and networking

There have been many initiatives established over the past four years, which help support education and training in the retrieval, use and appraisal of information from the databases such as MEDLINE and Cochrane Library. Oxford's CASP (Critical Appraisal Skills Programme) is probably the best known. There are now examples of supporting materials and online tutorials available over the Web. Evaluations of such schemes (e.g. STRAP) indicate that participants learn more about searching, use the learning in future searching and the majority feel that their skills in critical appraisal have improved. It is more difficult to assess whether such training cascades to other people in their Unit or Team. The limited evidence (VIVOS, STRAP) suggests that cascading cannot be presumed to happen.

The emphasis in this Section is on the role of the libraries, and how they have supported, and could support training (See also Section 1.2.8).

Evaluation of two programmes in the VIVOS project research indicated that training programmes had been effective, but that health professionals (acute and

primary/community health care sectors) wished a 24-hour online 'help-desk' type of service to help them when they were searching. Another regional study also noted that an email service 'Ask a librarian' gave them the answers but not at the time of need, when doing the search.

Interviews with clinical governance staff, health professionals in a variety of locations confirmed that they welcome the changed training role of the local library.

> *'Well again, the library have offered us training yes…. They've got things going on all the time so we've got no excuse! There's so much on offer training-wise it's very good.' (PAM)*

> *'…if I have a problem with finding something, and I think it must be out there then I would like to be able to phone up a librarian, and say at least, "what am I doing wrong, can you help with this?".' (Primary Care Clinician: S&T, VIVOS)*

There are variations on the theme of 'clinical librarian' – some see a very direct role for clinical support in attending ward rounds, other 'clinical librarians' will be attached to clinical teams who are developing care pathways to provided support at a specific point of need.

> *'They [the librarians] basically said that they would provide information to clinicians at point of contact and according to need. So that if a clinician had an urgent query, at least during the hours that the libraries were open, they would do their best and fax back…. So they really did try to turn themselves around to being a Clinical Support Service.' (Clinical Governance lead)*

> *'So we managed to restructure our library services so that… the librarians themselves developed themselves into Clinical Effectiveness information searchers rather than just the more traditional library searchers. And they also themselves got quite involved in our Regional Evidence-based Practice Network and things like that. So they became really quite expert.' (Clinical Governance lead)*

> *'I'm very impressed with the library here. They offer an excellent service. Something they do for us, [librarian] does, we can fill in a form and she'll do a complete search for us. So she's got me lots of very good articles that I couldn't manage to find myself on certain questions.' (PAM)*

> *'Yes, we've got the clinical librarian and in fact we've actually been a bit lazy because it's easier to ask her than it is to do it yourself really. So yes, we use the clinical librarian quite a bit. ' (Consultant)*

Most Regions have established programmes to upgrade the skills of librarians in teaching and support of critical appraisal. These have focused on skills required for critical appraisal and the 'training of the trainers' – teacher training for conducting or contributing to workshops. These have proved popular among the librarians. There are several clinical librarian schemes, or schemes which promote that type of ethos. As yet, there have not been many formal evaluations of such schemes but the indications are from these and other schemes that librarians generally are taking advantage of opportunities to work in a more targeted way with clinical teams. This includes face-to-face meetings but the support is also underpinned by development of specialised 'mini-gateways' for particular clinical groups on Trust web sites. These could form the local equivalent of Virtual Branch Libraries – or provide the local 'face' and then link to the national VBL

1.4.7 Summary conclusions on alternative Regional provision

The requirement for evaluation was to:

Predict the ability of local NHS libraries to meet similar demands in the absence of the NeLH.

1.4.7.1 Access to evidence-based resources

NHS libraries, and Regional Units, have acquired experience in the organisation of consortial purchasing deals, and could add the NeLH evidence-based resources to their lists, as they had in the past. Costs are extremely difficult to estimate and compare as a national deal offers better value for money in terms of access for a larger number of users, whereas in a Regional deal there may be a limit to the number of concurrent users in the licensing deal.

There is a sound case for national provision of core collection evidence-based databases, where there is a subscription cost and they are not available free (as PubMed MEDLINE is at present). Regional Library managers support this policy without reservation. If the National Library of Medicine changed its policy over access to MEDLINE, there is a case for national provision of MEDLINE as it is the most popular database in terms of usage figures.

The consensus of opinion is that regional deals remain important to preserve some element of competition among database providers. Another important benefit is that trials of different database sets can be conducted on a regional basis, allowing Regions to learn from the experience of others.

1.4.7.2 Usage trends

Database usage figures indicate that:

- **The average health professional will search such databases around once every month to two months**
- **The average conceals a small, but very active minority who use databases far more frequently**
- **Home based access is valued**
- **Patterns of home-based versus workplace usage show patterns which vary, according to extent of NHSNet provision, sector (acute/primary care) of user, and other local factors (promotion of registration)**

1.4.7.3 Support

Librarians increasingly view their role as 'educators' and trainers in use of the evidence-based sources and other quality databases. The need is substantial:

- **searching is infrequent – skills once acquired are therefore rarely consolidated**
- **many of the databases are new to health professionals, particularly those working in sectors previously 'under-served' by library services.**

A wide variety of focused education and training support is therefore required:

- **online tutorials**
- **resource packs**
- **workshops – critical appraisal plus searching skills**
- **information and critical appraisal skills training integrated into post-registration education**

In addition, as searching is infrequent, and problems need to be resolved at the point of need, ongoing support for individual queries is required through

- **24 hour help-desks (preferably phone)**

1.4.7.4 Perceived role of NeLH

From the library perspective NeLH should provide:

- **easy access to a core collection of evidence-based sources**
- **national push to support regional and local clinical effectiveness measures**
- **resources to support Cochrane**

Drawbacks concern the boundaries of national provision and local/regional

provision. This is always going to be a difficulty but more collaboration and information sharing would be appreciated. Librarians are concerned that much of the work done by them to set up projects and initiatives locally might be seen to be wasted if it is in effect taken over by a national initiative, with little prior warning. Licensing deals are notoriously difficult to juggle (and this is not a problem unique to the NHS as higher education has similar problems).

1.4.7.5 Alternative scenarios: database provision through HE collaborative deals

This could provide a more cost-effective solution for particular databases, and there could be a variety of deals negotiated. Provision through HE might be more cost-effective to the extent that the NHS is paying HE for education of its staff and out of that money HE is purchasing some electronic information sources. Some of the same sources are purchased again by the NHS and are used by HE students on placement – though it is probably impossible to assess the extent to which this happens.

Licensing issues are being reviewed at present by a team at SBU (Cox 2001) and it is possible that the report will recommend model licences, a move towards longer term deals (the problem is less the publisher, more the difficulty of secure funding streams on the NHS side). Databases are more straightforward, in some respects, but with the journal subscriptions, publishers are reluctant to unbundle print from electronic subscriptions. At present many of the HE deals are built around the pre-existing print journal subscriptions, which would not be the case for many of the hospital libraries where these do not exist on the same scale as might be the case for a large university library.

The emphasis (as well as the culture) is different, and it is doubtful that there would be benefits in the immediate future in relying on deals negotiated through existing HE frameworks.

1.5 Current user base of NeLH

The question set was:

- *Determine the current user base of the Pilot NeLH, and evaluate, why many target customers/areas are not using the NeLH?*

The approach taken was to examine usage figures supplied by the NeLH team. The main elements of investigation were:

- Is there any pattern in the usage – and is usage increasing?
- Are the 'evidence-based' sections attracting more and more hits?
- How many NHS staff are choosing to register to use Cochrane/Clinical Evidence via NeLH?

The pattern found is a steep rise in requests (Jan – Apr 2001) (Figure 1), followed by a decline May-June, with growth taking off again in July. Various perspectives were examined to check whether there were any requesting domains with unusual patterns, but the only domain which showed a steady rise was that of the 'unresolved' category. The peaks for *.uk occurred in April, the peak for *.net and *.com occurred in March. The visits to the home page (Figure 2) continue to rise fairly steadily, but actual use of resources did not increase in May and June 2001.

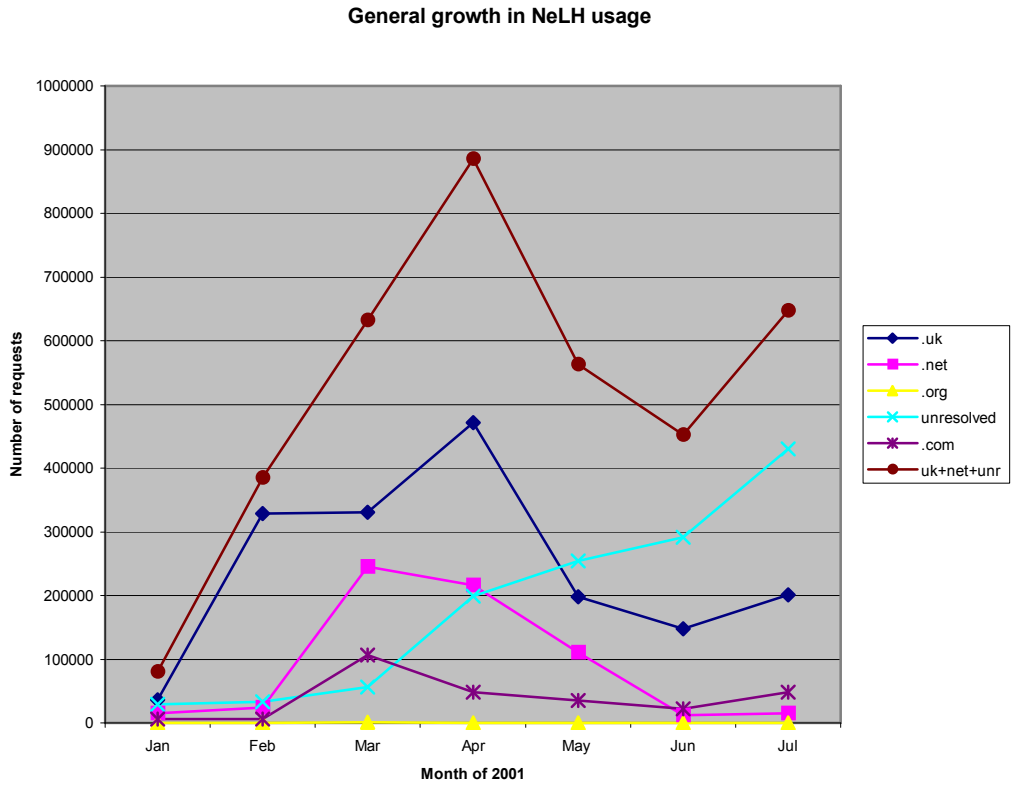

Figure 1: Growth in NeLH usage January – June 2001

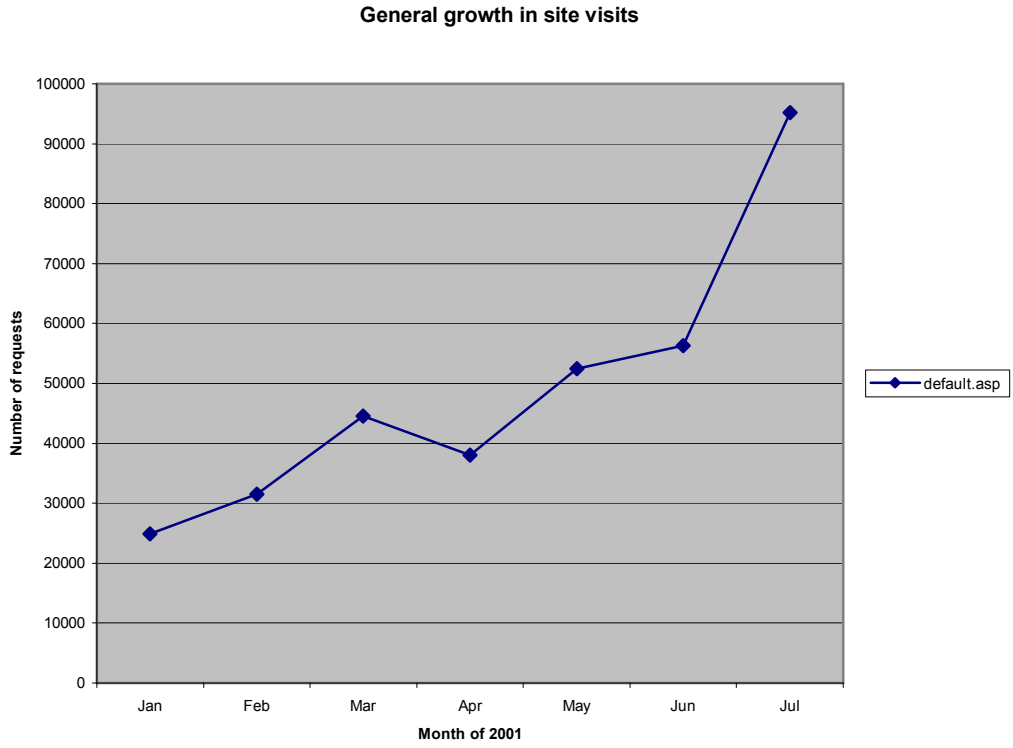

Figure 2: Number of visits to the NeLH home page

There have been changes in the structure which make it more difficult to interpret the

growth in number of requests for the evidence-based resources on the site. Cochrane is by far the most used site (Figure 3) averaging around 10,000 requests per month. Peak months were March and April, and there is a dip in June. The pattern for the other resources is similar, though the demand for the guidelines and virtual branch library resources is steadier. One possible reason for the apparent decline is the rhythms of higher education with peak time for undertaking assignments and projects coinciding in March and April, and examinations in late May and June. The demand for VBL (Virtual Branch Library) resources, and guidelines is more likely to come from clinical practice where demand is likely to be steadier.

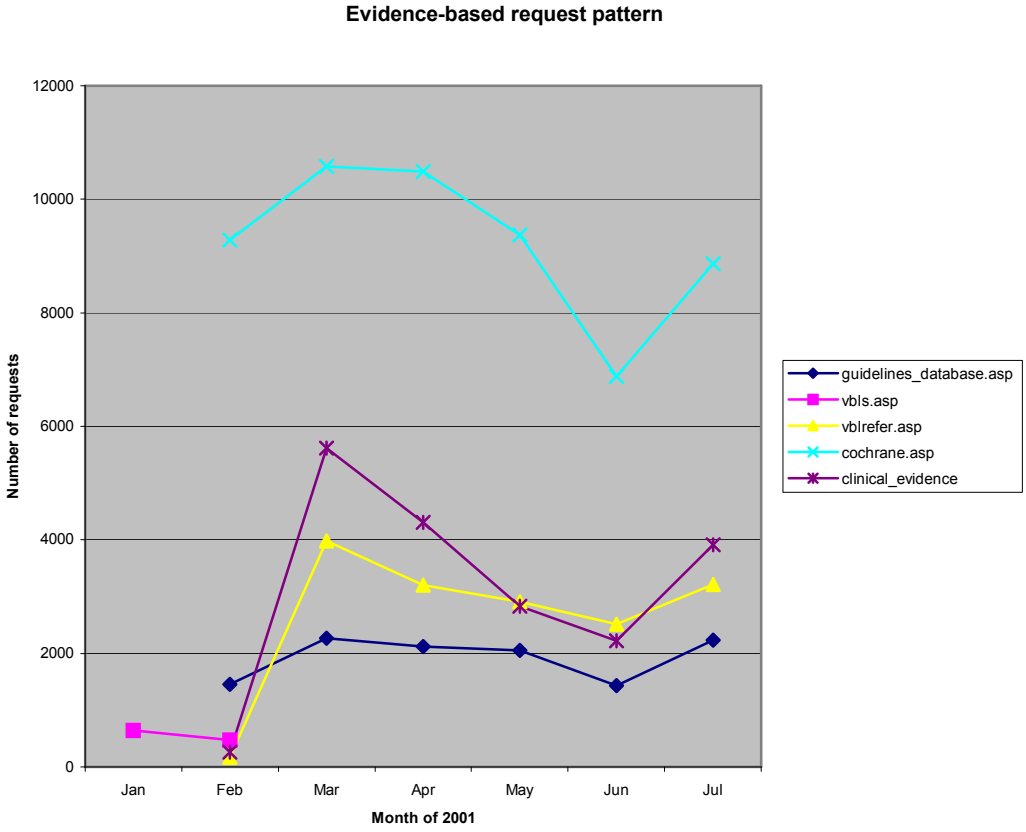

Figure 3: Pattern of requests for evidence-based resources

1.5.1 Evidence of usage from surveys of users

One problem that is immediately obvious when talking to health professional users – actual or potential – is that they often have very limited recollection of the route that they used to get to the resources.

Library web pages should have links to the NeLH (as a survey by Phil Vaughan indicates, though few respondents indicated just how and where the links were made in any detail). Of the 43 respondents, over half (28) indicated that the NeLH was a link, usually from their own list of 'useful resources' or something similar. Ten respondents specifically mentioned linking via Cochrane (i.e. linking on Cochrane may well bring up the NeLH home page). Only two respondents mentioned using the NeLH as their 'home page'.

The conclusion is that practice varies enormously as might be expected when Trusts and Libraries are still in the process of developing their web pages. There are implications, however, as the NeLH is designed to be more than just 'another resource', and some potential users might 'miss' out if their only linked access to NeLH is via the Cochrane link on the library web page.

