



Feidhmeannacht na Seirbhíse Sláinte  
Health Service Executive

KENCHADCONSULTING

# Developing and Sustaining a National eHealth Library to Improve Patient Care in Ireland: An Independent Report

A NATIONAL EHEALTH LIBRARY TO IMPROVE PATIENT CARE



# Contents

|  |    |
|--|----|
| <a href="#"><u>Foreword</u></a>  | 3  |
| <a href="#"><u>Executive Summary</u></a>   | 4  |
| <a href="#"><u>Background</u></a>  | 4  |
| <a href="#"><u>Purpose of the Report</u></a>                                       | 4  |
| <a href="#"><u>Existing eHealth Library</u></a>                                    | 5  |
| <a href="#"><u>Evidence from the Report</u></a>                                    | 6  |
| <a href="#"><u>Impact on Patient Care and Associated Cost Savings</u></a>          | 7  |
| <a href="#"><u>Recommendations</u></a>   | 10 |
| <a href="#"><u>Step 1   Objective: Maintain Current eLibrary Provision</u></a>     | 10 |
| <a href="#"><u>Step 2   Objective: Address Unmet Needs</u></a>                     | 12 |
| <a href="#"><u>Step 3: Objective: Align with and Meet Strategic Objectives</u></a> | 13 |
| <a href="#"><u>Implementation Considerations</u></a>                               | 16 |

KENCHADCONSULTING

Tel: +44(0)7788727845

Twitter: @KenChad

LinkedIn: [www.linkedin.com/in/KenChad](https://www.linkedin.com/in/KenChad)

Orcid.org/0000-0001-5502-6898

ISBN: 9781786021908

© Health Service Executive: Naas, 2021

# Foreword

The effective use of data and research are considered critical enablers of both Sláintecare<sup>1</sup> and HSE Corporate Plan<sup>2</sup> objectives. In line with these overarching objectives, the National eHealth Library project — which is a key strategic objective of the HSE National Health Library and Knowledge Service — aims to make critical information resources available to all of our healthcare professionals. This work commenced in 2017, and while notable progress has been made to date, much remains to be done.

This report — completed by Ken Chad Consulting — provides an independent insight into the best way to develop and sustain a National eHealth Library with the aim of ensuring that authoritative and up-to-date research information is available to support healthcare professionals in making evidence-based clinical decisions. This is essential to improve patient care, reduce errors, avoid adverse events, and save clinicians' time.

I hope this report will bring about some clarity about the benefits for Ireland of having a National eHealth library, and about the implications of the different options going forward. I wish to thank all the staff who participated in the consultation exercise, and to acknowledge the participation and engagement from the Department of Health, the HSE and a wide variety of stakeholders across the health and higher education system in Ireland, as well as international peers.

Aoife Lawton, National Health Service Librarian

---

<sup>1</sup> Dublin: Department of Health, 2018. Sláintecare Implementation Strategy.

<https://www.gov.ie/en/publication/6996b-slaintecare-implementation-strategy-and-action-plan-2021-2023/>.

<sup>2</sup> Naas: Health Service Executive 2021. HSE Corporate Plan 2021-24.

<https://www.hse.ie/eng/services/publications/corporate/hse-corporate-plan-2021-24.pdf>.

# Executive Summary

## Background

The Health Service Executive consolidated existing health library services into a coherent national function — the National Health Library and Knowledge Service — in 2017. Previous health library services had been mainly acute hospital-based, and aligned to outdated Health Board funding and staffing structures. The National Health Library and Knowledge Service launched its first strategic plan in 2018<sup>3</sup>. A key objective of the strategy is to ensure equal access to a National eHealth Library for staff across the HSE and HSE funded agencies by resolving a situation in which:

- ☐ Hospital- and community-based staff have differential access to information resources and services depending on geographic location
- ☐ Section 38<sup>4</sup> and Section 39<sup>5</sup> agencies have only partial or no access to library resources and services

In order to address existing inequities, HSE Senior Management approved the establishment of a National eHealth Library under the auspices of the National Health Library and Knowledge Service. To date, the approach has been to secure funding through internal services and functions such as the HSE's Nursing and Midwifery Planning and Development Unit, National Doctors Training and Planning [Unit], or National Ambulance Service. Agencies external to the HSE contribute nominal funding through negotiated service-level agreements.