Interviews with health professionals in two areas (Cornwall, Leicester) gave the impression that NeLH has not been very well promoted (nationally) and that it might be used more if people knew what it could offer them. The Leicester staff were only aware of it because the librarians rushed round alerting people in preparation for interviews. When staff did look at NeLH, they were impressed on the whole, and said they would use it again.

> *'I didn't know it [NeLH] existed actually before [librarian] said on Monday and it was, I was just quite impressed with the scale and the breadth of stuff that was on it.' (SPR)*

> *'I'd be interested to see how many doctors actually know of it and how many health personnel actually are aware of it. And I think if they were aware that they could get a lot of information for themselves then that's the big thing. …The people you need to get at are the people who need information quickly, who've got poor Internet skills, or poor searching skills because they don't use it all that often and then all of a sudden they have to get access to it because they're actually going to a meeting or something and they need to bone up on it.' (Consultant)*

Some libraries do promote the NeLH, and in one Library Manager interviewed includes the NeLH is part of the introductory training package, and finds that it is received with interest, partly as its existence has been flagged up for some time with the health professionals in the area.

> *'...with interest, with some recognitions because we have been talking about it informally for a long time and we have always been aware of its developing presence, it's not a new product so we are saying to people "we told you it was coming and here it is".' (Library Manager)*

With other librarians and Regional Library Mangers, it is the classic chicken and egg problem – promote now and encourage usage or wait until there is more on the site to avoid the risk that users are not immediately satisfied. There is, for example, a need for resources such as Virtual Branch Libraries but some are much more active than others and librarians are reluctant to point people in the direction of resources that are patently not kept up-to-date.

1.5.2 Summary conclusions

> ***Determine the current user base of the pilot NeLH and evaluate why (if) many target customer/areas are not using the NeLH?***

Demand for databases appears to fluctuate more than demand for VBLs and guidelines. The interpretation of the monthly data suggests (though evidence is limited) that the databases are being used more for educational (formal CPD) purposes. Demand for guidelines would be expected to be more stable – and it is.

Usage may be dependent on Trust and Library practice in construction of the web pages. Some examples of good practice would be useful. The message concerning the rationale of the NeLH does not appear to be getting across to some librarians.

Given the state of flux, the uneven pattern of usage is not surprising. What is noticeable is that more and more people are visiting the site.

1.6 Organisational and user readiness for the NeLH

The question set was:

- *A brief assessment of the business and user (organisational) readiness of the NHS for the NeLH.*

The approach taken was to consider:

- Why might the NeLH not be taken up by the NHS?
- Why should NHS organisations take up the NeLH?

- If NHS organisations should take up the NeLH but there is a gap between expectations and reality what organisational reasons are there for this mismatch?

Restraining forces (organisational) have been identified in previous studies of networked database provision: VIVOS (Yeoman et al. 2001); PRISE, GIVTS (Urquhart et al. 1999)

- lack of infrastructure (IT equipment not in convenient places at work)
- little time available during working hours for staff to use such services
- lack of promotion of scope of services

Driving forces (organisational) which will increase the readiness of staff to use NeLH include:

- clinical effectiveness policy drivers (and NHS Plan)
- increase in home computing with Internet access, digital TV
- increase in problem based learning in the pre-registration and post-registration curriculum.

The restraining forces are easily dealt with, and are being tackled, apart from the lack of time available during working hours.
There seems little doubt that the driving forces will increase rather than decrease.

1.6.1 Evidence from surveys

1.6.1.1 Access to IT resources

Readiness concerns the access to IT resources, and there may be gaps between perceptions of IT departments and reality, from the user perspective. To use the NeLH means that time is not spent doing something else, and perceptions of time available for searching and practice in use of IT and information resources give some indication of the state of readiness.

A survey was conducted in late July 2001 in the S Devon area of staff who had attended information skills training (basic Internet skills, advanced Internet skills, clinical databases, or PubMed). Response rate was 38% (117/308). If this survey is indicative of the general state of IT provision throughout the country then the following conclusions can be made:

- Around 60% of staff have shared access to a computer in the workplace
- Just under 30% can access this computer 'reasonably often', and only 6% rarely have access
- Home computing is a driver to use of the Internet – in this sample just under 80% had access to a computer at home and 65% had Internet access at home (which is partly why they were keen to attend the training – the majority attended the basic Internet skills training).

Use of the Library web pages (and hence use of evidence-based resources) is more likely if people have Internet access at home but those who do not have Internet access at home are able to access the web pages from work, and often do.

- 48 respondents had Internet access at home – and had accessed the Library web pages since training, 28 respondents had Internet access at home but had *not* accessed the Library web pages since training (i.e. 63% of those with home based access *had* used the Library web pages)
- Of the 40 respondents who did not have Internet based access at home, 22 *had* accessed the library web pages since training (i.e. 55% of the group without Internet access at home *had* used the Library web pages at work)

Views on the need for more training varied – some wanted more training, some didn't. The general impression is that more time is required for practice in use of Internet-based resources and the main barrier to that is lack of time in work time, and comments on the reasons for and against more training all echoed this theme.

'Need time to play with (this) in supported time'

'I just need more practice'

This at least is an acknowledgement that use of databases such as Cochrane is not intuitively obvious or as one respondent put it:

' I did visit Cochrane once but I had no idea what to do'

Comments such as:

'I'm not sure – I get by with what I do'

were far rarer (but a minority of respondents filled in the reasons for requiring, or not requiring more training). Kaur and Gillam (2001) report similar findings for GP use of Doctors.net, with the need for searching skills, and better access prominent.

Access to IT and the Internet is less of a problem than it was but there are still some perceived problems for some user groups.

> *'Of course one of the main issues which is important is that clinicians actually don't have computers. So if they don't have computers there's no point, you can tell them about an electronic library but it's irrelevant to them other than being able to know that your librarian is accessing all these things...*
>
> *...And that brings you back to your question…around the Electronic Library, it's not going to, you know, there's some basic issues around it being used without that infrastructure in place.' (Clinical Governance lead)*

A longitudinal survey of the changing attitudes towards use of the Internet (IMPACT study) indicates that many health professionals have to get accustomed to using the Internet and web-based resources but that this process of familiarisation will involve using the Internet and email for non-work related purposes, as well as for work-related purposes. Data logs indicate usage of the Internet mostly during quiet periods (at night), and that personal use is quite high (and surveys of usage of electronic information services in HE echo this, e.g. the JUSTEIS research).

1.6.1.2 Clinical governance

The business readiness in terms of clinical governance is viewed as patchy – with areas of good practice, innovators but also some laggards as well.

> *'Well, in terms of clinical governance as a whole, I don't think we're unusual.. We've got some fantastic pockets of best practice...we've got a team...engaged in the clinical governance support service...the national one...they've been using a similar model to the one we're trying to promulgate across the Trust...and action plans and the whole rest of it. And they've been trained in searching and they've done all sorts of things. So we've got these wonderful packages but the reality is that if you went into any Trust you would not find every team working like that. You won't find a systematic approach to identifying what the main issues are for them, what their main problems are, what their main priorities are ...informed by all the available evidence?...*
> *...And the other big area, we won't be able to quantify in that way [performance assessment frameworks] but we have a real expectation, our user-voice organisations... that we will systematically look at patient views....may not be patient outcomes in a strict sense but...broader than just patient satisfaction.' (Clinical Governance lead)*

1.6.2 Summary conclusions

A brief assessment of the business and user readiness

The IT readiness is there, or nearly there in the perceptions of the health staff, and some staff can and do access resources from home, which partly resolves the difficulties of making time for this during the working day.

The need for support and further training is acknowledged, which should be seen as indication that use of such resources to support clinical governance is seen as important. The information management support structure for clinical governance is viewed as patchy, though there are good models of best practice.

2 Clinical & Qualitative Benefits

2.1 Use of NeLH to resolve questions in normal clinical practice

The question set was:

- *Can the NeLH answer the sorts of questions that clinicians encounter in normal clinical practice? Can the clinician use NeLH to answer the question. Are there further opportunities for NeLH to be amended to best answer the questions? How should NeLH be presented to be efficient and effective in the clinical setting?*

The approach taken was:

- review of the literature on 'question-seeking' in normal practice, to ascertain the frequency and nature of such question seeking
- examination of survey data to investigate the sources used to find information on clinical guidelines, which are concerned with the 'what should I do, and how' questions of normal clinical practice.

2.1.1. Review of the literature on 'question-seeking' in normal clinical practice

Studies on question seeking in normal clinical practice need to consider several related themes:

What sort of questions and queries are generated in practice?
How often are questions generated?
Are these questions 'expressed' or not?
Are answers pursued or not?
What type of resources would be required to answer these questions?
How much time would be required to use these resources to obtain an answer?

The problem, from the viewpoint of the information system developer is obtaining the answer to the developer's question:

If resource X is made more available, more accessible, - will staff change their normal information seeking behaviour to use it?

2.1.1.1 Types of questions encountered in normal clinical practice

Studies are hard to compare and collate as different methodologies have been used but the following might be tentative conclusions:

- General practitioners mostly require answers to 'what is the cause of symptom X', 'what is the dose of drug X', 'how should I manage or treat finding /disease X' (Ely et al. 1999). They therefore need available information on specific drugs and therapies, and rare conditions (Urquhart and Hepworth 1995).
- Hospital consultants seek information for rare conditions, specific problems, specific drug or therapy queries. Their queries are closely bound up with their responsibilities for teaching and research (Urquhart and Hepworth 1995).
- Nursing staff seek information for formal educational purposes (teaching and learning), updating knowledge generally, and they also need information for patient care administration and care guidelines (Davies et al. 1997).
- Different forms of professional practice affect how these questions are viewed and formulated. For example, the research on 'question seeking' among doctors has focused on general/family practice (where questions might be expected to be fuzzier, and less specific). For the nursing profession, the literature, recently at least, is focused on 'reflective practice' and what this signifies for the way nurses view their clinical competence, and professional communication. The literature on nurses' decision making has concentrated more on areas such as critical care (e.g. Manias and Street 2001, Corcoran-Perry et al. 1999, Bucknall and Thomas 1997).

2.1.1.2 Frequency of question generation

This is less easy to estimate as the answer depends very much on the approach used in the research studies.

- For nursing staff, estimates are that information will be required (other than that immediately available) by around 80% of nurses at least once a week (Davies et al. 1997). Other estimates, which are concerned only with clinical needs, make the estimate lower: 22-56% have difficulties concerned with decision making at least once a week (Bucknall and Thomas 1997).
- For doctors working in general/family practice estimates vary – a small scale Australian study (Barrie and Ward 1997) cites a rate of 2.4 questions generated per 10 patients, a larger American study (Ely et al. 1999) cites 3.2 questions per 10 patients.
- The Value project (Urquhart and Hepworth 1995) indicated that formal expressed needs varied according to type of practitioner – 27% of GPs did not 'need information' in any one week, whereas only 14% of consultants did not 'need information' in any one week.

2.1.1.3 Expression of questions

The nursing research is not easy to disentangle to provide answers to this.

- For doctors working in general/family practice some studies suggest that most questions are not pursued. Typically (Ely et al. 1999) cites that only a third of questions are pursued. Other studies indicate that fewer questions may be expressed and that answers to those are generally found (Barrie and Ward 1997).

2.1.1.4 Pursuit of answers to questions

This is inevitably related to whether questions are expressed or not. Again, the evidence is somewhat conflicting.

- Gorman and Helfand (1995) concluded that two factors influenced whether or not questions would be pursued by primary care clinicians for an answer: the urgency of the patient's problem and the likelihood of obtaining an answer.
- Urquhart (1999) proposed a model, based on review of the literature that professional values were the first hurdle (is an answer expected from me, given my perceptions of the situation and my status), followed by factors such as the expectation that an answer can found, urgency of the problem, and that choice of source used will be governed by clinical applicability and accessibility.

2.1.1.5 ATTRACT project evaluation

ATTRACT was created in 1997 to provide evidence-based summaries to clinical queries generated by general practitioners in Gwent. The type of questions largely concern therapeutics, and the type of queries are often those which concern primary care and which are not in the more glamorous and popular areas such as cardiovascular disease where pharmaceutical companies could easily provide the information required, and where the systematic reviews are plentiful. An evaluation of the ATTRACT project (Brassey et al. 2001) suggests that GPs will use a service which provides rapid answers, clinically applicable, short and evidence-based. There is some indication that they will change practice as a result of the advice received. If the type of queries that arise in primary care cannot be answered quickly (GIVTS project, Urquhart et al. 1999; Gorman et al. 1994) then it is desirable to provide a service which will provide quick answers to questions. That in itself encourages more practitioners to question their practice. Drug information services in hospitals provide complementary services, but their services will be limited to drug information and the focus likely to reflect their acute hospital setting.

2.1.2 Sources used to obtain clinical guidelines

Staff who had attended training programmes in S Devon were surveyed to assess where they obtained information on local and national guidelines. The paper copy of the local guidelines has now been withdrawn and the up-to-date copy of the guidelines is available only on the Trust intranet.

Results indicated that half the respondents recognised that guideline information was obtained from the Libraries web site, just under half recognised that NICE (National

Institute for Clinical Excellence) was a source for information on guidelines. Few were aware of the NeLH resources – under 10% recognised this as a resource. (Table 5), and some of the guideline sources are already signposted on the Libraries web site.

Table 5: Resources used to obtain local and national guidelines

Resource	*Frequency (n= 73)*
S Devon Health Libraries web site	37
National Institute for Clinical Excellence	32
Local resource e.g. red book of Trust clinical guidelines/protocols	22
Clinical audit pages on the Trust intranet	19
National electronic Library for Health	7
Other	6

In some Trusts guidelines are one of the types of documents that are seen as the Central Repository – in a 'Documents library'. Staff need to be able to access this by subject, Trust, Directorate or Ward/unit level, and this requires careful assignment of indexing terms (by library staff in this instance).

> *'It is very much development at the moment...but basically you can do a controlled language search and that's part of my role to assign keywords to all of the documents, probably going to be using um the Wessex subject headings. You can also search through all of the content in all of the documents, which is really handy and you can limit the search by Trust...You can actually search by organisation if you want to, so you choose which trust you want, and within that you can then select the departments or the directorates and you can keep going until you get to ward level, which is quite handy and then you pick up which guidelines have been created by that particular organisation.'*

Integrating this work with the NeLH work on guidelines could be a challenge – not impossible but an example of the need to cater for local/national needs efficiently and effectively.

2.1.3 Examples of information needs in routine practice

A sample of health professionals were asked to provide examples of recent information needs, the search strategies they had used to obtain information, and how the information would be used in practice. These examples illustrate the drivers (see also Sections 1.6, 2.4) to information seeking – formal CPD, and the need for accountability in decision-making.

PAM

Needed: Information on whether exercise is beneficial for elderly patients with chronic heart failure.

Why: For course but chose topic for assignment because it is directly related to her work.

Looked: 'Absolutely everywhere' in terms of databases but cited Medline, CINAHL and EMBASE in the essay. Looked in journals - her own collection and anything that comes her way, and generally looked around.

Satisfied: Yes. She found one article that was 'spot-on' and lots of articles that covered the topic generally and supported the main article.

How will information be used: Used in essay but will have an impact on practice because recommendations have changed and now advocate exercise. This PAM is sending her assistants on chair-based exercise training programmes, noting more and more exercise is taking place on the ward, and she is looking to send patients to exercise schemes in the community.

Doctor
Needed: Information on whether to treat hypothyroid.

Why: Out of interest because the management decision was the opposite of the opinion of someone he had worked for in the past.

Looked: Asked the clinical librarian and also did own search.

Satisfied: Too much information really, a lot of the stuff that comes back from a general search isn't that relevant, but it was quite useful. There are no specific guidelines, just opinions but it's useful to get a cross-section of what people think and also the anecdotes that you don't get with trials.

How information was used: It didn't change the management decision but gave a feel for background information.

Nurse
Needed: Information on the ethics of the decision whether to withdraw treatment in ITU.

Why: For practical purposes on the ward.

Looked: Not sure whether she used a computer but went to the library and browsed for books.

Satisfied: Yes

How information was used: In developing a protocol for the ward. Needed to research what other units had done as a basis for the protocol.

Nurse
Needed: Information on leg ulcer assessment tools.

Why: For an assignment - a research proposal

Looked: Went into Biomed collection and accessed CINAHL through it.

Satisfied: Not much on there really. Tended to have assessment tools for chronic wounds not specifically leg ulcers and also most of it is community- rather than acute hospital-based. Mostly to do with primary care but she did find some information.

How information was used: Put into research proposal.

When asked where they usually go for evidence, the 8 interviewees at one site mentioned the following:

Medline 8
Cochrane 4
CINAHL 4
Ask the librarians 1
EMBASE 1
PEDro 1
Search engines such as Google 1
Critical care forums websites 1
DoH website 1

2.1.4 First impressions of NeLH: desired improvements

As interviewees at one site had only recently consulted the NeLH their views were sought

on how the site could be amended and presented to best meet the needs – what might be off-putting on a first visit. Their views (comments below) are collated with those of librarians interviewed.

- Make the front page simpler. (It must be noted that other interviewees liked the idea of seeing everything in one place, Section 2.4.4)
  It's 'too crowded' (Clinician)
  'horrible' (Librarian)
- Improve navigation.
  'Sometimes I found it quite difficult if I was looking in one engine or one area. Like I was looking at NICE for something and then getting out of that and getting back to the home page. I ended up closing out again and having to go all the way back in.' (PAM)
- Introduce a meta-search tool. (idea from librarian and also related to an idea from one of the regional librarians, and a clinician who thought it would benefit from a way of pulling information from databases or VBLs into the main site so that one click would get you to the information that you need) (See also Section 1.2.8)
- Introduce a facility for collaboration so that users can recommend sites to be included as with SOSIG (idea from librarian)
- Give a feedback 'let us know what you think icon' (this now exists)
- Could include a simple guide to evaluating resources and/or information or a star-rating system so that Cochrane would for example get five stars and other, less rigorous, resources such as Medline less stars. (idea from one of the regional librarians)
- One clinician said that when she looked at the list of databases she didn't have a clue what most of them were. There is a clear need for training here but would a brief description of the databases be useful?
- Make sure that it is kept up-to-date.
  One regional librarian gave example of a clinician who got excited about one of the VBLs but then found it hadn't been updated for 18 months.
- If used for Cochrane and Clinical Evidence then it's been good – as a whole product it's 'getting there', I don't think it's by any means there yet (library manger)
- Several of the library professionals are focussed on the perceived lack of communication between the NeLH and the library world. They feel that the NeLH would benefit from more input from librarians and that there should be consideration to how it could link in with regional projects.

2.1.5 First impressions of NeLH: potential useful features

Interviewees in Leicester were asked which features of NeLH they would find most useful. The popularity rating emphasises the importance of having an authoritative, and easily accessible source of information on guidelines.

Access to NICE	5
BNF	3
SIGN guidelines	1
Other guidelines	2
Cochrane	2
NSF information	2 (NSF, National Service Framework)
NHS Plan etc.	1
Table of contents	1
BMJ	1

2.1.6 Summary conclusions

Can the NeLH answer the sorts of questions that clinicians encounter in normal clinical practice? Can the clinician use NeLH to answer the question. Are there further opportunities for NeLH to be amended to best answer the questions? How should NeLH be presented to be efficient and effective in the clinical setting*?*

The literature review indicates that many clinical questions that arise in practice are not pursued. More questions might be pursued if it was professionally desirable to do so, and if there was a likelihood that answers could be found easily.

Procedural information (what should I do) is more readily available now with the publication of clinical guidelines (the work of NICE, for example) and a survey of common information queries shows that practitioners need and value easy access to guidelines, and that a 'rapid answer' service is also valued if they do not have time to deal with the queries themselves.

2.2 Transfer of improvements in knowledge into improving practice

The question set was:

- *Does the Pilot NeLH (plus any improvements in local library service as a direct result of introducing the NeLH) produce improvements in knowledge and contribute to improving the quality of health care, i.e. is there evidence of transferring any improvements in knowledge directly into actually improving practice?*

The approach taken was to synthesise data obtained from postal surveys and telephone interviews with staff. Given that the NeLH and resources within NeLH may be linked and hyperlinked in different ways on Trust intranets, questions and interviews had to be more general and the approach taken was to find out which resources might be used most frequently. In one survey health professionals were asked to give an opinion on whether the information obtained via the library web site had had an impact on practice, and if so, to give details. Summary conclusions are provided in Section 2.2.5.

2.2.1 Comparative popularity of evidence-based knowledge resources

The NeLH offers two major evidence-based database resources: Cochrane and Clinical Evidence. A S Devon survey provides details of the comparative popularity of various resources signposted on the library web site, including Cochrane and Clinical Evidence (Table 6). The comparative popularity of Cochrane and MEDLINE regionally can be estimated from synthesis of various database evaluation surveys of regional networking arrangements (See also Section 1.5.4.2).

Table 6: Features of the S Devon libraries web site used

Libraries web site feature	*Frequency of use (n = 73)*
Clinical databases (CINAHL, BNI, Embase, Psychinfo)	49
Information for patients	38
Library catalogues	31
Clinical Evidence	26
Cochrane	25
PubMed	20
Clinical gateways	14
Other	4

On the Web site, MEDLINE is signposted as available either under the regional networked database deal (Clinical Databases), or free via PubMed. Unsurprisingly, the set of Clinical Databases are the most frequently used feature, but Cochrane, Clinical Evidence and PubMed are also used. Given that the numbers who have attended special training for these databases is far fewer than those who have attended the basic Internet training programme, usage is relatively high and the demand is apparent. The popularity

of 'Information for patients' is notable. This part of the website provides links to local information on support groups and community information, as well as corresponding national information, including NHS Direct Online. The site is set up with the needs of practice administrative staff in mind as this enables them to answer common patient queries, and queries which the GP has delegated to them on the patient's behalf.

Surveys of database usage across several regions (Section 1.4.5.2) indicate the MEDLINE is the most popular database, followed by a group which include Cochrane, CINAHL, full-text journals collections (if available), Embase and Psychinfo. These surveys do not include 'Clinical Evidence', as it was not offered via the database networking deal and is usually only available via NeLH. It is interesting to note that this is already a popular database in the more recent survey.

2.2.2 Impact on clinical decision making

2.2.2.1 S Devon survey

Respondents to the S Devon library survey were asked whether the use of the Internet (or Clinical databases, PubMed, depending on the training received) had had any impact on their clinical decisions, actions, or learning. Slightly fewer (37.6%) said it had had an impact, than those (44.4%) who said there had been no impact. Comments were provided by 18 respondents.

Four respondents provided comments indicating that they had gained a better view of the evidence, and that they felt more confident that they were up-to-date, e.g.

'by updating my knowledge for evidence-based practice'

Five respondents indicated that information obtained had helped in making decisions based on good quality evidence, e.g.

'I feel I make more evidence-based decisions'.

Three respondents were impressed at the speed of access, making learning far easier, e.g.

'made learning easier – more accessible'.

Two respondents commented that easier access had altered their information seeking-behaviour and that they were more inclined to look for information now, e.g.

'more inclined to look for information now'.

For another two respondents, the main impact was helping in patient education directly and immediately, e.g.

'being able, with the patient, to find out information I don't know'.

'

Two respondents also commented that the availability had shown them that there was much to learn and that they realised that skills were required to ensure that searching was effective, e.g.

'less confident that the information is accurate'

2.2.2.2 N &Yorks networked database evaluation

A survey in N &Yorkshire region, on a database networking service which provides access to Cochrane, Medline and a journals collection (among other databases) gives a similar spectrum of comments:

'saves enormous amounts of time. Invaluable tool for evidence-based practice' (consultant)

'OVID has revolutionised my practice and has increased my confidence' (consultant)

'The convenience of access in the workplace has been vital to the development of our journal club as support to CPD, and for education of our trainers'

(consultant psychiatrist)

'Despite limited use found the site appropriate and helpful' (community psychiatric nurse)

'Very useful for gaining information on recent advances' (nurse)

2.2.2.3 Leicester survey

Most interviewees in Leicester were relatively new users of NeLH and provided initial impressions of what they had found immediately useful.

One consultant used it to print off guidelines, which he thought was good because it saved him having to search around a lot.

'I think being aware that that is to be a resource for guidelines, that will be very useful. It will save searching around for them surely. I mean I'm aware that you know for instance with the use of aspirin…there's been quite a bit of published work on it but it would be a matter of searching all sorts of various places to bring things together.' (Consultant)

He had no problems using NeLH and found it *'well set-out'*.

The other consultant used it to access recommendations for people with acute MI.

'It was good. I was looking at the recommendations for people with acute heart failure, acute MI. And it was very brief. You know, it's just bullet points really which is useful. You know, I treat people with MIs all the time and that's a really useful way of getting to know what the recommendations are.'(Consultant)

One physiotherapist used it to set up alerts for table of contents. She also accessed NICE and printed off guidelines relating to an operation that had taken place the previous day.

Access to guidelines was particularly popular across the range of job-types. Basically though, people were pleased to find such a range of resources available in an easily accessible format.

'That's the best thing about it. Instead of going to the Department of Health and sifting down you can just go and get quite a few different documents at once.' (Nurse)

'…the Department of Health website was just a nightmare…that is very difficult to use…so to compare the two, you know, the NeLH one is much better.' (Consultant)

'Keeping track of what's happening in the Health Service is very very difficult…. So, those sort of things, having easy access to those sort of things is very helpful. Even summaries.' (Consultant)

'…it is very difficult obviously to keep a track on various guidelines but surely extremely important to do so. Obviously those sort of things may be published in some of the specialist journals etc. but my work is really very general so I can't be reading the specialist respiratory journals and the cardiology journals etc. So as some central point of reference, I think it will be very useful, yes.' (Consultant)

2.2.3 Changing practice: vignette to illustrate how NeLH could help

Despite the training and promotion of electronic information services, many health professionals rely on paper based sources to keep themselves up-to-date, and value the opinion of experts when they encounter a problem. Practice is changing, and for some the Internet is already part of the 'personal collection of sources' (VIVOS) but the following extract from an interview with a midwife shows the importance of training which demonstrates the benefits of using particular electronic sources. Reliance is placed to

some extent on expert opinion and personal collections of research journals provide a prompt to reflection on practice.

> *'[Interviewer: Can you tell me where you would usually look for clinical evidence when you need it?]...Well, I take MIDIRS and I take the British Journal of Midwifery, and I also use the library in person. So you are looking at hardcopy? Yes. [Interviewer: And would you look on the Web?]... Yes, I would...[Interviewer: And not Cochrane because you have not been trained on it?]... No...Well it [British Journal of Midwifery] provides me with an evidence base I think and I would use it, I don't use it as the Bible, and I don't use it as rote just because I read it...I use it within reason and only when I think it's applicable to my practice... ...this week we had to have a look and see about giving Anti D [immunoglobulin] in the early stages of pregnancy to people who had miscarriages because we had conflicting advice.. and in actual fact when they rang a leading London hospital they were told because she had had surgical intervention she did need Anti-D. And then when we went back to the hospital we found that in fact this was the case. But only by looking at the national guidelines did we realise that there had been an error. And hopefully that will now be corrected...I am actually still investigating it at the moment...it has implications for local policy....*
>
> *... [Interviewer: Have you ever accessed the National electronic Library for Health?]...No [Were you aware of it before I spoke to you?]...No...Well, it sounds interesting, if I had the wherewithal to access it then yes I certainly would, and if it was applicable to what I needed then yes'.'*

In fact, this midwife could have accessed the NeLH. If she had known to look in the midwifery professional portal, and do a search there (actually on the Resource Discovery Network for Life Sciences) using the term 'anti-D' she would have been pointed immediately to the RCOG Practice Guideline on the Use of Anti-D immunoglobulin for Rh prophylaxis, which is available on the web, as an html document. The guideline is valid until 2002.

By checking the NICE site she could have found that the new guideline is part of the NICE technology appraisals work programme (by simply entering the term 'anti-D' in the search box), and with a little more effort and fiddling about, she could find out that the body responsible for doing that updating is the School of Health and Related Research in Sheffield.

2.2.4 Developing protocols, conducting audits

Health professionals are aware, as the following interview extract indicates, of the problem of finding the 'needle in the haystack' – the evidence among the chaff. This nurse practitioner was conducting a series of searches for an audit of pre-tibial lacerations.

> *'[Interviewer] Have you ever accessed the National electronic Library for Health?...I think I might have done, but not intentionally, just for a look...If it was the one I am thinking of, it was actually surprisingly good, I was quite surprised actually, but I think it was very good information and if that information is available to the public then I think that is quite good....[Interviewer: And did you find it easy to use, intuitive?]...Yes [Interviewer: And do you think you would access it again in the future?]...Not especially no, because if I was looking for information about, most of the information there was fairly basic and if I need to know about a condition or illness or injury, then I would probably look into it a bit further... ....Um, well I mean clinically it's always quite difficult to keep up-to-date, to keep on track of certain, of most up-to-date treatment. I am looking into doing this audit on pre-tibial lacerations I found 4 articles on PubMed and only one of them has been written in the last 20 years. Whether that's just me going into the wrong things, or whether it's just not there I don't know...Sometimes it is quite difficult to wheedle it down and especially when it is worldwide, from a nursing point of view it takes a long time, to get 20 relevant articles on something, you might sit at the*

computer for 10 or 20 hours to get only a handful of relevant articles. It's just time'...
[Interviewer: When you were looking for this information where did you look?]...PubMed, and the BNI... it was all dated the PubMed stuff most of the information was written in the 1970s, there was one written in 1992. It's a very common injury... it's to establish best practice just to make sure that what we are doing is correct, if there is anything we can do to improve the outcome. There are huge cost implications for these injuries because generally they take ages to heal, they are predominantly sustained by the elderly population and if it ulcerates then we are looking at a massive cost implication and that could be possibly be prevented.'

This vignette illustrates some of the problems in locating evidence where it seems there should be evidence, but there is little nursing research on the topic. There was nothing wrong in the searching strategy – there is little in MEDLINE on the topic, although the topic is emerging as a one of interest. Science Citation Index yielded a recent article in *Academic Emergency Medicine* on risk factors for infection in patients with traumatic lacerations. The abstract states, with some understatement, that *'traumatic laceration management has not been well studied'.*

Unsurprisingly, NeLH cannot provide the evidence where none exists – the search on PubMed via NeLH would now retrieve the article in *Academic Emergency Medicine,* but it would require a broad search as the indexing is not yet complete for that article. Various other routes were tried but yielded nothing.

2.2.5 Summary conclusions

Does the Pilot NeLH (plus any improvements in local library service as a direct result of introducing the NeLH) produce improvements in knowledge and contribute to improving the quality of health care, i.e. is there evidence of transferring any improvements in knowledge directly into actually improving practice?

Surveys of database usage indicate that the large databases such as MEDLINE are still more popular than the evidence-based databases such as Cochrane Library and Clinical Evidence. However, given the comparative subject coverage, and the recency of the introduction of Clinical Evidence, it is already a surprisingly popular database, and usage of core evidence-based databases on NeLH is likely to increase.

The impact on clinical practice of information obtained from searches on Web-based resources, including resources available via NeLH suggests that greater availability of the evidence makes clinicians more inclined to enquire, and that continuing professional development is far less of a chore than it has been. Health professionals feel that the information obtained has given them greater confidence in making clinical decisions that are evidence-based.

Health professionals appreciate easy access to the evidence and summaries of the evidence. It is also important to be reassured of the status of the evidence: if evidence does not exist on NeLH, that should mean it does not exist.

2.3 Evaluation of the role of Virtual Branch Libraries (VBLs)

The question set was:

- *With regard to Virtual Branch Libraries, assess their credibility, usefulness, role in information dissemination and ability to marshal knowledge in their area*

The approach taken was to interview co-ordinators (4) of VBLs, complementing that with interviews of health professionals and librarians for their views of the effectiveness of VBLs. Conclusions to the Section are set out in Section 2.3.5.

2.3.1 Credibility of VBLs

Credibility of the VBLs is assumed to mean the extent to which professionals and patients might believe and trust the content of the VBL, and the approach taken on what should be included and excluded.

Fitness for purpose requires some experimentation with policies for inclusion and presentation of information.

> *'My sense of the VBL is that we have at the moment a policy for including material that's inclusive rather than exclusive...what we are trying to do is to create a way in which the person who is using the VBL can know exactly what it is that they are looking at ...are they looking at the outcome of a systematic review, are they looking at the experience of Fred and Jo on a Thursday morning in Kidderminster... you need to know whether it's fit for your purpose or not ...I mean for me the single biggest issue is how we can develop a site that enables people who don't use written language as their means of communication to gain access to information'.*

What makes the VBL different from other sites that may also share some of the ideals for patient advocacy is the emphasis on evidence.

> *'And I think for me the different and specific nature of what we are trying to do...is this kind of systematic approach to reviewing evidence...and we should leave the discussion forums and some of the accessibility stuff to these other sites but link into them very clearly.'*

Another VBL co-ordinator spoke of the importance of the relationship management involved to ensure that the product would be useful, though being universally useful was a challenge, unless funding was less constrained.

> *'initially to support the immediate requirements for primary care and what patients or the public would require, but it wouldn't in any way satisfy secondary care or specialist services, or health commissioners because that type of information...that would just cost a phenomenal amount...but part of the relationship management I have been involved in it is to ensure that...despite many commissioning threads...we can end up with a cohesive product.'*

2.3.2 Usefulness of the VBL

Usefulness can be judged in several ways. There are some email feedback responses but these are unlikely to give an idea of the general perspective.

> *'All I have got is the kind of feedback that I get from email responses...and they are not overwhelming...I mean I have had some interesting debates with some family members who've accused me of being uh...somewhat autocratic and totalitarian in my definition of learning disability, but then I have had some very positive feedback from people about ..simply creating an appropriate portal for uh.. links into R&D sites, links into sort of national guidance.'*

Usage figures from the web server statistics give some indication of the likely patterns of usage (Figure 4). Publication of an important document (e.g. National Service Framework on coronary care) can increase the number of requests considerably, a conference (e.g. *Health Care Computing* in March can mean that requests are higher around that month than for other months). Figures obtained from the Mental Health virtual branch library confirm that. The figure for 'unique visitors' hovers between 10,500 – 14,500 (e.g. August 2001: 11,573, March 2001: 14, 518, April 2001: 12, 464), but there was a peak of 17,395 in May 2001 coinciding with the release of a schizophrenia website (NHSDO). UK traffic accounts for 41% of the mental health VBL. What the pattern does indicate is the importance of keeping content up-to-date, adding new content and features to attract new users. VBLs which do not do this, or are experimental (e.g. diabetes, and cancer) have initial usage which is not sustained, as far as can be judged from the web server statistics.