## Purpose of the Report

The project brief called for an investigation and analysis of the following:

- ☐ Overview of current provision of eHealth Library resources in Ireland's public health system
- ☐ Feedback and input from key stakeholders across the public health and higher education sector in Ireland
- ☐ Examples of international best practice in eHealth Library provision

---

<sup>3</sup> Health Service Executive (Ireland). National Health Library and Knowledge Service, 2018. Turning Knowledge into Action: Enabling Care, Improving Health. Dublin: SMCI Associates, 2018.

<sup>4</sup> “Section 38 relates to the Agencies provided with funding under Section 38 of the Health Act, 2004. This is limited to 23 non-acute agencies and 16 voluntary acute hospitals currently within the HSE Employment Control Framework”. HSE website: <https://www.hse.ie/eng/services/publications/non-statutory-sector/section-38-documentation.html>

<sup>5</sup> Section 39 agencies are funded by the HSE but their employees do not have the status of public servants

- ❑ Cost-benefit analyses from Irish and/or international examples of the provision of eHealth Library resources and services

The project brief also sought to provide:

- ❑ Recommendations for the future funding of a National eHealth Library aligned to Sláintecare and relevant health service reforms
- ❑ Implementation considerations including service promotion, education and training, and technical or infrastructural challenges

This report is an external and independent review and acts as an adjunct to internal submissions already made to the Health Service Executive about a National eHealth Library. The report was undertaken by Ken Chad Consulting.<sup>6</sup>

*“eHealth library”* is a contemporary term is used by the World Health Organisation and others to describe the modern, electronic resource based health library. It is comprised of three essential elements:

- ❑ An evidence base: a comprehensive collection of high-quality, trusted resources including e-journals, e-books, clinical practice guidelines, patient education materials, and point-of-care tools
- ❑ A technological infrastructure that permits, on one hand, the configuration and management of information resources, and alignment of resources to users' needs; and, on the other hand, the discovery of resources in a controlled, integrated digital environment
- ❑ Information professionals: the expertise of library staff to select or actively promote and develop information resources and services; to educate healthcare practitioners in the optimal use of available resources; and to provide added value services such as mediated advanced literature searches and evidence summaries

## Existing eHealth Library

Important work has been completed to date by the National Health Library and Knowledge Service in establishing the foundations of a National eHealth Library for Ireland. This includes the following milestones:

- ❑ Procurement and provision of clinical decision-making tools such as UpToDate, with a focus on acute hospital care, and BMJ Best Practice, with a focus on community and primary care. Our report confirms that the provision of these point-of-care tools in Ireland improves the quality and safety of patient care and assists with clinical decision-making. BMJ Best Practice is available to everyone in the Republic of Ireland since 2020 with no sign-in requirement
- ❑ Compilation and provision of evidence summaries throughout the COVID-19 pandemic to frontline healthcare personnel, health management, the National Clinical Programmes and specialist fora, most importantly the National Immunisation Advisory Committee (NIAC). These evidence summaries have

---

<sup>6</sup> <https://www.kenchadconsulting.com/>



- informed national clinical guidelines and senior management decision-making, and improved frontline patient care
- Procurement and provision of an initial core set of information resources including CINAHL and a health research database collection throughout the health service, including Section 38 and 39 organisations

---

## Evidence from the Report

Evidence gathered and analysed as part of this report demonstrates that investment in a National eHealth Library is an effective and economic way to improve patient care. Evidence was collected from August to October, 2021 by way of interviews, a “*values proposition*” focus-group, and a large cross-sectional survey of frontline healthcare practitioners and health managers which attracted 1278 respondents. Interviews were also carried out with a number of international eLibrary comparators. A complete Evidence Appendix is provided separately.