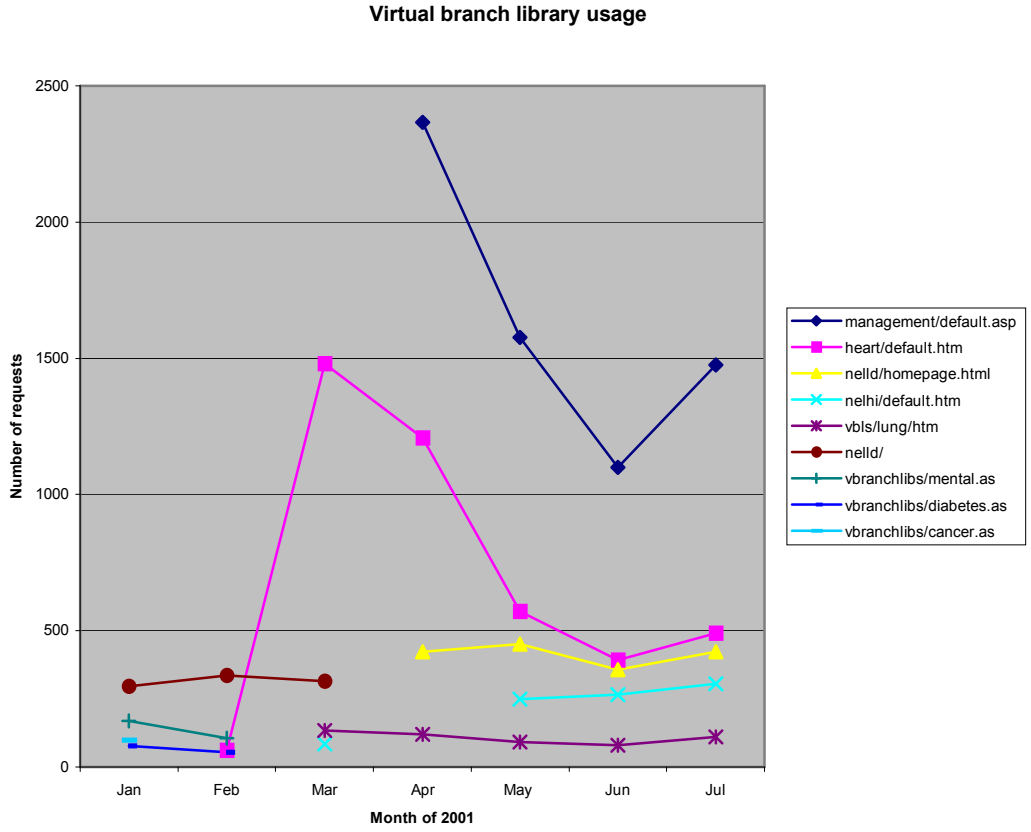

Figure 4: Patterns of use of Virtual Branch Library pages

2.3.3 Role in information dissemination

The role of the VBL can be seen as a channel, content provider, filter, or ensuring that those who need the information receive what they need, however need might be defined. One VBL co-ordinator saw this in terms of 'equitable access' – and this would include finding appropriate ways of presenting information, both in terms of format and the medium used.

> *'..when you can sit with your remote control in the living room and point it at your TV..*
> *...what we are talking about is deconstructing some of that....and just finding ways in which we understand what it is..*
> *...equitable might not be a common solution for all, but a variety of solutions that meet the needs of a variety of, of different people'.*

Another VBL co-ordinator talked about the need to consider specific groups of audiences.

> *..so I mean our vision for what we are doing in mental health is to produce four interfaces specifically aimed at patient, primary care professionals, mental health professionals and people who make policy decisions. And to give information to those people in the format that is useful to them, so that they can read it and digest within those fifteen seconds'*

Another VBL co-ordinator brought up the debate about language, and the need to make a 'health channel' attractive enough to compete with 199 other channels on digital TV.

> *'the minute you have digital TV you can have 200 channels, so you know is health promotion going to be sexy enough to vie with all of that...*
> *...and some of the language barriers within those communities are very well connected with cultural and social barriers and maybe simple English is a much more neutral language to use without any other implied connotations that may*

come with a translated service, and yet others would say most people most in need of information are those people who are least able to understand simple English and therefore we must have a translated service and one of the problems of course when you translate from English to any other language are the nuances and then the question then is who translates, who validates the translation and then you multiply the cost, and given that we have a finite resource it's a difficult one.'

To effectively disseminate information some consideration needs to be given to the terminology used by different groups of professionals, particularly if the VBL, and the NeLH itself is to mesh neatly with the work done on the EPR and the Headings project. Possibly a search engine approach might help?

'In order to do the one-stop-shop however, you need to index all your material in a systematic way and we don't have that. One of the major problems we have in the electronic library is that we do not have a systematic indexing system...they are almost in a way proprietary or unique to each VBL'

2.3.4 Role in knowledge management

Knowledge management can be defined in different ways but the definition considered for this Section is concerned with the marshalling of tacit knowledge which can often be the sharing of experience but might also be the definition and formulation of a research problem: to decide what is and isn't known, how to relate this to related evidence and also set out a research proposal to fill the gap in the evidence.

'...What we are trying to do with the VBL is to meet with the Valuing People implementation team and to start to have debates about how we can use the learning disabilities VBL ...developing this two-way communication between our regional colleagues in terms of how national provision can help local guidelines...

When new initiatives are being implemented, for example

'...we ought to be able to act as a conduit for that kind of policy development information...question and answer briefing'

A VBL can foster the sense of community, to provide the setting in which evidence-based practice can develop and flourish successfully. Cochrane reviews are useful but sometimes limited in clinical application, and that message needs to be conveyed to the community in a professionally credible manner.

'and the thing that those libraries (VBLs) have...is improved content and a sense of community, and a lot of content that doesn't exist in the core NeLH, either in the Cochrane format or the guideline format or whatever....
...there's always examples of reviews that have clinical bottom lines which are skewed because of unfinished studies or because of the way the results are presented...so if you look at our interface for interpreting a Cochrane review it would say this is what the Cochrane review says but be careful because this and this and this...often to be fair the Cochrane review says that themselves.

Evaluation of changes in practice may need to be seen long-term.

'I think the long-term evaluation that would be interesting would be to evaluate the content that we develop for professionals for schizophrenia and suicide and...with these general resources like Cochrane and Clinical Evidence and see whether first of all they can answer their questions better, whether it's more user friendly and also it has more positive impact'

Often the VBL has a secondary research role, in pulling out information from a document, which provides the evidence.

'that we presented on the depression-schizophrenia website that had been a side effects information...comparing tricyclates to SSRIs...a table of likelihood of getting dizzy or sick or not being able to sleep...and we got that from a Canadian Healthcare Technology Assessment review...a thirty or forty page document...but

it's hidden...so putting that information in a tabulated form...is incredibly useful and a very practical thing to do.'

VBL work could contribute to care pathway development (opinion from another VBL co-ordinator).

More directly, the role of the VBL needs to be seen in relation to National Service Frameworks (policy perspective), and at the EPR/EHR level (clinician perspective). Those working in an area affected by an NSF need to have the 'frequently answered questions' provided for them with appropriate links. To make the NSF effective, to change practice and enable learning will require:

'...an EPR/EHR for [specialist area] meshed with the knowledge resources and integrated with an e-learning package that would draw upon the knowledge resources that are already in there.'

2.3.5 Summary conclusions

With regard to Virtual Branch Libraries, assess their credibility, usefulness, role in information dissemination and ability to marshal knowledge in their area

Virtual branch libraries can help in knowledge management by supporting the process of making tacit knowledge explicit. Users of VBLs – and users could be patients as much as professionals – need to know the quality and 'fitness for purpose' of what they are viewing.

If VBLs are to work effectively to support clinical knowledge management, then their use within an EPR environment needs to be considered. That requires work on terminology, indexing and headings.

Those responsible for VBLs could provide a 'value-added' approach to information provision by extracting and manipulating evidence into a user friendly format, with appropriate comment – in a similar manner to Bandolier but serving specialist rather than generalist needs (as Bandolier does).

To be effective – and used – VBL content must be kept up-to-date and do everything appropriate to encourage involvement of the VBL stakeholders. Approaches may differ (as stakeholders differ) among VBLs.

2.4 Role of NeLH in managing clinical governance and lifelong learning

The question set was:

- *Will providing the NeLH support local NHS organisations in managing Clinical Governance and improve opportunities for lifelong learning facilitating the delivery of the objectives of the NHS Plan and NSF Information Strategies?*

The approach was to examine how NeLH and related services are used by health professionals and other NHS staff to support CPD, and how clinical governance representatives view the effectiveness of NeLH resources in their work. Section conclusions are in Section 2.4.5.

Data from various sources contributed.

- Survey of NHS staff in S Devon
- Interviews with clinical governance facilitators (2)
- Interview with expert informants on care pathways (2)

2.4.1 Use of the Internet for supporting practice

S Devon staff were asked how they used the Internet for work-related purposes and to give some examples, if possible (Table 7).

Table 7: Use of the Internet for work-related purposes

Purpose	Frequency (n = 95)
Learning – coursework, assessment requirements	35
Patient care – rare condition or specific problem	28
CPD – updating knowledge	24
Teaching – staff/student/colleagues (e.g. mentoring)	16
Patient care – audit/standards/guidelines	14
Patient care – specific drug or therapy	13
Patient care – patient education/advice/counselling	13
Publication – paper/review/book	9
Other	9
Patient care – administration/management (e.g. records, rotas)	6
Research – e.g. funded project or research degree	5

The demand for easy access to resources for CPD purposes shown in this recent survey is apparent (and is in line with previous studies). In a medical school or clinical sciences faculty setting research-related purposes would have a much higher priority, as would publication.

Some respondents gave details of their requests:

Directly related to educational purposes:

'testicular cancer statistics for course work'
'for coursework for an essay'
'for care of the elderly course' '

Clinical procedures and therapies:

'gout diet'
'details on MMR injection'
'undertaking ECG procedures'
'search for information on prostate cancer"

Protocols and guidelines

'clinical protocol'
'to search evidence supporting use / NRT'

Patient advice and counselling

'search for a charity website'
'for a patient, for information on Alzheimer's'
'looking up DoH website on shared services'
'information for a family'
'I needed to find a national organisation for epilepsy sufferers for a patient'

One indication of possible change is the need to be seen to provide patients with information and advice. Comparisons with previous surveys are difficult as the results are likely to depend on the proportion of different health professional groups within the sample. For example the Value project c. 1994 found a very low proportion of information seeking requests for doctors were concerned with patient education, the EVINCE project c. 1996 found a much higher proportion of nurses' requests were concerned with patient education. The proportions were reversed for requests for information about rare conditions.

2.4.2 Use of NeLH in supporting clinical governance

Clinical governance leads see the role of the Clinical Governance Committee as potentially more one of setting priorities, supporting the processes they have put in place and monitoring where people are getting to. This means that on a regular basis clinical teams will have to be doing systematic searches for a whole checklist of things (including guidelines, NSFs and local Health Improvement Plans). Clinicians will need access to sources that will enable them to achieve this effectively and easily. In one area (at least) they are thinking of involving the librarians in this review process

'And what we're actually doing is we're trying to encourage clinical teams, every

> *clinical service and what we call every locality which is how our area is broken up, to review on at least an annual basis all the relevant priorities for their particular specialist area. And look at what if anything is appropriate for them to implement and look at what their priorities are in doing that over the year....*
> *…instead of having the librarians doing something out in the ether what we might ask them to do is to specifically support the various, not at every team level that would be too low, but if we've got a timetable going we could support at maybe service-group level. That searching activity on an annual basis and they can have some expertise into that. Because as ever, you can put stuff out to help people search for themselves but they won't necessarily keep up to date but the librarians it's their job to keep up to date. And if we can build on what we've done with them so far and being a clinical support service we can build them into the system…' [Clinical Governance lead.]*

One problem is the difficulty of reconciling and collating information from different clinical teams. With poor information infrastructure Trusts may not yet have a system for formally collating the work on performance measurements that individual clinical teams have historically been carrying out, based on databases teams have developed themselves in the past or on nationally-agreed scoring systems. While there are national performance assessment frameworks to be adhered to, there is little directly relating to mental health trusts, for example. Therefore Clinical Governance leads prefer to set the expectation that outcomes will improve and monitor the processes being applied by clinicians to ensure that this happens.

> *'Again it goes back to this point: is it better to say "we would like to see individual clinical areas monitoring their patient outcomes and if you like we know that they are doing it" rather than 'we'll try to put together a package of monitoring outcomes at a Trust-wide level". And our view is the former not the latter.' (Clinical Governance lead)*

Clinical Governance leads are more likely, unsurprisingly to see the importance of integrating lifelong learning attitudes with evidence-based practice support and specific training associated with that.

> *'Now, in addition to that we have various evidence-based practice training programmes going on. We've got a sort of cascade system across the Trust with Leeds have got themselves trained, we've got in-house workshops going on. And all of those, we've got individuals throughout the Trust and an increasing migration of them who are learning about general evidence searching but also specifically how they get things like guidelines and other things.'' (Clinical Governance lead)*
>
> *'My main responsibilities in that are to facilitate clinicians in prioritising what they need to do and then helping them to do it!…I encourage them to look at the whole range of clinical governance activities' (Clinical Governance lead)*

Professions which have traditionally had a poor evidence-base are now beginning to change. This can be seen in the way professional training is changing its focus, and the new emphasis on problem-based learning will accelerate this. As new professionals with more sophisticated information-seeking skills filter into practice and become involved in lifelong learning programmes resources such as the NeLH will be needed to support their requirements.

> *'The training is looking at self-examination of what you're doing a lot more as well. Certainly at Nottingham and Sheffield I was on a course in the week looking at their undergraduate programme and they're doing a lot more "go away and search for the evidence on this" and then learning by looking at what evidence is out there and coming to their conclusions about it.' (PAM)*

Such changes are not yet universal, though. Other students rely on being provided with, and guided to, the appropriate information.

> *'I would look up the Internet but with our course you don't generally need to ...we*

will do this year but in the past we've not really had to. We've used programs the university provides like tutorial programs on how the body functions [Interviewer:...What information do you need to help you achieve your special study module]..:Medical journals and a recent search, I'm doing it on human contraception so any information on that would be good, any other information is general ...available from text books but for me journals are a bit difficult to get hold of...as a medical student you don't really know how to get hold of them whereas if you are a doctor you just get them sent out to you. I just don't know how to go about getting them (62113, from text units 54-940, JUSTEIS Cycle Two report)

2.4.3 Views from care pathway developers

The National Pathways Association is a non-profit making organisation involved with the promotion and development of care pathways in the UK. NeLH was seen as the place to put up information about existing care pathways, so that they are easily visible, easily searched and in a logical place, rather than set up a separate website or deal with enquiries by phone. The pathways are there for all to see, plus contact names for further details. Promotion is required but people are now finding the site.

'..and people are beginning to come back to me now saying they're getting phone calls from people who have found them [care pathways] on the site'

The value of having the care pathways on the NeLH is that the other literature that people will need is also there, one or two clicks away.

'...and they're all saying well, we're all going to search for the literature in the same areas. They're beginning to use it[NeLH site] for that so it's very useful.'

Practitioners need encouragement to see the connections between the knowledge sources, the application of knowledge, sharing of knowledge and generation of new knowledge. Future site development should make those connections more transparent.

'...there's a guidelines sort of library...there's other libraries...so, for example if you have a sample pathway up there...you should be able to double click on the piece of evidence and go to the guideline or go to the article...they're a bit like separate silos at present...and putting the effort into making the connections would have far greater benefits than putting on more information.'

Development of care pathways is a process that involves liaison with many groups of professionals as well as patients and clients.

'Look at innovation in the form of care pathways and to explore where care pathways fit in the scheme of things of things and find out how they can improve care for patients, how they fit into national guidelines and standards, NICE standards, and how we can look at minimum standards of care that are best practice for our patients and clients and make it more patient centred as well. My remit is to develop care pathways with groups of people that have shown an interest in the first instance to see if they do make differences to outcomes for patients...

Access is required to existing national standards, National Service Frameworks, NICE guidance, although sometimes the evidence does not exist.

...There are national standards, which relate to an individual care pathway, for instance the pathway for older people has the NSF for older people the standards and guidelines from that embedded in it. There may be NICE standards embedded into a dementia care pathway around early recognition and what drugs one should be using. When we begin to look at a pathway we look at evidence to support what we are doing and we try and embed that evidence into the care pathway, so that we can say to people, we are asking you to do this and when they say why? We can say, well the evidence shows, we can't always do that, there may not be any evidence out there. The government, when they come up with their NSFs and guidelines it's very helpful for me, because I can say well, it's based on this or that evidence, or research evidence.'

Work from other pathway developers is useful as background, although there is always a local element to any pathway development.

'But the evidence tends to be at a certain level of detail and a pathways I think is more detailed than that. The pathways will details or describe the steps to take to make sure you're following the evidence, generally, and that's where your local adaptability will come in.'

The NeLH (Care Pathways link) provides details of contacts and work done elsewhere...

...I use examples from it, one of ours is on there as an example, there is an electronic directory on there it gives the names and contact numbers and the pathways that are being developed, the problem is that often those people have moved on. Or it's not terribly helpful, sometimes they'll send a pathway but some charge £40. We share everything we would never do that we share with everybody, but with experience I find it's not terribly helpful to look at other peoples' pathways, because they are developed locally. Some of the templates are useful, some of my pathways are checklists, some are whole documents, some are flowcharts. It depends on what we are looking at, who we are targetting, and the need. I like flowcharts because they are easy to look at, but sometimes you need much more documentation for the whole pathway, the episode of care, as the patient progresses through it.'

Many levels of evidence are required.

...Well, we accept all levels of evidence, and certainly from my perspective if we are looking at qualitative stuff for me that's just as important as, particularly if we are looking locally at patient user groups or carers and their perspective...

Searching involves many people and is comprehensive..

...Well, we would have looked for RCTs of the drug, Cochrane and all the other access points, Medline's a good one. Certainly, the psychologist and psychiatrist on our group would have had more access. I am not an expert in mental health or dementia care, so my colleagues would have used the resources that would get them the evidence required, so as a team we would have come up with the evidence to support and then when we get round to referencing which we are just doing, we have come up with our pack of pathways now. The referencing is being done by our clinical psychologist and he is relating everything back to the evidence and he would certainly be using… The searching is shared around between the team, but normally I say to the experts in the group, what evidence have you got already and certainly it's not just about national, or that sort of evidence it's about locally what are your standards, what guidance do you use now? And for them to go away and find those things as well.

I tend to stick with the library sites and go through there and I mean that guides me through, and I have got the leaflets which tell you which databases are best for the particular research issue. I go into my Intranet and I go through that, and the other thing I do I just go into my library and I just trawl through the journals, I just look through the titles and hand search, I do that quite a lot. ...

NICE guidance is vital when there are cost implications for embedding use of certain drugs in a care pathway

...The information from NICE on Arisat ultimately informed our embedding it into the pathway, we already had a lot of evidence that demonstrated that it could make a positive impact on people. The NICE was the clinching evidence, because they had done all the research and it was very robust & once they came up with it we said, great!'

The value of the national perspective in this case was that the national guidance provided the vital back-up. Knowing about other people's pathways is sometimes useful, but often it may be a process of elimination, to know that the work must be done locally as there is nothing else that can be adapted easily to local needs. There will be some local variation but there is also the possibility that some pathways are better, in some ways, than others. Eventually there may have be a quality standard for care pathways.

'But I do think that's actually very important that we do get a badge of quality for care pathways and I suppose that's back to the lack of definition, lack of standards being done centrally...there needs to be a common consensus about what does make a good pathway.'

This will require some effort in developing and validating an appraisal tool. Eventually the NeLH might become a repository for accredited pathways.

Ownership of guidelines is important. Staff have to review what they are doing and very often change what they are doing, not just once, but possibly again in a year's time when the variation reporting embedded with the pathway indicates a review is necessary, or new guidelines emerge and need to be incorporated in the pathway as it is reviewed on an annual basis.

Encouragement, support and clarification are required to ensure that staff understand the principles of pathway development (and do not get bogged down with problems of definition). It is not an easy process and staff can easily get demoralised at the stage of designing documentation, when they could learn from the experience of others

'that's an easy area where you can share that knowledge and expertise really quite easily.'

Organisational support at the top is a critical success factor.

'It's not about getting one pathway in, it's about getting the ethos of pathways across the organisation'.

That need for top-level support is another good reason for putting the care pathways site alongside a Management Virtual Branch Library. Possibly this helps to get the message across, to emphasise the importance of care pathways, and time required to develop care pathways. Facilitating care pathways can be inspirational, but it also can be stressful, and managing change takes time.

'One of the issues they have and this is right across the board is the issue of taking people away from clinical time...because to facilitate a pathway...you really do need some time protected for it...

...to define a pathway, huge, huge issue and people "we can't do it" is their instant reaction. And it takes ages to say "well try it"...

...not underestimating the change in thinking that you have got to try and think about or provoke.'

2.4.4 Views from health professionals on NeLH in supporting clinical governance

These views largely concern the ease of access – the idea that it is all there in one place. Despite the negative views of many librarians about the front page being too crowded (Section 2.1.4), there are advantages to this from the viewpoint of the health professionals, in providing a good perspective of what is on offer, and encouraging users to explore elements and features they might not have found otherwise.

'But the thing that made it nice was the fact that they [guidelines] were all there together…'(PAM)

'There aren't many portals that have just about everything there. And the links to everything there in that one, that was impressive actually.'(Clinician)

'…the front page is, you can see what's available immediately and you can get to it very easily it's very user-friendly. And also some resources on there which you may not think of like you know news updates…. So you may go there looking for one thing and think Oh that looks interesting I'll find out about that. That's quite useful. (Consultant)

Simplicity of access is valued by many, and one clinical audit facilitator disliked changes to interfaces. She has to search many databases, but could not remember accessing Cochrane recently. Searching is done sporadically, and the finer points easily forgotten.

'I might not do any search for a few weeks, it's one of those things you need to be using it all the time to keep up with all the changes they make...It's those little things you forget..the problem with instructions is that they are written by people who know how to use them [databases]...rather than somebody who is using it on an ad hoc basis.'

2.4.5 Summary conclusions

Will providing the NeLH support local NHS organisations in managing Clinical Governance and improve opportunities for lifelong learning facilitating the delivery of the objectives of the NHS Plan and NSF Information Strategies?

Surveys indicate a greater need for health professionals to demonstrate accountability in their practice to patients, clients and their families. Clinical governance is driving many of the individual initiatives.

Those involved in care pathway development need the variety of resources provided by NeLH. A development team needs – where possible – a source of reference so that information sharing is easy and seen to be equitable. The NeLH care pathways site provides a valuable one-stop shop for sharing of knowledge and expertise, and there is considerable value in making care pathways more visible on a site used by managers as well as clinicians. Top level organisational support is essential in the management of change required for development of care pathways and use of National Service Frameworks.

3 Cost Benefit Study

This comprised several related elements to assessing 'value for money'. The NeLH potentially offers: improvements to library services (Section 3.1); opportunities for libraries to differentiate services and focus on services which can best be managed at local level (Section 3.2); cost savings for professionals (Section 3.3); and a contribution to more cost-effective clinical practice (Section 3.4).

Conclusions are set out in Sections 3.1.2, 3.2.5, 3.3.4, 3.4.9.

3.1 Value in terms of improvements to library services

The question set was:

- *Quantify the value that the Pilot NeLH offers in improvements to library services that would have been financially prohibitive for individual NHS organisations*

The approach was to:

- estimate individual Regional costs for Cochrane on realistic estimations of current demand (Section 3.1.1)

Some relevant work is discussed in Section 1.4 (summary conclusions in Section 1.4.7)

3.1.1 Estimation of demand for Cochrane Library

The following calculation is based on current site licence fees for Cochrane, estimating daily demand for Cochrane searches (from NeLH usage figures) and estimating what Cochrane would cost per region.

Cochrane Library (Update Software Subscription (annual) prices, effective January 2001:
Prices for Organisational site licence £275.00
plus for each additional concurrent user £55.00

One Region has estimated on the basis of 25 concurrent users for Cochrane (for the year 2000), other Regions estimate on the basis of 60 concurrent users.

Estimates for 25 and 50 concurrent users are:
Annual cost (Cochrane) for one Region: £7,920, for 25 concurrent users
Annual cost (Cochrane) for one Region: £15,840, for 50 concurrent users

Actual NeLH demand for Cochrane (estimate from two highest figures so far): 10,500 requests

Daily demand, based on six days (Saturday + Sunday counted as one day worth) = 1750 requests per day

Assuming each of eight Regions contribute to this demand equally,
Daily demand per Region = 219 requests

Assuming that the pattern of requests is concentrated in the middle of the day, the demand pattern (based on NeLH site usage) can be categorised :
Low demand hours 12 midnight, 1am, 2am, 3am, 4am, 5am, 6am, 7am (8 hours)
Medium demand 8am, 5pm, 6pm, 7pm, 8pm, 9pm, 10pm, 11pm (8 hours)
High demand : 9am, 10am, 11am, 12noon, Ipm, 2pm, 3pm, 4pm (8 hours)

Medium demand approximately 3 x low demand levels
High demand approximately 7 x low demand levels

There would therefore be 139 requests (7/11) in the high demand period, 60 requests (3/11) in the medium demand period and 20 requests (1/11) in the low demand period.

In the high demand period there are on average 17 requests per hour.
In reality demand would not be so smooth, and there would be periods where the request rate would be higher than that. Assuming that each demand for service should result in access to the database it would seem that 25 concurrent users is a conservative estimate of demand, and 50 concurrent users a more comfortable estimate, at present.

Assuming that each of 8 regions need to budget for 50 concurrent users for Cochrane, Annual subscription costs (2001): £126,720

The cost savings of a centralised system are more apparent when demand increases. If, as seems probable, demand for 2002 is triple that of 2001, then each Region would have to allow for 150 concurrent users. There are likely to be economies of scale for a national purchasing arrangement, as the demand overall can be smoothed.

3.1.2 Summary conclusions

Quantify the value that the Pilot NeLH offers in improvements to library services that would have been financially prohibitive for individual NHS organisations

The value of a centralised system for national purchasing of user licences for core evidence-based databases (e.g. Cochrane Library) is apparent with higher demands for services. National purchasing is cost-effective both in terms of user licences, and staff time for administration of contracts. National deals have the advantage of making provision more equitable across England.

3.2 Value for money in complementing local library services

The question set was:

- *Does the Pilot NeLH offer value for money to the NHS libraries provision? Are there financial savings accruing to NHS library services? Are these savings such that distributed NHS library services are better able to meet specific local needs by being able to focus better on local requirements?*

The major change to hospital library service provision over the past five years has been the upsurge in formal training for database provision. Informal support sufficed when users had to come to use the database on CD-ROM in the library but networking of databases made the need for formal training sessions and a comprehensive training and support strategy essential.

Evaluations of networked database services have inevitably included an element of evaluation of the training and support provided (Section 1.4.6). Local requirements for most libraries mean the support of database training and working with clinical effectiveness co-ordinators.

Emphasis in this Section is mostly on the support that local libraries can provide to NeLH by providing local training and local support. There may be other services that might be developed in future but the training, as it is staff intensive, and therefore costly, is the most obvious area for investigation as a way of differentiating areas of information service provision.

3.2.1 Estimates of training need

The potential user population in most District General Trusts will be numbered in thousands and the optimum number in most training sessions will be 20-30. As one library manager put it:

> *'I think there is a huge unmet need, we have not got a whole user group of informed professional healthcare staff. We have a total user population of just over 7000, we reach about 500 plus per year in terms of the training. I think the percentage we have trained is quite small even after 3-4 years of quite active*

training. Some won't need training, others will need repeated training. We do provide drop-in sessions and refresher sessions, the trainer goes out to do this.'

Other estimates of the need among the largest group of staff (nursing staff) also indicate a large training gap (Powell, 2000)

An estimate of the information seeking skills of nursing staff, based on reaction to an information problem vignette estimated (Davies et al. 1997) that only 25% are 'confident information seekers' and that estimate did not take account of their use of particular databases. It was more an estimation of their skills at knowing where to go for the information, including use of 'expert opinion' and having a searching strategy that would probably be successful.

On that basis, and it was a small sample (48 interviewees), at least 75% of the nursing staff require training and support.

3.2.2 Satisfaction with training

In the S Devon survey, 55 (47.0%) respondents said they wished more training whereas 58 (49.6%) said they did not wish further training. Comments mostly concerned the lack of time for practice.

Use made of training (i.e. had they searched the Internet, or Clinical Databases since training)
13.7% had not, 4% searched less frequently, 35.9% searched with about the same frequency and 44.4% more frequently.

Searching was easier for 64% and about the same for 20.5% - nobody claimed it was more difficult. Similarly, 58.1% felt their searches were more effective, 21.4% felt their searches were at about the same level and only one respondent felt their searches were less effective now.

3.2.3 The importance of personal support and trust

Evaluations of the VIVOS project work on outreach services for community and primary care staff indicated the importance of developing trust between those who needed training, their managers and the library (echoing the conclusions of the GIVTS project which examined a pilot venture in supporting vocational trainees).

'One of the things I have gained from the course I suppose that wasn't the main agenda, is that I have met the librarians and I know who they are. And for example, with me having students I have needed to send students who have got a piece of work to do and been able to ring [the librarian]*, or ring somebody and say, is it OK if this student comes up and introduce them so that they can use the system. 'Cos, they may not be local and we get visitors from all over the country so to be able get them into, and I didn't know anybody before we did the training and so I may not have felt quite so…confident in doing that.' (Community Nurse – VIVOS project report)'*

The NeLH site could be overwhelming for those staff who rarely use computers. It is vital that at local level there is a support structure to help, not just in pointing out which resources are available, but how those resources, together with the supporting 'know-how' elements can make a difference to practice and lifelong learning.

'I think if you left it sitting on the Web without supporting it with training, it would be lost altogether, the training element is hugely important. And we hope that we don't train blindly by rote, we hope that we educate and teach rather than train.'(Library manager)

3.2.4 Summary conclusions

Does the Pilot NeLH offer value for money to the NHS libraries provision? Are there financial savings accruing to NHS library services? Are these

savings such that distributed NHS library services are better able to meet specific local needs by being able to focus better on local requirements?

Estimates of the training gap vary but they all indicate that a large proportion of NHS staff need ongoing support in use of databases and services such as NeLH.

Distributed library services are focusing increasingly on education and training. Without that support many of the NeLH services will remain under-used and under-valued. Library staff time is probably better spent in user support than in duplication of effort among Regions on setting up mini-NeLH services.

3.3 Cost study of NeLH usage

The question set was:

- *Does the investment in the supply of content through the NeLH and NeLH itself offer best value to the NHS? This issue should be examined with reference to Pilot NeLH use but with a view to the potential future use within a fully developed NeLH with particular reference to enhanced searching functionality*.

The approach taken was to invite feedback from NeLH users over a three-week period, using a 'pop-up' survey (Appendix 2) on the NeLH website. The survey only appeared if users clicked on the feedback invitation – it did not appear automatically on entering the site. A total of 179 replies were obtained and analysed.

3.3.1 Sample characteristics

GPs and health service managers were the largest staff groups represented in the sample (Table 8). The sample is not representative of the health services staff as a whole as nurses are under-represented. Replies obtained from the nursing staff indicated that (for grades below G grade in particular) this was their first visit to the NeLH website, and they were browsing rather than using it to answer a specific query.

3.3.2 Costing methods

In order to identify appropriate unit costs to apply to the resource use in terms of staff time, occupations and grades were questioned (using a previous study (VIVOS) to guide the likely distribution of responses for particular grades of staff and grouping nursing grades accordingly).

Unit costs were calculated using a range of publications and values used are shown in Table 8. Occupations, which involved direct contact with patients, were costed using Netten and Curtis (2000), which reports costs at 1999/2000 prices. In each case the value used was for an hour of staff time, including training and overhead costs, not an hour of patient contact time. This was considered most the most appropriate measure.

Values for researchers were calculated using standard academic salary scales. Salary on-costs and overheads were included. Educational costs were more difficult to estimate. It was decided to use information from comparable vocations from Netten and Curtis for this, and information on expected numbers of hour work, absences, etc.

3.3.3 Cost analysis findings

Responses have been analysed on the face value of replies given, though it seems that a few respondents people very probably checked the box for 'more time' for using the NeLH although there are other indications that they meant that they saved time.

The net cost saving in total was £6,490.97, for the 179 respondents. This figure takes due account of those who would have done nothing as an alternative to searching NeLH (cost savings taken as zero), those respondents who gave no estimates of time saved or lost (cost savings taken as zero), as well as those for whom use of NeLH actually took more time than the alternative. Median time estimates are used, i.e, time saved of 'less than 2

hours' was calculated as 60 minutes saved.

Average net cost saving was therefore £36.22 per visit.

Table 8: Cost analysis survey: distribution of responses and average savings

Staff group in survey	Frequency (n=179, 3 no attribution)	1999 figures for WTE, thousands, staff employed (Tables D1, D5, DoH statistics)	Unit costs /hour (pounds sterling) £	Average cost savings (pounds sterling) £
GPs	30	25.9	69.00	70.15
Health service management	30	80.0	19.49	39.30
Admin & clerical	17	172.8 (admin + estates)	10.00	12.35
Nurse-midwife grade G (+)	14		24.00	18.00
Nurse-midwife grade D-F	12	250.7 (all qualified nursing & midwifery staff)	20.29	1.69
Health services research	12		19.49	38.98
No UK attribution	12		0.00	0.00
Senior PAM	11		27.00	34.36
Hospital consultant	10	20.3	82.00	114.80
Other hospital medical staff	6	4.5 (other career grades)	41.00	95.67
Nursing/medical/PAM student	5		24.00	19.20
Private healthcare	4		0.00	0.00
Research in higher education	3		19.49	6.50
Postgraduate medical training	3	29.5 (hospital) + 1.5 (GP)	17.00	-19.83
Nurse midwife grade A-C	3		16.08	18.76
Junior PAM	2		10.00	22.50
Lecturer/Senior/Principal Lecturer	1		19.49	19.49
Social care	1		18.00	18.00

Extrapolation on the basis of such a small sample is difficult and the average cost savings per staff group vary from £114.80 (Consultant) to -£19.83 (PGM training). Given the small size of the groups it seems safer to use the overall average figure for extrapolation purposes. On the basis of the replies provided it seems reasonable to assume that use among nursing staff is only starting to take off, though G grade nurses and midwives are more likely to use NeLH than other lower grades of nursing and midwifery staff. Some estimates using alternative scenarios are given below, all for cost savings over the next 12 months.