Evidence from interviews, the focus-group and the survey demonstrates that access to library information resources and the provision of added value services by National Health Library and Knowledge Service staff:

- Improves the quality and safety of patient care
- Improves the accuracy and/or timeliness of diagnosis
- Reduces admissions, referrals and length of stay
- Reduces incidence of adverse events
- Saves clinicians' time

The specific impact on patient care and associated cost-savings are given overleaf:



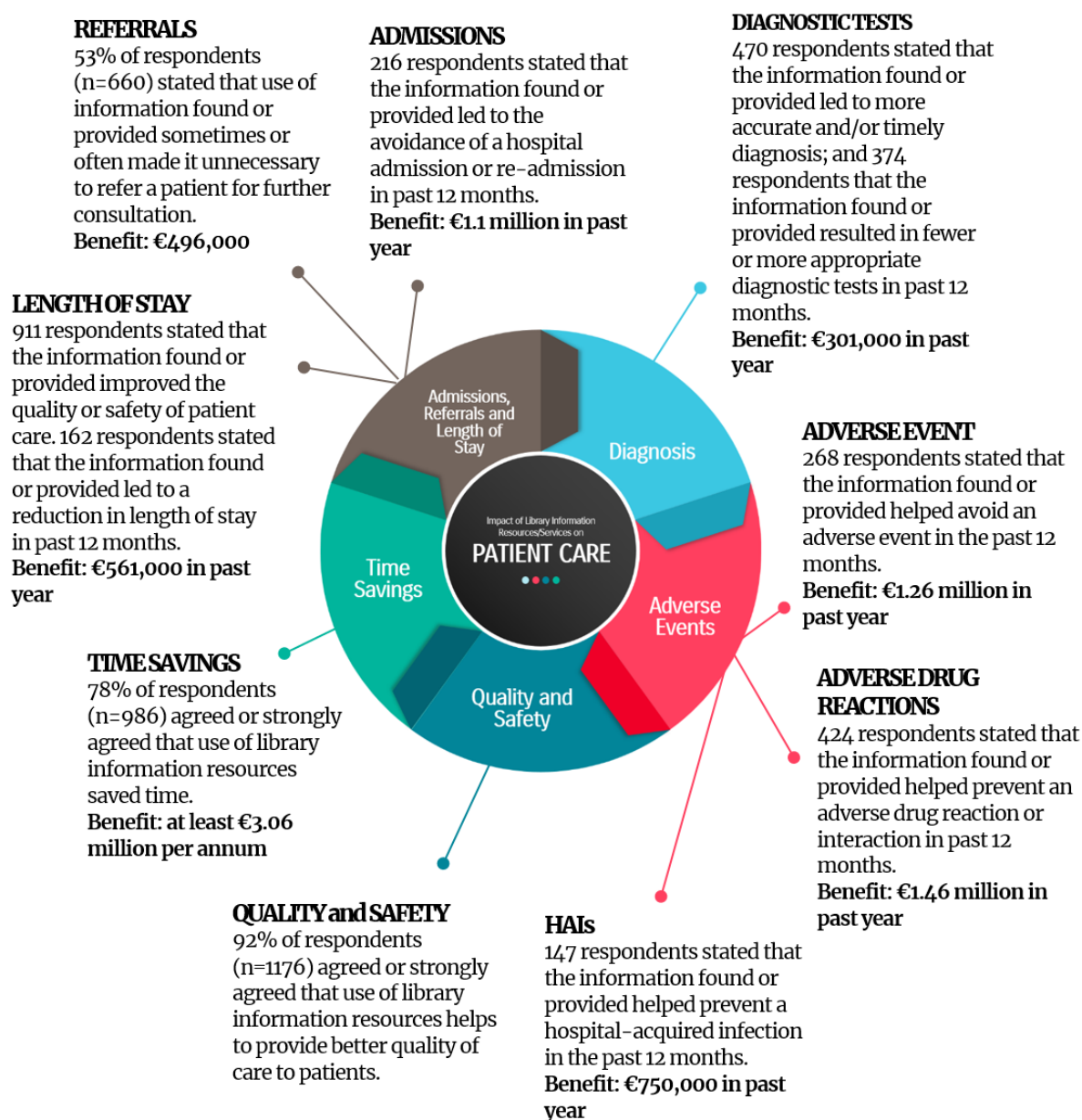
# Impact on Patient Care and Associated Cost Savings

Survey on "Impact of Library Information Resources/Services" distributed to registered library users, October 14– 19, 2021. Attracted good response rate and large sample size (n=1,278).

Among 1,278 respondents, broadly equal representation across a range of disciplines: 31% Medical, Surgical or Dental; 25% Nursing or Midwifery; 24% Health and Social Care; 20% Other.

The survey consisted of 9 questions with an average response time of 3 minutes 14 seconds. Questions 6 and 7 were adapted from Marshall JG, Sollenberger J, Easterby–Gannett S, Morgan LK, Klem ML, Cavanaugh SK, Oliver KB, Thompson CA, Romanosky N, Hunter S. The value of library and information services in patient care: results of a multisite study. J Med Libr Assoc. 2013 Jan;101(1):38–46. doi: 10.3163/1536–5050.101.1.007. PMID: 23418404; PMCID: PMC3543128. Calculations of cost savings are based on data and estimates from previously published scientific literature and the Healthcare Pricing Office (Ireland). A full survey methodology is available separately.

Overall, strong affirmation of the hugely positive impact of library resources/services on patient care. Access to resources and access to librarians' expertise cited as essential to respondents. Cost savings calculated based on validated costings (eg Healthcare Pricing Office, OECD) and/or published studies multiplied by survey responses.



Our report confirms other international research in demonstrating significant benefit from the adoption of eHealth Library resources and services, including cost benefit within the Irish health service of at least €9million per annum.

| Key Metrics                           | Benefit              |
|---------------------------------------|----------------------|
| Admissions or Readmissions            | €1,103,112           |
| Adverse Drug Reaction or Interaction  | €1,462,800           |
| Adverse Event                         | €1,259,600           |
| Diagnostic Tests                      | €301,070             |
| Hospital-Acquired Infections          | €750,729             |
| Length of Stay                        | €561,168             |
| Referrals                             | €496,080             |
| Time-Savings                          | €3,063,600           |
| <b>Totals</b>                         | <b>€8,998,159.00</b> |
| Benefit/savings per survey respondent | €7,040.80            |

- ❑ 92% of respondents (n=1176) agreed or strongly agreed that use of library information resources helps to provide **better quality of care to patients**
- ❑ 93% of respondents (n=1187) agreed or strongly agreed that use of library information resources led to **more confident decisions**
- ❑ 94% of respondents (n=1201) agreed or strongly agreed that use of library information resources **assured that decisions reflected current best practice**
- ❑ 78% of respondents (n=986) agreed or strongly agreed that use of library information resources **saved time**
- ❑ 63% of respondents (n=797) agreed or strongly agreed that use of library information resources has **helped prevent an adverse event** in the past year
- ❑ 94% of respondents (n=1184) stated that use of information found or provided was sometimes or often **integral to decision-making**
- ❑ 88% of respondents (n=1110) stated that use of information found or provided sometimes or often **led to a change in patient management or treatment**
- ❑ 62% of respondents (n=776) stated that use of information found or provided sometimes or often **led to a change in diagnostic testing**
- ❑ 53% of respondents (n=660) stated that use of information found or provided sometimes or often **made it unnecessary to refer a patient for further consultation**

On one specific high-usage point-of-care tool (*UpToDate*) alone, an independently validated economic model indicates annual cost savings in acute hospitals served by the National Health Library and Knowledge Service of €4.2million. A full economic analysis is available separately.



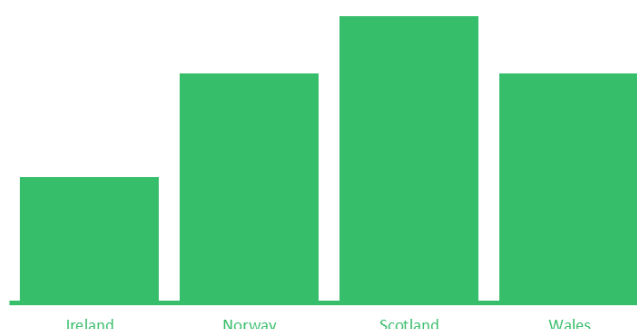
Our report confirms other international research in demonstrating significant benefits from the adoption of library information resources and services, including cost benefit within the Irish health service of at least €9 million per annum



In spite of the positive affirmation of the value and impact of the eHealth Library on patient care, our report found that several barriers to full implementation of a National eHealth Library remain:

- Access to a greater range and depth of specialist information resources is required by healthcare practitioners
- More librarians are required within the service to provide mediated and advanced literature searching; to provide information literacy and advanced bibliographic database training; to compile evidence summaries to answer important clinical and/or management questions; and to promote wide-scale adoption and usage of the eHealth Library
- Improved digital infrastructure including more technically-proficient systems librarians to build and integrate information systems

It is important to note that the existing service is built mainly on legacy funding and staffing structures more appropriate to the traditional print-based information services of the twentieth century; it is also of relevance that the pay and non-pay funding base of the service is significantly smaller than international comparators with similar populations: 45% less than the eHealth Library in Norway (population 5.4million) or in Wales (3.2 million), and 56% less than the eHealth Library in Scotland (population 5.4 million).