3.3.3.1 Scenario 1 cost savings

Assuming first that 10% of the directly employed NHS Hospital and Community Health Services staff, on average, use NeLH once over a 12 month period, and using the 1999 figures of 782,100wte staff):

Cost saving in hospital and community staff time = 782.1 x100 x 36.22 (1999 figure782.1 WTE directly employed staff)	£2,829,506

Assuming next that 10% of GPs and practice staff, on average, use NeLH once over a 12 month period, and using the 1999 figures for all practice staff of 105,800wte staff:

Cost saving in general practice staff time = 105.8 x 100 x 36.22	£383,207

Total cost saving Scenario 1 (hospital, community and general practice)	**£3,212,713**

3.3.3.2 Scenario 2 cost savings

The same assumptions as Scenario 1, but assuming that 20% of all NHS staff (hospital, community and general practice use NeLH once over a 12 month period.

Total cost saving Scenario 2 (hospital community and general practice)	**£6, 425,426**

3.3.3.3 Scenario 3 cost savings

Alternatively, assuming that every consultant in England uses NeLH on average once a year, and that the average cost saving is the figure calculated in the table above, i.e. £114.8, and number of consultants is (1999 figures) 203,000

Cost saving (consultants)	£2,330, 440

This, given the likelihood that consultants should be checking guidelines, Clinical Evidence and the Cochrane Database, should be regarded as a minimum figure.

A similar calculation for GPs (with 1999 figure for UPE (Unrestricted Principals and Equivalents) wte of 25,900) gives, with an average cost saving per visit of £70.15,

Cost saving (GPs)	£1,816,885

For nursing and midwifery staff, the survey figures indicate that use of NeLH may not result in many cost savings in the immediate future as there will be a learning curve. Even so, one could assume that usage by 25% of nursing staff will result in cost savings of £18.00 on average per visit, and 75% of usage will result in a cost saving of £1.69 on average. Assuming that the total number of qualified nursing and midwifery staff (wte) is 261,400 (250,700 (Hospital and community health services) plus 10,700 practice nurses, 1999 figures, Tables D1 and D5 DoH workforce statistics for England), the estimated total amount of cost savings, for an average of one visit per year is

Cost saving (nurses & midwives	£1,176,300 + £331,324	£1,507,624

Usage by administrative and management staff also needs to be considered.
Assuming that each manager uses NeLH on average once a year, and that each member of administrative staff (hospital, community plus general practice) uses NeLH on average once a year, and that the total number of such staff is (1999 figures, Tables D1 and D5), 80,000wte management, 172,800 administration & estates (hospital and community) plus admin (general practice) 50,000wte.

Cost saving (admin. & managers)	£3,838,064 + £2,134,080 + £617,500	£6,589,644

Total cost saving (all staff as indicated above) Scenario 3	**£12,244,593**

3.3.4 Summary conclusions

Does the investment in the supply of content through the NeLH and NeLH itself offer best value to the NHS? This issue should be examined with reference to Pilot NeLH use but with a view to the potential future use within a fully developed NeLH with particular reference to enhanced searching functionality.

Cost savings in terms of staff time are potentially large – a very conservative scenario estimates the annual saving as 3 million pounds, a more realistic scenario estimates the saving in staff time as 12 million pounds.

3.4 Contribution to improvements in clinical practice, and savings made

The question set was:

- *Does the NHS save money through any improvements in clinical practice? If so quantify the savings made to date and the savings that potentially can be realised through the delivery of the full NeLH as currently envisaged.*

Earlier Sections (2.2.3, 2.2.4) detailed two vignettes which indicated how the NeLH could be used by health service staff to provide information on guidelines, and the state of progress of relevant systematic reviews, provided the basic research had been published. Section 2.1.3 provided a sample of information needs in routine practice, and Section 2.4.1 listed some brief details of incidents when the Internet had been used to find information.

Using these examples, plus some more obtained from interviews, the following hypothetical case studies show how NeLH might be used to improve clinical practice – and save money.

It must be remembered that it takes time for the concept of clinical governance to become embedded in routine practice – as this anecdotal comment from a librarian illustrates:

> *'For people, for a couple of senior consultants, they know exactly what it means, they know they have to be able to back up every decision they make...for some of the more junior staff who now will come over here [Library] for information, they tend to come over and say "What do you have on clinical governance" – and when you say "What do you want it for?" – they don't know, so in other words they have no idea whatsoever what this is...there are certain senior staff who have mastered the terminology...and throwing the latest buzzwords at their juniors without explaining why they need what they do [need].'*

3.4.1 Case study 1: Leg ulcer assessment tools for acute hospital use

Background: Information required for educational purposes – an assignment concerned with general nursing management issues.

Information available on, or via NeLH includes

- NICE: search on 'leg ulcer' provided links to an RCN guideline on pressure ulcer risk assessment and prevention, a NICE guideline on pressure ulcer risk management and prevention
- Guidelines database: found RCN guideline on management of patients with management of chronic venous leg ulcer
- DARE: search on 'Doppler' found a Scottish Health Purchasing Information Centre (SHPIC) publication on leg ulcers, search on 'leg ulcer' found many references, mostly for primary care treatment
- HTA: listed reports include 'Cost and outcome implications of the organisation of vascular services
- Bandolier: similar information found to the above lists, though in a more user friendly format.
- PubMed (MEDLINE) search on leg ulcer (limited to practice guideline publication

type) yielded several guidelines relevant to diabetic patients, plus reference to an RCN guideline on the management of leg ulcers and various other American and European guidelines

Potential cost savings: Little evidence available on cost savings for improved leg ulcer assessment in the acute hospital setting per se, but for community settings Bandolier gives the following estimates: Costs (late 1980s) £100-120 million annually of leg ulcer treatment for the NHS – probable costs now around £200 million. A study done in one locality reduced the costs of treatment from £30-40 per patient to £13.25 per patient. The HTA report in 2000 notes that, for treatment of peripheral vascular disease, centralisation of services would be expected to lead to improved outcomes, but with an increase in overall resource requirements. HTA recommend a hub and spoke arrangement for vascular services.

Conclusions: The nurse could have found relevant information on NeLH, but this would depend on the routes chosen. Searching would, however, have provided a better range of evidence, including immediate information on the cost-effectiveness of procedures, than simply doing a MEDLINE and CINAHL search.

3.4.2 Information on gout diet

Background: None provided

Information available on NeLH includes:

- NICE: no hits on 'gout'
- Bandolier: reference to the TRIP database which notes that information on gout and diet was accessed 1483 times, plus reference to the use of NSAIDS in chronic inflammatory conditions
- PubMed (MEDLINE) search on 'gout diet' provided a Lancet (Aug 2001) reference on gout (diet and uric acid) plus a review article on gout management in *Current Opinion in Rheumatology* (which notes the paucity of Cochrane type evidence)
- DARE : no hits on 'gout' and 'diet'

Potential cost savings: no evidence available

Conclusions: NeLH would certainly provide some pointers – but the ATTRACT database (TRIP) service is only available to NHS staff in Wales at present. Searching on NeLH would certainly confirm that this is not a popular 'evidence-based' topic.

3.4.3 Information on MMR injection

Background: none provided

Information on NeLH includes:

- Bandolier: comprehensive coverage (MMR summaries of the evidence followed by various updates - the latest update 'Even more on MMR' dated June 2001)
- PubMed : search on MMR vaccine listed some of the recent (2001) BMJ literature
- NICE: no hits on 'MMR'
- DARE: information very dated
- BIOME: links to the official documents produced by Medicine Controls Agency/DoH (official response and policy, 21 January 2001), immunisation site (Health Promotion England and DoH), similar site for Scotland, MMR information pack for health professionals

Potential cost savings: main concern the risks of children contracting measles, mumps and dying, or suffering complications, as opposed to the risks (if there is a link) between the MMR vaccine and autism or inflammatory bowel disease (and subsequent treatment costs). Main issue for the health service is possibly the alleviation of parental anxiety. This

requires provision of information on the risks for the individual – and for the community in which they live, delivered in as straightforward a manner as possible.

Conclusions: NeLH provided a list of the up-to-date DoH/MCA policy documents, with information presented in Bandolier that could be given to parents.

3.4.4 Promoting evidence-based practice in physiotherapy

Background: Physiotherapist talking about promotion of evidence-based practice within her department *'we've just formalised it [looking at evidence] ...we've got about four teams, we're looking at sort of the runners- the most common conditions we're treating'*

Information available via NeLH includes:

- Professional Physiotherapist portal provides links to an Internet discussion list for physiotherapists to discuss e.g. common problems, Trawling the Net, specialisted Library resources (Chartered Society of Physiotherapists), PEDro database, the more general resources such as Resource Discovery Network, PubMed

Potential cost savings: not applicable in this case, although improved treatment of conditions such as chronic back pain would save the economy many days in sick leave.

Conclusions: NeLH does not at present provide access to CINAHL, but apart from that the Physiotherapy portal would provide a good basis for starting an investigation of available evidence, plus keeping tabs on current work being conducted elsewhere.

3.4.5 Benefits of exercise in elderly patients with chronic heart failure

Background: Nurse wanted information, primary research and evidence, for a course but the topic was based around a practice problem – patients on an acute medical ward who often have multiple problems but notably chronic heart failure.

Information on NeLH includes:

- NICE: guidance on prophylaxis for patients who have experienced a myocardial infarction (which provides category A evidence for enrolment in a rehabilitation programme with prominent exercise component, and category D (less strong) evidence that there need not be an upper age limit – functional ability and patient preference should be the guiding factors)
- NICE:also references to relevant North of England guideline development, plus a reference to work being conducted by the Chronic Conditions Collaborative Centre on heart failure
- NSF (coronary): provides details of the benefits of exercise for congestive heart failure and refers to several research studies on exercise and chronic (congestive) heart failure
- PubMed (MEDLINE): German guideline on exercise in congestive heart failure (limiting search to recent practice guidelines)

Potential cost savings: difficult to estimate but quality of life for such elderly patients could be improved.

Conclusions: NeLH could have provided this nurse with some relevant guideline evidence, plus some links to relevant primary research articles.

3.4.6 Subclinical thyroid (hypothyroid) – to treat or not?

Background: Doctor faced with opposing opinions on the benefits of providing treatment or not – wanted more background *'So it [MEDLINE search] was very good for that. If you're getting hold of trials it's not that difficult, it's the little anecdotes where they don't fit into trials – that's where it becomes very useful'.'*

Information available via NeLH includes:

- PubMed (MEDLINE): comprehensive search provided background information
- DARE: references to thyroid testing and review on the effect of thyroid substitution on hypercholesterolaemia in patients with subclinical hypothyroidism
- Bandolier: study on the problem of getting the thyroxine dose right
- NICE, Guidelines database: no hits

Potential cost savings: no estimates possible at this stage

Conclusions: NeLH would have provided (via DARE) a review article, plus confirmation that there are no current guidelines for treatment. The MEDLINE search provided useful background information

3.4.7 Information on prostate cancer

Background: none provided

Information available via NeLH includes:

- HTA :report on the diagnosis, management, treatment and costs of prostate cancer in England and Wales (1997)
- PubMed (MEDLINE): provides references (searching for prostate/practice guidelines) to later work on guidelines in UK, Europe and N America

Potential cost savings: available in the report, but possibly not applicable to the enquiry

Conclusions: NeLH would have provided very useful background information as well as more details about current developments.

3.4.8 Evidence supporting use of nicotine replacement therapy

Background: none provided

Information available via the NeLH includes:

- Bandolier: reference to the Cochrane review of nicotine replacement therapy, plus an update
- DARE: refers to the Cochrane review (2001), interventions for hospitalised patients (another Cochrane review) plus some reviews carried out in other countries

Potential cost savings: related to the costs of treating smoking-related conditions.

Conclusions: NeLH provides a very quick route to the evidence (via the Cochrane Library) plus the background (DARE) and a user-friendly discussion of the evidence (Bandolier).

3.4.9 Summary conclusions

Does the NHS save money through any improvements in clinical practice? If so quantify the savings made to date and the savings that potentially can be realised through the delivery of the full NeLH as currently envisaged.

The usage of the pilot NeLH is still at too early a stage to find case studies where the use of NeLH provided support through an entire 'case history' of behaviour change.

Using NeLH resources to assess whether they could successfully provide answers to a range of clinical problems showed that users could obtain a range of evidence to answer their queries. That range of evidence included material that might be given or discussed with patients directly, status of guideline development on the topic, indications of cost savings and scale of the problem for the NHS, plus further background research.

Many clinical problems are delineated and investigated as part of formal continuing professional development. The NeLH needs to work with the educators and those responsible for promoting and accrediting professional education to ensure that presentation of information and know-how on NeLH actually encourages any necessary change in practice and fits professional development needs if possible.

Bandolier has collected together resources under the title 'Managing to make a difference'. This type of initiative is to be welcomed. More information on the potential cost savings, on the NeLH site, might encourage more health professionals to make the effort to make practice more cost-effective.

4 Specific Areas of Supporting Evidence

Additional questions concerned:
Quantifiable and anecdotal evidence on the following areas is required specifically in support of the NeLH business case process;

- *Perceptions of staff about the adequacy of library cover for their discipline or profession.*
- *Access of staff to the services of the librarian, particularly in primary care, learning disability and mental health services.*
- *Access to a librarian or knowledge services in the evening or weekends.*
- *Access to the Cochrane Library and Clinical Evidence before we took out National contracts.*
- *Access to key journals by people working with rare diseases or in small specialities.*
- *Telephone surveys with a range of healthcare professionals would help establish penetration of key documents such as;*
- *British National Formulary*
- *Effective Healthcare Bulletins*
- *HEA Reports*

Available evidence from the surveys undertaken is reported in this Section.

4.1 Library services for specific professional needs

For historical reasons related to funding streams for postgraduate education and undergraduate, pre-registration education, library services for the following groups of staff have been poor:

- Trained nursing staff
- Specialist professionals allied to medicine – particularly some of the PAMs such as speech therapists
- Managers – provision of access to information such as DoH circulars has sometimes been difficult, for example, and 'management science' resources have been limited.

4.1.1 Need for evidence-based practice: views of professional groups

Some of these groups see the route forward as making best use of existing evidence, and also encouraging the development of multi-professional trials. For such groups, it is not simply that they need access to relevant research – they need to generate the research evidence base first. For that reason, NeLH resources such as the Virtual Branch Libraries (Section 2.3) play an important role, along with national professional associations.

> *'Because I think in the past, not just physiotherapists but everybody, we've done things because we've had a hunch it's right or we've tried it and it's worked but we haven't really got the evidence… And I think the encouraging thing is we as*

physiotherapists can't necessarily get the money or we haven't got the resources to do something like a randomised controlled trial or whatever, but like these things I've looked at, it's doctors that have done the trial but they're still in effect promoting physiotherapy because on the ground we're the people who are giving the patients exercise programmes so it's rounding up the evidence in that sense that even if we've not done it somebody else has done it for us.' (PAM)

'There are studies but very few and far between. Very few good studies. You know, everybody talks about RCTs being the gold standard. I think it's very difficult to do an RCT with patients anyway because everybody's different and their psychology is different and everything else. But in physiotherapy, especially say some of our colleagues that work on the medical wards you're very interdependent on what the doctors are doing as well so it's very difficult to have a controlled trial…. So, personally I think the way forward should be multi-professional trials. But you've got a lot of barriers to break down, in certain fields anyway. But we are getting better, we are getting more representation at high level so that should hopefully improve. So long as we're not just seen as measurers and questionnaire-giver-outers, which I think sometimes you can be. You can get people fairly cheaply in to do that type of thing, you know, use us for our techniques instead. We'll get there!' (PAM)

The impression is that medical needs have been paramount, an impression that is hard to eradicate – nurses do not like using the library unless they have to, for course-related reasons because ' *it feels like a church'.* Despite a considerable amount of effort which has gone into provision of a multi-disciplinary service, the following comments indicate that old attitudes are hard to shift.

*'I think the library services are much better now. The only criticism is that a lot of the medical stuff is, and nursing and midwifery, is down at the [name] library….and unless you're actually doing a course you can't access that.' (*Community Nurse: VIVOS)

'I think they need to raise their profile with community staff, because I think people are under the impression that unless you are actually working in the hospital you can't access it.' (Community Nurse: VIVOS)

'I think from the medical side of things it is probably very good, but for my speciality in particular I think it's limited…' (Dentist: VIVOS)

'For nursing there isn't as much as I think there ought to be, it is predominantly medical and the other disciplines.' (Nurse: VIVOS)

'Well I would, I personally would like to see community journals, and um paediatric and things associated around health visiting. That's being very selfish. But anything on general practice really. (Health Visitor: VIVOS)

With the emphasis on performance assessment, management, administrative staff need to have easy access to national guidelines and policy documents more than they might have in the past. One administrator interviewed had been shown by library staff how to use the COIN database, and recounted a recent incident where she has used the link on the library web page to find a particular circular – much easier, and took far less time to locate than phoning someone to try to find the information that way.