This report sets out options and makes recommendations for sustainable development of a National eHealth Library for Ireland. The 3 relevant incremental steps are summarized below. Our recommendation is that these 3 steps are implemented in the first 6 months of 2022.

# Recommendations

---

## Step 1 | Objective: Maintain Current eLibrary Provision; Ensure Service Continuity

The current service has high impact and a proven record in delivering significant cost-benefit against key patient care metrics. However, there was a significant budgetary shortfall resulting from contractual subscription costs in 2021. The National Health Library and Knowledge Service has identified essential subscriptions required to sustain the current eHealth Library to 2023 at a cost of €3.2m (incl. VAT).<sup>7</sup>

Aoife Lawton, National Health Service Librarian, reports that the cost of continuing existing resource subscriptions and associated technical infrastructure will require a significant increase in the base eHealth Library budget.

### Risks of Not Implementing Step 1

Failure to provide access to essential information resources in the year ahead represents a serious organisational risk to the Health Service Executive and to patients' lives, and will increase pressures on already hard-pressed health services through reversal of the benefits outlined above: increased admissions, referrals and length of stay; increased "*defensive medicine*," or over-ordering of diagnostic tests due to diagnostic uncertainty; higher incidence of adverse events; clinicians' time wasted trying to navigate poor quality information sources such as Google, or other sources such as SciHub.

---

<sup>7</sup> This cost includes access for all of the HSE and some voluntary hospitals, Section 38 agencies.

## Alternative Provision?

Our report did not identify any credible alternative to direct provision of eHealth Library resources and services through the National Health Library and Knowledge Service. The requirement for highly specialised staff to discharge core responsibilities identified in our “*values proposition*” focus-group — professionally mediated literature searches and evidence summaries; information literacy and advanced literature searching education; selection, procurement, management and promotion of information resources — and the requirement to deliver the service on a national scale mitigate against finding a viable outsourced option.

## Recommendation

- ☐ Address the current deficit
- ☐ Fund essential subscriptions as identified by the National Health Library and Knowledge Service at a base cost of €3.2million
- ☐ Ensure that funding for the eHealth Library be made fully recurrent, and that a national budget is established encompassing state, voluntary and independent organisations delivering non-private healthcare

There are two potential mechanisms to consolidate the national budget:

- ☐ Firstly, and as a preference, “*top-slice*” funding from the Department of Health to HSE- and non-HSE-managed providers so that an agreed annual budget is ring-fenced for the National eHealth Library. The previously cited comparators in Norway, Scotland and Wales all receive budgets in this manner directly from their respective Departments of Health.
- ☐ Alternatively, HSE- and non-HSE-funded providers would pay a subscription to the National Health Library and Knowledge Service based on individual Service Level Agreements (SLAs) for specific information resources and resource sets. SLAs are already in place with some organisations and include nominal non-pay contributions towards eHealth Library subscriptions. This latter mechanism only secures funding on a temporary as opposed to a recurring basis, and necessitates repetitive bureaucratic negotiations of individual SLAs and licenses, and would fail to resolve the underlying problem of differential access to information resources and services depending on geographic location.

---

## Step 2 | Objective: Address Unmet Needs Identified by Staff Consultations

Throughout our engagement with library service users, ease of access to information resources and services was repeatedly cited as a priority for any prospective National eHealth Library. Barriers to fast and straightforward access to information create reputational and legal risks to the organisation. Clinicians may not find the information that they need, or may not find it at the right time, when they need it — *at the point of care*. Several survey respondents resorted to dubious or other information sources such as Google or SciHub, prioritising speed over quality of information, despite potentially compromising personal data and/or posing a security risk to the organisation.