4.1.2 Patterns of use of professional portals

Professional portals are a recent introduction to NeLH and usage data are hardly in a state for analysis yet. There is definitely some evidence of interest, and given that many professionals will only have come across this by chance usage should increase.

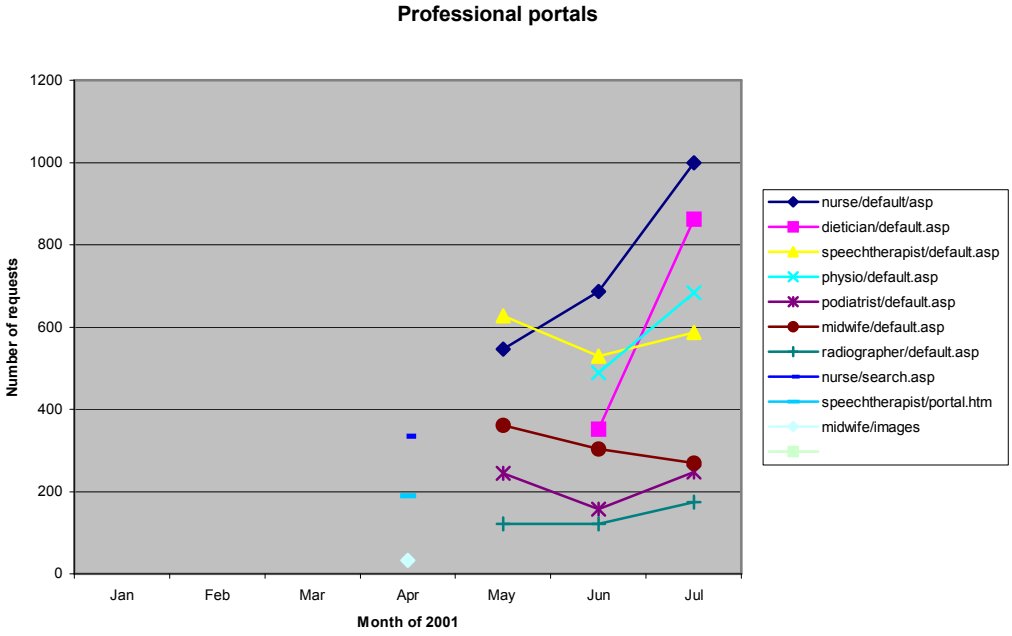

Figure 5. Growth pattern for professional portals

Interpretation is speculative at this stage, but the rapid rise for nursing, dieticians, and physiotherapists suggests that there is a need for such services for these groups. There seems less demand from the midwives, but the midwifery portal has an excellent and well-established competitor in the form of the MIDIRS service (www.midirs.org), an individual subscription based service which provides access to the comprehensive MIDIRS database, the 'informed choice' leaflets for patients and professionals, some 'standard searches' – or the frequently asked clinical queries, bulletin board and news on guideline developments.

Views from library staff indicated that some had not noticed the existence of professional portals:

> *'Again, interesting I was looking at it [NelH] last night..I thought ah right OK British National Formulary haven't really flagged that up as a significant database and there are obviously new developments like these professional portals and we are not saying, "hello physios did you know?"...on our Intranet site and perhaps we should be doing that, but again it comes down to time that we have, we have limited time for updating our Intranet site so … I think we are probably losing an opportunity there.'*

Others, as they worked with specific groups of staff immediately saw their benefits:

> *'Well, I have found it, yes, particularly due to the funding and it relating to PAMs I have pointed, I particularly like the professional portals and it's something that we used in my last post as well, where we had a contract for training for the NHS staff, and we had a lot of physios and radiologists, radiographers and I found that pointing them towards the professional portals was very helpful, because particularly sometimes you are struggling to find material for them when you have got to mix a multidisciplinary group so you can just say there it is.'*

4.1.3 Summary conclusions

Perceptions of staff about the adequacy of library cover for their discipline or profession

Developments in NeLH such as professional portals could meet professional needs in several disciplines. Care needs to be taken not to duplicate existing and

successful developments (such as MIDIRS). There are professional groups with considerable unmet needs, including large groups such as trained nursing staff and managers.

4.2 Access to library services in areas of 'unmet need'

4.2.1 Access to library services for services working with social care

There are areas – generally in the Cinderella services of mental health and learning disability where there has been a problem of library resourcing for some time. These are also areas where social care is also involved and the result has been that responsibility for provision of library and educational services has often fallen into an abyss. Staff are not concentrated on one site where a library could be sited.

> *'As people have moved out of long stay hospitals into community based settings the vast majority of library resources that were specialist resources...these by and large have disappeared...we have got our own specialist collection here at BILD...and in the old Anglia and Oxford region for example ...19 Trusts that were providing learning disability services, only three of them had access to a specialist librarian that could support them in learning disability issues...people work in more dispersed settings'*

Staff needs for training may be increasing rather than decreasing, which means that they do need access to resources to support their education.

> '*Significant proportion of these [83,000 staff working in learning disability services in England] had no qualifications whatsoever...there's targets for at least 50 per cent of people to get to level 2 NVQ.'*

The VBL concept works well for these areas but the NeLH may need to think about extending core collections.

> *'The thing I think is missing from that range of resources and which is absolutely essential are the secondary publication evidence-based journals...If you want to answer your questions and keep up-to-date then the number one thing you are going to use is Evidence-based Mental Health...and there's a website for that now, in full-text.'*

4.2.2 Access problems: a legacy of poor IT service provision

The following extract illustrates the problems in practice of getting evidence to the practitioner when IT services are nominally available but in fact not accessible. This was typical experience of those working in hospital units where there was a legacy of poor IT service provision. Improvements are frustratingly slow to be realised fully.

> *'I have to very careful not to publicise these [database and training support] too much when I've only got two computers [in Library] for everybody to use all these facilities on. In theory they have access and all the information available by that route on the wards, in practice they don't. The computers here are the computer used by the ward secretary for all her daily work, therefore, if a member of staff wants Internet information, the only way to get it would be to say to the secretary, "Stop doing your work for an hour please, I need that computer."...I don't think there's access after 5 o'clock or before 9...but people working during the night, doctors on call, can borrow keys to this building to use the PCs.' (Librarian)*

4.2.3 Liaison between primary care staff and hospital-based library services

There have been several primary care based information service initiatives in the past five years. Traditionally the provision has been patchy, and poor. One observation of the initial work in setting up the GIVTS project was the fact that the Vocational Training Scheme staff and the Library rarely communicated (if at all). A review (Urquhart et al. 1999) of the NICE (Wales project), PRISE, SurfDoctors projects, in relation to experience gained on the GIVTS project concluded that:

- None of the projects conclusively demonstrated an effect on clinical

behaviour as the time for evaluation was limited, the sample size too small, or the technical problems led to fewer searches being conducted than expected. (p.159)

- For an information project to succeed in education aims, the stronger the links with an educational structure (e.g. VTS), or initiative (e.g. clinical effectiveness), the better. Technical problems in the project often conceal organisational difficulties. (p.161)

4.2.4 Summary conclusions

Access of staff to the services of the librarian, particularly in primary care, learning disability and mental health services.

The legacy of under-provision needs drastic action if information services are to meet the clinical governance and lifelong learning agenda.

NeLH can provide, through the VBL services, and other resources on NeLH, a 'climbing net' for the areas such as mental health, primary care and learning disabilities to attain a more equitable status for information service provision. The needs of all staff in such areas need to be considered carefully and educational needs may be significant.

4.3 Access to library services in evenings and at weekends

4.3.1 Access to libraries versus perceived demand

Hospital libraries are open office hours – opening between 8.30-9.30 and closing between 4.00pm and 5.30pm. Most Regions offer 24-hour access to libraries by card or key to junior doctors. It is only the larger libraries in Universities – typically the Medical School library which will be open most evenings and at weekends.

Data from the NeLH usage surveys indicate that the peak period of usage is between 8am and 5pm (with peaks of just under 180,000 requests at 11am and 3pm). There is, however, a 24-hour demand pattern with over 60,000 requests around 6pm, 7pm, 8 pm, 9pm, declining gradually to 30,000 requests at midnight. What this pattern suggests is that easier access during the day to resources encourages the quick check over a cup of coffee – something that would less easy if a trip to the library were required, with no guarantee of getting access to a computer or other resources. The evening demand is substantial – 50% of the level of daytime requests.

The fact there seems to be a substantial unmet need for out-of-hours service is confirmed by views expressed by respondents in the VIVOS project (Yeoman et al. 2001), which did in fact involve projects which were attempting to improve networked services.

> *'Out of hours at library desk is not good.'*(from questionnaire)
>
> *'Library access is not always available when needed.'* (Senior clinician – not direct quote, interview not recorded)
>
> *'But there is not training to sort of, you know, how to use the Internet and things like that. You would have to go to the library here and then they would be able to tell you things very, very briefly…*[interviewer asks whether going to the library would be an obstacle]…*Yes, it certainly is within the hours of nine to five when you are stuck here.'* (Training grade clinician)

Practitioners appreciate that there are many demands on library staff time but like to have personal support when they encounter problems:

> *'…it does say if you need help you can email this or that number. I wouldn't have a clue how to go about that. Because I would want them to look at the screen in front of me.'* (Training grade clinician)

One interviewee suggested that a 'trouble-shooting' role could be developed to provide instant support, maybe by telephone, without impacting on other library services, echoing results of other surveys which suggested the need for 24/7 online support (Section 1.3.6).

> *'…I mean, the ladies in the library have got other things to do as well so they can't spend their whole time just with you...so maybe a trouble-shooter, or maybe, I don't know, even telephone-access to a trouble-shooter while you are actually at the computer as opposed to somebody, you know, after the event has happened.' (*PAM)

4.3.2 Summary conclusions

Access to a librarian or knowledge services in the evening or weekends.

Considerable demand for library services occurs at times that the vast majority of libraries are only accessible to selected staff on a key or pass card basis.

Many staff require 24/7 online support for help with searching for information. Knowledge databases are not easy to use effectively and infrequent use means that skills acquired during training become rusty.

4.4 Prior access to evidence-based resources

The question set was:

- *Access to the Cochrane Library and Clinical Evidence before we took out National contracts.*

In the past two years access to the Cochrane Library has changed from a CD-ROM based service, available only in the Hospital Library, to networked provision. Most Regions seem to have subscribed to Clinical Evidence on a networked basis only through the national contract.
Several Regions subscribe at present to an OVID deal, which includes Evidence Based Medicine Reviews.
Previous arrangements varied but the first-come first-served basis in some Regions for the subsidised purchasing of databases in CD-ROM format was inherently unfair.

The problem for many libraries, or even groups of libraries acting as purchasers is the problem of co-ordinating funding streams to meet the cost of deals when these need to be paid.

Further details of the answer to this question are provided in Section 1.4.5.

4.5 Access to specialist journals

The question set was:

- *Access to key journals by people working with rare diseases or in small specialities.*

The approach taken was to examine journals holdings for one Region, and also the holdings of the psychiatric libraries co-operative scheme, which is a UK-wide scheme.

4.5.1 Journal provision

The Region considered is unusual to the extent that former NHS nursing college libraries are still part of the inter-library lending and document supply scheme. Provision and access for specialist nursing journals might be expected to be more generous than in other Regions where trained nursing staff are dependent on personal (or departmental subscriptions) if they are not on a higher education course which would allow them access to higher education nursing and health science libraries. The Psychiatric (PLCS) scheme allows examination not just of current journals but also the extent of the collections, which is important in the psychiatric literature where older journals are often required.

Although the question set covered 'rare diseases' or 'small specialties' the largest unmet need is likely to be that from the nursing profession, particularly those who have no access to higher education libraries. Although most hospital libraries are now truly multidisciplinary, access to the nursing literature other than the mainstream general nursing journals is likely to be limited.

The clinical specialties considered are:

- Clinical psychology
- Geriatric psychiatry
- Nephrology
- Occupational therapy
- Perinatal and neonatal nursing
- Speech and language therapy
- plus selected general nursing research journals

Journals selected are those which are indexed for MEDLINE. Where there are several major journals in the field, several titles were used. For comparison purposes, details are provided for some common journals –*The Lancet* for the Regional List and *American Journal of Psychiatry* for the Psychiatric scheme (PLCS) list. The PLCS membership is assumed to be 110 major contributory libraries, although there are more in the scheme.

Table 9: Access to specialist journals

Journal name	Number of libraries currently holding the title in Region (percentage of all libraries in Region, n=41)	Number of libraries currently holding the title in the PLCS list (percentage of PLCS , n=110)
The Lancet	*23 (56%)*	*na*
American J. Psychiatry	*9 (22%)*	*96 (87%)*
British J. Clinical Psychology	4 (10%)	39 (36%, 24% start from 1981)
Clinical Psychology Review	0 (0%)	13 (12%)
International Journal of Geriatric Psychiatry	6 (15%)	63 (57%)
Nephrology, Dialysis, Transplantation	2 (5%)	na
Journal of the American Society of Nephrology	2 (5%)	na
Nephrology Nursing Journal	1 (2%)	na
American Journal of Occupational Therapy	6 (3 from 2001 only) (15%)	11 (10%)
Physical and Occupational Therapy in Geriatrics	0 (0%)	1 (1%)
British Journal of Occupational Therapy	3 (2 from 2001 only) (7%)	23 (21%)
Neonatal Network	1 (2%)	na
Journal of Obstetric, Gynecologic and Neonatal Nursing (JOGNN)	0	na
International Journal of Language & Communication Disorders	1 (2%)	3 (3%)
Journal of Speech and Language and Hearing Research	1 (2%)	9
Nursing Research	7 (17%)	na
International Journal of Nursing Studies	5 (12%)	na
Elderly care	6 (15%)	na
Evidence based nursing	6 (15%)	na

As is obvious from Table 9, easy access to specialist journal literature is a problem for speech therapists, occupational therapists, and clinical psychologists. Even for nurses, a mainstream journal on elderly care is available in only 15% of the libraries in the Region, and the specialist nursing journals are conspicuously absent. JOGNN is a major research journal, and yet it is not available at all except through inter-library loan.

4.5.2 Summary conclusions

Access to key journals by people working with rare diseases or in small specialities.

Access to key journals in local libraries is difficult enough for nursing staff, and for specialties such as speech therapy or occupational therapy the situation is as bad, if not worse.

4.6 Access to key documents

Access and usage (likely and potential) was required for certain key documents and sources on NeLH, i.e.
Telephone surveys with a range of healthcare professionals would help establish penetration of key documents such as;

- *British National Formulary*
- *Effective Healthcare Bulletins*
- *HEA Reports*

4.6.1 Attitudes towards provision of key documents

Extracts from interviews showed that availability of BNF is useful:

'But yes, guidelines and the BNF there, I'd forgotten about that because I don't think I've got that electronically so that's useful.' (Consultant)

'The BNF, that looks pretty good…The BNF's quite useful. I mean that's a useful thing to have, you know we've got Internet access on [ward]…so that's a useful thing to have on the ward.' (Consultant)

Effective Healthcare Bulletins are useful in electronic format but it must be remembered that there may need to be paper-based versions, tailored to the needs of a region or locality. An evaluation in VIVOS of the !evidence matters! bulletins found that the bulletins are well-received and appear to be meeting their aim of providing topical locally-relevant information in a succinct and accessible format. Although one interviewee did suggest an electronic version of the bulletins most were satisfied with the current format and viewed the one-sheet approach favourably in terms of brevity, ease of circulation to colleagues and ease of storage for future reference.

The summary findings were that the bulletins effectively promote the adoption of Evidence-Based practice and clinical effectiveness in the South Humber region by:

1. Increasing awareness of current 'hot topics'.
2. Ensuring that the topics covered are appropriate to local interests.
3. Providing access to good-quality Evidenced-Based research findings for a range of healthcare practitioners including those groups who often have limited access to IT equipment.
4. Encouraging discussion of Evidence-Based practice between team- or practice-members and across disciplines.
5. Providing an accessible reference-base of information that can be kept in whichever location suits the individual/team and is not reliant on IT facilities.
6. Giving useful contact details and references so that recipients can pursue any issues

of particular interest.

'So I think it's just important that the editorial staff try and sniff out what the local issues are.'' (GP)

'…I like it like that because it's brief but it's to the point and it's relatively easy to read.' (Health Visitor)

On a more cautionary note:

'I wonder if there are too many, almost now getting to be too many of these. Of these you know more newsy type of formats in that you start then having to decide which one you're actually going to read. I suspect that most GPs read a half of what they receive and make a conscious decision not to even open some of them and the same probably applies to these other things.' (GP)

4.6.2 Summary conclusions

Telephone surveys with a range of healthcare professionals would help establish penetration of key documents such as;

- ***British National Formulary***
- ***Effective Healthcare Bulletins***
- ***HEA Reports***

Evidence was limited but indications are that BNF and key reference books are appreciated in electronic format, often to check that staff are reading the most up-to-date information available.

For assimilation of the evidence, staff like short one-page summaries of the evidence, tailored to local needs – paper formats are still preferred by many for convenient personal access to this type of material.

4.7 Gap analysis

The requirement was for:

- *A Gap Analysis, i.e. identify areas where the NeLH is failing to meet users needs (& its intended purpose) and why?*

The approach taken was to collate comments from library staff, health professionals and clinical governance staff. The three main themes to emerge were

- lack of promotion
- the local/national interface – what resources should be provided, promoted and supported locally, and which are best provided nationally
- panacea versus placebo – from a clinical governance perspective, the agenda is so large that the NeLH cannot possibly act as the encompassing solution to all the problems

4.7.1 Lack of promotion

Previous sections have indicated some of the problems of promotion, although these might be expected of any pilot information service. Of the eight interviewees in one Trust only one thought they might have used NeLH before, but could not remember much about it. All eight interviewees had looked at the NeLH site just prior to the interview and were all quite positive about it but they had not really been aware of it before. One consultant said he had seen it the previous week, just before the library contacted him, because somebody in his department was looking at it.

Usage (see also Section 1.5.1) may not be obvious to many staff.

['Interviewer: So they are actually using it [NelH]?]...Yes but they [health staff] are not aware of it because of the links we have set up...Everyone I have talked to, about I would say well over 90% have never even heard of it, haven't got the faintest idea what it is. There have one or two people who have actually heard

something about it somewhere, but beyond that they couldn't say what is was, which is a bit difficult, 'cos I am not entirely clear about what exactly it is either. So trying tell people this is what it is, but not being sure yourself is a bit of a sticky wicket' (library assistant/database trainer)

4.7.2 Local versus national information support.

Libraries seem to be launching their own portals with local focuses and, understandably, see these as being well-placed to meet the needs of their users. They may have a link to the NeLH somewhere on there but (Section I.5.1) one suspects that a link to 'National electronic Library for Health' does not convey much to many health professionals. To those who associate the word 'library' with something not oriented towards their needs the link labelled 'National electronic Library for Health' is not immediately appealing.

Librarians are concerned about ensuring that local initiatives are not bypassed and about the poor communication with the NeLH. There is, justifiably or not, a feeling of 'us and them' about *'an ivory tower in Birmingham'*. The idea of the core collection is accepted but local initiatives are important and need to be nurtured too.

'I think their [NeLH] ability on a national scale to draw together resources like guidelines, the mental health branch [VBL]. Specific resources are sometimes quite difficult to gather ...I think that role is extremely important and the fact that they have enabled access to Clinical Evidence and to Cochrane is hugely significant and steps like that ...maybe towards provision of electronic books I say somewhat guardedly but there are some core texts in medicine and nursing which would benefit us all. I would look to them to do that but I don't want them to duplicate what we can do ourselves, regional access to journals, databases.' (Library Manager)

Training schemes have often focused on one database – the NeLH may demand a rethink of training strategies and it may be necessary to provide sessions specifically on NeLH, and conceivably aim these at one professional group at a time.

'There are so many different bits to it, they have got it all so you look at one bit and you see them all, learn on one bit...and you can learn on all? But with Clinical Evidence, that is different to Cochrane, which is different to NICE, it doesn't really help for training unless you do specific sessions just on NeLH. We may have to look at that area, if it really develops and people become aware of what it is, but there are so many facets to it, it's unwieldy' (library database trainer)

4.7.3 Clinical governance perspectives

Both the clinical governance interviewees had initially been disappointed in the NeLH and felt that there could be more on there, although they agreed that coverage has recently improved. However, it is difficult to balance putting more and more on the site, with the plea, expressed by a regional librarian, that NeLH should make sure that it retains its focus on quality.

4.7.4 Summary conclusions

A Gap Analysis, i.e. identify areas where the NeLH is failing to meet users' needs (& its intended purpose) and why?

The problems are largely those of adjustment and co-ordination. Initial expectations may not have been fulfilled at the time anticipated, and adjustments are required to training and support schemes operated by the library services. The local/national interface should be a source of 'creative tension' and discussion of new services and support mechanisms. That will require careful construction of two-way communication channels between the centre and the periphery.

If these problems can be overcome the existing difficulties of promotion and lack of awareness should disappear. Duplication of existing services should be avoided. The NeLH should lead and develop.

5 Additional studies

Additional studies examine the comparative costs and benefits of electronic distribution of knowledge for health professionals, as well as the provision of a new library service, based on traditional provision.

5.1 Study 1: Benefits of electronic distribution of knowledge

Costing of a knowledge management programme, paper based.
Example: Down's syndrome screening programme

Communication strategy for 20,000 midwives, and 2,000 GPs on the obstetric list

Communication strategy based on:	8 regional co-ordinators
who communicate with	350 screening co-ordinators + 300 obstetricians
Screening co-ordinators disseminate to (average 63 recipients per co-ordinator)	20,000 midwives + 2,000 GPs

Costing based on	H grade regional co-ordinator	£27.00 per hour
	F&G grade screening co-ordinator, Midwife	£24.00 per hour £20.29 per hour
	A&C staff	£10.00 per hour

(using same figures as those in earlier work, H grade assumed to be the same as a senior PAM)

Calculation of staff time for processing by a paper based route

	Minutes required	Cost (pounds)
Communication from centre to 8 regional co-ordinators		
(Authorisation by H grade)	15	£6.75
A&C staff time for clerical tasks	30	£5.00
Subtotal		***£11.75***
Region to screening co-ordinators (350) + 300 obstetricians		
(checking and authorisation by screening co-ordinator)	15	£6.75
A&C staff time for printing labels, stuffing envelopes at 5/minute, plus sorting, posting)		
Copying at 1 minute per item	650	£108.33
Printing labels at 0.5 minutes per item	325	£54.17
Stuffing envelopes, sorting, posting (1 minute /item)	650	£108.33
Postage/delivery costs - @ 20p per item		£130.00
Subtotal		***£407.58***
Each co-ordinator has to send on to 63 recipients (on average)		
Checking and authorisation	15	£6.00
Copying at 1 minute per item	63	£10.50
Printing labels at 0.5minute per item	32	£5.33
Stuffing envelopes, sorting/posting (1 minute per item)	63	£10.50
Postage/delivery costs @ 10p per item (internal mail)		£6.30
Subtotal costs for dissemination by one co-ordinator		*£38.63*
Subtotal costs for dissemination by 350 co-ordinators		***£13520.5***
TOTAL costs (Centre to Region, Region to Screening plus dissemination to the community		**£13939.83**

On this basis, the major costs are incurred at the level of dissemination from screening co-ordinator to the community. Reducing the postage/delivery costs to 1pence per item would reduce the subtotal costs for dissemination by one co-ordinator to £32.96, and the subtotal costs for dissemination by 350 co-ordinators to £11,536. Reducing the costs at screening co-ordinator level for other clerical work involved in dissemination would also have large impact on the total costs of dissemination.

Assuming that communication to the screening co-ordinators occurs once a month, and that communication from screening co-ordinators occurs once every six months the total annual costs for dissemination can be estimated as follows:

Centre costs: 12 @ 11.75	£141.00
Region to screening 12@ £407.58	£4890.96
Screening to community 2@ £13520.5	£27041.00
TOTAL annual costs (dissemination only)	**£32072.96**

There are some costs incurred in the reading, checking receipt and updating. Unsurprisingly, given the number of midwives involved, the major costs are incurred in ensuring that each midwife has seen the update. The calculations below assume that information will go to shared midwifery offices, allowing some sharing of filing and receipt costs in staff time. If these assumptions are not warranted they would have a large impact on the costs involved in receipt, as the midwives are such a large group in comparison to the other groups.

Confirmation of receipt/filing and updating by paper-based route			Total time	Costs
Regional co-ordinators	8	5	40	£18.00
Screening coordinators	350	5	1750	£700.00
Obstetrician's secretaries	300	2	600	£100.00
Midwives	22,000	1	22000	£7,439.67
GPs practice staff	2,000	2	4000	£666.67
(assuming 1-5 minutes each individual required, for checking receipt)				
Total				**£8,924.33**

Assuming that communication to the screening co-ordinators occurs once a month, and that communication from screening co-ordinators occurs once every six months the total annual costs for filing/receipt/updating can be estimated as follows:

Region costs 12 @ £18.00	£216.00
Screening co-ordinators 12 @ £700	£8400.00
Obstetricians 12 @ £100	£1200.00
Midwives 2 @ £7,439.67	£14879.34
GP practices 2 @ £666.67	£1333.34
Total	**£26028.68**

The estimates are approximate, and do not take into account the effect of slotting such activities into other work, or the fact that local practices may vary quite considerably in the way dissemination is carried out at grassroots level.

What is apparent is that any efficiency savings that can be made concerning dissemination and receipt, between screening co-ordinator and midwives, will have a large effect on the total costs.

5.2 Setting up new library services

Estimations for two types of service are presented. The first involves an additional provision for professionals working in both health and social care, in diverse locations across a Trust. The second involves the provision of a service which could be provided on a regional or national basis for a specialist group. There are many assumptions which have to be made for these calculations. Some provision is made for both paper and electronic resource provision, particularly as publishers have yet to unbundle subscriptions for many offerings.

5.2.1 Additional provision for a new user group

The estimates provided are those for staff and materials costs for serving a new user group at major hospital library sites throughout England. The assumptions are that extra staff time would be required to assess the needs, and liaise with a new and dispersed user group, provide a current awareness and enquiry service, and deal with the professional development needs of a group whose needs had not been adequately met previously. Journal costs have been taken from Blackwell Science for a range of journals that might be required for institutional subscriptions for learning disability journals. Journal costs vary considerably from one specialty to another. No account has been taken of any saving that might be possible through an agreement with a publisher for some journal collections, as this might well not be appropriate or possible for such specialist areas. The costs are based on the assumption that it would be possible to obtain additional part-time staff help for one half day per week.

Staff costs		
0.1 wte librarian, A&C 6 midpoint, £20,000 pro rata	2000.00	
Oncosts estimated at 25%	500.00	
Overheads estimated at 120% of staff costs	3000.00	
		5500
Resources (annual provision)		
Specialist journals, annual subscription (estimated on basis of four additional institutional subscriptions for print + electronic @ £300, £80, £70, £50	500.00	
Books/training materials	300.00	
Specialist database/subscription provision	500.00	1300
Total annual costs per site (2001 rates)		**£6,800.00**
Assume that this service has to be provided by 100 library sites throughout England		
TOTAL costs (all sites)		**£680,000.00**

5.2.2 Setting up a specialist service on a regional/national basis

The calculations provided below are based on the following assumptions:

- CPD would be a prime function of the service and the service would also serve undergraduate student needs
- Academic library statistics – averaged across old, new and College of Higher Education libraries, can be used for the calculation
- Inflation for book and journal resources is 5% per year
- Infrastructure would be required for this service, and this can be reflected (partly) in the costs of professional staff allocated to this service.

Example for speech and language therapy, for c.4,000 therapists
and SLT managers (Figures based on September 2000 DoH nonmedical workforce statistics)

Calculations are based on 2000 Library and Information Statistics Tables (LISU, 2001) for expenditure (figures are based on 1998-99 data)
Average figure of spend used.

Book + AV/user	21	
Periodical/user	23	
Electronic resources/user	8.5	
Total resource/user		£52.50
For 4000 users		£210,000.00
Add inflation costs @ 5% per annum		
Total resource costs for 2001		£236,155.50
Staff costs @ 400 users per staff		
10 professional staff		
Staff salaries (midpoint A&C 6)		£200,000.00
Oncosts @25% of salary		£50,000.00
Overheads @120% of staff costs		£300,000.00
TOTAL professional staff costs		£550,000.00
TOTAL resource and staff costs		**£786,155.50**

The costing does not take account of non-professional staff costs (as no statistics were available for the estimates). This might possibly add another £250,000 to the total, making the final total over £1 million.

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Appendix One

Estimated demand for MEDLINE database in 1994, based on data obtained from Value project (Urquhart and Hepworth 1995, p. 258-260)

Range of values for Searches (MEDLINE on CD-ROM) done by and for medical staff
Small site: less than 2 to five per week (serving less than 100 acute medical staff)
Medium site: 1-10 a week (serving 100-199 acute medical staff)
Large site: under 2 to 15 a week (serving 200-250 acute medical staff)

Assuming that a Region contains:

10 small sites
15 medium sites
4 large sites

and taking the maximum expected value for number of searches per week, to allow for some searching by nursing staff and PAMs of MEDLINE,

with a month = 4 and a half weeks for the purposes of calculation

Maximum number of MEDLINE searches per month = 225 + 675 + 270
= 1170

Appendix Two NeLH usage evaluation questionnaire

Questions reproduced only. The format was an online questionnaire.

Question 1

Do you work for the NHS?

Yes/No

If Yes, which of the following most closely resembles your job title?

(Categories)
Hospital consultant

Other hospital medical staff

General Practitioner

In postgraduate medical training

Nursing/midwifery staff Grade a-c

Nursing/midwifery staff Grade d-f

Nursing/midwifery staff Grade g+

Profession allied to medicine (Senior)

Profession allied to medicine (Junior)

Health services management

Health services research

Administrative & Clerical staff

If No, but you work in the UK which of the following best describes your occupation?

(Categories)
Research staff (HE based)

Senior academic staff (Professor/Reader)

Lecturer/Principal Lecturer/Senior Lecturer

Nursing/medical/PAM student

Social care staff

Work in private health care

None of the above

Question 2

Is this your first visit to the NeLH?

Yes/No

(If Yes thank you for your help. You do not need to answer any further questions. Please click the submit button at the foot of the page)

(If No, how many times in the last two months have you used the NeLH excluding this occasion?)

(Categories)
Not used in the past two months

Once

Two or three times

Four or more times

Question 3

On average, how long would you say you spend using the NeLH or any of the pages linked to the NeLH on these previous occasions?

(Categories)
Less than 30 minutes

30-59 minutes

60-89 minutes

90-119 minutes

More than 119 minutes

Question 4

Only answer this question if you have undertaken additional activities such as retrieving articles from a library, as a result of information from the NeLH.

On average, how long did you spend on those activities on previous occasions?

Time spent retrieving documents (including travel)
(Categories)
Less than 1 hour

More than 1 but less than 4 hours

More than 4 but less than 8 hours

More than 8 hours

Time spent reading the material retrieved
(Categories)
Less than 1 hour

More than 1 but less than 4 hours

More than 4 but less than 8 hours

More than 8 hours

Question 5

If the NeLH did not exist, what would you have done to find out information instead?

(Categories)
Nothing (If checked, End of survey. Please click the Submit button)

Go to a library

Ask someone else to obtain information

Do alternative Internet search

Consult own books, journals

Consults books, journals in workplace

None of the above

Question 6

On average do you think you have spent more time or less time finding and retrieving information, than you would otherwise have done?

More time using the NeLH

Estimate of increased time spent (including travel time)

Less than 2 hours

2 or more but less than 5 hours

5 or more but less than 8 hours

More than 8 but less than 11 hours

11 hours or more

Less time using the NeLH

Estimate of time saved (including travel time)

Less than 2 hours

2 or more but less than 5 hours

5 or more but less than 8 hours

More than 8 but less than 11 hours

11 hours or more

Thank you for your time. After submitting this form you will be taken back to the NeLH home page.

Appendix Three Methodology

The practical elements of the evaluation was conducted during July and August 2001, with some preliminary work on the systematic review of the literature conducted prior to that in June 2001.

The systematic review of the literature was conducted using MEDLINE (1995 to date), DARE, and checking citations of known writers in the field (Thomson, Haynes, Oxman, Davis, for example).

The methods used for the survey work included:

- Semi-structured interviews (N=42)
- Online questionnaire (179 responses)
- Postal questionnaire in S Devon (117 responses initial round)

The total number of individual respondents was therefore 338.

Interviews with health professionals were undertaken in both Cornwall and Leicester. Sampling was strategic, and done in collaboration with library staff in those areas.

The breakdown by type of staff for the interviews and questionnaires is as follows:
Interviews (face to face/telephone)

- NeLH users/health professionals (N=13), with (4 nurse/midwives, 3 management/administration, 2 consultants, 2 hospital-based clinicians, and 2 PAMs)
- Health library management and staff (N=10)
- Regional Library Unit staff (N=7)
- Clinical governance/care pathways (N=5)
- Policy makers (e.g. National Assembly for Wales, SLIC, RCN) (N=3)
- Representatives from VBLs (N=3)

An **online questionnaire** (appeared as a link on the front page of the NeLH website, active from 12 July to 7 August)
Of the 179 responses there were:

- 30 GPs
- 30 managers
- 17 A&C staff
- 16 consultants
- 14 senior nursing/midwifery staff
- 12 nursing/midwifery staff (D-F grade)
- 11 senior PAMs

Other groups of staff (e.g. junior PAMs, students, health services research staff, plus other non-NHS staff also responded).

A **postal questionnaire** in S Devon included evaluation questions relevant to NeLH as well as questions pertinent to the actual Internet and database training received by the sample group. The questionnaire was despatched to a random sample (313) who had received training (185 from acute/community hospital environments, 123 from primary care, mental health etc.). Of the 313 questionnaires actually despatched, 5 were void (subject had moved from the area). Most of the sample (199) had attended a basic Internet training, 53 had attended the advanced Internet skills training, 53 had attended clinical database searching, and 8 had attended PubMed MEDLINE training. Response rates for the groups were approximately the same: 3/8 (37.5%, PubMed MEDLINE), 20/53 (37.7%) for both the clinical database and advanced Internet training groups, and 71/199 (35.7%) for the basic Internet group

The questionnaire was despatched on 20 July, and by the target return date of 3 August there were 117 replies (actual response rate 38% (117/308), corrected for the five void

responses).