Other access barriers include:

- ☐ Lack of awareness of available information resources
- ☐ Availability of resources: our report identified additional specialist information resources that are either not available at all, or are not yet available on a universal basis
- ☐ Technological infrastructure: greater integration into clinical and management systems is needed to deliver a better user experience. In Scotland, information resources are integrated into clinical systems and made available via clinical decision support tools on mobile phone apps

## Risks of Not Implementing Step 2 Recommendations

Not addressing issues around ease of access, promotion of resources and services, expansion of the evidence base and provision of a more coherent and integrated technological infrastructure will result user frustration and disengagement, and will mean that collateral benefits to patient care — and associated cost savings — will not be realised.

## Recommendation

- ☐ Provide a single sign-on capability integrated with users' secure ICT permissions and associated clinical systems. Additional technical expertise — specifically, systems librarians — will be required to develop technological solutions within the National eHealth Library
- ☐ Promote and educate healthcare practitioners in the use of information resources
- ☐ Expand the evidence base: provide more of the specialist resources that are needed within the health system. Use evidence-based decision-making tools — in our report, “*evidence sheets*” — to align resources to user needs

## Step 3 | Objective: Align with and Meet Strategic Objectives

Demand for a National eHealth Library in Ireland is increasing, with **usage of the existing eHealth Library increasing by 40% since 2019**.

Current eHealth Library provision in Ireland is filled with inequities. Voluntary hospitals are independently governed, and several have libraries which provide access to some information resources and services. Additional access arrangements have been put in place by the National Health Library and Knowledge Service via SLAs with several HSE-funded organisations. Although provision of access to certain resources was expanded in 2019 to include several Section 38 organisations and voluntary hospitals, other health providers remain disadvantaged, and the overall map of information resource provision within the Irish health service remains fragmented and incoherent.

### Risks of Not Implementing Step 3 Recommendations

Our judgement is that a consolidated and vibrant National eHealth Library is a critical enabler of several core strategic objectives as set out in the Sláintecare Implementation Strategy,<sup>8</sup> the HSE Corporate Plan<sup>9</sup> and the eHealth Strategy for Ireland<sup>10</sup>. The Sláintecare Implementation Strategy states: “COVID-19 has demonstrated weaknesses within the healthcare system, in particular with regard to a lack of real-time information and data” (61). The HSE Corporate Plan asserts: “Data and information are an integral part of the healthcare system and an essential support to the delivery of high quality, effective health and social care” (14).

“Data and information are an integral part of the healthcare system and an essential support to the delivery of high quality, effective health and social care.  
HSE Corporate Plan 2021-24

<sup>8</sup> Dublin: Department of Health, 2018. Sláintecare Implementation Strategy.

<https://assets.gov.ie/9914/3b6c2faf7ba34bb1a0e854cfa3f9b5ea.pdf>.

<sup>9</sup> Naas: Health Service Executive, 2021. HSE Corporate Plan 2021-24.

<https://www.hse.ie/eng/services/publications/corporate/hse-corporate-plan-2021-24.pdf>.

<sup>10</sup> Dublin: Department of Health, 2021-2023. Sláintecare Implementation Strategy and Action Plan 2021-2023. <https://www.gov.ie/en/publication/6996b-slaintecare-implementation-strategy-and-action-plan-2021-2023/>.



Failure to implement the recommendations below will severely impede achievement of these strategic objectives.

## Recommendation

Expand access to all publicly funded healthcare personnel in Ireland to a core set of evidence-based resources as part of a National eHealth Library for health.

Table: Sample set of core evidence-based resources

| Discipline/Domain         | Core Resource  |
|---------------------------|--|
| Clinical decision support | BMJ Best Practice   UpToDate   |
| Medicine                  | Embase   MEDLINE   BMJ   JAMA   Lancet   NEJM   Annals of Internal Medicine   Archives of Disease in Childhood |
| Nursing and Midwifery     | CINAHL   Journal of Advanced Nursing   Journal of Clinical Nursing   BJM                                       |
| Health and Social Care    | CINAHL   Physiotherapy   BJOT  |
| Pharmacy/Medication       | Medicines Complete: BNF   BNF for Children   Stockley's Drug Interactions                                      |
| Surgery                   | Embase   MEDLINE   Annals of Surgery   JAMA Surgery  |
| Mental Health             | PsycINFO   BJP   JAMA Psychiatry   |
| Evidence service support  | Embase   reference management tool   systematic review screening tool  |

# Implementation Considerations

Our report is not about creating a completely new eHealth Library; it is about building on the good practice and service foundations that have already been put in place. However, several implementation considerations will need to be surmounted:

- **Sustainability:** In our engagement with international comparators, sustainability emerged as a significant concern. A Spanish colleague noted: “The main concern at this stage is sustaining the service. Sustainability may be more challenging than developing the service in the first place.” Kjell Tjensvoll, Senior Advisor of the Norwegian National eHealth Library, reiterated: “The need to get involvement from wide range of stakeholders to sustain the project over the longer term [is important]”
- **Simplifying Access:** In our engagement with eHealth Library service users, difficulties or barriers around access emerged as an important concern. One survey respondent stated: “I find it hard to access library resources.” A member of library staff commented: “Access is complicated for many of our users. They find it hard to find [information resources] and give up when they can't get access easily.” Simplifying access will require technological investment in ICT infrastructure such as Wi-Fi and fixed or mobile computer hardware; and the specialist technical/subject knowledge of systems librarians. A participant in an initial stakeholder engagement session for our report noted: “ICT teams in hospitals are overwhelmed. This has a huge impact on library services when so many of the resources are now online. Library issues are sometimes not given priority in a clinical environment.”
- **Universal Access:** In response to our survey, one General Practitioner commented: “A ‘one-stop-shop’ model of access to resources — especially for GPs who see a wide range of presentations — would be useful. In many cases, GPs fall outside of HSE shared resources and have limited access to [information resources] compared with hospital counterparts.” Another survey respondent noted: “I find there are limitations in terms of HSE access to online [information resources] that are relevant to my clinical work.”
- **Open Access:** Open Access (OA) publishing refers to the practice of making scholarly research freely, permanently and globally available online. OA research is not restricted by the imposition of a paywall or subscription charge at the publishing end-point; instead, authors pay to have their research published through an “article processing charge” (APC). OA is gaining traction and

credibility, especially in the sciences — and, specifically, in the medical sciences — with initiatives such as the large not-for-profit OA repository BioMed Central. However, OA has yet to offset the higher-than-inflation costs of licensing medical content. Kjell Tjensvoll notes: “OA has big potential for change in the consumption of journal content ... although we have not yet reached critical mass.” Gerald Perry, Associate Dean for the University of Arizona Libraries (UAL), saw promise in recent OA developments, but retained some reservations about the quality of published content. Ghaith Salameh, Head of the Electronic Library of Medicine in Jordan, commented: “OA provision is still challenging. It’s very hard to collect open access resources in one place.”

- **Integration:** Annette Thain, Knowledge Services Manager at NHS Education for Scotland, noted: “You have to continually work on [integration] ... really getting our services embedded in other technologies. We do not need people to come to the library website to get [information resources]. We need resources to be embedded in other systems.”
- **Training:** Information literacy and advanced information skills training sessions are seen as critical to better exploiting the evidence base among survey respondents: “The personal help that librarians give me is very important as I find online [information resources] difficult to use” ; “For individuals who don't use the resources frequently, it is very difficult to know which resource to search, and how to search” ; “Librarians are a fantastic resource and extremely helpful when searching for specific clinical information” ; “The help of librarians and readily available access [to library information resources] are essential and invaluable to patient care.”
- **Evidence Summaries:** In a service mapping exercise among members of the National Health Library and Knowledge Service and the Lead Programme Manager from the National Clinical Programmes preliminary to our report, the value of mediated literature searches and evidence summaries was highlighted, but constraints were noted: “The evidence summary service needs resourcing. Compiling an evidence summary is a very focussed task and requires non-interrupted time and managed workflows so that specific staff are not overloaded. Evidence summaries require a lot of time (average length, 40 pages) and constant updating. COVID-19 evidence summaries can go out of date quickly.”



IMPACT OF LIBRARY INFORMATION RESOURCES/SERVICES ON PATIENT CARE  
FREE-TEXT RESPONSES TO SURVEY Q9

“

The help of librarians and readily available access [to library information resources] are essential and invaluable to patient care.” “An extremely valuable resource in instances where the best treatment or pathway for a patient is not clear.” “[Library information resources] help clarify clinical rationale.” “An invaluable resource. I couldn't function without access.” “An invaluable resource that saves me a lot of time trying to find information elsewhere.” “I simply couldn't do my job without these resources.

”

